Comments of the Helmholtz Association of German Research Centres on the ERA Framework Communication of the European Commission

(COM(2012) 392)

November 2012

HELMHOLTZ | ASSOCIATION

Brief portrait of the Helmholtz Association

The Helmholtz Association is Germany's largest scientific research organisation. In the Helmholtz Association, 18 German research centres have joined forces to share their resources in strategically oriented programmes to investigate complex questions of societal, scientific and technological relevance.

They concentrate on six major research areas: energy; earth and environment; health; key technologies; structure of matter; and aeronautics, space and transport. The scientists work closely together across the centres on these issues.

The Helmholtz Association provides the necessary resources, a framework for long-term planning, a high concentration of scientific competence and an outstanding scientific infrastructure with major projects, some of which are unique worldwide.

Helmholtz represents 34,000 employees in its 18 research centres and an annual budget of approximately 3.4 billion euros.

Helmholtz Centres

Alfred Wegener Institute for Polar and Marine Research
Deutsches Elektronen-Synchrotron DESY
German Cancer Research Center
German Aerospace Center (DLR)
German Centre for Neurodegenerative Diseases (DZNE)
Forschungszentrum Jülich
GEOMAR | Helmholtz Centre for Ocean Research Kiel
GSI Helmholtz Centre for Heavy Ion Research
Helmholtz-Zentrum Berlin für Materialien und Energie
Helmholtz-Zentrum Dresden-Rossendorf
Helmholtz Centre for Infection Research
Helmholtz Centre for Environmental Research – UFZ
Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research
Helmholtz Zentrum München – German Research Center for Environmental Health
Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences
Karlsruhe Institute of Technology
Max Delbrück Center for Molecular Medicine (MDC) Berlin-Buch
Max Planck Institute for Plasma Physics (associate member)

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I Introduction

As stated in our previous position submitted in connection with the public consultation on the ERA Framework in November 2011[1], the Helmholtz Association of German Research Centres welcomes the objectives of the European Research Area (ERA) aiming to create a single European space of knowledge and knowledge generators. Thus, we also welcome the recent Communication of the European Commission **A Reinforced European Research Area Partnerships for Excellence and Growth**.

We welcome also the recognition that the European Commission has given to the research-performing and research-funding organisations, not least joined under the umbrella of **Science Europe[2].** Indeed, research organisations constitute, next to the EU institutions and the European Members States, the real moving and performing force in the area of Science and Technology (S&T), implementation of S&T results into business practice, and a qualified body of skilful policy-makers that actively contribute to shaping the future of European research, development and innovation (R&D&I).

II Defining ERA

The Helmholtz Association believes that achieving the **ERA is a long-term project** requiring the concerted efforts of the European institutions, Member States and other stakeholders. It is an ongoing project that will continue to evolve in response to changing social, economic, political and global circumstances over the long term.

As the European Commission rightly states in the **Europe 2020 Strategy** and elsewhere, S&T development and the implementation of its achievements into business practice is the only way to overcome the recent economic slowdown in Europe and make Europe stronger than ever. Thus a meaningful further integration in this field – whether termed ERA or not – is a must for Europe in order to withstand the ever fiercer competition for intellectual resources worldwide.

We understand that realisation of ERA is a long-term process requiring a paradigm shift in the understanding of the Member States and their roles in the global economy that cannot be achieved by an order from above. The way forward, as we see it, is through **building bridges** among national ministries, among national funding organisations, and among research organisations themselves. This involves funding **joint research activities and programs** developed by both national governments as well as S&T stakeholders, allowing for increased transnational access to research infrastructures (RIs), enabling free movement of researchers and research ideas among European countries as well as measures to link different phases of the innovation chain.

[1] www.helmholtz.de/no_cache/en/about_us/organisation/international_offices/brussels_office/?cid=12364&did=20958&sechash=d7cd604b

[2] The Helmholtz Association is one of the funding members of Science Europe and as such, it wishes to take an important role in shaping the future of the ERA.

