

## **Bulgarian Presidency Flagship Conference**

# **Research Infrastructures beyond 2020 – sustainable and effective ecosystem for science and society**

Sofia, 22-23 March 2018

## **Conference Conclusions**

The overall objective of the conference was to explore and discuss a concrete set of actions to foster sustainability and impact of European research infrastructures on industry, policy and society. In this context the discussions focused on three strategic areas that require particular attention and where concrete actions should be considered.

### **Strategic Area 1 – Synchronisation and alignment of Research Infrastructure policies and investments at different levels**

When it comes to national roadmaps, full synchronisation is not required for the national facilities, however a greater degree of alignment to ensure a coherent development of the European Research Infrastructure ecosystem is needed.

Concerning the contributions to pan-European RIs, there is a need for central coordination at European level with possibly a common funding mechanism. At national level, a dedicated specific budget line for pan-European Research Infrastructures would be a concrete step for ensuring their sustainable operation.

The ERIC regulation has had a positive impact in leveraging investments, moving towards more robust financial commitments and pooling of resources. However, tax interpretation of the ERIC regulation still needs further clarity and coherent approach. Also some alignment of human resource policies and social security would improve the attractiveness of Research Infrastructures to expert staff.

There is a need for systemic monitoring and impact assessment of pan-European Research Infrastructures. It should be based on commonly agreed methodology and process to define the Key Performance Indicators, reflecting the objectives of the various RIs, and to elaborate the socio-economic impact, in order to ensure continuous update of their scientific and strategic relevance.

There is a high potential of new initiatives coordinating the activities of national and pan-European Research Infrastructures in specific domains aimed at supporting trans-national access as well as developing and implementing technology roadmaps.

Many Research Infrastructures provide open access to data for free, without any user fees. In order to foster their financial sustainability, this requires developing effective mechanisms of recuperation of marginal costs of data/service provision at national level when access is open to international user communities. For Research Infrastructures



where a uniform approach to the challenge is required on a pan-European level (for example in SHARE and European Social Survey) is required, both full alignment and synchronisation of national policies and funding decisions is needed.

There is a need for better integration of Research Infrastructures in the scientific, economic and social ecosystems at regional, national and European levels. Research Infrastructures should be built and operated as components of an integrated system offering resources (data, knowledge) and services to a broad spectrum of consumers in a collaborative way. They should also be more strongly linked into the European technology-driven programmes.

## **Strategic Area 2 - Develop a more robust and seamless funding landscape for Research Infrastructures across the lifecycle**

The Research Infrastructure funding landscape is suboptimal due to funding gaps where neither European nor national or other funding sources are sufficiently available. These are, in particular, found during the pre-construction and pre-operational phase, but there are also challenges in funding the operational phase and the decommissioning phase.

There is a need for a coherent approach to funding covering the whole life cycle of Research Infrastructures and for a better alignment and synchronization of the different funding instruments. Developing one common toolbox, which would allow pooling resources from different funds and sources for covering support to design, preparation, construction and early operation phase would be a good way forwards.

A robust plan for financing of all life cycle phases should be made at the outset when decisions to set up Research Infrastructures are taken. Alternative financing models can be used in some stages of the life cycle, such as loans to help solve cash-flow challenges during construction or to develop activities generating revenue.

There is room for enhanced planning and coordination of the use of European Structural and Investment Funds in order to foster a more strategic approach to funding of Research Infrastructures. Wherever appropriate, these Funds and the underlying Research and Innovation Smart Specialisation Strategies should be planned and coordinated to serve better the European competitiveness policy targets.

Links to Framework Programme for research and innovation and to other European research and innovation related activities should be strengthened, and the corresponding rules and procedures should be further simplified and aligned, as they hinder the impact of investments in Research Infrastructures. In particular, simplification in the use of structural funds, on European as well as on national/regional level, and a greater coherence between countries/regions is very important, especially in the implementation phase. Simplification and alignment of rules on state aid and public procurement is also needed.



### **Strategic Area 3 - Improve the impact of Research Infrastructures as knowledge hubs**

A clear message is needed on the impact of investments in Research Infrastructures on citizens. Service orientation and strengthening the role of Research Infrastructures in education and training are good ways to demonstrate return to citizens.

Impact analysis of Research Infrastructures needs to include not only conventional scientific output but also the services provided, including identification of customers. The way that Research Infrastructures address industrial and societal needs should be considered with respect to the role they play as one-stop-shop for societal and economic activities beyond science.

Multidisciplinarity is an important driver of excellence and an opportunity for broadening the user base and maximising impact. Multi-messenger science, understood as taking information about the same phenomena from different sources, is a trend with very significant potential - Research Infrastructures working together can produce data going across disciplines and the possibility of Research Infrastructures relating to specific research-related topics should also be kept open.

Integrated Research Infrastructure campuses need to be scaled up, structured and broadly distributed at the European level. They need to establish close links with the actors in regional innovation ecosystems, such as local research infrastructures, incubators, technology parks, universities and businesses, as well as to be proactively integrated into local planning and smart specialisation strategies. Creating a European level strategy or roadmap for hubs and campuses around Research Infrastructures would foster their collaboration and coherent investment strategies. These hubs would attract researchers and innovators, contributing to inter-sectoral exchanges, researcher mobility and better knowledge circulation.

Research Infrastructures engage with industry in many different ways including procurement, direct support with services, training of people, testing and proving technology and collaborating with industry on pre-competitive research. These different forms of collaboration require different, targeted approaches. In this respect it is important to engage with industry throughout the Research Infrastructure lifecycle from first concept to decommissioning.

Research Infrastructures have the potential to foster breakthrough innovation. In order to create an appropriate innovation ecosystem and foster collaboration between Research Infrastructures and industry, there is a need to build mutual trust to adopt a service-driven approach, as well as to develop common services across different Research Infrastructures (one-stop-shop concept) and customised services to industry.

Clustering of Research Infrastructures in families is an important way to realise added value and create pan-European strategic roadmaps beyond individual facilities. This supports stronger impact, harmonised approaches and coherent service provision to both academics and industry, and effective use of resources.

Co-creation, understood as two-way seeding of scientific excellence to generate new knowledge between Research Infrastructures and industry, should be fostered by establishing well-scaled frameworks with appropriate funding and time-scales to stimulate innovation-driven research on pre-competitive challenges.



Targeted outreach activities are important to increase the visibility and awareness of services and other opportunities provided by Research Infrastructures to industry and academic communities. Facilitating inter-sectoral mobility between Research Infrastructures and industry could help develop a common knowledge in researchers and technical staff, bridging the two worlds by exposing staff to both cultures, even for short periods. Collaborative PhD training schemes should also be developed with industry on innovation-driven science and partnerships using Research Infrastructures. Research Infrastructures should develop an integrated and trusted high-quality data system and related business models, taking fully into account ethical issues. Responsible data science will contribute to the willingness of citizens to accept the conclusions and decisions taken on the basis of data analytics.