



# ASSESSMENT ON THE IMPLEMENTATION OF THE ERIC REGULATION

Provided by  
the European Commission Expert Group  
on the ERIC Regulation

Independent  
Expert  
Report

Written by the *EGERIC* Expert Group, chaired by Carlo Rizzuto  
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Research and  
Innovation

## Assessment on the Implementation of the ERIC Regulation

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edited by



## Table of Contents

EXECUTIVE SUMMARY .....	3
1 Introduction .....	6
<b>1.1 Scope and mandate of the EGERIC Working Group</b>	6
<b>1.2 Previous reports by the Commission and indications by Council</b>	8
<b>1.3 Defining the assessment criteria for the implementation of the ERIC Regulation in the present policy landscape</b>	9
2 Historical and legal frame, and present state of the art .....	12
<b>2.1 History and 'raison d'être' of the ERIC Regulation</b>	12
<b>2.2 The legal frame of the ERICs (and comparison with the IOs and Joint Undertakings)</b>	13
<b>2.3 The implementation of the ERIC Regulation: the ERICs in operation</b>	16
<b>2.4. The implementation of the ERIC Regulation: Statutes, annual reports, contributions, governance and operating structures (and a Glossary)</b>	19
<b>2.5 Roles of different stakeholders in driving the implementation and ensuring longer-term sustainability</b>	22
3 Assessment on the implementation of the ERIC regulation .....	25
<b>3.1 Summary of information collected and used in the Report</b>	25
<b>3.2 Assessing the Extent and Achievements of the implementation, conclusions and emerging issues:</b>	25
<b>3.3 Towards the full implementation of the Regulation: Outcomes and Recommendations regrouped by policy approach.</b>	38
ANNEXES TO THE EGERIC ASSESSMENT .....	41
<b>ANNEX I - EGERIC Experts</b>	42
<b>ANNEX II - A detailed discussion of some outstanding and emerging issues and best practice examples</b>	44
<b>ANNEX III - List of surveys and interviews</b>	55
<b>ANNEX IV - Glossary and acronyms</b>	57

## EXECUTIVE SUMMARY

The Council Regulation on the Community legal framework for a European Research Infrastructure Consortium established in 2009 and amended in 2013<sup>1</sup> (in the following the Regulation) was adopted in order to facilitate the establishment and the operation of large European Research Infrastructures among EU Member States and associated countries, also including participation of other third countries and intergovernmental organisations by providing a new legal instrument, the European Research Infrastructure Consortium (ERIC). Two assessments of the implementation of this framework were presented by the Commission in 2014 and 2018 to Council. In the context of the renewed European Research Area (ERA) policy and in view of its next report to the Council of the implementation of the Regulation due for 2022, the Commission has set up an expert group.

The expert group mandate was to address questions and considerations related to the implementation of the Regulation as well as to respond to the conclusions of the Council of 30 November 2018 that *'invites the Commission to present the next ERIC implementation report by 2022'*, by providing to the Commission with the evidence on the implementation, including identification of good practices (in particular concerning VAT exemption and the participation of third countries and intergovernmental organisations, as well as of financial sustainability and national investments), lessons learnt, success stories, identification of bottlenecks and recommendations to overcome them. The outlook on future perspectives concerning the implementation of the Regulation and its expected impact were also part of the mandate.

The methodology followed by the expert group was, first, to define the assessment criteria connected to the original scope of the Regulation and, then, apply these criteria to the available evidence. The expert group was able to get a detailed overview only by collecting scattered data and largely anecdotal evidence from a large set of stakeholders, Commission and Council documents, previous assessments of some aspects, the individual ERIC websites, the ERIC Forum, surveys and interviews ranging from the individual research ministries to the Council of Regions to universities and research institutions associations, the European Strategy Forum on Research Infrastructures (ESFRI) and single legal and tax experts.

To define the criteria, the expert group took as reference the scope of the Regulation as outlined in its recitals. Furthermore, the assessment has been framed into the presently evolving policy context by taking into account the vision and objectives of the renewed ERA policy as presented in the Commission Communication<sup>2</sup> and the proposed Council conclusions<sup>3</sup>, with particular regard to the European research infrastructures, as well as the ongoing discussion in the ERA Forum and ESFRI.

This report, after listing the applied criteria, presents the main findings of the detailed assessment, and formulates recommendations on how to improve the implementation of the Regulation and of the ERICs landscape.

The findings detailed in the report (chapter 3) for each assessment criteria are briefly presented below:

- As planned in the approval of the legal framework, the implementation of the Regulation has empowered the establishment and operational start-up of 22 new research organisations producing excellent science, attracting international users

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<sup>1</sup> Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community legal framework for a European Research Infrastructure Consortium (ERIC). Available at:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1464858763037&uri=CELEX%3A32009R0723>

<sup>2</sup> [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_20\\_1749](https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1749)

<sup>3</sup> <https://www.consilium.europa.eu/en/press/press-releases/2020/12/01/new-european-research-area-council-adopts-conclusions/>

and strengthening innovation and value creation. Most ERICs have been established by integrating distributed national research activities, thus introducing a paradigm shift in the scope of European research infrastructures, from facilities built and operated locally to respond to external users, to EU wide organisations developing joint research and able to respond to wider external requirements and challenges. This response is achieved by structuring and integrating research activities and resources in hundreds of university departments and research institutions. An 'ERIC system' is emerging as an institutional research backbone of the ERA. This system is already self-organizing in clusters within the ERIC Forum, covering wide disciplinary areas, with a stronger interaction between research infrastructures, universities and research institutions.

- Most ERIC statutes commit them to translate the results into the economy and society, developing synergies between research and education as well as value creation. Further synergies are developed between national, EU and regional funding programmes by involving research resources from the majority of Countries and regions with lower research performance. ERICs are involved in addressing the challenges connected to the data production and use and are directly involved in the development of the European Open Science Cloud. Several ERICs are part of global initiatives within wide clusters where pooling of resources achieves competitiveness at world level.
- At governance level, evaluation of the implementation of the Regulation has been limited mainly to the setting-up phases of the ERICs. The overview of the operation phase also through collecting and analysing relevant data has been ineffective or absent in the Commission and most governments, except few Member States as commendable best practice examples. This has been hindering the capacity to assess and guide the implementation of the 'ERIC system' when operations are based essentially on in-kind contributions by the ERIC members and on shared standards in the distributed nodes. However, the effective implementation of these activities is seldom reported. Lack of overview and governance has delayed appropriate policies to stimulate the direct involvement of the ERICs in the challenges and partnerships now structuring the new R&D agenda.
- Setting-up a governance of the 'ERIC system' is needed to empower the ERA with the capacity to effectively respond to challenges, missions and global requirements by rapidly focusing large national R&I resources. This capability has been demonstrated in the COVID crisis. A more comprehensive and consolidated approach is needed in view of optimising the use of these resources, and steps in this direction have been implemented in the new organisation of the EC RTD. An effective governance should overcome persisting issues as the VAT exemptions on in-kind contributions and the less favourable employment conditions in comparison with other European and international entities. A consolidated approach and a more effective oversight will strengthen Europe's leading science base, supporting its transition and recovery whilst pursuing economies of scale.

In addition, the recommendations have been detailed in the report as emerging from each assessment criteria and are summarised as follows:

- A governance of the 'ERIC system' implementing an evidence-based guidance must be set up within the overall ERA Governance to meet the overarching ERA policy objectives, ensuring at the same time compliance with the Regulation. This should be based on a clear policy and a structure (as one example - a registry) allowing to specify the data to be acquired, curated and assessed to give a detailed overview of the ERIC system and of each ERIC, including all its operational sites, hubs and nodes. Enough resources should be dedicated at Commission level, using also the advisory and executive capabilities which can be provided by ESFRI, the ERIC Committee and the ERIC Forum. Updated guidelines including experience-based procedures for the operation phase and the

participation of associated countries, other third countries and intergovernmental organisations should be developed.

- The governance of the ERIC system should improve sustainability also through focussed projects funded in synergy between national, regional and EC resources. This will also support the managerial and financial resources to steer their large research capabilities towards the challenges, international commitments and missions. Governance should aim at overcoming the persisting issues related to tax exemptions for the in-kind contributions by members and to employment of the personnel with European status and mobility, as well as implementing diversity policies. This will allow to directly involve all national R&D systems also in collaboration with appropriate value adding organisations. These projects should strengthen the capability to act on research challenges while implementing policies towards the alignment of national expenditure and by dedicated national budget lines in synergy with other funding sources.
- The basic operation of the ERICs should be supported by long-term commitments of their members. If and when appointing the Representing Entities, they should specify the rights and obligations needed to ensure the longer-term sustainability of the sites, hubs and nodes supported through them. Moreover, hosting of ERIC structures in universities and research institutions and their participation in EU projects should be evaluated and recognised at the same level as the direct participation of the host institution in EU projects, including partnerships. The contributions of Member States to the ERICs, including in-kind contributions, should be included in the integrated R&D targets.
- The ERIC system should be stimulated, also by involving the ERIC Forum, to develop Pan-European multidisciplinary services, responding to the need to narrow the gap between research and innovation. This should implement interconnections both at disciplinary level (as in the clusters) and at multidisciplinary level, and share services and specific rare resources within the 'ERIC system'. This would build the readiness to respond to challenges and to participate fully in European partnerships.

The summary conclusions and recommendations above are a synthesis emerging from carried out assessment as detailed in the report. Some outcomes have a more technical content and data on these aspects as well as best practices and recommendations to deal with issues found in the implementation are collected in an annex dealing with and suggesting best practices on: Personnel, Tax Exemptions, Reporting and communication, the global dimension, the Registry and practical guidelines.

## **1 Introduction**

Europe has a well-established tradition of scientific excellence supported by globally competitive Research Infrastructures (RIs). The RI system, promoted and supported by the Member States (MS) and the European Union (EU), has contributed to the way science is nowadays performed in Europe with an emphasis on collaboration, inclusiveness and open access to world-class infrastructures across the research landscape.

To maintain and strengthen such a leading position, the constant development of research, scientific and innovation skills, state-of-the-art facilities and related activities is crucial. In agreement between the EU Member States (MS) and the EU Commission (EC), a dedicated EU Regulation has been adopted in 2009 to allow faster and more flexible procedures to set-up European Research Infrastructure Consortia, ERIC (ERIC Regulation or Regulation in the following).

ERICs, a new European legal subject, play an essential role in enabling the broadest community of researchers to perform disruptive research, discovery, technology development and invention, thus advancing competences, innovation and competitiveness. There are currently 22 ERICs established, most of them operating as distributed RIs.

The ERIC Regulation, in addition to formulating the legal framework for establishment of ERICs, requires the EC to assess their implementation at regular intervals. The present Report has been prepared by the EGERIC Expert Group (defined in 1.1 and with composition in Annex I) upon request by DG RTD, in order to support the third report by the EC due in the beginning of 2022 to the Council, the Parliament and the Committee of Regions.

In developing this Report, the EGERIC has assessed the implementation while defining, in a forward look, the possible further perspectives of this and similar regulatory initiatives in the changing global situation with rapidly growing research investments by other global actors as well as by post-pandemic Europe. As future investments in RIs will most probably include the possibility of a stronger involvement by the private sector, a strong change of the reference framework by the EU and MS may be required.

### **1.1 Scope and mandate of the EGERIC Working Group**

The Expert Group on the ERICs (EGERIC) is a European Commission expert group, set up to address questions and considerations related to the implementation of the Council Regulation (EC) No 723/2009 amended by the Council Regulation (EC) No 1261/2013, which provides the legal framework for the establishment and operation of a European Research Infrastructure Consortium (ERIC).

Setting up the Expert Group responds to the conclusions of the Council, adopted on 30 November 2018 that *'invites the Commission to present the next ERIC implementation Report by 2022.'* The legal basis and the financing decision for this Expert Group is the H2020 Work Programme 2018-2020 'Research Infrastructures' part - Other Actions, 1. 'External expertise', point 6. It also responds to ERA Council conclusions inviting the reinforcement of the RI ecosystem.

According to the ERIC Regulation, an ERIC is a legal entity with legal personality and full legal capacity recognised in all MS, having the scope to establish and operate a Research



Infrastructure<sup>4</sup>. An ERIC needs to satisfy conditions specified in the ERIC Regulation. Among them, its membership must include at least one MS and two other countries that are either MS or Associate Countries (AC) as members (members in the following), of which at least one EU MS. Members jointly undertake financial commitments. In addition to MS and AC also Third Countries (TC) and Intergovernmental Organisations (IO) might be members of an ERIC.

The ERIC Regulation further allows for:

- I. flexibility to adapt to specific requirements of each infrastructure;
- II. a faster process compared to creating an IO;
- III. being an IO, in particular regarding exemptions from VAT and excise duties;
- IV. being an international body, adoption of its own procurement procedures which have to respect the principles of transparency, non-discrimination and competition.

Since the approval of the Regulation in 2009, 22 ERICs were established, all of them now in operation and half of these have now more than five years of operating experience. This allows the EGERIC to analyse the implementation of the Regulation, to identify success stories, benefits, potential bottlenecks and unresolved problems. Furthermore, a clear vision about the future of this legal instrument and its effective use for the benefit of the scientific community, the MS, AC, the EU and its citizens can now be formulated. Also, the widening of the ERIC Regulation or a similar approach to other domains as, e.g., Innovation and Education will be explored.

The EGERIC was tasked to deliver by the end of August 2021 to the Commission a report containing:

- Assessment of the implementation of the ERIC Regulation, including the identification and analysis of good practices, lessons learnt, success stories, identification and analysis of the added value and of bottlenecks and recommendations to overcome them. The assessment will also focus on how the main features of the ERIC Regulation were translated and used in practice;
- Identification of good practices concerning VAT exemption for in-kind contributions, and concerning the participation of third countries and intergovernmental organisations in ERICs, as well as of financial sustainability of ERICs and of national investments;
- Outlook on future perspectives concerning the implementation of the ERIC Regulation and its expected impacts.

The EGERIC is composed of nine independent experts appointed in a personal capacity and selected to achieve an appropriate composition in terms of skills, experience, knowledge, geographical diversity and gender. The members of EGERIC and their qualifications are reported in Annex I.

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<sup>4</sup> Defined in Article 2(a) of Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community legal framework for a European Research Infrastructure Consortium (ERIC). 'Research Infrastructure' means facilities, resources and related services that are used by the scientific community to conduct research in their respective fields and covers scientific equipment or sets of instruments, knowledge-based resources such as collections, archives or structured scientific information, enabling information and communication technology-based infrastructures such as grid, computing, software and communication, or any other entity of a unique nature essential to conduct research. Such infrastructures may be 'single-sited' or 'distributed' (an organised network of resources).

EGERIC started from taking note of the content of the previous two Reports by the Commission to the Council and the Parliament. Following this, a set of assessment criteria was defined and, within an established draft outline, the work of EGERIC consisted in scrutinizing a variety of documents and the data collected through surveys and interviews that involved different ERICs and ERA Stakeholders. The results of these efforts have been analysed to include a set of important aspects and issues on a basis broader than that assessed in the previous Reports. This has allowed to define recommendations and some best practices helpful to further the implementation of the Regulation, overcoming present difficulties and bottlenecks, with a forward look in the renewed ERA.

The list of documents, surveys and interviews is enclosed in Annex III.

This assessment aims primarily to support the EC in its preparation of the Report due to the Council and the Parliament. It is EGERIC's objective that the assessment and recommendations will be also useful to MS as the main 'owners', funders and members of ERICs, and to the ERICs management.

## **1.2 Previous reports by the Commission and indications by Council**

Pursuant to Article 19 of the Regulation, and upon indication by the Council, the Commission, from the date of approval of the Regulation in July 2009, has presented two Reports on the implementation of the Regulation to the European Parliament (EP) and to the Council in July 2014 and in November 2018.

The first Report stated that, out of 48 projects included in the 2010 ESFRI Roadmap, 7 were already ERICs involving 20 MS. Of these, 2 were intended to conduct European surveys while the other 5 planned to develop and implement distributed infrastructures in biological, environmental and social sciences. Furthermore, over 20 projects aiming to establish a new RI were using or planning to use the ERIC model. On this basis, the EC anticipated that around 15 ERICs would be established by the end of 2015. The number of established ERICs was defined as the assessment criteria due to lack of sufficient operational experience.

The Council of 5 December 2014, reacting to the 2014 Report, welcomed the progress on the implementation of the Regulation and commented as follows:

*'WELCOMES the progress reported by the Commission in its first Report on the implementation of the ERIC Regulation, and INVITES the Commission to present the next ERIC implementation Report by 2017. INVITES the Commission and Member States to take appropriate measures to facilitate the use of the ERIC instrument and to stimulate investments in ERICs and other ESFRI Roadmap Infrastructures, for example as concerns in-kind contributions.'*<sup>5</sup>

Following the Council conclusions, the EC presented on 6 July 2018 the second Report on the application of the ERIC Regulation to the EP and the Council.

That Report indicated that, in the last 4 years, further ERICs were established bringing the total to 19. This represented a substantial and welcome increase with the majority of ERICs operating distributed research infrastructures in a broad spectrum of areas including biological and medical sciences, physics, energy, environmental and social sciences and humanities. Statutory seats of ERICs were located in 10 countries.

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<sup>5</sup> EUROPEAN UNION. Council conclusions: European research area Progress Report 2014 Competitiveness Council meeting Brussels, 5 December 2014. Available at: <https://www.consilium.europa.eu/media/24939/146063.pdf> .

The Report concluded that the ERIC Regulation fills the gap between treaty based IOs and national legal entities, and has greatly broadened the opportunities for countries willing to consider cooperation. It has facilitated the process for establishing and operating RIs, contributing to the consolidation of European research and more effective support to scientific communities. One point of consideration was the need to achieve a more balanced geographical distribution of statutory seats.

Nevertheless, the EC Report acknowledged that many practical questions and challenges still had to be addressed both by the EC services as well as by the MS before the ERICS could become fully operational.

