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The European Strategic Forum for Research Infrastructures (ESFRI) launched the New Roadmap for RIs in Europe



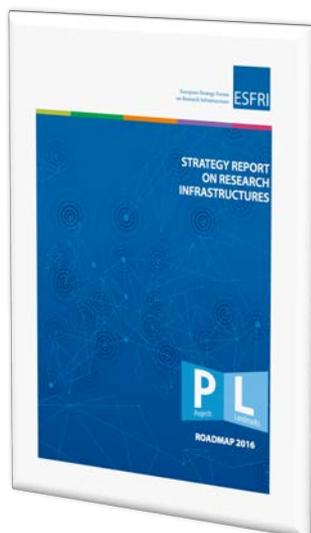
The ESFRI Roadmap 2016 is the new strategy document that identifies a limited number of Research Infrastructures projects of special relevance in Europe. The evaluation and selection of the proposals was carried out stressing scientific excellence, pan-European dimension and the maturity of governance, financial plans and legal status, with the goal of maximizing the likelihood of fast implementation.

Out of twenty eligible proposals ESFRI has selected six new projects in four research sectors addressing large telescopes, climate monitoring arrays, particle accelerators and biobanks as well as two major upgrades of infrastructures in high-energy particle physics and in analytical science.

The ESFRI Roadmap 2016 describes 21 ESFRI projects and 29 Landmarks strategically aimed at enhancing pan-European science and innovation competitiveness. It was officially launched at a one-day conference hosted by the Royal Netherlands Academy of Arts and Sciences in Amsterdam, under the auspices of the Dutch EU Presidency, on March 10th, at the historical Trippenhuis Building of the Academy.

With over 200 participants, EU officials, policy-makers, RI project representatives, politicians, ESFRI delegates and national experts, the event united the research facility community in Europe and succeeded in promoting the dialogue between ESFRI, the science stakeholders, the European Commission and stakeholders at the regional, national and international levels.

The New Roadmap for RIs in Europe



The 21 ESFRI Projects in the Strategic Report "ESFRI Roadmap 2016" are expected to reach implementation, or to have initiated construction of large capital-intensive installations within 10 years. The 29 ESFRI Landmarks are already successfully implemented projects from earlier ESFRI roadmaps that are now delivering science services or effectively advancing in their construction.

The roadmap's publication follows a selection process aiming to meet the long-term needs of Europe's research communities across all scientific areas. Since 2006, the publication of periodically updated ESFRI roadmaps has provided the Council of the European Union a coherent and strategic vision to ensure Europe has excellent RIs accessible to all leading researchers and to exploit fully the potential for scientific advancement and innovation.

To this end, the new Roadmap also includes a Landscape Analysis of the Research Infrastructures accessible to European scientists and developers,

identifying their strengths, potential and any gaps in the different fields of research. The ESFRI process now incorporates the necessary dynamics to further strengthening the RI ecosystem in the years to come.

The ESFRI Roadmap 2016 launch conference: a day of pride for the EU RI community and of hope for global R&D collaboration to address the grand challenges

José van Dijck, president of the Royal Netherlands Academy of Arts and Sciences (KNAW) welcomed the participants to an 'exciting event that fully embodies our license to dream'. She stressed the importance of investing in knowledge infrastructures for the future of Europe and gave the floor to John Womersley, ESFRI Chair who introduced the new Roadmap, in an enthusiastic tone.

In his talk, John Womersley presented the three parts of the strategic document, described the new elements of the ESFRI process, and announced that preparation procedures for the next ESFRI Roadmap in 2018 have already started. Stressing the need for a 'coherent, continent-wide and in many cases global approach on research infrastructures', he encouraged member states to develop national roadmaps that align with pan-European RIs and referred to ESFRI's vision for becoming an incubator for pan European RIs. In a symbolic manner, he closed his presentation by handing a copy of the Roadmap 2016 to Sander Dekker, the Dutch State Secretary of Education, Culture and Science. Sander Dekker, in his brief address to the conference, welcomed the new Roadmap stating that 'your research could create a golden age of knowledge.



Robert-Jan Smits, Director-General for Research and Innovation of the European Commission, stressed that the European Commission is a major supporter and stakeholder in Research Infrastructures development and that 'we need research infrastructures to extend our grasp of how knowledge shapes the future'.

Long-term sustainability of research infrastructures, their innovation potential and the role of the EU in fostering implementation were the focus of the next presentation by Antonio Di Giulio, Head of Unit Research Infrastructures, DG for Research and Innovation, EC. He also presented the final version of the European Charter for Access to Research Infrastructures pointing to the innovation potential that RIs offer by allowing the scientific community to play a key role in it and by promoting open science and open innovation.

Focusing on the socio-economic impact of research infrastructures, Hans Chang, the Dutch ESFRI delegate and first ESFRI Chair, talked about a new kind of innovation emerging from ESFRI projects, called social innovation or technological innovation with long-term societal benefits, and stressed that measuring the socio-economic impact of RI investment should include the whole lifecycle of RIs.

Presentation of 6 New ESFRI Projects

Among the 21 projects included in the Roadmap 2016, 6 projects are newly added. They are expected to complete their incubation, and start implementation within a maximum of ten years and reach sustainability for long term operation, thus assuring maximum return on investment in terms of science, innovation, training, socio-economic benefits and competitiveness. All 6 new projects were presented in the event, celebrating their inclusion to the new Roadmap.



ACTRIS, the European Research Infrastructure for the observation of Aerosol, Clouds, and Trace gases was represented by Sanna Sorvari, who explained that ACTRIS is composed of observing stations, exploratory platforms, instruments calibration centres, and a data centre. The infrastructure serves a vast community working on models and forecast systems by offering high quality data for atmospheric gases, clouds, and trace gases.

