



Tenerife Declaration on "Global Dimension and Sustainability of Research Infrastructures"

26 September 2023

Research Infrastructures (RIs) constitute a fundamental pillar of excellent research and innovation (R&I) ecosystems, providing researchers, innovators and other stakeholders the capacity to develop excellent knowledge and expertise, experimental devices and technical resources, extensive collections of data, and complementary ICT and computing services. RIs are necessary to perform cutting-edge fundamental science and applied research, extending frontiers of knowledge, and developing state-of-the-art technologies, feeding innovation, also contributing to goals such as those outlined in the United Nations Sustainable Development Goals.

EU Member States, associated countries, and the Commission have made substantial investments, covering the development and maintenance of common European and international RIs in a broad range of research fields, and e-infrastructures. As acknowledged by the European Competitiveness Council in December 2022¹, the European Strategic Forum for Research Infrastructures (ESFRI) provides the structure and framework to guide the needed developments on sustainability and global dimension that are in the core of this Declaration.

The RIs are also repositories of knowledge and hubs of innovation promoting close interactions with industry and SMEs, and as such can be instrumental in crisis management and response systems, as recently demonstrated in the COVID-19 pandemic.

High quality research relies on investing in national and international infrastructures that can be accessed by a highly skilled and motivated workforce. In addition, developing training programmes, workshops and schools for users, RI staff, R&D staff and Research managers are important, in close cooperation with academia and industry.

All the RIs naturally attract users from a variety of scientific fields, facilitating networking and collaboration at different dimensions, resulting in transregional and transnational R&I ecosystems. RIs become truly multidisciplinary.

1. Council conclusions on Research Infrastructures 15429/22.

nary hubs at local, regional, and global levels, enabling cross-fertilisation across disciplines through conferences, workshops, meetings, visits, or staff exchange and promoting the exchange of ideas, and expertise while valorising knowledge. In this context, remote collaboration is also possible thanks to the continuously adapting tools and platforms used across RIs. Research Infrastructures have often been key instruments of science diplomacy, bringing together people from around the world even in difficult circumstances.

The changes that we are experiencing at global level (including Russia's war of aggression against Ukraine and its consequences worldwide, particularly energy and supply challenges as stated by ESFRI²) are deeply affecting the capacity of the RIs. Some of the new challenges faced by the RIs include difficulties in the acquisition of scientific equipment due to the semiconductor and raw materials challenges, high inflation and its impact on salaries, the prices of energy and components, cyberattacks, and the complex international landscape that is altering the way that scientists from all around the world and RIs collaborate.

Finding solutions to these challenges notably requires a dedicated and joint effort, often global, and for this reason, we, the signatories, **under the auspices of the Spanish Presidency of the Council of the European Union, call for:**

- **Ensuring long-term sustainability of RIs**, which covers not only their design and construction, but also their governance, operations and service provision remains a challenge for which adequate funding schemes and mechanisms should be explored.

Concrete further actions at national and European level would be needed to address these challenges. In particular for a better engagement of smaller EU countries in the RI ecosystem, aiming at building a more balanced and better geographically distributed RI ecosystem across Europe. This is especially relevant for distributed RIs which enhance European competitiveness and bring added value.

Mechanisms in place to foster synergies of operations among RIs should be reviewed, including those from different scientific domains to promote cross-disciplinarity, and new governance models should be explored.

- **Fostering career developments and skills in R&I**, to have an adequate number of well-trained scientists, engineers and research managers including capacity building actions in Open Science tools and services. Investments in the development of relevant skills of RI staff, as well as new ways of recognition and rewarding, are needed to guarantee the successful digital transition of RIs, including harnessing the potential of Artificial Intelligence and Open Science. Ensure inclusive career opportunities with R&I with a focus on inclusion across age, gender equality and other vulnerable or underrepresented groups, which is crucial for fostering diversity and thereby cultivating a spectrum of essential skills.

2. ESFRI report "Energy & Supply Challenges of Ris":
<https://www.esfri.eu/latest-esfri-news/esfri-report-energy-supply-challenges-ris>

- > **Advancing the implementation and integration of Open Science policies and practices in RI at European, national, and institutional levels**, notably through developing the European Open Science Cloud (EOSC) and implementing the FAIR principles (findable, accessible, interoperable, and reusable), which are essential enablers for high quality research and international collaboration in R&I. Funders should envisage that an appropriate amount of the access to the facilities is open without unnecessary country restrictions, because such open access enables optimal use of an extended intellectual and creative capital for the benefit of all. RIs should meet the current and future needs of the R&I community in order to develop and use AI as an essential tool to respond to the current European and global challenges. Access of RIs to large computing resources including for AI use as well as the availability of qualified personnel are key issues.

- > **Assessing the current challenges in the environment with an impact on RIs while promoting mutual learning in the search for solutions to shared problems and taking the opportunity to increase resilience. Specifically:**
 - a. **Decreasing the carbon and broader environmental footprint associated with the energy and resource consumption** of RIs by increasing and prioritizing the use of renewable energy sources and reducing the energy consumption, while at the same time guaranteeing the continuity of RIs services even in situations of energy crisis;

 - b. **Generating new ways of access** for users and staff in a way that lowers the environmental footprint by implementing secure mechanisms to facilitate access for researchers and staff in the European Research Area, including the use of remote access;

 - c. **Developing coordinated policies to address the challenges** in sites hosting astronomical RI **to reduce electromagnetic pollution**, enabling national and international regulatory bodies, industry and scientist to work together to preserve the dark and radio-quiet status of these skies essential for astronomic exploration;

 - d. **Strengthening the positive impact of RIs** concerning the generation of insights and innovation enabling a more sustainable development and **meeting the UN Sustainable Development Goals (SDG)**.

- > Increasing the availability of critical raw materials and components that are necessary for the acquisition, construction, environmentally friendly safe operation and upgrade of high-tech instrumentation, while assessing and harnessing possibilities to substitute critical with more available materials;

- > Addressing the challenges identified in the third report³ of the European Commission on the application of the ERIC Regulation, notably to improve long-term access to funding frameworks, strengthen access programmes, facilitate engagement with international partners, and optimise staff career perspectives and operational synergies among RIs. ERICs are an essential part of the European contribution to building an integrated, optimised and financially sustainable global RI ecosystem, in line with the goals set by the Brno Declaration⁴.
- > **Investing in efforts to enhance international cooperation**, where the European key principles and values are met and protected, especially when tackling issues such as academic freedom and research ethics and integrity, reciprocity, gender equality, and foreign interference, while striving for excellence. Further efforts, including evolving the ERIC framework, are needed to attract international partners to European RIs.
- > **Where possible, fostering the collaboration of the European RIs with their counterparts worldwide**, which leads us towards “Global RIs”. Global challenges require coordinated and complementary efforts at global level, combining developments, know-how, data and networking at national, European and international levels.
- > **Fostering the role of RIs in advancing science diplomacy** and establishing rule-based multilateral cooperation and dialogue based on the mentioned principles and values, building on the results of the Group of Senior Officials with its Framework for Global Research Infrastructures as well as the OECD Global Science Forum.

The below mentioned endorse this Tenerife Declaration, and the call for further joint actions to achieve a more global and sustainable ecosystem of research infrastructures.

3. *Third report of the European Commission on the application of the ERIC regulation: EUR-Lex - 52023DC0488 - EN - EUR-Lex (europa.eu)*

4. *Brno Declaration on Fostering a Global Ecosystem of RIs | www.esfri.eu*