The main unresolved and recurrent issues listed in the Report are summarised as follows:

- *the lack of a dedicated ERIC register, and/or appropriate existing registers in the national legal administrative systems, which would also enable the recognition of ERICs by the Commission services as being eligible to participate as consortia and beneficiaries in EU funded projects. This also causes difficulties in various aspects, e.g. opening of bank accounts in the EU MS.*
- *the lack of meaningful recognition of the status of the ERICs having an impact also on the employment of personnel as regards the national legal administrative systems where in some cases the public-public partnership nature of the ERICs may be taken as equal to public employment, with a negative impact on international attractiveness and salaries.*
- *a recurrent issue is the difficulty in applying VAT exemptions to in-kind contributions by ERIC members, which has become a major type of contribution to the ERICs.*

The Council of 30 November 2018 welcomed the Report and the progress on implementation of the ERIC Regulation. The conclusion however points out to a need for development and implementation of appropriate measures to facilitate the use of the ERIC legal instrument, focusing on an acceptable solution for the VAT exemption for in-kind contributions of Members as follows:

*'WELCOMES the second Report on the implementation of the ERIC Regulation, and INVITES the Commission to present the next ERIC implementation Report by 2022; NOTES the need for appropriate measures to facilitate the use of the ERIC instrument, in particular as concerns an acceptable solution for the VAT exemption for in-kind contributions, to stimulate investments in ERICs and other ESFRI Roadmap Infrastructures, to increase transnational and open access to European Research Infrastructures and to enhance their financial sustainability; CALLS upon the Commission and Member States to implement these measures as soon as possible and upon the pan-European Research Infrastructures to promote their services at international level and to reach out, where appropriate, to new international members'.*

The Council invited the Commission to present the next report on the implementation of the ERIC Regulation by 2022. The present assessment aims to support the EC to fulfil this request.

From the findings in the present assessment, it can be seen that some of the issues referred to in the second EC Report and in the note of the Council are still outstanding.

### **1.3 Defining the assessment criteria for the implementation of the ERIC Regulation in the present policy landscape**

An assessment of the ERIC Regulation should be developed by referring primarily to the objectives declared in its adoption. However, the ERICs established through the implementation of the Regulation operate in a policy landscape which has evolved with time. A comprehensive assessment needs to take into account also this framework. The definition of the criteria used by EGERIC starts from the recital of the Regulation, but

framing them in the present discussion of the 'new ERA' and how the 'ERIC system' may contribute to the development of the ERA (a main scope stated in establishing the ERIC Regulation).

The objectives of the Regulation are presented in its recital, which, besides outlining the legal frame of the ERICs (detailed further in 2.2) makes reference to the need to stimulate the development of new structures by creating an appropriate legal framework which should facilitate their establishment and operation at the level of the Community. The content of various points in the recital (in particular 3, 5, 8, 9) can be summarised as 'allowing the easier setting-up and operation of RIs which are necessary for the efficient execution of community RTD programmes, stimulating the development of new infrastructures, overcoming fragmented and regionalised rules governing the establishment, financing and operation of RIs, allowing the EU to set-up RIs which are becoming increasingly complex and expensive often placing them beyond the reach of a single MS. The ERICs should help to safeguard the scientific excellence of Community research and the competitiveness of the Community economy, and more explicitly, should have the aim of enhancing EU scientific capabilities beyond the current state of the art and thereby contribute to the development of the ERA'.

The present policy landscape for the development of the ERA, as evolved after the establishment of the Regulation is set primarily, at global level, by the two international agreements signed by all EU countries with binding commitments until 2030: the UN Agenda for Sustainable Development and the Paris Agreement on how to tackle the climate change.

Within this global frame, the EU policy has been set by 'A new strategic agenda 2019-2024' agreed by the European Council, where the new President of the European Commission introduced priorities which look ahead to solve challenges laying in front of the European society.<sup>6</sup> This frame has defined the ensuing discussion on the scope of the 'renewed ERA', and on its governance, which is still ongoing, as well as the new Framework Programme and the national plans for research.

Some elements of this discussion specific to the RIs and ERICs are the transition to Open Science with urgency due to the digitisation and datafication and also the response to the crisis of COVID.

The present broad assessment intends to verify whether the implementation of the Regulation allows to establish and operate ERICs ready for the challenges put in front of them by the needs formulated in the renewed ERA policy. In this frame, the findings and proposed recommendations may allow a comprehensive response to the challenges.

The criteria on the implementation of the Regulation, as listed in the following, are directly connected to these objectives and are not related to single ERICs. They are independent and complement the assessment of the performance of single ERICs within ESFRI and the ERIC Forum leading organisational Key Performance Indicators for the ERICs<sup>7</sup>.

Taking into account all the elements above, and that the implementation of the ERIC Regulation has an impact beyond the field of RIs due to the integrating effect on national research systems, EGERIC has defined the following criteria:

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<sup>6</sup> Ursula von der Leyen. Political guidelines for the next European Commission 2019-2024. Available at: [https://ec.europa.eu/info/sites/info/files/political-guidelines-next-commission\\_en\\_0.pdf](https://ec.europa.eu/info/sites/info/files/political-guidelines-next-commission_en_0.pdf) . The challenges are: 'A European green deal; A Europe fit for the digital age; An economy that works for people; A stronger Europe in the world; Promoting our European way of life; A new push for European democracy'.

<sup>7</sup> The list of these indicators is: Enabling scientific excellence - Delivery of education and training - Enhancing transnational collaboration in Europe - Facilitating economic activity - Outreach to the public - Optimising data use - Provision of scientific advice - Facilitating International co-operation - Optimising management.

**A) Enhancing the scientific capability of the ERA**

- 1) Excellence, assessed by publications and attractiveness to international users
- 2) Attracting and retaining talent (including at international level)
- 3) Activities in training
- 4) Mobility and diversity of staff and users
- 5) Supporting Open Data and EOSC within the transition to Open Science
- 6) Participation by less developed MS as ERIC members and as users

**B) Overcoming fragmentation, improving coordination and reinforcing Governance and Sustainability**

- 1) Flexibility of implementation, judged by number of ERICs and coverage areas and their response to the challenges (e.g., COVID)
- 2) Structuring and integrating effect of the national resources
- 3) Interplay between national, regional and EU R&I system, alignment of national R&D
- 4) Synergies with the smart specialisation strategies
- 5) Governance of the ERA as manifested through the governance of the 'ERIC system'

**C) Improving links with Society, Economy and Competitiveness**

- 1) Support and collaboration with value-adding organisations (services and industry)
- 2) Activities in dissemination of science to society
- 3) Extent of implemented IP policies (including TT services/spin-off/incubators)
- 4) Number of ERICs operating in value-adding areas
- 5) Assessing the ERIC approach to set-up innovation and/or university structures

**D) Strengthening the global approach (and response to the twin transitions)**

- 1) Extent of the engagement of ERICs in challenges, partnerships and missions
- 2) Support of the Grand Societal Challenges and international commitments as set-out in SDGs and Climate goals
- 3) Increased visibility of European science at international level
- 4) Attractiveness of ERICs to Third Countries and IOs

The assessment includes also, in Annex II, some issues met in the full implementation of the ERIC Regulation which have been raised in the previous EC reports and found as still outstanding, as, e.g., the tax exemptions for in-kind contributions by the ERIC members, and the ERICs sustainability.

## 2 Historical and legal frame, and present state of the art

### 2.1 History and 'raison d'être' of the ERIC Regulation

The importance of a systematic approach to RIs and access to their capacity, in Europe and worldwide, has been growing in the last 20 years. RIs were regarded as key elements of the European strategies for growth and jobs, the Lisbon strategy (2000-2010) and the Europe 2020 strategy (2010-2020).

In 2000, the definition of a European approach to RIs was a crucial line of action, strongly required by the scientific communities, also due to the delays in reaching decisions on some strategic RIs where the competition with the USA and Japan was very intense. This was the base for the proposal and then the establishment of the European Strategic Forum for Research Infrastructures - ESFRI (in 2002), supported by a large consensus of the scientific communities.

ESFRI was set-up by the Member States with the EC acting as the secretariat, with a mandate from the EU Council to support a coherent and strategy-led approach to policymaking, also through the development of a Roadmap for RIs in Europe.<sup>8</sup> At the same time, this approach was supported by the framework programmes, which played a key role beginning with the 6<sup>th</sup> Framework Programme (FP6 2002-2006) in those aspects more related to the ERA, as transnational access, preparatory phases of new RIs and technology innovation and upgrade of existing networks of RIs.

In January 2000, the 'ERA concept' was launched and included in the main European policy for growth and jobs, the Lisbon strategy. The initial ERA ambition was to evolve from a situation where the Framework Programmes (representing about 5% of the European public funding) were seen just as providing additional funding for research alongside the national programmes, into the new scope of building a substantially new EU integrated ecosystem.<sup>9</sup>

In 2007, the ERA concept was revisited. One of the main ERA initiatives were '*world-class research infrastructures, integrated, networked and accessible to research teams from across Europe and the world, notably thanks to new generations of electronic communication infrastructures.*'<sup>10</sup> As a milestone, the first ESFRI Roadmap 2006 was adopted identifying 35 projects of pan-European interest<sup>11</sup>. The preparatory phase of many of these projects were supported by the EC through the FP7 (2007-2013).

While the Roadmap allowed to address the issue of defining the priorities for the national investments, the question of a legal instrument allowing the setting-up of RIs engaging several MS was still open, the main option being the setting-up of IOs, or reaching international ad-hoc umbrella agreements covering a national legal frame, each one requiring a lengthy and complex procedure involving, in most cases, parliamentary approval by prospective members.

To overcome this obstacle and upon proposal by ESFRI, the Commission started consultations (2006-2008) on the possible establishment of a new European legal entity with a separate legal personality for research infrastructures. During extensive consultations, the principles for the legal entity were formulated<sup>12</sup>. The proposal for a

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<sup>8</sup> COUNCIL OF THE EUROPEAN UNION, PRESS RELEASE, 2624th Council Meeting Competitiveness (Internal Market, Industry and Research) Brussels, 25 and 26 November 2004 (14687/04 (Presse 323)). Available at <https://data.consilium.europa.eu/doc/document/ST%2014687%202004%20INIT/EN/pdf> .

<sup>9</sup> Finnegan, Gary. *The 'perfect storm' to create ERA - how an idea became a policy priority in just six months.* Horizon – The EU Research and Innovation Magazine. 9 January 2015. Available at <https://horizon-magazine.eu/article/perfect-storm-create-era-how-idea-became-policy-priority-just-six-months.html#> .

<sup>10</sup> Green Paper The European Research Area: New Perspectives {SEC(2007) 412} /\* COM/2007/0161 final \*/

<sup>11</sup> EUROPEAN COMMISSION <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=SEC:2007:0412:FIN>

<sup>12</sup> ESFRI Annual Report 2005-2006; Conclusions of the March 2006 workshop. Pg.4. Available at [https://ec.europa.eu/research/infrastructures/pdf/esfri/publications/esfri\\_annual\\_report\\_2005\\_2006\\_en.pdf](https://ec.europa.eu/research/infrastructures/pdf/esfri/publications/esfri_annual_report_2005_2006_en.pdf)



European research infrastructure was discussed during the French Presidency in 2008 and was adopted at the end of the Czech Presidency in 2009 as the Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community legal framework for a European Research Infrastructure Consortium (ERIC).<sup>13</sup> In December 2013, it was amended to allow better reflection of the contributions of Associated Countries in the ERICs.

The process of defining the ERIC Regulation reflects the European Union's progress based on its ability to redefine the cooperation at the EU and MS level, to respond to global challenges while respecting criteria of national sovereignty. This is achieved through a multi-level Governance<sup>14</sup> which ensures the participation of stakeholders in the policy making processes of the EU and in the deepening of its integration<sup>15</sup>. In the field of research a dichotomy between Member States national research policies and the EU based programmes still exists, and is reflected, in the ERIC Regulation, by the decision of having as ERIC members the national states or intergovernmental organisations, but not the EU.

## **2.2 The legal frame of the ERICs (and comparison with the IOs and Joint Undertakings)**

Primary EU law lays down both the European Research Area (Art. 179 -184 TFEU) as well as the setting up of institutions towards its implementation (Art. 185 -187 TFEU), including ERICs (Art. 187)<sup>16</sup>.

The legal basis for the ERICs is Article 187 TFEU and the first paragraph of Article 178 TFEU, which allows setting up a joint undertaking (JU) or any other structure necessary for the efficient execution of Community research, technological development, and demonstration programmes. Under this legal basis the European Union itself (represented by the Commission) could possibly, but not necessarily, be a Member of this legal entity.<sup>17</sup> Interestingly, the same legal basis has been used to set up the Joint Technology Initiatives which entered into force in 2014 and more recently the Institutionalised Partnerships regrouped under the Single European Act currently under legislative procedure. The Council Regulation (EC) No 723/2009 of 25 June 2009 provides the Community legal framework for a European Research Infrastructure Consortium (ERIC) (ERIC Regulation in the following).<sup>18</sup>

The ERIC Regulation indicates that members (with voting rights) or observers (without voting rights), of an ERIC, may be either Member States (MS), associated countries (AC), third countries (other than associated countries, TC) or IOs.

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<sup>13</sup> Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community legal framework for a European Research Infrastructure Consortium (ERIC). Available at [www: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1464858763037&uri=CELEX%3A32009R0723](https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1464858763037&uri=CELEX%3A32009R0723)

<sup>14</sup> Hooghe, Liesbet & Marks, Gary. (2001). *Multi-Level Governance and European Integration*. (PDF) [Multi-Level Governance and European Integration \(researchgate.net\)](https://www.researchgate.net/publication/228111111)

<sup>15</sup> European Committee of the Regions. *White paper on Multi - level governance*. (2009/C 211/01) <https://op.europa.eu/en/publication-detail/-/publication/3cba79fd-2fcd-4fc4-94b9-677bbc53916b/language-en>. In 2009, the European Committee of the Regions adopted the White paper on Multilevel Governance, where the MLG is defined as '*coordinated institutional action by the European Union, the Member States and local and regional authorities, based on partnership and aimed at drawing up and implementing EU policies ... Multilevel governance is a dynamic process with a horizontal and vertical dimension, which does not in any way dilute political responsibility. On the contrary, if the mechanisms and instruments are appropriate and applied correctly, it helps to increase joint ownership and implementation.*'<sup>15'</sup>

<sup>16</sup>EUROPEAN UNION. TREATY FOR THE FUNCTIONING OF THE EU. Article 187 *The Union may set up joint undertakings or any other structure necessary for the efficient execution of Union research, technological development and demonstration programmes.*

<sup>17</sup> Even during the initial discussions and before drafting the proposal, an intensive collaboration between the Commission who lead the extensive consultations, ESFRI and Member States was the basis of the work. The negotiations on the draft regulation including the Competitiveness Council, the European Parliament and the Commission took place in 2008 and 2009.

<sup>18</sup> EUROPEAN UNION. Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community legal framework for a European Research Infrastructure Consortium (ERIC). <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1464858864496&uri=CELEX%3A32013R1261> . A 'regulation' is directly applicable to national legal systems in all EU Member States, no additional parliamentary approval is needed.

In contrast with Joint Undertakings, it excludes the possibility for the Commission to be a member of an ERIC. This last aspect underlines that the main and basic support for the operation of the ERICs must come from its members, while the EC may not give support to the current operation but only fund projects undertaken by ERICs. This is very different from JUs in which the funding is 50% EU and 50% Member Countries.

This difference has another effect: the staff hired by the JUs has EU based contract (with the same applicable labour rules and regulations in every Member State) while ERICs staff is subject to the different national employment legal frameworks. The EGERIC has found this to be a serious limitation in the attractiveness of employment in the ERICs.

According to the ERIC Regulation, an ERIC should have not only legal personality, but 'the most extensive legal capacity accorded to legal entities under the law of that Member State'<sup>19</sup>.

Each ERIC is qualified (following Art.5(1)(d) of the ERIC Regulation) as an international body in the sense of Articles 143(1)(g) and 151(1)(b) of the VAT Directive 2006/112/EC and as international organisation in the sense of Dir N.2008/118/EC Article 12(1)(b), related to excise duties. These tax exemptions are applicable by the ERIC and by its members for the procurement of goods, services and utilities for the sole institutional scope of each ERIC. The ERIC should also benefit from certain exemptions as an international organisation for the purpose of applying Directive 2014/24/EU of 26 February 2014 on public procurement.

The ERIC Regulation is directly applicable in the national legal systems of EU MS and does not need to be formally transposed into national law; it supersedes any national laws incompatible with its substantive provisions. As regards taxation, to achieve the 'useful effect' required by the Regulation, this requires also that an ERIC is clearly identified as comparable to a national research institution regarding the possibility to apply for national research funding and eventual specific tax benefits accorded to these institutions.

The process of approval of an ERIC resembles to some extent that of setting-up an Intergovernmental Organisation through the approval, by the participating members, of a Statute and a Technical/Scientific document setting the scope and mode of operation. However, it avoids the lengthy process of approval of each new ERIC by each member's Parliament as required for joining an IO. However, in some non-EU Countries where the ERIC regulation has not been transposed in national law, joining an ERIC would still require parliamentary approval.

Most Governments, interviewed in EGERIC's surveys, affirm that their participation in ERICs is considered as strategic and important as the participation in the IOs. Despite this, the financial contributions are often committed in a more time-limited fashion in contrast to the multi-annual commitments for nationally structured IOs. This gives rise to a lower assurance of sustainability and has a knock-on effect on employment conditions. Furthermore, in the case of most distributed ERICs, the financial support for the operation of the parts different from the statutory seat (where research activities take place) is seldom committed and accounted for in a quantitative way, as detailed better in the following.

The scope of an ERIC Statute as an 'intergovernmental agreement', whose essential elements are published in the Official Journal of the EU with the EC decision, covers the space between what is regulated by the Regulation and what is regulated by the national law of the Countries hosting either the Statutory Seat or other places of operation (or 'establishments') of an ERIC.

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<sup>19</sup> Article 7 and recital 20, respectively, of the ERIC Regulation.



The ERIC Regulation indicates also that Member States shall take such measures as are appropriate to ensure its effective application. They are free to apply or adopt any laws, regulations or administrative measures which do not conflict with the scopes or objectives of the Regulation, and, therefore, could well adopt, through the agreement on the Statute or through additional documents or legislation<sup>20</sup>, areas of agreement beyond those defined by it.

One area in which it seems important that the ERIC members could adopt agreements beyond those of the ERIC Regulation is the employment conditions of the staff for distributed ERICs, if a more general solution is not found at the EU level. Compared to the IOs, in fact, the ERIC Regulation does not include the possibility to implement in an homogeneous way employment conditions of the ERIC staff hired by the same ERIC but posted in different Countries. As compared to other EU wide institutions, this aspect is felt by the prospective employees as a strong handicap and, if not solved, it will be a limiting factor in the success and competitiveness of the ERICs.