III Effective national research systems

*The mission of the Helmholtz Association is to carry out high-level research that contributes to solving the major challenges facing society today and is implemented by achieving a **balance between collaboration and competition**. In a dialogue with national ministries, the Helmholtz research centres define strategic research programmes oriented towards investigating the societal challenges and work together to implement them. Every five years, their research results are evaluated by **international peer review based on the criteria of S&T quality and relevance**, and the outcome of the evaluation determines the level of funding that the research centres receive in the next round of programme-oriented funding[3]. Thus, in many ways, the Helmholtz Association can serve as an example of effective research funding and performance for other European stakeholders.*

Diversity, competition and collaboration

The strength of the European R&D&I system is its rich **diversity** of organisations, sectors, programmes, missions and activities that reflect a corresponding social and cultural diversity in the Member States. This character should be preserved because it provides for a variety of institutions and programmes that can **respond creatively and flexibly** to specific R&D&I challenges at different levels.

Moreover, **diversity promotes competition**, which also promotes excellence. Encouraging competition and a judicious amount of overlapping of effort at different levels can **accelerate S&T innovation** by helping to validate results and identify the most successful and viable approaches to solving R&D&I problems.

Furthermore, it is important to respect the basic **differences in philosophy and mechanisms** between curiosity-driven research activities, technology-oriented research and innovation-oriented activities. Each plays an essential role in the overall research system and requires specific and appropriate approaches to funding and evaluation.

Excellence and competitive funding

The European Commission in its communication on the ERA proposes specific measures to enhance the effectiveness of national research systems. Experience has repeatedly shown that **competitive funding of R&D&I programmes** in which proposals are evaluated by international peer review according to transparent, consistent rules and processes can clearly foster the emergence of innovative S&T ideas and approaches and enhance the quality of R&D&I overall. These principles should thus be at the heart of R&D&I systems at both the national and the European level.

While institutional assessments can catalyse the development of excellence, there should be an appropriate **balance between the effort and resources required to carry out peer review assessments and the benefits arising from them**, so that scientific creativity and institutional flexibility are not stifled by excessive bureaucratic requirements. Similarly, research organisations and universities require **appropriate levels of stable, dependable financial resources and personnel** to ensure continuity in carrying out their respective missions and core activities. This need for continuity and stability should not be imperilled by basing funding decisions solely on periodic evaluations and assessments.

[3] www.helmholtz.de/en/about_us/programme_oriented_funding

Linking R&D&I to other initiatives

Finally, **aligning the structural funds more effectively with R&D&I** initiatives at both the national and the EU level can act as a powerful catalyst to focus activities on specific priorities and contribute to capacity building at the regional and national level. An example of how regional funds can be used to promote innovation and entrepreneurship by linking local businesses with large-scale research infrastructures and universities can be seen in the Baltic Sea project Science Link[4].

IV Transnational cooperation and competition

Given the global nature and enormous magnitude of the societal challenges facing us today, it is evident that finding solutions will require more cooperation and coordination at all levels from the EU, Member States, and all other stakeholders. As a publicly funded research organisation, the Helmholtz Association collaborates with the best research institutions in Europe and world-wide, and intensification of cross-border collaboration is part of its internationalisation strategy[5].

Joint Programming among Member States

The Helmholtz Association welcomes the **Joint Programming of the Member States** as a promising approach that allows them to align their national priorities with the need to deal with societal challenges efficiently. The Helmholtz Association welcomes any harmonisation and streamlining of rules and procedures across borders and development of cross-border models of funding wherever they **facilitate collaboration amongst stakeholders and reduce administrative burdens**.

The definition and coordination of strategic research programmes for the JPIs should be carried out through a **complementary division of labour involving both the national governments and the R&D community:** The national governments define the priorities, overarching strategic goals, specific objectives and levels of funding of the Joint Programming Initiatives (JPIs) in a top-down fashion. This top-down process of prioritisation is complemented in a bottom-up approach by the R&D community, which can form active strategic research alliances and contribute to the **unbiased agenda-setting process** by identifying specific problem areas and relevant research themes.

Bottom-up alliances of R&D stakeholders

There are already many examples of such **strategic research alliances of stakeholders**, who join forces on an open and voluntary basis to exchange information and initiate projects. In this way, it is possible to achieve flexibly a critical mass of resources and participants over an appropriate time frame. Examples of such strategic research alliances include the European Energy Research Alliance[6], the European Climate Research Alliance[7], the Partnership for European Environmental Research[8] and the Association of European Research Establishments in Aeronautics[9].

