



**Position of the Helmholtz Association of German Research Centres
on the ERA Framework in response to the public consultation of the
European Commission**

November 2011

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I Brief portrait of the Helmholtz Association

In the Helmholtz Association, 17 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.

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Helmholtz Centres

Alfred Wegener Institute for Polar und Marine Research
Deutsches Elektronen-Synchrotron DESY
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German Aerospace Center (DLR)
German Centre for Neurodegenerative Diseases (DZNE)
Forschungszentrum Jülich
GSI Helmholtz Centre for Heavy Ion Research
Helmholtz-Zentrum Berlin für Materialien und Energie
Helmholtz-Zentrum Dresden-Rossendorf (HZDR)
Helmholtz Centre for Infection Research (HZI)
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Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research
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Karlsruhe Institute of Technology (KIT)
Max Delbrueck Center for Molecular Medicine (MDC) Berlin-Buch
Max Planck Institute for Plasma Physics (associated member)

II Introduction

Research and technological development (RTD) underpins the knowledge economy and functions as a key driver of economic prosperity and well-being in Europe. This essential role of RTD depends however on the free, unhindered and open exchange of knowledge and mobility of personnel throughout Europe that is embodied in the notion of the “European Research Area” (ERA), analogous to the European “single market” for capital, labour, goods, and services.

Based on this understanding, the Helmholtz Association of German Research Centres supports the continued development of the ERA and the strengthening of its role to ensure that RTD will continue to play a key role in ensuring economic competitiveness, employment and well-being in Europe.

The Helmholtz Association welcomes the commitment of the European Commission in furthering the development of the ERA and offers the following comments and recommendations in response to the public consultation of the Commission on the future development of the European Research Area, addressing those aspects which the Helmholtz Association believes to be the most urgent.¹

III Basic Principles

The Helmholtz Association believes that achieving the ERA is a long-term project requiring the concerted efforts of the European institutions, Member States and stakeholders. The effort required should not be underestimated by assuming that the ERA can be “completed” by 2014, as proposed in the communication *Innovation Union* of the European Commission.² Rather, it will be an ongoing project that will continue to evolve in response to changing social, economic and global circumstances over the long term.

The policy of the European Union should thus evolve as well from one of catalysing the ERA to supporting the ERA in a long-term approach by seeking – together with the Member States and other stakeholders – an appropriate balance in each of the following areas:

¹ The Helmholtz Association refers to previous position papers it has published with regard to the European Research Area, the Common Strategic Framework for EU Research and Innovation Funding and Joint Programming: Position of the Helmholtz Association of German Research Centres on the Green Paper of the European Commission “The European Research Area: New Perspectives” (August 2007); Position Paper of Helmholtz Association of German Research Centres on the Communication of the European Commission „From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation“ (May 2011); Position of the Helmholtz Association of German Research Centres on “Joint Programming of Research Programmes” (2009).

² Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Europe 2020 Flagship Initiative Innovation Union COM(2010) 546 final.

III a Excellence vs. integration

Scientific and technological excellence must continue to be the principal criterion in EU RTD funding programmes. Only by encouraging RTD of the highest quality will the EU be able to find adequate solutions to global scientific and technological challenges, attract sufficient numbers of excellent researchers and foster innovation in goods and services in many different fields, thus ensuring EU competitiveness in the global economy. Ultimately, excellence in EU RTD funding will encourage raising the overall quality of national RTD programmes and capacities. Integrating the newer Member States and those which are less well represented in EU RTD programmes is an equally important objective but should be achieved through appropriate programmes and measures that build bridges, facilitate entry points and provide for long-term capacity-building.

If RTD is to fulfil its role as the driving force underlying European innovation and economic competitiveness, then appropriate financial resources commensurate to these ambitious goals are essential. Therefore, a larger proportion of the total EU budget should be spent directly on RTD as well as on programmes and measures that will improve the overall performance capacity for RTD and innovation in the Member States. This could be achieved by focusing the EU Cohesion Policy and the Common Agricultural Policy more strategically on research and innovation and, importantly, by introducing effective incentives to ensure that the Member States actually use these funds for research and innovation.

III b Coordination vs. diversity, cooperation vs. competition

The European RTD system is characterised by a rich diversity and plurality of organisations, sectors, programmes, missions and activities that reflect a corresponding social and cultural diversity in the 27 Member States. This is a strength of the system as a whole because it provides for a variety of institutions and programmes that can respond flexibly to specific RTD challenges at different levels (European, national, regional). Reducing this diversity by seeking a uniformity of the different RTD systems in the Member States that operate in lock-step would impoverish the system as a whole.