These additional areas of agreement could, if approved, expand the scope of the Regulation beyond the limits of the EU legal frame. The EC could support this approach by recommendations or even by means of a new Directive if a sufficient number of MS agree.

Compared to the IOs, the ERIC Regulation introduces an innovative approach in terms of representation. If the members of an ERIC wish so, they may be represented by one or more Representing Entities (RE) being public entities, including regions or private entities with a public service mission. To be valid, this representation must be defined as regards the exercise of specified rights and the discharge of specified obligations as a member of the ERIC. This opens the possibility by the members to have an 'executive arm' by directly involving Research Institutions and Universities, or also Regional Governments, in the support and/or in the technical/scientific operation of the ERICs. This has been useful to some ERIC members to apply tax exemption on member's in-kind contributions through an RE exercising this specified right while discharging the specified obligation of contributing in-kind.

The ERICs are a new legal form and this requires also a control system involving the authority which implements it. As stated in the Regulation's recitals, it is necessary that the Commission, which sets-up an ERIC, retains control over certain elements as well as of the compliance with the Regulation. To this end, the ERICs shall produce an annual activity report detailing the scientific, operational and financial aspects of its activities, approved by its Assembly and transmitted to the Commission and to relevant public authorities.

On its side, the Commission may repeal the decision of setting-up the ERIC and trigger its winding-up, if it obtains indications that an ERIC is in circumstances which may seriously jeopardize or hinder it from fulfilling its obligations, or even is acting in serious breach of the Regulation, and does not fulfil proposed remedial actions.

The Commission has a defined responsibility in ensuring, with the ERIC members, the appropriate fulfilment of the obligations of every ERIC. A function of this type, which does not yet seem implemented, could be developed by the EC in collaboration with the ERIC Forum and/or with ESFRI, who are presently collecting data on the operation of RIs. This could be technically implemented, as it is done for other legal entities through Registries at national level, by defining a template for the content of the annual reports. Such an approach could also help keeping track of each ERIC in the fulfilment of its scope in the ERA and provide data for the ERA scoreboard which is now proposed.

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<sup>20</sup> ERIC regulation. Art. 18. This Article requiring the application of 'effet utile' of the communitarian law on the implementation of the ERIC regulation gives ground to the possible amendments to national legislation in order to implement effectively and to the presumed impact the ERIC regulation.

A 'Register function' would allow the MS and the EC to have the appropriate data base for a governance of the 'ERIC system' in the ERA, and the EC to fulfil better its duty to provide the European Parliament and the Council with a periodic evaluation on the implementation of the ERIC Regulation. Such evaluation would be also an instrument to appraise the results of the overall governance (see also Annex II).

In 2010 and in 2015, in order to guide applicants through the administrative process of establishing an ERIC, the Commission published and updated practical ERIC Guidelines, which are now again in the process of being updated. According to the input from several stakeholders (research ministries and ERICs) it is suggested that these guidelines are possibly extended to the operation phase.<sup>21</sup>

For the purpose of enabling and monitoring its implementation, the ERIC Regulation provides also for setting-up of a management committee under the comitology procedure, the Committee for the implementation of the Regulation on the Community legal framework for a European Research Infrastructure Consortium (ERIC) (hereinafter 'the ERIC committee'). Members of the ERIC committee are representatives of EU, MS and AC. The ERIC committee has been meeting regularly to give opinion on the setting up of new ERICs and especially on their draft Statutes, allowing the Member States and associated countries the opportunity to oversee the whole ERIC landscape. However, the task of the ERIC committee seems so far limited to the setting-up phase and the discussion of some best practices, while it is not involved in assessing the implementation of the Regulation in the operational phases and through the analysis of the annual reports. The ERIC committee could be an important actor in setting-up the governance of the ERIC system in the overall ERA governance.

### **2.3 The implementation of the ERIC Regulation: the ERICs in operation**

The names of the 22 established ERICs are listed in the first column of Table I, grouped by science cluster as indicated in the second column. The third column gives the scope. The fourth and fifth column indicate the number of members and of observers (and in parenthesis additional partners: see glossary). The last column gives total numbers of institutions/universities (and/or different facilities) connected with each ERIC, as indicated in surveys, reports or websites. By now, most MS participate in more than one ERIC.

The ERICs have set-up an ERIC Forum in 2017 to exchange information and best practices, as well as to agree on selected issues and position papers. In this Forum, the specific science areas are organised in clusters: Environment (ENV), Health and Food (LIFE), Energy (ENE), Physical Sciences and Engineering (PSE), Social and Cultural Innovation/Social Sciences and Humanities (SSH). These are detailed in Table I. It is important to underline that there are already strong collaborations growing within some of the clusters, in particular LIFE, ENV and SSH.

Short overviews of the ERICs in operation are available in the dedicated EC website<sup>22</sup>, which allows also to link directly with the website of each ERIC, where more information is available, as, e.g. the lists of members, observers and partners as well as the Statutes and the annual reports. RIs in preparation, some of which will be established as ERICs, are described in the 2018 ESFRI Roadmap<sup>23</sup> and in the ERIC Forum website<sup>24</sup>.

The number of ERICs set-up so far and the wide coverage of scientific areas are indicators of the flexibility in the implementation of the Regulation. The coverage of

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<sup>21</sup>Legal framework for European Research Infrastructure Consortium-ERIC: practical guidelines <https://op.europa.eu/en/publication-detail/-/publication/2acfa363-f0a8-4b97-9f6f-176ff2a49381/language-en> .

<sup>22</sup> [https://ec.europa.eu/info/research-and-innovation/strategy/european-research-infrastructures/eric/eric-landscape\\_en](https://ec.europa.eu/info/research-and-innovation/strategy/european-research-infrastructures/eric/eric-landscape_en)

<sup>23</sup> ESFRI ROADMAP 2018, <http://roadmap2018.esfri.eu/>

<sup>24</sup> The ERIC Forum site is : <https://www.eric-forum.eu/>

broad interdisciplinary areas connected with the global challenges provides a strong asset for the ERA.

The last column shows the involvement of a large number of universities and national research institutions with different levels of commitment, from integrating the resources, to hosting a node or developing only a loose collaboration in joint projects. These may, or may not, aim to a long-term institutional partnership. However, within this variability, these data indicate the vast potential of integration of national resources which could be achieved through the full implementation of the ERIC Regulation and an appropriate governance of the 'ERIC system'. The large presence of universities engaged in the ERICs is a new development to be taken into account.

**Table I The ERICS in operation as of June 2021 listed by disciplinary areas (clusters)**

Acronym	Cluster	Descriptive name	N. of Members	N. of Observers (Partners)	N. of connected institutes/ Universities (facilities)
<b>ECCSEL</b>	ENERGY	European Carbon Capture and Storage Laboratory infrastructure	<b>5</b>	<b>0</b>	<b>20 (79)</b>
<b>EMSO</b>	ENVIRONMENT	European Multidisciplinary Seafloor and water column Observatory.	<b>9</b>	<b>0</b>	<b>25 (12)</b>
<b>EPOS</b>		European Plate Observing System of the physical processes controlling tectonic movements	<b>14</b>	<b>0</b>	<b>140</b>
<b>EURO ARGO</b>		European contribution to ARGO, a global array of autonomous instruments deployed in the world oceans	<b>12</b>	<b>1</b>	<b>&gt;60</b>
<b>ICOS</b>		Integrated Carbon Observation System greenhouse gas monitoring.	<b>13</b>	<b>1</b>	<b>80</b>
<b>LIFEWATCH</b>		e-Science and Technology European Infrastructure for Biodiversity and Ecosystem Research	<b>8</b>		<b>50</b>
<b>BBMRI</b>		HEALTH & FOOD	Biobanking and BioMolecular resources Research Infrastructure	<b>18</b>	<b>5</b>
<b>EATRIS</b>	European Advanced Translational Research Infrastructure in medicine		<b>12</b>	<b>2</b>	<b>114</b>
<b>ECRIN</b>	European Clinical Research Infrastructure Network		<b>9</b>	<b>3</b>	<b>110</b>
<b>EMBRIC</b>	European Marine Biology Resource Centre and ecology research.		<b>9</b>	<b>0</b>	<b>46</b>
<b>EU OPEN SCREEN</b>	European infrastructure of Open Screening platforms for Chemical Biology.		<b>8</b>	<b>0</b>	<b>24</b>
<b>EUBI</b>	Euro-BioImaging offers open access to imaging technologies.		<b>17</b>	<b>1</b>	<b>33 (137)</b>
<b>IN STRUCT</b>	INtegrated STRUCtural biology distributed research infrastructure		<b>15</b>	<b>1</b>	<b>23</b>
<b>CERIC</b>	PHYSICS		Central European Research Infrastructure Consortium on analytical and synthesis facilities	<b>8</b>	<b>1</b>
<b>ELI</b>		Extreme Light Infrastructure is a high-power laser infrastructure	<b>4</b>	<b>2</b>	<b>2</b>
<b>EU SPALLATION SOURCE</b>		European Spallation Source is the world's next-generation neutron source.	<b>13</b>	<b>2</b>	<b>10</b>
<b>JIV</b>		Joint Institute Very long baseline interferometry correlator for radioastronomy.	<b>7</b>		<b>3</b>
<b>CESSDA</b>	SOCIAL SCIENCES & HUMANITIES	Consortium of European Social Science Data Archives	<b>22</b>	<b>1</b>	<b>32</b>
<b>CLARIN</b>		Common Language Resources and technology Infrastructure on digital language resources	<b>21</b>	<b>3</b>	<b>&gt;170</b>
<b>DARIAH</b>		Digital Research Infrastructure for the Arts and Humanities	<b>20</b>	<b>1 (8)</b>	<b>237</b>
<b>ESS</b>		The European Social Survey, measures change in public attitudes and behaviour patterns	<b>25</b>	<b>1</b>	
<b>SHARE</b>		Survey of Health, Ageing and Retirement in Europe.	<b>16</b>	<b>1</b>	<b>18</b>

#### **2.4. The implementation of the ERIC Regulation: Statutes, annual reports, contributions, governance and operating structures (and a Glossary)**

The proposal to establish an ERIC is agreed between its founding members, who define the scope and the rules of the future ERIC in two documents: the Statute and the Technical/Scientific Document. When the ERIC is established and operates, it shall produce and publish annual activities reports containing its scientific, operational and financial aspects. EGERIC has used the available statutes and annual reports as the primary source to assess how the Regulation has been implemented in practice, and how this has allowed to respond flexibly to the requirements of a wide set of diverse cultural and research environment.

The flexibility in implementing the Regulation has produced a wealth of diverse definitions and organisational structures. Before the availability of the Regulation, most RIs were built anew in defined sites and managed to support the access of external users. In contrast, the majority of ERICs have been established as 'distributed infrastructures' by interconnecting existing facilities and research groups (in general: 'nodes', see glossary) in universities and research institutions. This has a considerable impact on research activities of the hosting institutions and both on research and training activities in the universities.

The variety of structures and definitions, while indicating a lively environment, may sometimes generate a confusing terminology, as, e.g., the use of the same term with different meanings or of different terms with the same meaning. Typical is the case of the term 'hub', which in different (also official) documents is used independently to describe either the ERIC itself, or its statutory seat or different sites of coordination/operation of scientific functions.

In what follows the basic functions and structures as defined in the Statutes are outlined, while exemplifying the diversity of definitions. To allow an easier reading, a reference Glossary has been developed and is attached to this document (in Annex IV) and is proposed for systematic use.

In a number of cases, some issues in the implementation of the ERIC Regulation are underlined, and these will be addressed with other issues emerging from the detailed assessment of the Regulation in the next chapter.

*The activities of the ERICs:* The ERICs in operation cover broadly the present official definitions for an RI from hardware-based to wide networks of data/sample collections, including organised data collection designed to capture social changes. Most statutes explicitly define joint activities towards standardisation and integration of the scientific activities, to achieve stronger international competitiveness. In many statutes, there is the explicit scope of coordinated and standard procurement and upgrading of national activities in a structuring and integrative approach. Compared to the majority of RIs established before, in the distributed ERICs there is less difference between research and service activities, and the coordination and standardisation implies a strong alignment of the research activities of the participating facilities.

One underlying aspect in all RIs is the need to have excellent 'in-house' research to ensure their quality. In large single-multi-site RIs, the in-house research is a limited part of their activities (often around 20% or less), while, in the nodes of distributed ERICs, research is the prevailing activity. Thus, the participation in an ERIC impacts directly on the quality of research in the universities and institutions hosting the ERIC activities. This can be defined as a paradigm shift, from focusing mainly on the service for external users, to involving directly the research activities of the hosts in international challenges.

*The contributors to the ERICs:* The statutory contributors of an ERIC are (as in the Regulation) the members and observers: MS, AC, Third Countries (TC) or IOs. Several ERICs add another type of participant (strategic partner, collaborating institution, 'partner' in the Glossary) not provided for by the Regulation but very useful. This can be

either a TC or (national) institutes or research organisations who commit to contribute to the operation of the ERIC, but, for whatever reason, cannot (at least temporarily) become either observers or members. These are invited as the observers to the General Assembly (GA) without the right to vote.

However, in many distributed ERICs, the main contributions to operation (in scientific and financial terms) are made available 'in-kind' by the members/observers through the resources dedicated to the operation of hubs and nodes. Only in few cases these are formally embedded in the ERIC and accounted for in the annual reports (see also 'Governance of the ERICs' in the following), and this is part of the issue on the tax exemptions on in-kind contributions.

*The siting of the ERICs activities:* The statutes of the 22 ERICs show a very diverse organisation within the two general models anticipated in the Regulation (Art.2) listing only two types of ERICs: either 'single site' or 'distributed', where the first is hosted in one member, coincides with the statutory seat and hosts all relevant facilities, resources and related services (in the following: facilities), and the second has the statutory seat hosted in one member, with its function limited to supporting the governance and the coordination and selection/management of the user's access while the facilities are operated and distributed/hosted in all the members.

In reality only two ERICs (JIVE and ARGO) are (at least formally) single site, each hosting a facility allowing data integration and/or correlation (but in both cases, the data come from large/global networks). Two other ERICs are 'multi-site' (EU Spallation Source and ELI) both operating in two sites in two countries (ELI will further evolve to three sites in three countries).

All other ERICs have diverse distributed models by which they operate with a variable mix of places of coordination (most often called 'hubs') and other places where the effective 'infrastructure operation' takes place (most often called 'node' or 'national node', but also national consortium, cooperating partner, etc. In the following and in the glossary: node). Nodes are typically hosted in universities/institutions in each member. In several cases, in turn, national nodes coordinate national networks of facilities hosted in other universities/institutions.

*Organisation of the ERICs:* All ERICs have a General Assembly (GA) of the members (in some cases called Council or Board of Governors or Assembly of members) as the highest governance body, and an Executive Directorate (ED) which is either an individual (Executive Director or Director General), or dual (Administrative and Scientific Director, or requirement of obligatory deputies), or wider (Executive Council/Committee or Board of Directors). GA and ED are the main governance bodies, although some ERICs have three levels composed of the General Assembly, the Executive Board and a CEO.

Other bodies support the governance, either with advice or in a more executive function to implement the activities. Advisory bodies are in most cases international. All ERICs have an independent scientific advisory body (SB, SAB, SIAB, ISTAC...etc., often including ethical advice). In several cases there are technical and/or administrative advice bodies (Administrative Finance Committee (AFC), in-kind committee, resource review board, etc.), depending on the type of organisation and on the amount of direct procurement or of formalised in-kind contributions.

Executive support to operation is normally provided by boards of facility directors who are either employees of the ERIC in single multi-site or in hubs, or appointed by the hosts in the nodes (board of (national node) directors/coordinators, director's committees, board of service providers, standing committee for centres, network committee, etc.).

The tasks and scope of these various committees, as well as how their members are appointed are, in most cases, outlined in the Statutes.

Governance of the ERICs operation and its relationship with the contributions: In all Statutes, the ERIC members (and observers/partners) commit to contribute resources (in cash and in-kind) to support the establishment and operation of the ERIC. However, there are two distinct ways on how these resources are effectively made available and used to perform the ERIC institutional activities.

In the single/multi-site ERICs, the resources are generally directly controlled and managed by the ERIC in its sites after the transfer of property or full availability by the contributing member.

Differently, in most distributed ERICs, only a marginal part of the resources for their establishment and operation is transferred by the members and directly used (and accounted for) by the ERIC in the statutory seats and (but not always) in the 'hubs'. The largest part of resources is used in the nodes by the hosting universities/institutions within agreements ensuring operation according to the ERIC programmes.

Only in some cases, these resources are explicitly provided by the members to the nodes either directly or through their hosting institution and detailed in the annual reports.

In most distributed ERICs their operation can be described as taking place in two 'perimeters': the first area is an 'inner operations perimeter' managed by the ERIC (like in the single/multiple site ERICs), and the second is a 'coordinated operations perimeter' where the operation of the ERIC activities are managed indirectly through the implementation of specific agreements, (often called 'service level agreements', but with possible fiscal complications). The policies developed for the ERIC are rarely implemented in the hubs and nodes hosted by universities and research organisations.

Annual reporting on the ERICs scientific, operational and financial aspects: The requirement of the Regulation is that an ERIC shall produce an annual activity report containing in particular the scientific, operational and financial aspects related to its establishment and operation. The general information on the scientific and operational aspects available in the annual reports indicates that the establishment/construction and the operation of the ERICs are proceeding according to plans, with impressive and excellent scientific results and outreach. However, the detailed operational and financial information is complete only in the single/multi-site ERICs, while is often incomplete in distributed ERICs where the description of the research, operational and financial aspects is mostly limited to the (marginal) part taking place in the Statutory seats and (in few cases) hubs. Only few ERICs seem able to collect and report the financial data on the contributions committed in the statutes to the nodes (or through the nodes) by the members. In some cases, this information was only available through ministries who effectively keep track of the contributions to the nodes.

This seems to be a direct effect of the lack of clear guidance on how the scientific, operational and financial aspects should be reported for the whole infrastructure, including its hubs and nodes.

The incompleteness of these data allows only a qualitative understanding of the extent and scope of distributed ERICs in structuring and integrating the national resources committed by the members. A quantitative assessment of impact on the ERA of the ERIC system will need detailed data.

On the positive side, some successive annual reports show a trend in developing joint projects including the activities of the nodes, possibly indicating an increasing integration or a learning curve on collecting these data, including the distributed in-kind contributions.

