A spotlight on the services and opportunities offered by research infrastructures

Highlighting the services and opportunities of RIs

Research infrastructures (RIs) are the facilities, resources and related services which allow the scientific community to conduct high-level research. RIs range from major scientific equipment or sets of instruments to collections, archives or scientific data, computing systems or communication networks. They also comprise of any other research and innovation infrastructure of a unique nature that are open to external users. The European Organisation for Nuclear Research (CERN) and the Infrafrontier Research Infrastructure are some of the well-known examples of RIs.

"Enhancing and optimising RIs and their access by scientists and innovation developers is a key ingredient of competitiveness as well as a necessary basis for tackling the grand societal challenges." (ESFRI)

The European approach to research infrastructures has made remarkable progress in recent years with the implementation of the European Strategy Forum on Research Infrastructures **(ESFRI**) roadmap, integrating and opening national research facilities and developing e-infrastructures underpinning a digital European Research Area. The Member States and the Associated Countries operate a diverse system of RIs ranging from well-established sectors like physics, astronomy, energy and materials science, mostly based on large single-sited laboratories, to the fast developing health, food, environment and cultural innovation sectors where novel architectures of RIs are being developed that build on distributed capacity and speciality.

The EU Commission defines, evaluates and implements strategies and tools that will provide Europe with world-class sustainable RIs. It is through their close cooperation with EU countries and those associated to Horizon 2020, they can achieve this **and ensure that RIs are open and accessible to all researchers** as evident in the Horizon 2020 and the Research Infrastructure Landscape document. As Moedas notes: "Horizon 2020 has greatly contributed to the progress we have achieved so far together with the scientific community and national governments, and it will continue to support new, ambitious endeavours that are necessary for further progress."

Within H2020 the objective is indeed to develop the European RIs for 2020 and beyond so as they become a new world-class RIs by integrating and opening national RIs of pan-European interest, development, and through deployment and operation of ICT based e-Infrastructures. This to foster the innovation potential of RIs and their human capital while also reinforcing European RI policy and international cooperation. In future it is expected that **Research Infrastuctures will remain at the core of the ERA and Horizon Europe** will further aim at integrated and inter-connected world-class research infrastructures.

The Commission has outlined their key objectives for RIs which include reducing fragmentation of the research and innovation ecosystem, avoiding duplication of effort and to better coordinate the development and use of RIs. The Commission further aims to establish strategies for new pan-European, well-established intergovernmental or national RIs and to join forces internationally to construct and run large complex RIs by responding to global challenges and or fostering combining skills, data and efforts of the world's best scientists. To achieve these objectives, the Commission has in place initiatives, strategies and networks such as the EIROFORUM, a collaboration agreement combining resources, facilities and expertise of its member organisation to support European Science. This Forum represents Europe's eight largest research organisations which include CERN.

Another example is the already mentioned European Strategy Forum on Research Infrastructures (ESFRI). It's 2018 Roadmap expanded into six new pan-European research infrastructure projects, pushing the boundaries of science. ESFRI has announced the launch of the Roadmap 2021 Update which will present the evolution of RIs on the current Roadmap.

RIs continuously offer opportunities for the research community.

The European Commission's Joint Research Centre (JRC) opens its scientific laboratories and facilities to people working in academia and research organisations, industry, small and medium enterprises (SMEs), and more in general to the

public and private sector. The JRC offers access to its non-nuclear facilities to researchers and scientists from EU Member States and countries associated to the EU Research Programme Horizon 2020.

The Human Brain Project, built EBRAINS. This is the world's first integrated ICT infrastructure for brain research and development. It offers growing capabilities in neuroinformatics, brain simulation, medical informatics, neuromorphic computing and neurorobotics, underpinned by high-performance analytics and computing. On the 25th November 2019, EBRAINS was introduced at the event held at Heidelberg, Germany.