[4] www.science-link.eu
[5] www.helmholtz.de/en/research/international_cooperation
[6] www.eera.eu
[7] www.ecra.eu
[8] www.peer-initiative.org
[9] www.era.org

Research infrastructures in transnational cooperation

The Helmholtz Association strongly urges that **research infrastructures** be given adequate consideration in **Joint Programming**. RIs are important focal points in the formation of clusters of world-class research, education and innovation and represent thus an important factor in enhancing the overall quality and efficiency of European transnational R&D&I.

Outsourcing and supraprojects vs. competitive tangible collaborative research

The European Commission, for its part, proposes in its communication on the ERA to contribute substantially more resources to **Public-Private Partnerships** (PPP) and **Public-Public Partnerships** (P2P). The Helmholtz Association views this proposal with **great reservation**, if it leads to a scaling down of the research funding in the Societal Challenges and Industrial Leadership pillars of Horizon 2020.

In the absence of a genuine common source of cross-border funding for JPIs and the various partnerships (PPPs or P2Ps), the **funding provided by the EU research framework programmes is the only common source of funding to which all Member States and Associated Countries have equal access on a competitive basis according to the same consistent set of rules and procedures.** This is a genuine achievement of European R&D&I that should be further preserved as a source of pride.

The evolution of the framework programmes shows that open competition among multinational consortia has fostered not only the integration of the ERA, but has also improved the overall quality of European R&D&I activities and led to widening participation of underrepresented Member States and stakeholders. Thus, the vast majority of instruments and programmes should be open to the entire European R&D&I community and **transnational collaborative R&D&I projects should remain the main instrument for the realisation of the European R&D&I policy**.

Concerted effort at all levels

The increased emphasis on pan-European JPIs and other forms of partnerships should not lead to a decrease in funding for critical research areas at the national or regional levels, on the questionable basis that if a research theme is funded in one level, it obviates the need for funding at other levels. If anything, what Europe needs is are **mutually reinforcing resources at the European, national and regional level**, in order to achieve the critical mass in R&D&I to overcome societal challenges and find our way out of the current economic crisis.

Proliferation of measures and fragmentation of the ERA

The European Commission has proposed a Common Strategic Framework to focus various programmes for R&D&I funding under one umbrella in Horizon 2020. However, the **proliferation of programmes and initiatives** outside of the framework programme in the form of different kinds of P2Ps and PPPs which the European Commission is actively pursuing has the opposite effect of **increasing fragmentation and duplication** instead of concentrating efforts and resources in a limited number of instruments and programmes.

Seal of quality

The European Commission proposes to introduce an **ERA Mark label** to foster best practice in cross-border research activities. Just as the European Research Council (ERC) has become a prestigious mark of scientific excellence recognised throughout Europe, an "EU seal of quality" could act as an incentive to accelerate and improve cooperation amongst the Member States. However, it should remain **entirely voluntary and not be a prerequisite to participating in EU programmes or initiatives**, and the Member States should be involved in the definition of standards and indicators that are appropriate to their own national research systems.

V Investment in and use of research infrastructures

The Helmholtz Association is the primary research organisation in Germany and in Europe whose mission is to set up, operate and further develop research infrastructures. It operates more than a hundred large-scale facilities that are made available to teams from universities and non-university research institutes both within Germany and abroad, and they thus constitute a focal point of major international collaborations and networks. Their strategic planning and development contribute significantly to Germany's and Europe's appeal as a location for R&D&I. Over 6,200 visiting researchers from all over the world use the Helmholtz Association's large-scale facilities each year[10]*.*

Research infrastructure in research, education and industrial deployment

The Helmholtz Association wholeheartedly agrees with the European Commission's analysis **that excellent research depends upon world-class facilities and research infrastructures**. RIs also provide opportunities for **training the next generation** of highly qualified researchers. In addition, **industry** also profits from RI both directly (through facilities like wind tunnels, neutron sources or lasers or synchrotron radiation, biomedical research platforms, networked environmental observatories, networks for data storage or high-performance computing) and indirectly (e.g. through the development of new detectors and instruments that provide new services for industry).