The lack of detailed accounting and reporting including financial aspects and the in-kind contributions by the members through the nodes is also a cause and effect in the limited capability to apply correctly tax exemptions. The ERIC Forum, in one of its projects, has

approached the issue of adopting international standard accounting to allow easier integration of data, avoiding complex procedures.

*Representation of the ERIC members: rights and obligations:* As reported in 2.2 the Regulation innovates, compared to IOs, by allowing an ERIC member to be represented by one or more Representing Entities (RE), specifying the exercise of rights and the discharge of obligations. This innovation was intended to involve more directly, mainly in the scientific and technical aspects, the universities and institutions which, sometimes, are less officially empowered in the existing IOs. This innovation has proven to be one of the prime movers in the establishment of the distributed ERICs where the REs are often also the main contributors of the in-kind operational resources in the hubs and nodes.

Annexes of most Statutes list the participating members, REs and other institutions, but the large inhomogeneity of these lists shows that this provision has been interpreted in different ways indicating an unclear and non-uniform interpretation of the Regulation. Often the ministries are listed as REs, while there are additional lists of national coordinating institutions. Only seldom it is possible to find (both in the Statutes or in the annual reports) any reference to which rights and obligations are delegated, and it is difficult to understand the effective role of the listed REs, how they deal with the commitments of the members in supporting the operation and how to report the contribution given by them through the hubs and nodes they often host.

Practical guidelines on operations should guide towards a more homogeneous application of this part of the Regulation.

*Establishment and operation of an ERIC:* The ERIC Regulation requires that an ERIC establish and operate a research infrastructure. Analysing the statutes and reports, the *establishment* of the ERICs presently in operation has consisted either in the direct construction/renewal of an infrastructure (typically for single/multi-site ERICs) or in implementing agreements making available and upgrading existing facilities/activities within the scope of the ERIC (typically for distributed ERICs).

The *operation* of single/multi-site ERICs is well defined, while, as reported above, there are strong differences in reporting the detailed operation of distributed ERICs.

*Closing remark:* Based on the content of the Statutes and the wide outreach of the existing ERICs as emerging from the numbers of national institutions and universities involved, the Regulation has allowed the construction of an effective 'ERIC system' within the ERA, involving and connecting a very rich and varied set of organisations. This, in turn, can be the basis to design and set-up other ERA activities based on consortia well beyond the main scope of establishing a new RI.

## **2.5 Roles of different stakeholders in driving the implementation and ensuring longer-term sustainability**

Analysing the declarations in the Statutes, the annual reports and the responses of the Ministries to the EGERIC survey, the successful establishment and operation of the ERICs show that the initial phase needs to involve the converging interest and effort of a wide and diverse set of stakeholders as the MS and the EC, the scientific communities, universities and institutions. Often this includes also Regional Authorities and sometime International Organisations and Industries. The involvement of these may be different between the establishment and operations phases, but all remain important to ensure sustainability in the subsequent longer-term operation.

In most ERICs, the relationship and alignment of the interests between different stakeholders during the establishment phase has been stimulated by the strategy-led activity of ESFRI, by allowing the definition of national roadmaps and related budgets, but ERICs have been set-up also by the initiative of independent strong collaborative efforts of scientific communities in Europe.



When agreement has been reached, the proposal is submitted to the EC and, as provided by the Regulation, the EC acts as a 'midwife' in giving birth to the ERIC, after verifying the correct implementation of the Regulation in the proposed Statutes and Technical/Scientific content. The EC has also the responsibility to act as guardian of compliance and quality being the Authority which both establishes and can dissolve the ERIC. It should assess the compliance and quality based on the annual reports describing the scientific, operational and financial aspects, which the Regulation requires to be provided to the EC and the ERIC members.

As provided for by the Regulation, the ERICS shall be supported by their members, who are expected also to be the drivers of their implementation.

For the ERICs which were originated in the ESFRI Roadmap, the EC has acted as the catalyst through the framework programmes playing a crucial role for the development of RIs and ERICs in Europe. Their preparatory phases were supported by FP7, and this support continued under H2020 including also the support of initial operations phase. This period should have allowed the prospective members to prepare for specific budget lines ensuring longer-term support. However, in some distributed ERICs, the results of surveys and interviews indicate that the EC funding is still seen as a key element for the distributed activities, with the member's contributions mainly directed to the central coordination activities.

In a longer-term perspective, the sustainability of the ERICs and RIs in general has been assessed in depth by a High Level Expert Group (HLEG) set up by DG RTD on 'supporting the transformative impact of RIs on EU research'<sup>25</sup> with particular focus on how the EU programs have given support and on its effectiveness.

The ERICs must be supported for their establishment and basic operations by their members; however, they will need also a sizeable support through competitive projects developed during the operations phase, to be able to increase their competitiveness and expand their scientific and user base. The special position of the ERIC's in H2020 allowed that an ERIC by itself already fulfils the minimum condition for participation in H2020. The Commission issued Guidelines for the participation of ERICs in H2020 allowing them to participate as sole beneficiary in some calls, meanwhile, in other calls, an ERIC was considered to be a legal entity established in a different state than the other project partners.

However, according to evidence gathered through interviews and surveys, there may be a difficulty for the distributed ERICs to involve directly the nodes hosted in larger institutions, arising from these institutions perceiving a loss of the positive evaluation by the national funding agencies, if they appear to win fewer EU grants and/or produce fewer scientific outcomes. This requires that national funding agencies include the evaluation of the activities and resources acquired through the participation in the ERICs.

The scientific viability and financial sustainability depend on the support by the members which, in turn, depends strongly also on the cohesion of the scientific community initiating it. But this could be mainly a disciplinary approach and cause a 'closed club', limiting the outreach to new users and collaborations. Most successful RIs have been able to escape this trap and to involve a widening set of stakeholders and attract new users and supporters over the years and decades. The ERICs are still in the early phases of the complex lifetime of a RI, and, based on the surveys and interviews, there is already a clear tendency to get involved in wider activities than those initially designed.

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<sup>25</sup> Supporting the transformative impact of RIs on EU Research: Report of the HLEG to assess the progress of ESFRI and other world-class RIs towards implementation and long term sustainability. [https://ec.europa.eu/info/publications/supporting-transformative-impact-research-infrastructures-european-research\\_en](https://ec.europa.eu/info/publications/supporting-transformative-impact-research-infrastructures-european-research_en)

The main benefit for the members is that the resources dedicated to the ERICs, in particular national resources connected to distributed ERICs, are used in the most effective way by being subject to international peer review and competition and integrated by other member's resources. In research, the main indicator of effectiveness is the excellence of the results. This is also the expectation expressed in 100% of the Statutes. In most distributed ERICs the members contribute (or more often involve through the RE mechanism) national facilities as in-kind contributions to stimulate their full and internationally open operation. The openness, continuous improvement and integration of these national resources in an ERA approach is the main long-term driver for the success of the ERIC system.

When the members of the ERICs act through different institutions which can be delegated as Representing Entities (universities, institutions and regions), these often are also the promoters but then they must be coherently motivated and supported for the common goal of hosting and contributing to well defined activities of the ERICs generally in hubs and nodes integrating their resources and efforts. This requires that members have a strategic view of how to use their commitments in the ERICs as an instrument to stimulate the participation of their research resources in the ERA partnerships and missions. This should be part of an overall governance of the ERA in which the EC and MS act along coherent strategies.

### **3 Assessment on the implementation of the ERIC regulation**

#### **3.1 Summary of information collected and used in the Report**

In assessing the success of the implementation of the ERIC Regulation, account should be taken of the scientific quality allowed by the ERICs and of the structuring and integrating effects of the ERICs in the ERA.

Both aspects, although already measurable, are based on activities effectively ongoing for less than 10 years for all ERICs and less than 5 years for most.

Compared to other well-established Organisations, there is not yet a place where the main data of the ERICs are collected and curated in a standard and open approach (as, e.g. would be a Registry). EGERIC had to collect data in various different ways also by directly interacting with a number of the ERIC stakeholders and the ERIC Forum. Data are not presented in standard formats and not consistently reported by different sources. As underlined in the recommendations, the collection and curation of the relevant data is an important aspect for the governance of the ERIC system.

The success in implementing the ERIC Regulation and of most individual ERICs is clear, but is not yet consolidated and this points to the need to assess closely the evolution of the individual ERICs and of the overall ERIC system while implementing appropriate policies to drive the process and reach a durable and extensive impact.

With reference to the present document, the information used can be summarised as follows:

- Documents from the Commission and from the Council, integrated by interviews with EC staff and a number of experts in legal and taxation matters. Of particular value have been interviews with the Committee of Regions, COST, EUROSCIENCE and members of the FORUM for transition, ERAC, ESFRI and previous Expert Working Groups, as well as some International Organisations and three European University Associations (for chapters 1) and 2) a. to b).
- Main sources have been the ERIC Statutes and annual reports, but with information integrated by surveys conducted by EGERIC on the Research Ministries and, through the ERIC Forum (for chapters 2) c. to e. and chapters 3) and 4).
- A number of issues have been clarified by discussions within EGERIC based on the expertise of its members.

The timing of the assessment has not allowed pursuit of interviews with other important stakeholders as, e.g., the European Parliament and the EU Court of Auditors.

#### **3.2 Assessing the Extent and Achievements of the implementation, conclusions and emerging issues:**

In the following, based on the criteria defined in 1.3 and the documents and data acquired as in 3.1 the outcomes of the assessment are presented for each criterion indicating also emerging issues. The issues are the source of the recommendations presented in the final chapter and in the executive summary.

## **A) Enhancing the scientific capability of the ERA**

### **1. Excellence assessed by the publications and the attraction for international users:**

EGERIC has taken into account the Statutes, which all include excellence as the main objective, and, lacking aggregated data, has taken note of the detailed results as presented in each ERIC's annual report, most of which list publications indicating impact and quality through citations. Data on the attraction for international users are also available in most annual reports and indicate large and growing numbers of international users. A more organised data collection is now planned on the indicators defined by the ERIC Forum and ESFRI.

*Outcome:* Most ERICs, in particular those who operated for 5 years and longer, have already reached an established level of excellence as indicated by the listed publications, and attraction for international users in numbers and countries of origin. Comparing reports of successive years, most ERICs demonstrate an increasing trend. The ERICs, in particular the distributed ones, are an instrument of choice for the development of an institutionally robust and stable network of scientific, technological and innovation related nodes where research, training, technology transfer and other innovative activities take place and are stimulated to interact. The ERICs ensure a solid base by the presence and benchmarking provided by international users and the international outreach. The ERICs network is potentially capable to be the conduit for a two-way access to excellence, not only in research but also in economy related activities.

*Issues and recommendation:* There is a notable lack of aggregated and coherent data. An approach to governance should include a recurrent, possibly yearly, appraisal made more effective by the availability of updated aggregated data collected and curated in a FAIR approach (e.g., through a 'Registry' implemented by the ERIC Forum and/or ESFRI) in a common repository to allow assessment and visibility. The MS, AC, IOs who have established and contribute to the ERICs should be acknowledged and encouraged to further support the ERICs as a system.

### **2. Attracting and retaining talent (including at international level)**

EGERIC has made an initial assessment based on information from the annual reports and from staff-related surveys conducted by the ERIC Forum as well as by interviews. The main indications are that 15 out of the 22 ERICs have suitable employment and recruitment procedures in place, and 7 of them have already employed staff in more than one country. Hiring in more countries meets added costs due to the need to consult different labour experts in each country, while the attractiveness is low, as compared to Joint Undertakings and IOs who have equal employment conditions at EU level. The numbers of staff employed directly by the ERICs, lacking this contractual framework, are mainly limited to the few single-multi site ERICs (where less mobility is required). Difficulties due to the perceived novelty and deficit of career perspectives in the ERICs are also reported. Staff in the single-multi-site ones is largely multinational and includes a fair amount of non-EU nationals and returnees as in other large international facilities. In distributed ERICs, detailed evidence is limited to the statutory seats and some hubs. However, anecdotal evidence related to the national nodes established and supported by structural funds in the lesser developed regions indicates that there is a positive effect in retaining talents who can develop their career without necessarily migrating. The coordinated/synergic use of structural funds for construction, training and initial employment of staff seems to be an effective tool, which could be strengthened by optimizing the use of these instruments.

*Outcome:* The potential of the ERICs to attract and retain talent including at international level, and in particular in the lesser developed regions, is very large but still limited by the lack of a common EU contractual framework and career perspective, both yet to be implemented along the ERIC Regulation.

*Issues and recommendation:* The different legal frame for employment in ERICs as compared to employment in EU or international institutions as the JUs, EU and the IOs, is specifically discriminating the ERICs. The status of personnel working for the ERICs should be harmonised to the maximum possible extent with the status of other personnel working for the EU. A possible interim solution of this issue could be achieved by the ERIC members defining an additional area of agreement, expanding beyond the limits of the EU legal frame.

### **3. Activities in training**

Data are available from the Statutes, from the annual reports and from a survey concerning employment within the ERIC Forum. From the survey of the Statutes, it is found that education and training is directly embedded in the mission of almost half of the ERICs. In general, hosting of many ERIC nodes in universities allows a direct interaction between training activities (in particular at master and doctorate levels) with the international ERIC-related activities and with researchers admitted as users or longer-term collaborators.

Also, specific training of potential users is reported by several ERICs and in some cases it extends to potential industrial users.

*Outcome:* Within the available information, the overall indication is that the activities in training or connected to training in the ERICs are widespread and systematic, potentially extending throughout the overall ERA.

*Issues and recommendation:* the data on training aspects of the ERIC system should be collected and assembled within agreed communication strategies allowing evaluation of impact of the ERIC system in the ERA, also developing and offering integrated services.

### **4. Mobility and diversity of staff and users**

Data have been gathered mainly from interviews and a survey by the ERIC Forum on the staff employed in the ERICs. The larger number of employees operate in single/multi sited ERICs, which having a more favourable and localised employment condition, have been able to attract scientific, technical and managerial staff at international level (often including returnees). In some cases, the reported attractiveness is low due to national and legal limits to employment and salary scales. Distributed ERICs have employed mainly managerial staff and almost only in the statutory seats/hubs. Their employment of research staff is still very low due to the difficulty in offering reasonable careers. The largest part of staff operating in the distributed nodes of ERICs is therefore still employed by the hosting institutions and operates for the ERIC mostly part-time, while the mobility within the distributed ERICs is hindered by the lack of border-less contractual arrangements.

Data on gender diversity are lacking (as not yet systematically collected). This can be assessed at higher executive levels, e.g., at the level of Directors in the ERIC Forum, where the balance needs to be improved, with 4/21 as the present ratio, taking into account that the personnel employed in the statutory activities seems (on a random check) to be more balanced. This could be in part also due to the limited availability and training of research managers in the EU. Active policies could and should be implemented by the representatives of the members in the GA's, to improve also this aspect.

As far as ERIC external users are concerned, data are available in terms of nationalities, many ERICs having a truly international users base, in some cases thousands per year. Diversity unbalance within the users does not seem to be present if compared to the reference scientific communities. Due to COVID-19, a very large proportion of users have not travelled in the last year (for RIs where physical access was the norm). A number of ERICs have introduced remote access methodologies, which, in many cases, will probably become the method of choice and allow easier balanced geographic access.

*Outcome: The assessment indicates that, within the data available on the staff, the mobility reflects strong limits for the direct employment conditions of the ERICs (in particular the distributed ones), while the diversity indicates an unbalance at the top executive level. Data on users are more widely available and indicate a pattern in mobility and diversity similar to most other research infrastructures.*

*Issues and recommendation: A more systematic collection of data within the ERIC system should allow having a more detailed overview, also to define and apply appropriate policies. The limits to mobility are mainly due to the lack of an EU-level contractual reference for the ERICs, while the diversity at top managerial level should be addressed by the national representatives in the ERICs GAs.*

## **5. Supporting Open Data and EOSC within the transition to open science**

While the ERIC Statutes are not very detailed on this issue which is relatively new, the available documentation connected to the setting-up of EOSC indicates that the ERICs, coordinating themselves in clusters, have been preparing joint policy briefs based on their understanding of the community needs and the disciplinary conventions, methodological frameworks, workflows, style, etc., and on their direct link to established communication channels with potential end-users. Understanding the end-user needs is seen as essential for the successful implementation of EOSC and for the generic service providers and for sustaining the added value of ERICs for the European scientific agendas.

In terms of open science and involvement of citizens in defining or performing research activities, the ERICs operating in environment and in medical and social sciences report already some activities, which were ongoing in the members and are now being embedded in the ERIC programs.

*Outcome: ERICs appear to be actively supporting both the open access to FAIR data and the setting-up of EOSC, even if they are not individually the largest producers of data. With few exceptions, the ERICs are definitely the aggregators of multidisciplinary data, and potentially the best route of access to data which allow to synthesize social and technological aspects, allowing the possibility also to research related to the acceptability of specific technological aspects. In the wider context of open science, there is a definite potential based on ongoing activities.*

*Issues and recommendation: within the governance issue, the potential of the ERICs as aggregators of multidisciplinary data as well as the best way to synthesizing social and technological data and developing open science methodologies should be specifically addressed, also by implementing an open and FAIR collection and curation of their operational data while defining the scope and role of EOSC in the support of the ERA governance.*

## **6. Participation of less developed regions as ERIC members and users**

The ERICs members and institutions hosting their activities cover all the MS and a large part of the AC. Compared to the pre-existing Pan-EU RIs, mainly single-multi site, which were localised in the West, the distributed ERICs operation shows an improved East-West and North-South balance and one large multi-site (ELI) has been built in Central and Eastern EU. It is notable that MS in Central and Eastern EU have planned investment of structural and national funding in medium/large facilities built in the eastern part of Europe, and now embedded in ERICs, in most cases as 'in-kind' contributions. These countries have become an important part of the ERIC system improving their scientific competitiveness and sustainability through opening to the international collaborations and use. The involvement of the governments shows also through their presence in the ERICs management and knowledge about the relevant data.

Annual reports reveal a sizeable share of users originating from lesser-developed regions. Even more importantly, the ERIC facilities in these regions attract users from the rest of Europe and at international level, therefore creating local conditions of international collaboration and training extending to the host universities and research institutions. The response to COVID has involved equally ERICs and ERICs nodes operating in Central, Eastern and West MS, indicating the effectiveness and readiness of the regional outreach of the ERICs.

