EU Insight – European Research Infrastructures

Research infrastructures (RIs) play an increasingly important role in the advancement of knowledge and technology. They are a key instrument in bringing together a wide diversity of stakeholders to look for solutions to many of the problems society is facing today. RIs offer unique research services to users from different countries, attract young people to science, and help to shape scientific communities.

The European Commission has been supporting access to effective research infrastructures for researchers all over Europe for more than a decade. This action has been instrumental in enhancing European researchers' access to the infrastructures they require to conduct their research, irrespective of the location of the facility.

What are Research Infrastructures?

The term 'research infrastructures' refers to facilities, resources and related services used by the scientific community to conduct top-level research in their respective fields, ranging from social sciences to astronomy, genomics to nanotechnologies. Examples include singular large-scale research installations, collections, special habitats, libraries, databases, biological archives, clean rooms, high-capacity/high speed communication networks, highly distributed capacity and capability computing facilities, data infrastructure, research vessels, and so forth.

Research Infrastructures at EU Member State Level

RIs were originally seen as national endeavours and most RIs today are still funded and run at national level. Member States will retain a central role in the development and financing of infrastructures. They will need to maintain and develop their capacity to create and exploit new technologies, products and services in the context of global competition: RIs make an important contribution to economic growth, competitiveness, quality of life, a better environment and the creation of jobs in Europe.

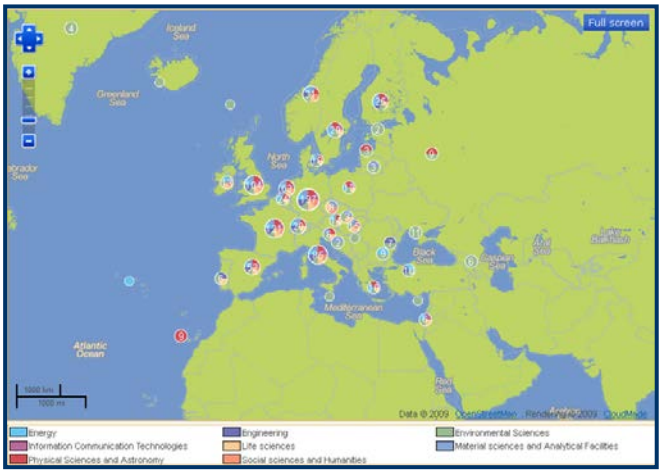
Recently, most EU countries have begun the task of identifying their future national RI needs. National roadmaps articulate not only national priorities, but also stress the importance of participation in overseas facilities through bilateral agreements with host countries. A clear strategic view on how to guarantee and maintain access to research facilities is also set out in the national roadmaps.

One example is the German national "Roadmap for Research Infrastructures" which was published in late April 2013 by the German Federal Ministry for Education and Research and is based on an evaluation performed by the Wissenschaftsrat (the German Council of Science and Humanities). The list entails 24 projects from a large range of scientific fields that are already under implementation and three new projects which the German federal government intends to fund in principle. In 17 of the 27 projects European and international partners are involved.

Another example is the "Netherlands' Roadmap for Large-Scale Research Facilities" which was published in February 2013 and is already an update of the first Roadmap (2008-2012) prepared in 2008.

European Research Infrastructure Initiatives

Although some countries invest heavily in RIs, none can provide all the required state-of-the-art facilities on a national basis. In addition, in the smaller European Member States, the high investment and operational costs against small local demand prevent the construction and operation of necessary RIs. Present limits on national and institutional budgets restrict the flexibility and capability of players to respond to the growing demand. Today, an EU-wide effort is needed to foster capacity-building in Europe. In 2011, the European Strategic Forum for Research Infrastructures (ESFRI) – established in 2002 – published the "Strategy Report on Research Infrastructures – Roadmap 2010" which identifies new Research Infrastructures (RI) of pan-European interest corresponding to the long term needs of the European research communities, covering all scientific areas, regardless of possible location.



Interactive Map for Research Infrastructures: The European Commission's website for research infrastructures now also features a "Map of Research Infrastructures" which shows the location of the research infrastructures funded under FP7 that provide transnational access to researchers.

The European Commission is supporting the development of a policy on research infrastructures at European level, providing added value by pooling talent, maximising resources, and helping to generate a strategic vision for the reinforcement of RIs in the European Research Area. Through the Framework Programmes, the EC has been funding a number of projects which contribute significantly to boosting Europe's research potential and reinforcing its research communities. For FP7 (2007-2013) the EC will spend €1.85 billion on RIs.

What's ahead?

The future EU activities under Horizon 2020 for integrating and opening national research infrastructures correspond to the follow-up of the successful FP7 actions named "Integrating Activities" (conditional to the approval of the European Commission proposal for the next Framework Programme for Research and Innovation, Horizon 2020, by the EU Parliament and Council). The aim of these activities is to provide a wider and more efficient access to, and use of, the research infrastructures existing in EU Member States, Associated Countries, and at international level when appropriate.

Sources:

European Commission's Research Infrastructures website

"Roadmap for Research Infrastructures", April 2013, German Federal Ministry of Research and Education

"Uncharted Frontiers: the Netherlands' Roadmap for Large-Scale Research Facilities", February 2013, Dutch Ministry of Education, Culture and Science