Adequate financial support

The European Commission's promise to support through **Horizon 2020** access to RIs, the implementation and operation of the ESFRI roadmap projects and the on-going overall integration of European RIs is of vital importance. This, however, clearly **requires more funding** than foreseen in the current draft of Horizon 2020:

- Underfinancing is the only obvious weakness of RI support in the Seventh framework programme (FP7). With its growing success, **transnational access programme has been expanded** to more and more categories of RIs. However, the budget for transnational access has remained constant. As a result, only a very limited number of RI networks could be funded, and there was considerably less funding per infrastructure available, hence fewer access opportunities could be offered.
- In order to do justice to the programme's importance and added value, its budget should be at least quadrupled compared with FP7's 1.7 billion euros. This would expand significantly the European researchers' **access to expensive, but extremely relevant RIs**, such as research aircraft, research ships and free-electron lasers (FEL).
- A significant effect on the **implementation of ESFRI projects** would be impossible without a budget increase.
- In addition, RIs are characterised by **long-term planning and investments** that imply a time frame well beyond 2014 and even 2020. Any policy already developed in this area by the Member States is based on long-term commitments. Consequently, the EU should also develop the capability to support these initiatives in longer cycles than through the present 3-year projects.
- EU support for transnational access to RIs in the framework programmes provides a clear **win-win situation for all European Member States.** Those countries who have invested in RIs for a long time receive funding for making these available to all Europe, while researchers from the countries with fewer own infrastructures can enjoy free access to these facilities.

[10] www.helmholtz.de/en/research/research_infrastructure

Multiple-source financing

The Helmholtz Association very much supports the European Commission's aim to encourage **links between the ESFRI Roadmap and smart specialisation strategies in structural funds.** Processes should be developed between DG RTD and DG REGIO to ensure that the very different funding mechanisms of structural funds and the framework programme can interlink with a maximum of efficiency. Since we consider the feasibility of combining funds from different sources very important, we also would be willing to contribute to the development of **common evaluation principles**.

Charter of Access and ERIC

The Helmholtz Association also subscribes to the **Charter of Access for the use of RIs** and is interested in the further development and deployment of the **European Research Infrastructure Consortium** (ERIC) legal framework.

VI Open labor market for researchers

As the European Commission rightly acknowledges on numerous occasions, top-class researchers are the engine underlying the effectiveness of the whole European S&T system. In the opinion of the Helmholtz Association, the establishment and further cultivation of the inviting, motivating and conducting market for researchers deserves our utmost attention. The Helmholtz Association has set high standards for its own talent management strategy, which includes targeted recruitment of highly qualified staff at all levels, followed by comprehensive support aimed at further developing their potential[11].

Excellence as the prevailing principle in scientific employment

Any research employment starts with negotiating the employment conditions. Based on our experience, in the current global competition for the best brains, European research centres and universities must have the **latitude to offer potential experts the best contract conditions** and packages possible[12]. The recently passed German law giving non-university research organisations more freedom in recruiting personnel as well as more financial autonomy can serve here as a positive example.

Attractive research career

As has been repeatedly documented, career perspectives are as important to scientists looking for a position as the employment conditions themselves. Thus, each research organisation and/or university should pay close attention to the career prospects of both potential and actual employees and to developing and following **attractive career plans.** In this respect, the progressive talent management strategy of the Helmholtz Association could be cited as an example of good practice.

In the U.S. and elsewhere, career changes occur relatively frequently and are seen as an integral and enriching part of research careers. Likewise, in Europe as well, we must **value career changes** positively as a means to encourage the generation of new and interdisciplinary ideas.

The present world is evolving rapidly, and this is reflected in S&T. Thus, all European research organisation should have programmes that promote **life-long learning as a tool to adapt** to changing and challenging market needs and stay at the cutting edge of science.

[11] www.helmholtz.de/en/jobs_talents
[12] Salaries in research are determined on the negotiation basis for example in the U.S. or the U.K.