*Outcome: The effects of the implementation of the ERIC Regulation on the participation of less research-intensive regions are positive. Most Countries in this part of the EU show a clear and well-rooted long-term strategy to invest and be directly involved in hosting internationally open facilities.*

*Issues and recommendation: the possibility to use structural funding to give support to nodes and activities of the ERICs should be increased and made long-term, to ensure a lasting growth and the capability to close the gap with less research-intensive regions. A wider implementation of tax exemptions for the in-kind contributions to the ERIC nodes by the members through Entities hosting the ERIC activities could also contribute to a faster growth in these countries.*

### **Summary outcomes:**

The implementation of the ERIC Regulation has achieved an enhancement of the scientific capability of the ERA as well as the attractiveness for international researchers, with the potential to attract and retain talent at international level. Mobility of users and staff is embedded in the mission of the ERICs and in particular of the distributed ones. A potential effect in training is also connected to the participation of many universities in the ERIC activities. The involvement of ERICs in the development of EOSC is very positive while some ERICs are also involved in other Open Science activities. Notable is the participation of the lesser developed countries whose governments are particularly motivated and involved in developing an overall strategy to use the ERIC system for closing the gap with the other countries.

### **Summary issues and recommendations:**

For the visibility and governance of the ERIC system a common repository of aggregated and coherent data on the ERICs, including data on staff and training activities is needed. An approach to governance should enclose a recurrent, possibly yearly, appraisal made effective by data collected and curated in a FAIR approach along a well-defined set of requirements. This could involve ESFRI and/or the ERIC Forum. The staff mobility and the attraction of talents, in particular at international level, is hampered by the lack of a common legal and contractual framework as compared to other EU wide institutions. This should be solved by ERIC members implementing an agreed approach. The longer-term sustainability of the efforts in the lesser developed regions may need to use more flexibly the structural funding and the tax exemptions for in-kind contributions.

## **B) Overcoming fragmentation, improving coordination and reinforcing governance and sustainability**

### **1. Flexibility of implementation and the response capability to challenges:**

The number of ERICs already established (22) and in preparation, as compared to the number of pre-existing Pan-European and international RIs, indicate that the Regulation has facilitated their establishment and become a natural choice for launching new Pan-EU RIs. The opinion expressed by Governments from the surveys implies also that the legal form of consortium is adequately flexible and can be suitably tailored. This flexibility has allowed the ERICs to engage in a multitude of scientific areas, from exact sciences to human and social sciences. It also enabled organisational and operational aspects spanning from a rather centralised approach to a lighter coordination, supporting a wide

range of different requirements, from the construction and management of large localised infrastructures to the coordination and integration of existing research groups and data banks. The flexible nature of the ERICs has empowered immediate and effective responses to the challenges posed by the COVID-19 pandemics already by February-March 2020, by coordinating their responses. Priority, free of charge, specific and focused transnational access was offered on the ESFRI website, on national websites and on the ERIC Forum website<sup>26</sup>. National nodes also offered their capacity separately on national websites.

*Outcome:* The number of ERICs and the diversity of research areas covered by them demonstrate considerable flexibility of the ERIC Regulation in responding to a wide range of requirements. The collaborations in particular within the LIFE and ENV clusters as shown in reports by the ERIC Forum indicate readiness to respond to other complex challenges.

*Issues and recommendation:* The development of a visible set of multidisciplinary capabilities, as, e.g., services accessible also by non-expert users, is not yet visible through the available documentation. Collaborations between ERICs of different clusters to respond to multidisciplinary challenges and requirements should be supported by focused projects and strengthened to allow a full multidisciplinary response of the ERIC as a coherent 'system'.

## **2. Structuring and integrating effect of national resources**

In 75% of the cases, statutes of the ERICs explicitly include transnational collaboration and integration in Europe. Most Statutes of distributed ERICs declare the commitment of the members to the qualification, upgrade and operation of the resources made available to the ERIC in the national hubs, nodes or other sites, hosted in universities and research institutions including agreed qualifying standards, operation and procurement procedures aligned to the ERIC's needs. By integrating this information with a survey with the ERIC Forum, it is found that the distributed nature of most ERICs connects operation and research in hundreds of universities, public and private research institutions (as reported in Tab. I), extending, in few cases, to Industries and IOs. This provides a structuring and integrating effect increasingly extending to participating institutions in all EU regions and has the potential to evolve an ever-stronger capability to compete at international level. A hindering factor is the lack, in some cases, of fully recognizing the same legal personality and capability as national research institutions of the distributed ERICs also while operating through their nodes. In terms of sustainability and structuring effect, the funding mainly related to time-limited projects may be an obstacle.

Attempting a quantitative evaluation of investments and operation costs by extrapolating (lacking standardised and coherently collected data) the available data and a survey by the ERIC Forum, the value of the resources committed within the presently established 22 ERICs (including Statutory seats, hubs and nodes) can be estimated to about 500 M€/year for operation and about 7.000 M€ of overall investment. The staff either directly employed or seconded or working full or part-time in the ERICs (including their hubs and nodes) can be roughly estimated at 4.500 FTE.

*Outcome:* within the uncertainty of the available data, the assessment allows to confirm that the structuring and integrating effect of the ERICs on national resources is already relevant and with potential to increase.

*Issues and recommendation:* The lack of detailed knowledge and visibility of all the components of the ERIC system (in particular the distributed ERICs) limits governing and

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<sup>26</sup> (<https://www.esfri.eu/covid-19>) and (<https://www.eric-forum.eu/2020/09/15/european-research-infrastructure-consortia-and-covid-19-research/>).



*implementing its structuring effect and full potential to become a real 'institutional backbone' for the ERA. The recognition of the legal personality and capability of the ERICs and of their sites of operation as national research institutions in the MS should be implemented to structure and integrate the national resources. Issues in the implementation of the Regulation's fiscal provisions and time-limited project funding decrease possible synergies between different funding sources.*

### **3. Interplay between national, regional and EU R&I systems, alignment of national R&D:**

In some large RIs supporting structured research communities (as, e.g., CERN and EMBL), there is a sizeable effect in aligning national, regional and EU R&I systems, beyond the resources dedicated to the RIs themselves. This effect for the ERICs cannot be assessed in detail due to the lack of systematic data and also their relatively short lifetime. However, an estimate of the potential alignment of national and regional resources is possible based on the numbers presented in Table I and the fact that most ERIC Statutes commit the members to support both the ERICs activities and the national users communities which indicates an effect beyond the functioning of the ERICs. The responses from many Governments to EGERIC surveys also shows that the participation in the ERICs gives directionality and additionality to investments and priorities among MSs and also within them. The interplay between national and regional systems through the ERICs sustains operational networks of regional initiatives connected to the EU R&I system also in long term structured partnerships and may contribute to reaching the common EU targets.

*Outcome: The potential interplay between national, regional and EU R&I systems and the alignment of national expenditure appears positive and extensive and has definite potential for improvement if appropriately guided.*

*Issues and recommendation: Within the overall governance, coherent data including localised and distributed ERIC activities and their impact on other associated activities should be collected, allowing the estimate of contribution to the R&D targets. If the ERICs are included in the activities and instruments planned for reaching the integrated R&D targets (as, e.g., the 2030 5% target of national funds dedicated to joint programmes and to European partnerships included in the ERA declaration) this could also help the MS to maximise benefits from their commitments.*

### **4. Synergies with the smart specialisation strategies:**

Responses to the EGERIC survey by a majority of Ministries show durable and planned synergies between national and regional systems in the support of the ERICs and in particular of the national nodes of the ERICs. The distributed nature of most ERICs has made some regions aware of their potential for capitalizing already available investments and further investing in the upgrades of existing facilities. In most cases this includes improving ICT development and supporting training that may be useful also for non-research purposes and its expected impact in regional industrial sectors (in particular SMEs). The relevance of this regional dimension is in particular felt for the ERICs in the ENV and LIFE clusters where the development of common standards, instruments and agreed coordinated procurement can attract and support industrial development. Distributed or locally hosted single-multiple site ERICs can also, through their nodes and hubs, be considered as knowledge-based systems tightly connected to the region in which they are sited.

*Outcome: Connected to the smart specialisation policies, the synergy approach has allowed a number of Governments and Regions to invest national and cohesion funding in the ERICs with a direct effect in the internationalisation of their research systems.*

*Issues and recommendation:* The synergies between national and structural funding are not yet clearly supported and recognised in the integration targets. A capability to stimulate synergies between national-regional and EU funding should be explicitly included in the governance of the 'ERIC-system' within the ERA, contributing to its overall sustainability.

### **5. Governance of the ERA as manifested through the governance of the ERIC system:**

No effective governance of the ERIC system has been observed by EGERIC at the EC level and in several MS, due to the unavailability of organised information and/or analysis of data. This reflects the lack of a register-like function as a data collector and curator but also a lack of guidance to the ERICs about what information should be provided on the scientific, operational and financial aspects in their annual reports. Currently no coordinated overview exists and assessments need to rely on very inhomogeneous and incomplete data retrievable only by visiting each ERIC's website. Additional surveys and interviews were required to formulate conclusions.

Interviews with stakeholders indicate that communication and knowledge between the central and distributed parts of some ERICs is limited if not outright absent. This points to a lack of communication and inadequate governance between centres and peripheries in the ERICs, mirroring the issues of higher-level governance.

Complete data on scientific, operational and financial aspects, as committed in the statutes, are readily available only for the single-multisite ERICs or for the statutory seats (and few hubs) of distributed ERICs, while in most cases missing for the nodes. Few member countries have retrieved and communicated these data, outlining their governance approach. As perceived by interviewing other RIs and some stakeholders, the ERICs are sometimes even considered as 'empty shells' and purely bureaucratic and remote entities, indicating lack of communication (even within some ERICs).

The lack of governance at the EU level contrasts with the fact that the EC is empowered to set-up (and dissolve) the ERICs and should control elements which ensure compliance with the Regulation. There is evidence that the scarcity of dedicated personnel, in the EC and in some Governments, limits this governance capability as well as expert and authoritative representation of the members in the ERICs.

*Outcome:* The lack of a central capability to acquire, curate and assess data on the ERICs and on their impacts, and to implement, with the MS a policy guidance of the ERICs system, may cause the overall impact of the ERIC system in the ERA to be suboptimal.

*Issues and recommendation:* A governance of the ERIC system within the ERA is missing. The EC and the Council should define and implement an effective governance at EU and national level dedicating to it sufficient resources. A register-like function (e.g., performed by the ERIC Forum acting as a provider) should be set-up to acquire all relevant data according to standard templates, allowing data-based control and governance. The respective roles in this governance of the EC, of the ERIC management Committee and of ESFRI (also representing the MS) and of the ERIC Forum, should be reviewed and strengthened allowing for annual or biannual assessment and definition of the role and scope of the system.

### **Summary outcomes:**

The ERIC Regulation has been found to be a flexible and effective tool to overcome fragmentation and improve coordination of the national, regional and EU resources committed to the ERICs establishment and operations. It has the potential to activate the scientific communities of users and the large number of connected institutions and universities. If an appropriate governance of the ERIC system is set-up, this would ensure a potential structuring effect within the overall governance of the ERA. In

particular, synergies with the smart specialisation strategies have been developed by several governments and regions and could be further implemented.

### **Summary issues and recommendations:**

An overarching issue is the lack of a governance system of the ERIC system. There is a need to set-up this capability with sufficient resources to ensure addressing and guiding the relevant aspects within a strong knowledge-based approach. This is a strategic action in the ERA, including structuring effects on the ERA and allowing the MS to reach integrated R&D targets, and developing strong synergies at regional level with smart specialisation strategies. The overall sustainability of the ERICs system, and of each ERIC, may be strongly improved if the existing resources are employed within a coherent and integrated approach. It is recommended to facilitate the implementation of tax exemptions on in-kind contributions by the ERIC members, which appears to be a critical issue for sustainability and integration.

## **C) Improving links with Society, Economy and Competitiveness**

### **1. Support and collaboration with value adding organisations (services and industries)**

The analysis of the Statutes and of annual reports indicates that most ERICs have activities aiming to directly translating their research results into economy and society. Distributed ERICs develop this in collaboration with the connected universities and institutions, but is not yet visible. Notable is the strong presence of university clinics in the LIFE cluster, and the presence of industry-related laboratories in the ENV and ENE cluster. Analysis of annual reports suggests that the interaction with economy-related users is widespread also beyond these two clusters, as, e.g., in material sciences ERICs and also in the SSH cluster. However, the formal development of this potential into e.g. formal services developed within the ERICs and based on multidisciplinary collaborations has not yet become visible, but the opportunity has been already discussed in the ERIC Forum.

*Outcome:* Most ERICs include policies allowing value generation. This indicates a strong potential, which could be better mobilised in this direction by a governance capability and focused projects, extending its capability beyond disciplinary areas.

*Issues and recommendation:* The potential collaboration between single ERICs and the whole ERIC system with value adding organisations is not yet fully visible and expressed in specific activities able to contribute to a wider outreach. In several cases, it appears that the distributed nodes of the ERICs are not easily allowed to interact with value adding organisations through the ERICs due to a perceived loss of visibility by the hosts. When developing a governance capability and dealing with funding and sustainability issues, this potential should be targeted and supported by specific national and EU projects. This should allow also to overcome different approaches and potential conflicts between hosts and ERICs.

### **2. Activities in the engagement of Science with Society**

Outreach is specifically indicated in 50% of the statutes and appears to be implemented widely as an activity by both the single-multi site ERICs and the statutory seats of distributed ERICs. Several ERICs report on activities aiming at the direct involvement of stakeholders. These activities take place also in institutions and universities hosting the distributed ERICs, but in this latter case mostly not yet involving the ERICs and their wider outreach.

*Outcome:* while activities in the dissemination and involvement of stakeholders are well rooted in most ERICs, a full assessment of these activities for distributed ERICs needs to take into account the overlap with hosting institutions.

*Issues and recommendation:* within the general issue of communication strategies, a more effective and explicit dissemination activity should be part of the strategic plans of both each ERIC and of the ERIC system as a whole and adequately staffed and funded, including activities agreed and synergic with the institutions hosting the nodes.

### **3. Extent of implemented IP policies (including TT services/spin-off/incubators)**

The technological development, innovation and knowledge transfer are indicated in their missions in 75% of the ERICs statutes and reflected also in many annual reports. From the outcome of interviews of ERIC staff and management, however, the effective implementation of these policies requires dedicated resources. This may conflict with the limit of net income provided by these activities and the focus of available resources which are directed by the contributing members mainly to the basic RI activity. As for other aspects, there may be an overlap and some conflict between TT services set-up by the ERIC and those of the members through their participating institutions. A possible more effective approach could involve sharing the efforts and resources focused on these activities by groups of ERICs, e.g., their clusters, to implement a more cost-effective approach. The ERIC Forum, based on the outcome of its surveys, is already discussing possible best practice solutions. Assessing how much the net returns of IP policies could be made more effective needs to take into account the limited openness of the overall innovation market of the EU, which is not yet fully integrated nor equipped with coherent fiscal policies.

*Outcome:* The majority of the ERICs show a definite interest in implementing IP policies, and steps to join forces are discussed in the ERIC Forum. The need to develop their full potential is clear, but needs specific support and improved framework conditions in the ERA.

*Issues and recommendation:* For ERICs, the investment of resources in TT activities may be perceived as unjustified if compared to the net income generated and may conflict with activities connected to the members. It is recommended that these activities are supported by dedicated funding by members or by the EC to guide a more integrated approach. Initiatives to cluster the ERICs to achieve economies of scale and sharing resources should be supported while developing multidisciplinary responses to external requirements.

### **4. Number of ERICs operating in service related and value adding areas**

About 11 of the 22 ERICs operate in value adding areas as estimated from the statutes and annual reports. Websites and reports show that some of the ERICs include industry laboratories as partners or entities nominated by members. Most of LIFE cluster ERICs are directly connected to national health systems through clinics and clinical institutes and most ENV and SSH cluster ERICs develop service activities in support to public and private policies. Furthermore, ERICs operating in material sciences have now oriented part of their research and service activities to industry related research (e.g., batteries). However, it is not always clear whether these activities are fully embedded in the ERICs or still more connected to the hosting institutions (in the case of distributed ERICs).

*Outcome:* Compared to the pre-existing pan-EU RIs, the ERICs (in particular many distributed ones) show a definite change of approach by responding to the new perspectives in the ERA with their internal research as compared to the previous orientation mainly limited to external service activities.

*Issues and recommendation:* Within the issue of full legal recognition and legal capacity, the involvement of the distributed ERICs in service-related areas is still limited by the overlap and sometime by the competition with the universities and institutions hosting their nodes and hubs: the direct participation through the ERICs should be recognised and supported to use fully the potential of the integration of different national efforts.

## **5. Assessing the ERIC approach to set-up innovation and/or university ERIC-like institutions**

EGERIC has been required to assess the possibility to extend the ERIC (or an ERIC-similar) approach to the setting-up of university and/or of innovation/technology Consortia. This stems from the observed flexibility and ease of implementation of the ERIC Regulation allowing a very diverse set of activities and organisational approaches.

The extensive involvement of university-based activities in the existing ERICs may be a base of experience and familiarity of the universities with the ERIC Regulation, but the extent of this experience seems still limited by the fact that only in few cases the nodes hosted in universities are well known and recognised by the hosts (as indicated in other assessment criteria). To implement a wider use, a more direct and official definition of how an ERIC can be hosted in a university may be needed, as well as defining the scope of such an initiative (e.g., setting up a joint research doctorate or building a generic infrastructure). The use of consortia is not uncommon for universities, e.g. interuniversity consortia have been set-up in some countries to allow universities to set-up or participate in large RIs at national or international level with the involvement of governments (e.g. Italian universities setting-up large HPC centres or participating in building the European Synchrotron Radiation Facility, or Indian universities building their national synchrotron and also Austria and other countries have been using them). The 'Representing Entities' approach would allow some level of autonomy to universities, as normally required in their relationship with the governments. These partnerships should have, as in the case of the ERICs, clear objectives and scopes to be successful, e.g. as collaborations in research or in the research doctorate schools, etc. where they may fulfil the condition of being non-economic activities, allowing for the participation of governments and for the advantage of tax exemptions.