Another opportunity is offered by **Elettra Syncrotrone Trieste**, a multidisciplinary international research centre of excellence. They have **announced they will be launching PhD fellowship opportunities as well as postdoctoral fellowship opportunities in synchrotron radiation techniques** and applications specifically addressed to Western Balkans which will begin in March 2020. In addition to these, the **CERIC - Central European Research Infrastructure Consortium** integrates and provides open access to some of the best facilities in Europe. They are **calling for proposals for access to integrated multidisciplinary facilities for materials and biomaterials**.

Some developments In the WB region

Since 2015, there has been an increase in Western Balkan involvement in the so-called European Social Survey (ESS), the **general social survey that operates across the European Research Area (ERA). It became a European Research Infrastructure Consortium (ERIC) in 2013** and was further acknowledged as a European Strategy Forum on Research Infrastructures (ESFRI) landmark project in 2015. The **data collected in such a framework has been used extensively for teaching across Europe while the findings have had a significant policy impact**. The first edition of Round 9 data - collected in 19 countries during late 2018 and early 2019 - was published in October 2019. The data includes results from Bulgaria and Serbia, who participated for the first time, whilst data from Albania, Croatia and Montenegro will be available following the second release in May 2020. In November 2019, the ESS ERIC National Coordinators' Forum took place in Belgrade where the preparations for Round 10 were discussed. A new Horizon 2020 Project was introduced, ESS-SUSTAIN-2, which aims to create sustainability through structural strengthening of the ESS and by future proofing the infrastructure. Under ESS-SUSTAIN-2, the **Institute of Social Sciences in Serbia will coordinate exchanges amongst South East Europe countries and facilitate sustainable participation of the countries in the region**.

In 2018 the Six Western Balkan (WB6) economies agreed to step up their work on research infrastructure in the region. In such a context the Regional Cooperation Council (RCC) together with the Ministry of Science of Montenegro organised a Regional Workshop on Mapping Research Infrastructure, that took place on 8 April in Ulcinj. The workshop aimed to support the **Western Balkan economies in the process of mapping the existing research infrastructure through exchange of practices and experiences**. In addition, the participants discussed the importance of opening access to the research infrastructure with an aim of optimisation and opening avenues for interdisciplinary and international collaboration between researchers, as well as to industry and wider society. The participants agreed to create a regional database of research infrastructure that shall facilitate easy search and contact between the managers of the research infrastructure and potential users enabling efficient cross-regional booking system of the research infrastructure. Furthermore, the participants agreed to support the development of open access protocols to research infrastructure and a plan for networking and training of the managers of the research infrastructures in the region.

Montenegro's Science Minister Sanja Damjanovic is finally moreover pushing for the **South East European International Institute for Sustainable Technologies (SEEIIST)** to be on the EU's next ESFRI's Roadmap in 2021. At the European Research and Innovation Days ,on 25 September 2019, the Minister highlighted the importance of the institute: "This institute that not only has the objective to promote science, technology and industry but also has the special mission to decrease the tension between the countries in our region. The mission of our institute is not only science for society, but also science for diplomacy." On March 24, 2019 CERN welcomes Serbia as its 23rd Member State, following receipt of formal notification from UNESCO that Serbia has acceded to the CERN Convention.

> *"Investing in scientific research is important for the development of our economy and CERN is one of the most important scientific institutions today. I am immensely proud that Serbia has become a fully-fledged CERN Member State. This will bring new possibilities for our scientists and industry to work in cooperation with CERN and fellow CERN Member States,"* said Ana Brnabić, Prime Minister of Serbia.

Finally, the DiSSCo Research Infrastructure signed in May 2019 a letter of agreement with the German Organization for International Cooperation (GIZ) to actively contribute to the efforts carried out by the Biodiversity Information Management and Reporting (BIMR) Regional Platform. DiSSCo will contribute to the development of a policy paper to set up the requirements to achieve a higher political profile of biodiversity information management and reporting. It is expected that the policy paper will enable functional and operational biodiversity information management activities in the Balkan region and harmonisation with EU legal requirements.

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More information and news on RIs can be found on our website

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