

Policy considerations on the orientation of the EU framework programme for research and innovation

The Brussels office of the Helmholtz Association has prepared this contribution to the triple consultation of Horizon 2020, Horizon Europe and the strategic planning 2025-2027 in collaboration with the Helmholtz Centres.

Helmholtz is dedicated to European research collaboration. Global challenges do not stop at borders – and the framework programme is of utmost importance to address them. We are convinced that joint research at the European level is a driving engine for Europe. It benefits European citizens enormously both in the short and long term.

In this context, the twin transition – green and digital – is of high importance. There is a need in particular to continue investing in disruptive digital tools as well as digital twins to arrive at a fundamental understanding of the way complex systems function and dysfunction, as well as to provide science-based policy advice. New findings and technologies should be approached from a sustainable point of view. Given the enormous global challenges, an ambitious EU energy research agenda including new sustainable energy systems smart grids, clean hydrogen is needed – more than ever. We stress that continuous support for research along the full innovation chain (incl. ERC and collaborative basic research) is needed to achieve the goals laid out by the European Commission in this regard.

The following are our key considerations:

The next framework programme deserves an **ambitious and stable budget**:

The war against Ukraine and the current energy crises must force us to develop an ambitious R&D programme to secure the future of Europe. A stable research and innovation ecosystem is key to address the urgent challenges we are facing as a society, both acute and long-term. Such a system depends on reliable funding: 1) The research budget should be ambitious from the start. 2) It should remain as such and not be redressed to serve new initiatives proposed. 3) It should not be contested on a yearly basis. Only this way, an effective and truly European research system can flourish.

Excellence must be the main criterion for funding:

Only excellent research at an international level increases Europe's competitiveness. Therefore, excellence needs to remain the main criterion for the evaluation of proposals incl. collaborative projects in Pillar II. This ultimately contributes to keeping the international reputation of the Framework Programme and attracting talents from all over the world.

Research at low **Technology Readiness Levels** (TRL) is needed to address future challenges:

Collaborative research in the Framework Programme funnels innovation and creates true European added-value. Building on jointly developed structures, blue-sky research lays the foundations for future innovation (that can also be applied through the EU Partnerships – note: Partnerships should cover all TRLs and have adequate funding mechanisms to ensure that the best EU consortia will form). Focussing the TRL of collaborative projects to high levels is dangerous. This will dry out the European innovation chain and shape a new valley of death in low and medium TRL. Collaborative fundamental research is key to prevent this.

Finally, innovation processes of industry supported by technology infrastructures (TI) must be funded through a dedicated budget line within the framework program in order to avoid budget competition between TIs and actual collaborative research projects. TI aim not only at high TRL: They can also support innovation in the medium TRL range and their services should be designed to complement those offered by RI, when relevant.

Research infrastructures (RI) attract talent and benefit Europe's technology sovereignty:

RI provide an ideal setting to attract international scientists to Europe - they are a magnet for talent both from Europe and globally. They are essential for competitive research and innovation in Europe, as demonstrated by their key contribution to develop a COVID19-vaccine. RI deserve a dedicated programme part with a sufficient tailor-made budget for a tighter coordination of investments, in particular since on-site and distributed RI are facing different challenges. Reducing the budget share in Horizon Europe was a clear mistake in the programme's design. It has led to decreased access to world-class RI (like XFEL and ELI) across Europe, notably for researchers and innovators from financially weaker countries. We urge to re-unite trans-national access (TNA) and networking activities (NA). Should the broad challenge-driven access to RI be maintained, we suggest to provide several financial options (cascade grants, generous subcontracting options, purchase of services), so that projects can choose the best-suited option.

Funds for EU Missions from the Framework Programme must be primarily used for research:

As the budget for the Missions mainly derives from Horizon Europe, EU Missions should clearly focus on supporting research and innovation activities. The calls should also address lower TRL (1-5) to allow fundamental research to nurture further groundbreaking developments and ultimately the goals of the EU Missions. It is worrying that, so far, several funded topics have only received moderate attention from the research community. To change that, Mission calls should be clearly targeted and their scope should be adequate for consortia of medium size. Involving stakeholders outside the research community is much appreciated in general. However, there is a need to tap the potential of other relevant EU programmes (such as the ERDF, EU4Health or LIFE+) for activities related to regional cooperation or policy development to achieve maximum benefits.

Complexity discourages RPOs from coordination:

A successful performance of research consortia requires flexible sizes and flexible coordination structures. Topics should be formulated in such a way that the tasks can be fulfilled without forming too large projects or consortia. Otherwise, that would create an additional administrative burden or even deter cutting-edge researchers, as well as SME or small facilities. It should be kept in mind that coordinators must have a sound scientific knowledge of the research area. In case a certain research question can only be addressed within a broad topic or large consortium, its budget needs to be appropriate. Additionally, the application procedure should be two stage, allowing to merge proposals, if suitable. In general, the core of all projects should be outstanding scientific work.

Increased association - and intensive support for widening countries:

The research community has a deep interest for increased collaboration with Switzerland, the UK and Israel - more than ever. In general, the association of like-minded countries is of high importance.

We also welcome a continued funding support for projects by widening countries as implemented under Horizon Europe. In addition, the attractiveness of such funding instruments must be increased for non-widening countries to elicit easier collaboration. In future, widening initiatives could benefit from a tighter collaboration with large RI based in non-widening countries - as well as a providing access for Research Institutions to the European Excellence Initiative.

About Helmholtz:

We are Germany's largest research organization. At Helmholtz, more than 44 000 people work together in 18 centres and develop solutions and technologies for the world of tomorrow. With an annual budget of five billion euros and long-term, interdisciplinary research programs and unique research infrastructures we address global challenges - in our six thematic fields: Energy, Earth & Environment, Health, Information, Matter and Aeronautics, Space & Transport.