Some ERICs are already operating in innovation, in particular in the field of environment and energy as well as in the medical field, but their core activity still is research and they fulfil the requirement of 'marginality' for their economic activities. Whether the ERIC legal form, with States as members, could be adapted to a 'non-marginal' economic innovation activity seems to be more problematic than in the case of universities and needs to be subjected to a deeper analysis of the legal and fiscal aspects.

*Outcome: The ERIC Consortium approach could be applied more extensively to universities and in particular for their research and doctoral training activities. In the case of innovation/technological activities, their economic scope and the overall legal frame should be analysed for limits to the participation of countries and for the impacts of the stronger economic nature on the provision of tax exemptions.*

*Issues and recommendation: the possibility to adopt the ERIC regulation on a wider base is not yet clearly defined, and issues may arise from its international and government level character. A further study is recommended, starting from the definition of the scope of this extension and the study of the legal and fiscal constraints.*

### **Summary outcomes:**

From the information and data available, the implementation of the ERIC Regulation has provided the ERA with a large endowment of ERICs as organisations interested and ready to participate in societal activities. Many have already established links with value adding organisations and are active both in dissemination and value adding activities, and in some cases operate already with the industrial environment. On the question raised by the possibility to adopt an ERIC-like legal form more widely: this seems possible for the universities, while it is more problematic for innovation activities.

### **Summary issues and recommendations:**

The focus of members' contributions to the ERICs core activities in the establishment and operation may conflict with the need to dedicate part of the resources to outreach and

technology transfer activities. For the nodes of distributed ERICs, activities developed within the ERIC may conflict with those 'owned' by the hosting institutions. It is recommended that, in setting-up an overall strategy for the ERIC system, focused actions and resources are made available for outreach and technology transfer activities to overcome these difficulties. Regarding the extension of the ERIC legal approach to wider university or innovation activities, it is recommended that a specific study is developed based on the effective scope of this enlargement and taking into account the legal and fiscal constraints.

## **D) Strengthening the global approach**

### **1. Extent of the engagement of ERICs in Challenges, Partnerships, Missions:**

The wide multidisciplinary activities and resources which can be deployed by the ERICs, as documented in the statutes, annual reports and surveys, shows a clear potential to address multidisciplinary challenges and activities as planned by partnerships and missions. The response to the COVID-19 pandemic has allowed a first demonstration of this potential. However, on the basis of existing documents, engagement of the ERICs in partnerships and missions and in response to other ongoing challenges, appears to be still in its infancy, or not visible.

As found in the assessment of other criteria, one reason seems to be the preference of institutions/universities hosting the ERIC's nodes to participate directly in these initiatives. This is mainly due to requirements of national evaluation and financing systems not including in their criteria the participation through the ERICs.

The ERIC Forum has been actively supporting an action to respond to the challenges and participate in the missions, which needs to be supported at a policy level also by the ERIC members.

*Outcome: The potential of the ERICs to engage effectively and successfully by deploying an extensive array of multidisciplinary resources is significant for responding to the challenges and requirements of partnerships and missions and may offer clear advantages.*

*Issues and recommendation: The participation through the ERICs and ERIC nodes is not adequately supported in the EU initiatives related to missions and partnerships and is sometimes discouraged by project funding criteria. This should be overcome by a clear policy to support the approach through the ERICs. This policy should involve the ERIC system governance and be accepted by the ERIC members, also by revising national project funding criteria.*

### **2. Support of the Grand Societal Challenges and international commitments as set out in the SDGs and Climate Goals**

As detailed in the statutes and web descriptions of the ERICs and from evidence collected from surveys, several ERICs are operating within at least 8 of the 17 SDGs, in particular in Health and Environment. Many are already connected to international organisations acting as references for global actions. Activities and collaborations growing within the scientific clusters set-up in the ERIC Forum are helping to approach these activities in a coordinated and multidisciplinary way.

*Outcome: A relevant proportion of the ERICs established so far pursue activities and have a clear potential capability to further act in multidisciplinary responses to the challenges and global requirements.*

*Issues and recommendation: Focused support actions (within a clear governance) are recommended to further focus and guide the potential capabilities towards the SDG challenges and international commitments.*

### **3. Increased visibility of EU Science at international level**

International cooperation is mentioned in 45% of the Statutes, and several ERICs participate, directly and/or through hosting and collaborating institutions, in international networks or organisations with a global outreach. In their annual reports, most ERICs include international cooperation results and agreements, indicating the international character of their research. The question is whether and how this wide network of collaborations and exchanges, including also the large numbers of reported international users, is fully aware of the involvement of the ERICs. Connecting the visibility of the large numbers of universities and institutions better to the ERICs could potentially build a visibility of the overall 'EU Science' and of the ERA itself. From the surveys and interviews, this does not seem to be yet the case and the overall impression is a scattered vision of a mix of national and international sites of interest, in particular for the case of distributed RIs. The ERIC Forum and several ERICs report initial steps towards a more coherent communication, but an adequate visibility needs a communication strategy to be implemented at all levels. The visibility of some IOs, built over decades, could be a useful reference of best practices.

*Outcome: A sizeable number of ERICs demonstrate a significant capability and impact in international collaborations also by networking international and global organisations. However, this potential to involve extensively the various participating institutions in the ERA, is not yet fully visible at international level, in part due to the relatively young age of most ERICs and in part to a lack of definition of roles and of communication (mainly for distributed ERICs).*

*Issues and recommendation: To strengthen the global dimension, a more coherent and strategic approach to communication should be set-up, where communication focuses on the essence of the ERICs as the synthesis of national capabilities in the international outreach with an effective multiplier effect within the EU-ERA. This communication strategy should be developed at governance level and involve the expert and technical support of ESFRI and the ERIC Forum.*

### **4. Attractiveness of ERICs to third countries and IOs**

The outcome of the surveys of ERIC members (ministries) and interviews with IOs have indicated the strong interest to participate in the ERICs. However, both from AC and IOs, the issue has been raised of the lack of clear guidelines in the setting-up and start-up phases of the ERICs when TCs are involved. The main difficulties are the extent of being subject to EU law in case of liabilities and the translation of the relevant parts of the Regulation into national law of TC or their compatibility with site agreements of IOs and their privileges and immunities in general. Several large national institutions and potentially governments (as, e.g., in the USA) would be ready to participate in some ERICs. Some of the hurdles have been addressed in the Statutes with specific clauses. However, the lack of clarity on some of these issues has been bypassed or postponed by introducing 'partnerships' additionally to the memberships and observer-ships in some ERICs.

*Outcome: The attractiveness to TCs and IOs is strategic to achieve the global impact of the ERA. A strong interest of TC has been documented in the interviews and in surveys, but to achieve full implementation through membership in ERICs needs further clarification on the legal frame.*

*Issues and recommendation: The lack of clear experience-based guidelines adding to legal constraints for TC and IOs seems to limit their entry as ERIC members. It is recommended to develop a focused part of the practical guidelines addressing TC and IOs. Solutions to legal constraints have been implemented in some cases; these should be studied to allow best practices and solutions easing the bottlenecks in an effective way.*

## **Summary outcomes:**

The ERICs demonstrate a strong potential to deal with challenges and European partnerships, and to be involved in international challenges and the SDGs. Many ERICs are already active in this respect. The whole potential of the ERIC system needs to be directly supported and made more visible also at international level, strengthening its contribution to the global activities of the ERA.

## **Summary issues and recommendations:**

The full implementation of the potential of the ERICs and the ERIC system in strengthening the global approach for the ERA is still evolving due in part to the short time from implementation but also to resistances and issues within the institutions participating as representatives of the ERIC members. Focused support by the EC and on national funding is recommended to speed-up the integration process and the communication activities.

### ***3.3 Towards the full implementation of the Regulation: Outcomes and Recommendations regrouped by policy approach.***

The assessment in the previous paragraph has been carried out according to the criteria defined on the basis of the initial scope of the Regulation in the light of the present evolving framework.

The assessment of each criterion has generated outcomes and understanding of some issues, as well as proposals for recommendations. In what follows the outcomes and recommendations are synthesised and regrouped having in mind policies to implement them effectively and the potential of the ERIC system and the ERICs to contribute to the ERA.

The main summary findings/outcomes are:

- As planned in the approval of the legal framework, the implementation of the Regulation has empowered the establishment and operational start-up of 22 new research organisations producing excellent science, attracting international users and strengthening innovation and value creation. Most ERICs have been established by integrating distributed national research activities, thus introducing a paradigm shift in the scope of RIs, from facilities built and operated locally to respond to external users, to EU wide organisations developing joint research and able to respond to wider external requirements and challenges. This response is achieved by structuring and integrating research activities and resources in hundreds of university departments and research institutions. An 'ERIC system' is emerging as an institutional research backbone of the ERA. This system is already self-organizing in clusters within the ERIC-Forum, covering wide disciplinary areas.
- Most ERIC statutes commit them to translate the results into the economy and society, developing synergies between research and education as well as value creation. Further synergies are developed between national, EU and regional funding programmes by involving research resources from the majority of Countries and regions with lower research performance. ERICs are involved in addressing the challenges connected to the data production and use and are directly involved in the development of EOSC. Several ERICs are part of global initiatives within wide clusters where pooling of resources achieves competitiveness at world level.
- At governance level, evaluation of the implementation of the Regulation has been limited mainly to the setting-up phases of the ERICs. The overview of the operation phase also through collecting and analysing relevant data has been ineffective or absent in the EC and most governments, except few MS as



commendable best practice examples. This has been hindering the capacity to assess and guide the implementation of the 'ERIC system' when operations are based essentially on in-kind contributions by the ERIC members and on shared standards in the distributed nodes. However, the effective implementation of these activities is seldom reported. Lack of overview and governance has delayed appropriate policies to stimulate the direct involvement of the ERICs in the challenges and partnerships now structuring the new R&D agenda.

- Setting-up a proper governance of the 'ERIC system' is needed to empower the ERA with the capacity to effectively respond to challenges, missions and global requirements by rapidly focusing large national R&I resources. This capability has been demonstrated in the Covid crisis. A more comprehensive and consolidated approach is needed in view of optimising the use of these resources. A governance should overcome persisting issues as the VAT exemptions on in-kind contributions and the less favourable employment conditions in comparison with other EU and international entities. A consolidated approach and a more effective oversight will strengthen Europe's leading science base, supporting its transition and recovery whilst pursuing economies of scale.

Also the recommendations have been detailed in the document as emerging from each assessment criteria and are summarised here as follows:

- A governance of the 'ERIC system' implementing an evidence-based guidance must be set up within the overall ERA Governance to meet the overarching ERA policy objectives, ensuring at the same time compliance with the Regulation. This should be based on a clear policy and a structure (as one example - a registry) allowing to specify the data to be acquired, curated and assessed to give a detailed overview of the ERIC system and of each ERIC, including all its operational sites, hubs and nodes. Enough resources should be dedicated at EC level, using also the advisory and executive capabilities which can be provided by ESFRI, the ERIC Committee and the ERIC Forum. Updated guidelines including experience-based procedures for the operation phase and the participation of AC, TC and IOs should be developed.
- The governance of the ERIC system should improve sustainability also through focussed projects funded in synergy between national, regional and EC resources. This will also support the managerial and financial resources to steer their large research capabilities towards the challenges, international commitments and missions. Governance should aim at overcoming the persisting issues related to tax exemptions for the in-kind contributions by members and to employment of the personnel with EU status and mobility, as well as implementing diversity policies. This will allow to directly involve all national R&D systems also in collaboration with appropriate value adding organisations. These projects should strengthen the capability to act on research challenges while implementing policies towards the alignment of national expenditure and by dedicated national budget lines in synergy with other funding sources.
- The basic operation of the ERICs should be supported by long-term commitments of their members. If and when appointing the Representing Entities, they should specify the rights and obligations needed to ensure the longer-term sustainability of the sites, hubs and nodes supported through them. Moreover, hosting of ERIC structures in universities and research institutions and their participation in EU projects should be evaluated and recognised at the same level as the direct participation of the host institution in EU projects, including partnerships. The contributions of MS to the ERICs, including in-kind contributions, should be included in the integrated R&D targets.
- The ERIC system should be stimulated, also by involving the ERIC Forum, to develop Pan-EU multidisciplinary services, responding to the need to narrow the gap between research and innovation. This should implement interconnections

both at disciplinary level (as in the clusters) and at multidisciplinary level, and share services and specific rare resources within the 'ERIC system'. This would build the readiness to respond to challenges and to participate fully in European partnerships.

Some issues have been analysed in more detail in Annex II including some technical elements allowing further recommendations and best practice indications.

## **ANNEXES TO THE EGERIC ASSESSMENT**

### **List of Annexes:**

- I. EGERIC Experts**
- II. A detailed discussion of outstanding and emerging issues and best practice examples**
- III. List of surveys and interviews**
- IV. Glossary and acronyms**

## **ANNEX I - EGERIC Experts**

The setting-up of EGERIC has been implemented by seeking and assembling the needed expertise required to fully assess the implementation of the ERIC regulation. This covers the following fields and areas:

Managerial, legal and financial expertise in setting up and/or operating research infrastructures with a European dimension; Knowledge of research infrastructure policies at regional, national, European or global level; Practical experience with the use of research infrastructures; Expertise regarding open data (FAIR principles) and open access.

### **EXPERTS' SHORT BIOGRAPHIES**

**Hervé PÉRO (FR):** currently not professionally engaged. Engineer by training, he has been working as a civil servant for the European Commission until around mid-2013. His specialist field includes policy and strategies innovation related, research management assessment, Responsible Research and Innovation (RRI), EU and international research policies and Impact Assessment. At the European Commission, he was as Head of Unit dealing with Research Infrastructures. He has a deep and direct knowledge on some of the proposed tasks. He has a long indirect managerial and financial expertise concerning research infrastructures of European dimension and knowledge of international policies for research.

**Carlo RIZZUTO (IT):** currently Italian delegate in the General Assembly of CERIC ERIC. He has been engaged in activities in supporting governmental and EU research policy and evaluation, in setting-up research infrastructures at national and international level, developing technology transfer and support of spin-off companies from research to market. He was founder and scientific vice-chair of the INFM, chair of Elettra-Sincrotrone Trieste, ESFRI, European Research Facilities Association. He was Director General of the ELI-DC, a consortium with the scope of preparing the setting up of the ELI ERIC. He has then a direct and practical expertise in managerial and financial aspects related with research infrastructures of European dimension and their related policies at national and international levels. He has also a direct experience in policies related to the use of research infrastructures.

**Edit HERCZOG (HU):** member of the Research Data Alliance (RDA) Council. Owner and managing Director of Vision & Values SRL with the mission to support different stakeholders, analysing long-term trends (PESTLE) and supporting strategic turn to implement state of art technology and legislation. She worked in various committees of the EP: Internal Market and Consumer Protection, Industry, Research and Energy, and Budget and Budgetary Control, SME Working Group and the Lisbon Strategy Working Group. Presidency member of European Energy Forum, European Internet Foundation, Forum for the Future of Nuclear Energy. She was part of the Identification Committee for the selection of members of the expert group members of the Executive board of the EOSC. She has then a deep knowledge on research and innovation policies at European level and on research open data, including the FAIR principles, and open access.

**Naděžda WITZANYOVÁ (CZ):** senior manager at the Technology Center of the Czech Academy of Sciences. Member of the H2020 Programme Committee for RIs and Horizon Europe for Research Infrastructures and senior expert in CZ for ERIC negotiations. At the Ministry of Education, Youth and Sport, she was head of the units dealing with the ERA related initiatives and research infrastructures. Also involved in ESFRI activities as national representative, ESFRI EB member, Chair of ESFRI Regional Issue WGR. She is member of the MEYS Council for large research infrastructures, initiated and coordinated the first drafts of CZ Roadmaps for large research infrastructures and the joint use of European, national and SF funds for its implementation. Later she was dealing with energy policy (European Energy Research Alliance) and structural funds projects implementation (e.g. CZ in-kind contribution to ESS Scandinavia and to FAIR GmbH).

**Jacek T. GIERLINSKI (PL):** retired in 2015, currently freelance consultant in science management. As a consultant in private sector, he provided analytic advice in a wide variety of industrial sectors. At the Polish Ministry of Science and Higher Education, he was charged with harmonisation of research policies of Poland with those of the EU. He was involved in preparation of strategies for development of research infrastructures in Poland. Former Vice-Chair of ESFRI and chair of its Regional Issues Working Group. He was also involved in the definition of the Polish participation in XFEL and in FAIR. He was Vice President of the General Assembly of the CLARIN ERIC, Polish delegate to the Governing Board of the Joint Programming Initiative Cultural Heritage and Steering Committees of European Infrastructures. He participated in the Polish membership process into ESO and ESS. He contributes to the proposed tasks with his experience on regional, national and international policies related to research infrastructures and ERICs. His experience on the regional level is of particular importance for the expert group.

**Silke SCHUMACHER (DE):** She has been Director of International Relations at the European Molecular Biology Laboratory (EMBL). She is a biochemist by training and has worked in public and private organisations, including pharmaceutical industry, before joining EMBL, where she was responsible for all government and EU relations well as relations with EIROforum. The EMBL membership was enlarged by nine Central and Eastern European Member States and the first new EMBL site in 20 years established and she was responsible for amending the EMBL-Italy Host Site Agreement to achieve comparable tax staff for all EMBL staff in that country. She has been instrumental in the establishment of the legal and governance structures in a number of ESFRI RIs, including ELIXIR and on several ERIC Boards. She is expert in policies related to large research infrastructures at international level.

**Charlotte LINDBERG WARAKAULLE (DK):** Director for International Relations of CERN. She has held a variety of posts at the United Nations and she was a key focal point for relations between CERN and the UN Office at Geneva. Most recently, she held the position of chief of the United Nations Library in Geneva, where she was responsible for library services, knowledge management, cultural diplomacy and intellectual outreach. Her expertise in the international dimension of research and in large-scale facilities are valuable for the work of the expert group.

**Martin HYNES (IE):** Currently Chair of Board of the Irish Centre for High End Computing; former chief executive and subsequently President of the European Science Foundation, Strasbourg. Formerly member of the Advisory Committee for the Marie Skłodowska-Curie actions on skills, training and career development programme. He was Director of The Irish Research Council for Science, Engineering and Technology (IRCSET) and implemented a number of innovative national funding schemes with focus on early career researchers. He has contributed to the formulation of major national funding initiatives supporting research in the ICT and biotechnology sectors. He contributes to the work of the expert group with his expertise on national and international research policies.