Excellent employer

However trivial they may seem, practicalities related to the employment situation may be decisive in determining researchers' future scientific commitment. Thus, the **availability of a high-quality, affordable and accessible child care** for employees is a must for a progressive research organisation that wants to build and sustain a competitive S&T position on the world scene.

Thinking and helping both potential and actual employees to secure appropriate and rewarding careers also for their spouses is another must. **Dual career** is not only a measure to keep researchers in research but, similarly to the provision of the child care, also contributes to giving women better opportunities to utilise their talents and succeed in the research environment.

Transferability of social benefits[13] that allow unrestricted movement of experts to wherever they can exploit their talents the most remains the longer-term goal and dream of both employers as well as employees.

Finally, with regard to cross-border movement of research talent, proper, automatic and **effective administrative support** should be offered to all foreign and/or moving employees so that they can fully concentrate on their research work and do not need to get discouraged by administrative obstacles related to their new position and life situation.

Caring for future generations

Preparing future generations of researchers to take over our positions and achievements and nurture them further is a big concern of the Helmholtz Association[14]. In this context, a close **collaboration between university education programmes and top-class research centres** should be the policy of all European Member States.

VII Gender equality

Achieving gender equality is one of the objectives of the Helmholtz Association, and we welcome the importance the ERA Communication gives to this important task. The number of female staff in management positions is increasing steadily within Helmholtz, and we have several measures in place in order to speed up this process and have more women in all levels of management positions: specific support and mentoring programmes, specific professorship programmes, etc[15]*.*

Regulations vs. gradual change in R&D culture

While we also aim to ensure a high representation of female experts in all expert boards for our internal assessment, experience shows that fixed quotas can in some cases be counterproductive. We therefore consider the fixed quota of **40% participation of the underrepresented gender in committees,** as proposed by the ERA communication, to be dangerous. In some areas of science, the number of women is simply too small to meet such an ambitious target. This can lead to massive demands on the few existing female scientists in such field to spend a great deal of their time in committees, thus allowing them less time for their research. We therefore suggest that the fixed quota be replaced by a goal which is binding, but allows appropriately justified deviations.

[13] ec.europa.eu/euraxess/pdf/research_policies/Ec_final_report_18_June_2010.pdf
[14] www.helmholtz.de/en/jobs_talents
[15] www.helmholtz.de/en/working_at_helmholtz/equal_opportunity

As regards the stronger focus of Horizon 2020 on the **gender dimension in research**, this is clearly a very important aspect in some fields and has to be evaluated as part of the "excellent science" criterion, but in other fields of science this issue is much less relevant. The obligation of additional justification requirements on scientists in those fields should be avoided.

VIII Knowledge circulation

Open Access, the unrestricted access to scientific publications, is an ongoing and future trend in the scientific landscape worldwide. The Helmholtz Association was one of the original signatories of the Berlin Declaration of Open Access to Knowledge in the Sciences and Humanities. It pursues its open access policy in cooperation with other research organisations in Germany (e.g. Allianz Priority Initiative "Digital Information"), Europe (e.g. Science Europe) and worldwide (e.g. Global Research Council).

The Helmholtz Association welcomes the initiative of the European Commission to further optimise circulation, access to and transfer of scientific knowledge. We would like to reiterate our special support for the following policy initiatives of the European Commission:

- Establishment of open access to publications as a general principle for all projects in Horizon 2020
- Development of a research data pilot
- Continuation of funding of projects related to open access

Open Access to scientific publications

The Helmholtz Association as a whole has an **Open Access policy**[16] equally supportive of the green and gold road. Researchers at the Helmholtz centres make their publications and research data available via several publication and data repositories operated by various Helmholtz centres. Libraries at the centres have concluded contracts with open access publishers to arrange for covering article processing charges relieving researchers from the red tape involved with single payments. Open Access related activities at the centres are coordinated by a dedicated Helmholtz Open Access Coordination Office.

Open Access to scientific data

Research data repositories operated by Helmholtz centres[17] are an integral part of the scientific workflow in their respective field. Some have the rank of World Data Centre. The Helmholtz Association is convinced that openness to research data needs to be **Intelligent Openness**[18] respecting legitimate reasons for not making available individual data sets. According to our understanding, the open data policy envisaged by the European Commission is aiming for this intelligent openness. Recognition of the legitimacy for data confidentiality is based on the persuasion that openness should be the norm.