Adrian Stanica presented DANUBIUS-RI, which by 2022 aims to become a pan-European distributed research infrastructure dedicated to interdisciplinary studies of large river–sea systems. DANUBIUS-RI is being developed by partners in eleven European countries, with the support of the world-wide scientific community and will enable and support research addressing the conflicts between society's demands, environmental change and environmental protection in river–sea systems worldwide.

In the field of Social and Cultural Innovation, the E-RIHS project, the European Research Infrastructure for Heritage Science (E-RIHS) will provide state-of-the-art tools and services to cross-disciplinary research communities. The project was represented by Luca Pezzati, who explained its role in enabling the community to advance heritage science and global access to the distributed infrastructures in a coordinated and streamlined way.

The European Solar Telescope (EST) is a 4-metre class telescope dedicated to study the fundamental processes in the Sun that control the solar atmosphere and its activity and the physical conditions in the heliosphere. It is now included in the Roadmap 2016 and was presented by Manuel Collados Vera who pointed to the project's impact on advancing knowledge: understanding the interaction of plasmas with magnetic fields has many technological application, e.g. in fusion nuclear reactors. Space missions are also tributary of data from ground solar telescopes.

The project of EMPHASIS was represented by Ulrich Schurr, who addressed the main outputs that the RI will deliver in the next years: access to state of the art infrastructures for technology development, utilization for biological experiments and breeding, up-to date information and statistical systems that will store and manipulate heterogeneous data as well as knowledge-platforms in state-of-the-art phenotyping and best practice examples for plant improvement.

Maarten de Jong presented the KM₃ Neutrino Telescope 2.0 (KM₃NeT 2.0), a new configuration of an earlier project, which intends to examine astrophysical objects by detecting their high energy neutrino emission and to investigate neutrino properties by measuring neutrinos produced through cosmic-ray interactions in the atmosphere. The research infrastructure comprises two deep-sea installations with shore stations, located off shore Toulon, France and Capo Passero, Italy. These installations will also feature user ports for earth and sea sciences, thus offering unique opportunities for real-time measurements and interdisciplinary research.

Highlighting ESFRI Landmarks

Two new landmark projects (entering the 2016 ESFRI Roadmap directly at this level) were represented in the event: CERN High luminosity LHC and ESRF-EBS. These two RIs are already at the implementation phase with funding substantially in place and established governance.

CERN's Large Hadron Collider (LHC) represented by Eckhard Elsen, is the world's largest and most powerful particle accelerator. It started up in 2008, remains the latest addition to CERN's accelerator complex and today, it gathers a global user community of over 7,000 scientists from all over 60 countries. The full exploitation of the LHC is the highest priority in the European Strategy for Particle Physics adopted by the CERN Council and intergrated into the ESFRI Roadmap since....

As explained by Francesco SETTE, Director General of the ESRF, "with the support of its 21 partner countries and of Europe, the ESRF has designed and launched the construction of the ESRF-EBS, opening the way to a new generation of synchrotrons. The ESRF-EBS, delivering a conceptually new and first-of-a-kind storage ring, will provide scientists with unprecedented X-ray tools to better understand the infinite ways atoms combine, and give origin to the Universe in which we exist and make life possible!"



Discussions and Concluding remarks

The presentations led to interesting discussions that were principally centered on issues regarding the long-term sustainability of Research Infrastructures and ways of measuring their quality and impact. Questions and answers pointed to an emerging need for close collaboration between new roadmap projects and existing ones, a need to promote the industrial capabilities of the RIs on the ESFRI Roadmap and strengthen the cooperation of pan-European RIs with industry -in particular during the construction phase- but also developing investment portfolios during their maturity.

From the side of the European Commission, wrapping up, Octavi Quintana-Trias, Senior Adviser at DG Research and Innovation, highlighted that Europe's conceptual approach on RIs is unique 'since we have the only international methodology and evaluation procedures to assess RIs, and many others want to mimic it'. The role of e-Infrastructures is emerging as central in the future of RIs and multidisciplinary as an essential element. According to Quintana, it has become apparent that the methodology to assess RIs has improved and 'we have learned lessons', however 'we still have to find a balance between outcome, time and effort spend on the process'. Finally, he stressed that EC will continue supporting ESFRI initiatives and welcomes the process for the Roadmap update in 2018.

In his concluding remarks, Hans Chang sent the message that 'there will be a serious evaluation process for the next Roadmap update' and invited ESFRI projects to learn from the past and survive the "valley of

death”, toiling immediately on dynamic leadership, effective business planning and developing effective communication with the government and industry sector. Exchange of experiences and best practices is central in this process and ESFRI should consider how the exchange of experience among projects should be made beneficial. Also, he stressed the need for a better conceptual framework regarding the terminal phase of the RIs lifecycle.



In an era when European collaboration is becoming increasingly necessary for the European scientific community, these issues will be taken up in the agenda of ICRI 2016, in October. ESFRI will next update its Roadmap, offering more opportunities to new and mature projects in all fields of science to enter the Roadmap, in 2018 and in 2020.



The event was broadcast live and the video stream is available at <http://www.heuvelman.nl/esfri/>. Dissemination and press material regarding the event and the ESFRI Roadmap 2016, such as flyers, interviews, photo galleries and videos will soon be accessible via the www.esfri.eu Press Corner. The Launch of Roadmap 2016 event was part of a series of events marking the Dutch presidency of the European Union. It was organised by the Royal Netherlands Academy of Arts and Sciences (KNAW) in close cooperation with ESFRI, the European Commission, and the Dutch Ministry of Education, Culture and Science.

To find more events related to RIs and ESFRI please visit www.esfri.eu.

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