**Amaranta AMADOR BERNAL (ES):** Head of Administration and Senior Legal Advisor of the Spanish outstation of the European Molecular Biology Laboratory (EMBL) in Barcelona. She is a lawyer, specialist in international law, also with experience in the Court of Justice of the EU. She was responsible for the legal set-up of the Spanish outstation of EMBL as an intergovernmental organisation. She has been legal advisor to ELIXIR. As regards ERICs, she was appointed as legal adviser in charge of setting-up the Euro-BioImaging as an ERIC, drafting the required legal documentation and negotiating it with the prospective ERIC Member States. She has advised EMBL on ERIC-related matters. She has deep knowledge of all the necessary legal steps to set up, ab-initio, a research infrastructure of European dimension and she successfully defined the related administrative strategy coping also with the national and regional policies. Consequently, she is the reference person for the Expert Group for what concerns legal expertise.

## **ANNEX II - A detailed discussion of some outstanding and emerging issues and best practice examples**

### **The issues**

A number of issues have emerged during the EGERIC evaluation activity, some of which have been outstanding from the previous two EC reports.

In fulfilling its mission, the EGERIC has formulated recommendations and has indicated that a possible solution common to most issues is also related to setting-up an effective governance of the 'ERIC system'.

In what follows, and based on the analysis of available information, some of these issues are further detailed including technical aspects, outlining some best practices, which may be adopted in view of the full implementation of the Regulation. Some could be enclosed in extended guidelines by the EC and in the 'toolbox' being developed by the ERIC Forum.

The present technical annex integrates the assessment provided to the EC RTD and is dedicated to:

- The MS individually or acting together in the Council
- The EC individually or acting with the Council
- The management of the ERICs individually or acting collectively through the ERIC Forum

The issues taken into account are the following:

- **The Personnel:** The employment conditions for ERICs, as compared to other EU and international institutions, prove to be a handicap in attracting, retaining and managing personnel. They are effectively discriminated against due to the lack of adequate regulations for cross-border employment in different MS.
- **Tax Exemptions:** The persistent difficulty to implement completely the tax exemptions on in kind-contributions by the ERIC members has effects on the overall sustainability and on the interplay of the national research systems.
- **The reporting and communication:** Lack of adequate reporting on the scientific, operational and financial aspects, particularly in distributed ERICs, limits their governance efficiency, visibility and global impact.
- **The global dimension:** Attractiveness to TC and IOs appears to be solid but the actual participation as members is still low due to lack of sufficient definition of some legal issues as well as limited practical expertise.
- **The registry and practical guidelines:** Availability of a coherent collection of official records of entities set-up with a given legal form, which is a pre-requisite for any interested party to access the information in a transparent and effective way, is not satisfactory. Such records, integrated with practical guidelines, are also needed to support the overview and governance.

#### **a) The Personnel**

The question of personnel hired by the ERICs is identified as an issue in a number of surveys and interviews and the assessment finds it as a major issue in reaching the full potential for the ERA in the implementation of the ERIC regulation.

The legal and contractual framework to hire personnel by an ERIC is the national regulatory framework of the statutory seat or of the places where the employee is sited, when the ERIC operates in different countries. This significantly differs to employment conditions for personnel employed by other entities established under EU law such as the joint undertakings or by the IOs established in Europe.

Staff moving within a distributed ERIC are subject to migrant workers' regulations that are far from satisfactory within the research environment<sup>27</sup>. Obstacles include different national legal employment conditions with some parts who may be specific to research personnel, variations in the provision of supplementary pension schemes, the complexity in the nature, length and frequency of mobility, and the lack of easily available, transparent information.<sup>28</sup> In some ERICs, the COVID pandemic and work from home has even implied a heavier personal toll when 'home' was across a border from the working place.

The major difficulty to attract, train and retain personnel employed in multi-site or distributed ERICs, is due to the impossibility to offer a clear career path based on mobility and allowing a 'corporate identity' independent of a specific site. The difference with the multi-site IOs is the capability of training and hiring personnel over different sites within the same contractual framework (and salaries adjusted to local conditions). This capability has a strong positive impact on the research quality if we take as reference the staff in EMBL or in ESO.

The lack of level playing field across Europe among the ERICs themselves or with other similar entities has also a direct effect on the limited strength and progress of integration of the hubs and nodes inside the distributed ERICs. Survey responses indicate that in some ERICs it is difficult to attract personnel when its activities are hosted in stable Institutions and Universities, due to the perceived comparatively less defined and more uncertain career prospects. Additionally, ERICs employing personnel in different countries face the additional cost for expert advice in each country to set up and deal with different employment requirements.

Most of the personnel engaged in the distributed ERICs activities is employed by the hosting Institutions and is either seconded or simply tasked with ERIC-related activities. Tensions often appear within the hosting institutions for the perceived introduction of different treatments or even of risk of discrimination within staff additionally employed in an ERIC and staff in a 'normal institutional environment'. There are no standard statutory conditions or service level agreements on this issue across the ERICs. In some ERICs, this difficulty is also connected to their operations being still in an initial phase and supported by time-limited EU or other funding sources.

The success of the IOs in establishing world-level research infrastructures is in good part due to attractive conditions offered to their staff, allowing international training, career development and future perspectives. Their capability to develop frontier research alongside new technologies and successful transfer to industry is also due to internationally trained and mobile technical and administrative staff supporting the research work in a truly open and innovative environment.

The ERICs are the only entities established under EU law and operating in an EU-wide approach where this question has not been fully addressed. Other entities established by EU law, such as the Joint Undertakings, and the IOs established in Europe, allow either

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<sup>27</sup> The social security coordination regulations for migrant workers 883/2004 and 987/2009, are not adapted to fit the specific reality of mobile researchers and thus the latter are still subject to the complex rules applying to all migrant workers within the European Union, in principle resulting among other things in a change of applicable statutory social security scheme each time they change the place of employment (even if it is for the same employer). The flaws of the application of the coordination regulations upon certain groups of frequently mobile workers, such as researchers, have been already frequently discussed.

<sup>28</sup> D. PIETERS & P.SCHOUKENS, *Improving the Social Security of Internationally Mobile Researchers*, LERU Advice Paper, n°1, April 2010, Summary on p.3

compliance with EU staff regulations or adoption of an international employment contract. The international and EU *acquis* could be the basis to identify a solution for the ERICs.

The employment and mobility of researchers and research personnel was present in the ERA discussions since its beginning and continues to attract attention in the present debate on the new ERA<sup>29</sup>, but a general solution of this problem is difficult because employment is outside the remit of the EU legal frame, and national authorities and social security arrangements tend to resist against EU wide approaches. It is indicative that in surveys, while the majority of responses by the ERICs indicate that there are personnel issues, only a minority of governments responds indicating a will to consider an EU wide solution. This shows a different perception of this issue between ERIC management and national Governments.

***The issue of the ERICs is relatively limited and needs to be singled out and solved specifically, independent of the wider issue of research careers in Europe.***

***EGERIC has formulated the recommendation to align, to the maximum possible extent, the status of the ERICs personnel with that of the EU, including the regime governing staff mobility and in compliance with the local laws where the work is performed.***

Are there possible interim solutions?

In the following two possible suggestions, in decreasing order of complexity, to be further discussed, e.g., with the ERIC Forum as an initiator.

Both solutions depend mainly from the will and determination of MS, possibly supported by advice from the EC and clear guidelines on how to implement this approach.

MS are free to apply or adopt any laws, regulations or administrative measures which do not conflict with the scopes or objectives of the Regulation, and, therefore, could well agree and adopt, through their agreement on a template of ERIC Statute or through additional documents or legislation, items of agreement beyond those defined by the Regulation, also amending the national legislation<sup>30</sup>. This approach could be, in principle applied to solve the issue of an employment contract for the ERICs valid in those countries who subscribe the agreement (a sort of 'a la carte' solution). However, an approach of this type appears, at the moment, as rather difficult given the responses obtained through the EGERIC survey, unless a core group of Countries acts effectively as the initial proposer.

A lighter interim solution could be through the agreement, between the Countries participating in an ERIC, to define a specific template related to the staff, allowing for a reference contract and for standard employment conditions, still within the national legal frames. This solution appears easier, and some attempt has been made, but the possible standard part of the employment is relatively limited (e.g., to the definition of careers and description of the functions) to avoid conflicts with the national social security

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<sup>29</sup> In its communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'A new ERA for Research and Innovation', the European Commission puts forward a European Framework for Research Careers, calling for 'a more comprehensive approach – a tool box built on tackling the recognition of researchers skills, enhanced mobility and exchanges between academia and industry, targeted training opportunities and a one-stop-shop portal that researchers can access for a number of support services'

<sup>30</sup> ERIC regulation. Art. 18. 'Member States shall take such measures as are appropriate to ensure the effective application of this Regulation'. This Article requiring the application of 'effet utile' of the communitarian law on the implementation of the ERIC regulation gives ground to the possible amendments to national legislation in order to implement effectively and to the presumed impact the ERIC regulation.



aspects, and with other practical issues as the working times and calendars which may not be altered.

A further possibility which could be explored at the EU level are the initiatives in the private enterprise domain, which aim at allowing EU wide career paths, for example by agreements within multinational companies with the involvement of the EU Trade Union Confederation.

Any solution should include specific contractual and social security and pension coordination measures (e.g., changes to the existing coordination rules, inclusion of third national research staff in the personal application field of the new coordination rules). Not only statutory contractual frame and social security issues and basic pension schemes are of importance, but also supplementary pensions should be looked at. The negative social security consequences of a typical mobile research career should be dealt with also with regard to supplementary pensions and the family members. The dependent family members' social security and perspective pension status should be stabilised e.g., by giving them the option to remain socially insured in their original state of residence (this is only possible if the MS foresees a split between the beneficiary of the rights and the dependent rights).

At EU level, the RESAVER pension scheme, whose setting-up has been supported by the EC, is a step forward, but still too few institutions participate in it and some MS do not encourage its use, while the EC has not yet issued specific supporting indications. The ERIC system governance might allow to introduce a broad application of RESAVER (or other EU wide pension scheme) to all ERICs, and this would have a positive effect on attracting mobile personnel.

***Concluding remark on the personnel issue: EGERIC suggests as best practice interim approach that the MS participating in ERICs find a solution to the issue of the employment in the ERICs by taking into account their participation in other IOs, adopting either ad-hoc solutions or agreeing with the EC to develop a EU wide solution to be applied in the specific case of the ERICs.***

#### **b) Tax exemptions on in-kind contributions by ERIC members**

In assessing the way in which the establishment and operation of ERICs is supported by the ERIC members, it turns out that, by far, the largest part of their contributions to distributed ERICs is provided through the availability and activities of existing national nodes. These are only seldom reported formally as in-kind contributions, but, substantially, the ERICs would not be able to operate without them.

The issue of whether and how extensively these contributions can be tax exempt is, therefore, of major importance and directly connected to the financial sustainability of the ERICs. This has also a direct impact on how strong is the drive towards the structuring and integration of national resources. In some of the less research-intensive Countries, the financial advantage given by the tax exemptions could make a huge difference in their capability to become more competitive. It is, therefore, surprising to find out, from the responses to surveys and from interviews, that the issue of VAT for the in-kind contributions by the ERIC members is far from settled. This contrasts with the majority of the ERICs intending to use these exemptions.

Doubts and roadblocks on the possibility to apply tax exemptions to the in-kind contributions should be resolved, to avoid that one of the main benefits of the Regulation is limited only to the few single/multi-site ERICs or to the statutory seat of distributed ERICs where mostly coordination activities are done and tax exemptions impact a negligible fraction of the real operational cost.

This is clearly underlined also by the Council in its response to the second report by the EC on the ERICs: *'...NOTES the need for appropriate measures to facilitate the use of the*

*ERIC instrument, in particular as concerns an acceptable solution for the VAT exemption for in-kind contributions, to stimulate investments in ERICs and other ESFRI Roadmap Infrastructures, to increase transnational and open access to European Research Infrastructures and to enhance their financial sustainability; CALLS upon the Commission and Member States to implement these measures as soon as possible...;*

The Regulation provides, following Art.5 (1 (d)), exemptions for each ERIC and each member of an ERIC as an international body within the meaning of Articles 143 (1)(g) and 151 (1) (b) of the VAT Directive 2006/112/EC and as international organisation in the sense of the second indent of Art. 23(1) of Directive 92/12/EEC related to excise duties. These tax exemptions are applicable for the procurement of goods, services and utilities for the sole institutional scope of each ERIC<sup>31</sup>.

The Regulation allows ERIC members to be represented by a Representing Entity (RE) as regards the exercise of specified rights and the discharge of specified obligations as a member of the ERIC (Art.9 (5)). Many Statutes indicate also which national research institutions and universities have been delegated as Representing Entities. In this context, the REs act as executive arm of the member, and are directly connected to the international commitments of the member.

The two provisions, if clearly implemented together, may allow the right to use tax exemptions to be delegated by the member to a RE acting as its executive arm while discharging its obligation to provide in-kind contributions for the sole institutional scope of the ERIC on behalf of the member. This possibility responds directly and clearly with the 'effect utile' provided for by the Regulation through the tax exemptions for goods and services procured for the sole institutional use of the ERIC.

Based on this implementation, the question has been solved positively by few Countries, with the approval of their tax authorities, for the procurement, by REs specifically delegated, of goods and services transferred as in-kind contributions to single/multi sited ERICs and of goods and services for the institutional use by the ERIC in the hubs and/or nodes hosted by the RE.

The requirement by the tax authorities is for an appropriate control that the use of these goods and services is for the ERICs institutional use, and fully accounted for this scope. This responds to the provision that the exemption applies subject to two conditions: a) subjective: that the exemption is not for a private scope; b) objective: that the exemption is for the institutional and sole use of the ERIC. The transfer to the RE of the right of the member is the case of a subjective substitution.

Contrasting to this procedure, a main source of uncertainty is clearly traceable to an opinion expressed in the VAT Committee (but not unanimously accepted by the representatives of MS)<sup>32</sup>. The core of this opinion is that, while it is confirmed that ERIC members can apply tax exemptions for in-kind contributions to the ERICs, they should procure and pay these directly from their budget, while no opinion is expressed whether they can delegate the specific obligation and the specific right to an entity, like the RE, acting on their behalf. It is, instead, proposed that that an RE should act upon mandate by the ERIC in its name and on its behalf (instead of on behalf of the member whom it

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<sup>31</sup>A detailed presentation of the VAT framework for the ERICs is available in: [https://studiopcentore-my.sharepoint.com/:f:/g/personal/segreteria\\_studiocentore\\_com/EtMHflvJfCINmrRMxncf3JMBvGk-6u91juWXfxi9QAL6Mg](https://studiopcentore-my.sharepoint.com/:f:/g/personal/segreteria_studiocentore_com/EtMHflvJfCINmrRMxncf3JMBvGk-6u91juWXfxi9QAL6Mg)

<sup>32</sup> VAT Committee Working Paper 946 of March 22nd 2018

represents). This obviously appears to be contrasting with the Regulation and also with case-law clarified by the EU Court. It effectively impedes tax exemption on in-kind contributions by the members because direct procurement is, in most cases, not an option. A State or a Ministry are, in most cases, not allowed to directly procure research instruments but required to delegate this to their research performing agencies and universities, as executive arms also for a matter of technical qualification and control on the quality of the expenditure.

***As a best practice, it is suggested to follow the approach of some ERIC members who have, in agreement with their tax authorities, specified the rights and obligations of their Representing Entities, including specifying the right of applying tax exemptions for procurement of the in-kind contributions as connected to the discharge of their specified obligations to support the ERIC activities.***

To detail further the issue of tax exemptions as found in surveying the statutes, 13 of the earlier established ERICs include a limit to the provision of the Regulation by excluding the members from the VAT exemption. This was apparently due to uncertainties of some translations in national languages and an initial discussion in the VAT Committee. This allowed the wrong understanding that VAT exemptions could be extended to the ERIC's staff, which has been later dismissed and, consequently, this limitation has not been inserted in the latest ERIC Statutes.

But, without updating the earlier statutes, most of them affect the capability of the members to contribute in-kind with VAT exemption, which is bypassed only by circuitous ways, as the so called 'cash-in-kind' (i.e., the transfer of cash to the ERIC so that procurement can be made tax-exempt) but with major complications if the delivery is to a hub or node and not in the legal seat.

***Remark: If required, the statutes limiting the members' capability to apply tax exemptions should be corrected without complex procedures. A more general question of corrected translation in national languages would indicate the opportunity to define one of the languages as the reference one for each statute.***

Another identified source of uncertainty is whether the property of the in-kind contribution should always be transferred to the ERIC. This would conflict with the fact that the activities of distributed ERICs are carried out in hubs and nodes which are legally not part of the ERIC, but where ERIC activities take place. However, insofar as they are carrying out activities for the ERIC, the spirit of the law logically includes these activities into the scope of the tax-exempted activities. As it is allowed by the accounting rules applied also in the EU grants in the Framework Program, if the procured goods and services bought by the hosting entity delegated specifically and on behalf of the member and used and accounted for entirely within the ERIC node's operation is fully equivalent to the ERIC using them. This should be accompanied by such expenditure being reported in auditable accounts in the financial report of the ERIC. Following this transparent approach, activities within a node of an ERIC, contributed in kind by a member through the Entity representing it for this specific purpose could be tax exempt.

An alternative way to solve this problem could be to allow nodes and hubs to be formal 'establishments' of the ERIC (i.e., sites operating within the ERIC remit, subject to its statute). Even this is a legal possibility, which can be applied without the need to transfer the property.

***The procurement of goods and services for the ERIC activities performed in hubs and nodes could be, in principle, tax exempt, provided these are fully accounted for in the ERIC reports. The hubs and nodes could be fully operating as integrated parts of the ERIC (outstations or establishments) based on provisions of the statutes or on deliberations of the ERIC governance.***

In note<sup>33</sup> a link is reported, useful to get a view of a number of practical legal aspects connected to the ERICs.

### **c) The reporting and communication**

The interviews by EGERIC found that a number of stakeholders hosting or collaborating with an ERIC (in particular universities hosting nodes) are not completely aware of it being an institution established in the EU, with international outlook and not 'just another EU project' with a short-term lifetime and impact. Universities and research organisations hosting ERIC nodes and hubs should be aware and proud of hosting these organisations, and, in the case of universities, this should allow to offer to their students and staff an attractive international environment. There should be better appreciation of the opportunities to achieve a higher impact also in other activities, as, e.g., Technology Transfer or participation in partnerships and missions, by using the stronger research and infrastructural background of the ERIC.

