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ERIC Forum Policy Brief

SCALING-UP RESEARCH PROJECTS THROUGH ERICS: IMPACT OF BIG SCIENCE ON THE RESEARCH ECOSYSTEM

Research Infrastructures (RIs) are since their inception a scientific and technological cornerstone of the European Research Area (ERA), supporting scientific excellence for the advancement of science and its application to societal challenges, ranging from our place in the Universe, to climate change and emerging virus threats, by providing cutting-edge skills, tools and services. European RIs, whether virtual, single-site or distributed, contribute through their network of users, partners and collaborators at local, regional and international levels to science-based activities and communities, building competitive ecosystems and knowledge-based economies. The European Research Infrastructure Consortium (ERIC), with its specific European legal framework and strong multidisciplinary interactions within the ERIC Forum, constitutes a strong foundation and a backbone of the ERA, integrating both service and research activities of many Member States. ERICs are well positioned to scale-up research projects and capacities to reach more researchers and broaden their effectiveness and impact.

Scaling-up Big Science through ERICs covers the value chain from basic to applied research with the objective of increasing both access and impact for the players as well as for the society at large. The technical requirements of RI instruments to explore the frontiers of science surpass existing tools, positioning RIs on the forefront of technological developments. Collaboration between RIs and their users and partners across networks avoids fragmentation and duplication while contributing to cross-fertilisation and interdisciplinary research. The unique combination of scientific excellence, cutting edge technology and interdisciplinary research partnerships anchored within a loco-regional ecosystem provides the RIs with the capacity to respond rapidly to major global challenges such as the COVID-19 pandemic.

This second ERIC Forum policy brief showcases the pivotal role of RIs and ERICs in particular in the European R,D&I ecosystem at the interface of science and technology users and providers, as well as the scientific and societal impact of the big investments made in European science through the RIs including direct and indirect spillover effects considering their diverse modes of tackling scientific and societal challenges. Selected case studies, domain specific or cross-domain, illustrate the breadth and depth of the innovations addressing today and tomorrow's key challenges. The following actionable recommendations are proposed to optimise the ERIC research ecosystem and effectively scale-up its contribution to research and socioeconomic impacts so that the ERIC System can continue to serve as the backbone of ERA within a sustainable framework.

1. The added value of Pan-European research infrastructures as Big Science instruments should be further underscored among the research community and key stakeholders including the Industry at national and international levels.

2. The benefit of joining and/or collaborating with an ERIC should be manifest when individual partners engage in projects in order to create synergies and increase impact by the prioritisation of research questions and the collaborative design of research protocols.

- Authorship rules, evaluation criteria and career development policies should be developed to promote the participation of research and infrastructure staff in highly collaborative competitive projects.
- The operational and legislative frameworks for data standards, sharing, reuse and analysis should be strengthened.

3. Member State support for ERICs should be promoted in competitive funding calls in the framework of national programs, supporting the national nodes and hubs and increasing the quality and impact of the proposed activities.

4. Funding mechanisms should be adapted to unfold the full potential of ERICs to meet the needs of large science projects in terms of volume and multinational and cross-border availability, as well as prioritisation criteria in order to fully benefit from the ERIC infrastructure support.

5. ERICs are valuable to Industry. The visibility of these collaborations can be promoted by creating an “ERIC label” that Industry can exploit as a label of excellence.

6. The EC must maintain its role and support ERICs beyond the preparation phase, through instruments such as the INFRADEV contracts and promoting their participation in all the pillars of the EU Framework Programme, to support and facilitate the international collaboration.

7. Evidence-based policy-making should be supported by strengthening the dialogue between ERICs and policy-makers through dedicated fora to promote regular formal and informal communication.

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