Repositories for research data and publications are to make their content available on a long-term basis. This requires **compatible funding structures**: Open Access to research publications but especially to research data demand great efforts by all parties involved and especially by the publicly funded research organisations and memory institutions which have to build up and operate the infrastructure necessary to realize the great aim of making publications and data not only freely available, but also interoperable.

Making data available not only requires suitable infrastructure, but also **processing of the data sets in order to make them findable and usable** for third parties. For this task, a new profession, sometimes

[16] www.helmholtz.de/en/research/open_access
[17] oa.helmholtz.de/index.php?id=61
[18] Science as an open enterprise. Royal Society, London, 2012

referred to as **data scientist**, is needed. An open science policy is not complete without provisions ensuring support for the researchers who make their publications and data freely available. Research funders such as the European Commission itself should therefore develop funding policies that assure sustainable funding of this new infrastructure.

IX Political will, responsibility, effectiveness and transparency

Member States have long developed their own research funding schemes, tools, strategies, policies and programmes according to national priorities and are not easily to be convinced about the justification, usefulness and wisdom of abandoning and/or integrating them into EU programmes. In order to overcome these inherent reservations of the Member States towards harmonisation and integration, frequently complex schemes with cumbersome funding conditions are put forward which deter our research centres from participating.

For the Helmholtz Association, **ERA is a useful concept and instrument for furthering scientific excellence and establishing new fruitful collaboration** with other R&D&I institutions within Europe, which should be further deepened. However, prerequisite to our further support to this 'project' is its simplicity and lucidity from the user perspective.

The Helmholtz Association thus reiterates its appeal to the European Commission from November 2011 to consider the following issues as being of high importance for the success of the ERA:

- **Clear, transparent priority-setting processes as well as clear and measurable objectives** for all actions are necessary. The stakeholders will support the integration process only if clear, measurable and attainable objectives, including appropriate time frames are given for each step or measure in further deepening the ERA.
- The benefits of further integration of the ERA must also be apparent to and accepted by each group of stakeholders. To this end, better acceptance and **explanation about each step in the ERA integration process** by the European Commission are necessary.
- Diversity is not identical to fragmentation, **diversity is important to foster competition, which in turn fosters excellence**.
- **Non-declining strategic investment in R&D&I at the European level**, thanks to its counter-cyclical character, its leveraging character and its long-term economic returns, is in the present climate of the economic crisis more crucial than ever.
- **Nationally agreed joint programmes should not lead to a reduction in the funds available at the European level and vice versa**.
- The idea of structuring broadly the R&D&I support around large, interdisciplinary themes – e. g. the societal challenges – is good as long as it is **leaves up to the individual stakeholders the selection of appropriate R&D approaches, tools and partners**.
- **Fundamental research is a seed bed for all kinds of innovation** and should have a stronger role in European R&D&I funding programmes and investment. Application-oriented research should be reinforced as a link between fundamental and applied research.
- **Support to industrial R&D&I should not become a support tool for economically unsustainable business.**

- Without the necessary tools, research cannot succeed. Excellent European researchers must have access to the **best research infrastructures** in Europe. Ensuring access to RIs across borders is a domain where Horizon 2020 can and should play a direct and significant role in guaranteeing the effectiveness of the ERA. Consequently, RIs should be one of the funding priorities within Horizon 2020.
- **Simplicity, low administrative burden, acceptance of national rules and the subsidiarity principle** should be the overarching managerial approach to guide further policy decisions within the ERA Framework.
- **Branding Europe as an attractive place for R&D&I** and developing joint strategies with Member States for international collaboration is crucial in the framework of international competition for the best brains and for the realisation of the best R&D&I projects.
- The proposed **ERA Monitoring Mechanism may be a useful incentive** for the stakeholders, including Member States, to participate more actively in the deepening of the ERA as long as it does not entail any new, onerous reporting requirements on them.

This paper presents a consensus of the views of the Helmholtz Association and its centres.

Please direct further questions and comments to:

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