Most of the distributed ERICs operating in different siting from the statutory seat may have the effect of a 'division of functions' between the seat, usually carrying out secretarial and coordination roles while the 'distributed operation' takes place in hubs and nodes in different locations and countries. This division of functions (and related lack of information and understanding) may be amplified also by the different funding streams supporting these functions: direct contributions by the members to the seat and indirect contributions through the institutions and universities hosting the effective operation of the infrastructures.

Mirroring this, in several cases when interviewing some ERIC managers or participants in ERIC activities, there seems to be a lack of mutual understanding between 'centres' and 'peripheries' of the distributed ERICs, indicating a typical disconnect between what was sometime dubbed as 'central bureaucracy' as different from 'the real science'.

This low visibility is in part due to the relatively short time of operation of most ERICs, but it may also be due to the lack of definition in the implementing agreements, which mostly do not seem to include reporting in a detailed and structured way on the scientific, operational and financial aspects of the distributed activities (as would be required by the Regulation). The fact that a university/institution contributes to an ERIC, in agreement with its government, by hosting, supporting and sharing with it its research activities and staff, and that the ERIC contributes increased returns, should become visible at all levels also through the annual reporting and the communications to stakeholders. This should also be recognised to the host in terms of both resources and evaluation criteria. The participation to EU projects of the nodes through the ERIC should be evaluated by funding agencies at the same level of their participation through the host, allowing for a stronger integration and effectiveness of the resources available.

In some case, members could better integrate the ERIC's operation through awarding of national or regional funding to the ERICs with view of supporting the national nodes and dealing with them as organisations managed in a consolidated way, e.g., having the nodes as sites of operation. In some interviews, the opportunity to allow structuring the activities of nodes in a visible and even autonomous way has been discussed, and, when the possible advantages were explained, was found acceptable and attractive.

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<sup>33</sup> <https://www.xofficio.eu/posts>

***Some Governments have implemented a clear visibility of the nodes by defining them in a formal way, also by direct funding (often with a synergy approach by the use of structural funds). This should be taken as a best practice approach wherever possible by all ERICs and all Governments. Reference methodologies are being developed by the ERIC Forum, in a common toolbox.***

***The introduction of a common and transparent approach in the annual reporting of all the activities of the ERICs, including also the 'peripheral' activities of the nodes and, when the case, of the networks connected to the national nodes, will allow a more direct communication and involvement of all the stakeholders. This would also allow the Governments to have a clearer view of the extent of integration of their national resources, helping to meet planned targets in a common ERA effort.***

In some case, members could better integrate the ERIC operation through the awarding of national or regional funding to the ERICs with view of supporting the national nodes and dealing with them as organisations managed in a consolidated way, e.g., having the nodes as sites of operation.

#### **d) The global dimension**

ERICs open their membership to Intergovernmental Organisations (IOs) and Third Countries (TC) in addition to EU MS and AC. However, the number of IOs and TC participating in ERICs is at present still low, and in some cases these potential members are represented by 'partners' who support the ERICs but in a more informal way as discussed in the report. This may indicate a difficulty in participating through full membership.

As regards IOs, one possible reason could be that their number is limited in the ERA, but, from the outcome of interviews, also the lack of sufficient clarifications related to them in the current guidelines, explaining that privileges and immunities are kept when joining the ERIC, limits the attractiveness. Specific clarifications would accelerate negotiations (e.g., it would be useful that guidelines indicate both that immunities of an IO are not lost and that the applicable labour law for workers located in an IO are its own internal regulations).

From the point of view of the applicable law and jurisdiction, a difficulty both for some TCs and IOs is the jurisdiction to the European Court of Justice not accepted by some Countries, or not recognizing the immunity of jurisdiction of IOs.

This is the case of some large Countries who have been participating or collaborating with the EU science, as Japan or the USA, who are not yet members in ERICs, but have shown great interest to participate, eventually through partnerships.

In one Statute (the case of Euro-BioImaging-ERIC) the international arbitration has been introduced for the member being an IO<sup>34</sup>. This technical solution should be analysed to see if it does not raise other issues and eventually allowed on a more general basis.

A possible analogy of this solution would be in the H2020 Annotated Model EC Grant Agreement, where in general the EU Court of Justice is competent for solving disputes, but arbitration is foreseen if IOs are involved. Therefore, this solution for IOs is not new in the EU arena, a balance achieved in order to respect IOs privileges and immunities while enabling and fostering their participation in research and innovation activities<sup>35</sup>.

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<sup>34</sup> The legal basis of this solution is the immunity of jurisdiction of said IO. The constituting agreements of well known international organisations (ESA, CERN, EMBL, etc) refer to this term.

<sup>35</sup> [https://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/amqa/h2020-amqa\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amqa/h2020-amqa_en.pdf).

In general terms, research has no borders, especially when it comes to those ERICs related to data and to global challenges, and the next step for the ERICs would be to have a membership with more global dimension. The pros and cons of allowing arbitration as a possible choice for third countries and IOs should be considered. EU law would still be applicable, but without the need to submit to the EU court. This would increase the attractiveness of TCs and IOs for membership in the ERICs where this is an issue.

***EC and Council should consider the opportunity to use international arbitration both for IOs and Third Countries, if this does not raise other issues.***

A further difficulty, in the case of IOs operating in Europe and whose members are a different set of MS and AC than the ones joining the ERIC, could be that the decision to join may not always be easy to reach, also for the need to define different funding streams.

There is a large participation of AC in ERICs, which is undoubtedly a success. As regards TCs, there is the presence of countries such as Israel who typically have had tight links with research and research infrastructures in the European Union. On the other hand, for some Countries (as, e.g., Switzerland) each participation in an ERIC requires parliamentary approval, making this a difficult and time-consuming endeavour, solved only partially by participating as observers or partners. A specific indication is enclosed below in the paragraph dedicated to the practical guidelines.

#### **e) Registry and practical guidelines**

A registry is a collection of all the official records relating to a type of an entity. In general, these records are collected according to well-defined templates to ensure complete and homogeneous information on the status and activities of the entities. The registry is the place where basic and homogeneous data are collected, curated and made available in an effective FAIR approach. The registry is also a concept which allows policy makers to indicate which data should be collected, as, e.g., standard indicators allowing to assess the effectiveness of policies.

Non-existence of an ERIC registry has been raised already in the previous EC Reports and there are recurrent issues related to this in the responses to surveys, indicating difficulties in the start-up phase of the new ERICs as well as variable levels of recognition even within EU sponsored activities. A patchwork of solutions has been reported at the level of MS, ranging from registration in the local Chamber of Commerce (not quite research institutions!) to no registration. Also 'what is an ERIC' meets different types of definitions, from not/for profit association to public entity, to university clinic, etc. In most cases, this fragmented situation has limiting effects also on the full recognition of the legal personality and the most extensive legal capacity of the ERICs in MS. The lack of an agreed definition of the ERICs is also encountered when applying to a number of EC services (e.g., the list of 'lobbyists').

The lack of the ERIC registry generates three major concerns: the first is the lack of information limiting the capability of the EC to fulfil its role of supervisor of the ERICs including possible responsibilities towards third parties, the second is the difficulty experienced by newly established ERICs in starting their operations with an official status recognised in all member Countries, and the third is the lack of a basic instrument for policy and governance for the EC and for the Member States.

The ERICs are legal Entities which are set-up, verified and eventually dissolved by the EC, and the lack of the ERIC registry is surprising if compared to other areas in which the

EC does maintain a registry of institutions generated within the EU (e.g. the registry of the EGTCs <sup>36</sup>).

The lack of an ERIC registry also underlines the absence of an overall governance pointed out in the previous chapter.

The usefulness of an ERIC registry for the national administrations should also not be underscored, e.g., as the instrument allowing MS and Regions to verify if an ERIC is eligible for cohesion or national funding or for various other functions like being able to employ third country researchers in the same way as research organisations, or being eligible for different possible tax exemptions awarded to public research organisations.

The setting-up of the ERIC registry seems, in the light of the issues raised by its absence, a necessary step, which the EC shall take, as it has taken in other cases. One immediate objection would be the lack of human resources in the DG RTD, but, as it is done in many other environments where a registry is needed, the EC can define the type and functions of the Registry and then delegate the implementation to an agency. At present, this kind of devolution is already taking place for most executive activities and one of the agencies already involved could be selected. Alternatively, in a way similar to what is done in a number of Countries where the keeping of registries is entrusted or contracted to the representative organisations of the registered entities, the keeping of the ERIC Registry could be entrusted either to the ERIC Forum, giving it a more formal status of supporting Institution, or to ESFRI and its secretariat, which, after all, is the incubator of most ERICs.

***The EC should set-up an ERIC registry with the task to acquire and curate the data allowing a continuous assessment of the ERICs according to a set of standardised criteria and procedures. The task could include that of extracting appropriate statistical data to be fed to any interested party. The ERIC Registry should also allow any third party to have a clear and transparent access to any data allowing a legally binding relationship with an ERIC in terms of financial reliability, scope, effective sustainability in case of specific commitments etc. In the case of the ERICs cases, this task would allow the EC to be shielded from possible future risks emerging from lack of control on the effective and correct operation of an ERIC.***

As for the need of extensive practical guidelines as emerging in several parts of this Report, the present guidelines need to be updated and extended in scope. The EC is already in the process of updating them and has involved the ERIC Committee and the ERIC Forum, but they would still be mainly dedicated to the setting-up of new ERICs.

From the surveys and interviews, there is a strong requirement to include the operations phase as well as some specific cases, as, e.g., the AC, TC and IOs participation.

A collaboration with the ERIC Forum is strongly suggested. This could be based on the extensive experience which has been accumulating in the ERICs and on the outcome of some EC funded projects, in one of which the Forum is developing a 'Toolbox', including various aspects as, e.g., best practices in accounting, staff management, and tax-exemptions.

From the overall assessment, the new guidelines should specifically help the distributed ERICs to be established and operate according to a more integrative approach, including their capability to use fully all possibilities given by the Regulation.

***In renewing and updating the practical guidelines, the EC should include the operations phase, also using the cumulated expertise of the ERIC Forum.***

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<sup>36</sup> Interregional Grouping see COR site: <https://portal.cor.europa.eu/eqtc/Pages/welcome.aspx>

***The practical guidelines should also deal with various aspects of the participation of TCs as well as ACs and IOs, including, e.g., jurisdiction, taxation and tax exemption aspects (this request has been raised by some ACs Ministries and IOs).***



### ***ANNEX III - List of surveys and interviews***

The main reference documents are reported in footnotes in the main text.

Surveys and interviews are listed in the following with the address where more detail is made available:

#### Surveys

Surveys performed by the ERIC Forum involving the ERICs, within the ERIC Forum project funded by the EC (H2020, grant agreement no.823798). The topics addressed by the surveys are: budgeting; contracting; employment; procurement and VAT; tax exemptions; number of institutions and universities connected to each ERIC. Synthesis data are available at <https://www.eric-forum.eu/>. Address for further information: [annecharlottefauvel@eatris.eu](mailto:annecharlottefauvel@eatris.eu).

Survey performed by EGERIC addressed to research ministries of MS and AC, the questionnaire is uploaded in the CIRCA open site: [https://circabc.europa.eu/ui/group/90ad36e6-d873-4242-ab8d-b059f6729b71/library/d7ef0672-1c2a-43ba-bd07-ec2f8927962f?p=1&n=10&sort=modified\\_DESC](https://circabc.europa.eu/ui/group/90ad36e6-d873-4242-ab8d-b059f6729b71/library/d7ef0672-1c2a-43ba-bd07-ec2f8927962f?p=1&n=10&sort=modified_DESC)

Other surveys on ERIC stakeholders have been conducted internally by:

- the Joint Research Centre (JRC) within its TTO circle network (network of technology transfer offices);
- CESAER (the Conference of European Schools for Advanced Engineering and Research);
- EUA (European Universities Association);
- LERU (League of European Research Universities);
- OECD (Organisation for Economic Cooperation and Development);
- COST (European Cooperation in Science and Technology).

The original questionnaires are uploaded in CIRCA. The responses have not been covered by agreement for dissemination. More details can be required to [carlo.rizzuto@libero.it](mailto:carlo.rizzuto@libero.it).

#### Interviews

Interviews have been conducted with:

- EC staff involved presently or in the past with the implementation of the ERIC regulation;
- CoR (Committee of Regions) staff;
- ERAC and ERA Forum for transition individual members;
- Evaluation Agency (HCERES);
- ESFRI members (including ex chairs) and members of HLEG expert Group;
- International Organisations managers (EMBL, CERN);

- EU law experts;
- VAT and taxation experts;
- Human Resources experts (in international environment) experts;
- Expert in Science impact on society.

The interviewees have not been required to give authorisation for publication. Details may be available from [carlo.rizzuto@libero.it](mailto:carlo.rizzuto@libero.it)

### Addendum

#### *Stakeholders' Workshop on European Research Infrastructures Consortia 13, 14 September 2021*

Under the auspices of the Slovenian Presidency of the EU, the Commission invited ERA stakeholders to discuss the findings of the Expert Group, based on presentations by the EGERIC experts, along four lines:

- Governance of the ERIC system
- The ERICs as instruments to integrate and interconnect national and multidisciplinary resources
- The ERICs in operation: key issues
- ERIC sustainability: towards an innovative funding model supporting demand

A draft version of this report was made available prior to the workshop.

All information on the workshop including the presentations is available in the [workshop public folder](#)<sup>37</sup>.

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<sup>37</sup> [https://circabc.europa.eu/ui/group/90ad36e6-d873-4242-ab8d-b059f6729b71/library/c8331db5-7241-4f2a-8047-2370fd72907f?p=1&n=10&sort=modified\\_DESC](https://circabc.europa.eu/ui/group/90ad36e6-d873-4242-ab8d-b059f6729b71/library/c8331db5-7241-4f2a-8047-2370fd72907f?p=1&n=10&sort=modified_DESC)  
 Direct link to presentations: <https://circabc.europa.eu/ui/group/90ad36e6-d873-4242-ab8d-b059f6729b71/library/f4e16f7f-3d6f-487e-b206-8ba70ab9b01a/details?download=true>

## **ANNEX IV – Glossary and acronyms**

### **Acronyms and definitions used in the text:**

AC: Associated Countries

Document or Assessment: the document produced by EGERIC, to support the EC in preparing its Report

EGERIC: the Expert Group for the assessment of the implementation of the ERIC Regulation

EGTC: European Grouping of Territorial Cooperation

EMBL: European Molecular Biology Laboratory

ERIC/ERIC system: European Research Infrastructure Consortium/ the ensemble of the ERICs operating in the ERA

FAIR: Facility for Antiproton and Ion Research

FAIR Data: meeting the principles of findability, accessibility, interoperability and reusability

IO: Intergovernmental Organisation

MS: Member States

Report/EC Report: the report on the implementation of the ERIC Regulation due by the EC for Council

TC: Third Countries

XFEL: the European X-Ray Free-Electron Laser

### **Glossary in the implementation of the ERICs:**

Taking into account the various definitions and descriptions in the ERIC Statutes, EGERIC proposes and has used the following Glossary. This does not include definitions which are clearly given by the Regulation or other reference documents.

- **Distributed:** Only the statutory seat's and some hub's activities are hosted in one location, usually the ERIC's host country/statutory seat while most of the facilities are established and hosted in the ERIC members and coordinated within the overall operation.
- **Hub** (also Office/Establishment/Pillar, Place of operation): a facility operating within the *inner operations perimeter of the ERIC*, applying the ERIC's internal rules as, e.g. accounting, employment, tax and procurement exemptions (comparable examples: the sites of EMBL and ESO, hubs of Euro-BioImaging-ERIC, EPOS-ERIC.....).
- **In-kind contribution:** a non-cash contribution to either the design, establishment, construction or operation of an ERIC. Contributions to construction are well established, while the wide use and variety of in-kind contributions for the operation of distributed ERICs may require a more detailed analysis, in particular contributions by ERIC members as committed within the coordinated operations perimeter (see definition).

- **Multi-site:** when the ERIC directly controlled facilities are sited in different countries (comparable examples EMBL, ESO, ESS-ERIC, ELI-ERIC) but not in all members.
- **Nodes:** facilities committed by each member and made available within the agreement setting-up the ERIC but except very few cases, outside its direct control (i.e. operating in the coordinated operations perimeter). 'National nodes' may also indicate coordination centres for networks of national facilities.
- **Ownership vs availability:** goods/services can be transferred into the inner perimeter of the ERIC either through transfer of the ownership or only by transferring the availability through a binding agreement allowing full control or a license. In both cases, these can be inside the 'inner operations perimeter' of an ERIC.
- **Partner:** as discussed in the chapter on implementation of the Regulation, in a number of ERICs it has been very useful to add to the Observers another type of contributor to the operations of the ERIC, the (strategic) Partner, in general a national Institution of a State who, for whatever reason cannot be either member or observer but commits to contribute to the ERIC and whose representatives are invited without voting rights in the GA, as for the Observers.
- **Perimeters (inner, operations):** The inner operations perimeter defines the activities and staff operating directly under the Executive Director of the ERIC and his/her deputies. The coordinated operations perimeter defines the instrumental resources and staff operating (in different institutions and in general part-time) through agreements or as service providers, within the commitment of the ERIC members in setting-up the ERIC, but outside the direct control of the ERIC.
- **Single site:** when the statutory seat and all research facilities are in a single site directly controlled and operated by the ERIC (comparable to CERN, ESRF, ILL: so far it is the case of JIVE-ERIC and EURO-ARGO-ERIC).
- **Statutory seat:** the place with official address hosting the ERIC legal entity, allowing (as a minimum) the independent operation of the General Assembly, the Executive Body, and other relevant activities allowing the setting-up and operation of the ERIC. It is hosted in a MS or AC who are members of the ERIC.

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The EU Open Data Portal (<http://data.europa.eu/euodp/en>) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.

The Council Regulation on the Community legal framework for a European Research Infrastructure Consortium (the 'ERIC Regulation') adopted in 2009 and amended in 2013 aims to facilitate the establishment and the operation of large European Research Infrastructures. As of September 2021, the Commission has granted the ERIC status to 22 research infrastructures. This report presents the findings of the Expert Group tasked by the Commission to assess the implementation of the ERIC Regulation, to identify best practices and bottlenecks as well as to provide recommendations.

*Studies and reports*

