# Key Messages for Research Infrastructures in "Horizon Europe"

## Recommendations from Centres of the Helmholtz Association Operating Research Infrastructures

An adequate level of funding and a more efficient coordination is needed for Europe to continue developing its world leadership in the area of Research Infrastructures (RI) and fully exploit the innovation potential of many research areas. Therefore we ask for the RI programme in Horizon Europe:

- **Increase the budget for RI to at least €5 bn**. The growing number of European RI, the evolution of their services, including compliance with FAIR[1] principles in data management need substantial EU funding. Only this way true European added value that goes beyond national interests is generated making RI accessible to all researchers in Europe and beyond.
- **Reduce the fragmentation of RI in Europe** and ensure their world-leadership through i) **better coordination and continuous adaptation** of services to user demands in European and national RI, ii) **fostering the innovation potential** of RI and iii) **stronger focus on the collaboration of national RI in the EU landscape** with a better connection to ESFRI using RI programmes and clusters.
- **Implement** a common funding approach of standardised **trans-national access** (TNA) primarily **through EC-funded TNA projects** that directly support access and service to researchers of MS which do not have access to RI or fewer resources. Co-funding should only be introduced in exceptional cases where MS are explicitly committed to provide funding for TNA.

The total capital of EU RI is estimated at €100 bn. (EC census of 2008), where €9 bn. are needed for running costs and €1 bn. for major up-grades *every year*. These costs are mainly covered by MS and do not include the investment needed to implement FAIR-compliant data management. The current proposal for Horizon Europe only covers 3,8 % of the yearly running costs, provided that these costs were eligible. Horizon 2020 has shown that a significant budget increase is needed: Only 52 of the 120 eligible proposals above threshold submitted to support trans-national access (topics INFRAIA from 2014 to 2017) have received funding. Moreover, in the whole RI programme (2014-2017), only 199 proposals of 433 above threshold were funded, resulting in a funding gap of €1,15 bn. Increasing the budget to at least €5 bn. is needed to fully exploit the contribution of RI to excellence science, the support of the global challenges and industrial competitiveness pillar and their role as a pre-requisite to reach competitive industrial applications.

Facilitating access to RI across the EU by funding their related costs is one of the success stories of the past framework programmes. TNA accelerated the implementation of the ERA and strongly increased the global competitiveness of European RI. TNA urgently needs to be standardised and better funded through dedicated TNA projects directly funded by the EC, as in Horizon 2020. The new option of co-funding should be offered for exceptional cases where EU added value is justified and MS guarantee true TNA (p. 16 of Annex I). TNA projects are urgently needed, since otherwise, only users who are directly supported by their own institutions or national funding agencies will be able to access RI abroad. A co-funding model is especially problematic for small and distributed RI since it demands a complex administrative system. In the current proposal (p. 16), networks set up for co-funding TNA do not foresee the inclusion of operators of the RI themselves. This would mean that the essential operational expertise of the RI would be missing in these projects and should therefore be changed.

The speed and efficiency of setting up new and updating current RI need to be increased in order for Europe to remain attractive for the best scientists and to improve opening of RI for industry and stakeholders. This requires continuous support for the ESFRI process (p. 16) and at the same time-improved measures for the integration of new national RI into the European landscape e.g. via a stronger support for RI networks and clusters to allow for an easier federation into the EOSC. A budget increase will streamline the ESFRI process and the better coordination and integration of national RI. A significant effect can only be achieved by a substantial budget increase for Horizon Europe that will allow for continuous technology development to keep RI at the cutting-edge and in line with user demands.

[1] The FAIR Data Principles are a set of guiding principles to make data findable, accessible, interoperable and reusable (Wilkinson et al., 2016).

***These key messages were written with the collaboration of eleven Helmholtz Centres operating RI:*** Forschungszentrum Jülich, the Karlsruhe Institute of Technology (KIT), the Deutsches Elektronen-Synchrotron DESY, the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, the Helmholtz Zentrum München – German Research Center for Environmental Health, the Helmholtz-Zentrum Berlin for Materials and Energy, the Helmholtz-Zentrum Dresden-Rossendorf, the Helmholtz-Zentrum Geesthacht for Materials and Coastal Research, the Max Delbrück Center for Molecular Medicine in the Helmholtz Association, the GEOMAR Helmholtz Centre for Ocean Research Kiel and the GSI Helmholtz Centre for Heavy Ion Research.

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