

A European Strategy on Research and Technology Infrastructures

Science Europe Input to the European Commission's Call for Evidence

Research Infrastructures (RIs) are of fundamental and strategic importance to the European Research Area. They are a vital component of both European and global research ecosystems, offering unique facilities and resources to the research community, supporting fundamental research on the basis of excellence and knowledge advancement. Strategically, they provide services that attract talent and boost competitiveness whilst also acting as a basis for international collaboration and cooperation. Connections between research infrastructures and other research-oriented facilities and resources can create added-value to research communities when funded, managed, and operated optimally. In this way, Technology Infrastructures (TIs) are also a key element of well-functioning and impactful R&I systems, often building upon fundamental research (including the advances made at RIs), scaling them for myriad potential applications.

Excellence in research and innovation, therefore, requires top infrastructures of both categories, and necessitates collaboration and cooperation. As such, the initiative to reinforce and strengthen a European-wide strategy for RIs and TIs is timely and important, and Science Europe emphasizes the following key considerations:

- Whilst strengthening links between RIs and TIs, it is vital that funding for RIs that enables fundamental research across all disciplines is ring-fenced and is not forced to compete with the support provided to TIs.
- Investments in the facilities, resources, and services categorised as 'research infrastructures' must be adequate to develop new infrastructures according to the needs of research communities, whilst also allowing for the continued optimal use of existing infrastructures (as well as repurposing or decommissioning, where needed).
- A life-cycle approach to RI planning, construction, and operation is essential. Guidelines to reduce environmental footprint and the promotion of openness and shared use of RIs, including through the promotion of secondary data use, are crucial, as highlighted in Science Europe's Framework for the Environmental Sustainability of Research Organisations.
- Optimising the management and use of infrastructures (including access mechanisms) not only provides better value for investments but can also be a driver of more environmentally sustainable practices. Similarly, it is important that RIs have a funded pipeline of R&I activities such that facilities and resources are engaged on an on-going basis in R&I activities, ensuring they stay at the forefront of knowledge advancement and innovation.

- Innovative access mechanisms such as clustered access, virtual access, and secondary data use should be considered as part of continued strategic approaches to the European RI landscape.
- Greater synergies to be established between funding sources (national and international, public and private) to better serve research communities. The integration of contributions from private industrial partners into RI networks should be in particular encouraged, as they not only bring valuable resources, but also expertise and innovation that can benefit publicly funded fundamental and applied research.
- Stronger connections between research infrastructure strategies and other R&I policy priorities, including open science (through open access to research infrastructure processes and outputs, as an example) and the research assessment reform movement (by updating the evaluation processes used in merit-based access procedures in line with the current state-of-the-art).
- A clearer and more coordinated approach to international cooperation towards a global RI and TI ecosystem that encourages collaboration wherever beneficial whilst also promoting strategic autonomy when necessary. Moreover, regional and national RIs should receive adequate support and recognition, in order to contribute to a truly continent-wide effective and efficient ecosystem, while always remaining capable of providing benefit to local communities and enterprises.