Moreover, diversity promotes competition, which also promotes excellence. Encouraging competition and a judicious amount of overlapping of effort at different levels can accelerate scientific and technological innovation by helping to validate results and identify the most successful and viable approaches to solving RTD problems.

However, to function efficiently, there must at the same time be measures in place that ensure connectivity and foster synergies amongst the different levels, phases and players in the RTD system. In this respect, the EU should facilitate the building of bridges. EU RTD programmes currently represent the only real common funding resource in Europe. Its opportunities for transnational cooperation bring together partners and expertise needed to formulate strategies and find solutions for the grand societal and technological challenges

facing Europe today on a scale not possible at the national level. Actions facilitating transnational cooperation for large-scale efforts should be the focus of EU funding, e.g. transnational cooperative research, research infrastructures with transnational access, mobility, actions linking different phases of the innovation chain or the development of standards.

III c User-friendly, simplified administrative procedures and rules

It goes without saying that the EU RTD programmes and other actions will only be effective and ultimately successful if they are attractive to researchers as their main users. This depends to a large degree on efficient and appropriate administrative and legal framework conditions. In the future, the administrative framework conditions in all EU funding programmes should be radically simplified in order to substantially reduce administrative complexity and accelerate administrative processes. Following the guiding principles of transparency, stability and consistent application of rules, procedures and controls such that users are able to grasp their underlying rationale, the aim should be an appropriate balance between necessary controls on how public funds are spent, on the one hand, and the risks of over-reimbursing funds and the financial and administrative costs of those control measures, on the other hand.

The general acceptance of national accounting, management and control practices over all EU funding programmes would be a significant step towards eliminating unnecessary duplication of administrative procedures and result in more efficient, user-friendly administration of EU projects and initiatives. Interpretation of the various rules should be consistent across Commission services and over time. Both existing instruments and concepts for new funding instruments should be critically analysed with regard to their appropriateness and potential for achieving targeted goals. Generally, funding instruments should be designed to achieve specific scientific and technological aims and objectives in an optimal manner, rather than the other way around, i.e. forcing scientific and technological questions to fit the instruments. Funding instruments and programmes should in general be based on uniform framework conditions and cover real costs, building on the progress made in FP7.

III d Key role in the policy process for research-performing organisations

Presently, RTD policy is almost entirely developed by the Member States and their research-funding organisations. However, as the ultimate performers and enablers are the research-performing organisations, they should be closely involved in defining the specific research agendas, the appropriate measures and the boundary conditions for the proposed activities. Furthermore, for the very same reasons, the focus and funding measures of the ERANETs and Joint Programming Initiatives should allow for a more active role of the research-performing organisations and strategic alliances of research organisations in the agenda-setting process.

IV Encouraging researcher mobility and adequate working conditions

Europe has faced a critical shortage of researchers and trained personnel for many years which is further exacerbated by a trend towards an ageing population. However, this shortage is also in large part due to unattractive legal and administrative frameworks and employment policies in the Member States, leading to unfavourable working conditions as well as a lack of harmonisation of regulatory frameworks throughout the EU.

To attract young people to take up careers in RTD, retain adequate RTD personnel in Europe and ensure that they can maintain their skills throughout their entire careers, the European Commission should work at the political level towards a harmonisation of social, institutional and economic employment policies to overcome obstacles and create more favourable working conditions for RTD personnel, including technical and administrative personnel. Further, the Commission should foster the exchange of best practice amongst the Member States and institute incentives to encourage the adoption of more attractive working conditions:

- **Excellent training and continuing education with opportunities for lifelong learning** over the entire career span career for research and administrative personnel in universities and research organisations to enable both women and men to develop their talents and capabilities and allow Europe to make full use of this talent pool
- **Effectively and consistently implemented equal opportunity measures** as well as measures to break down institutional and social barriers that restrict science careers and mobility for both women and men, including measures to integrate professional and family life more effectively, allow for more long-term employment contracts and encourage and enable older RTD personnel to continue working
- **Attractive salaries to encourage mobility in both directions between the public and the private sector**, to enhance the expertise in both of these sectors, and to create more training opportunities for RTD personnel
- **Europe-wide harmonisation and facilitation of the transferability of social benefits**, such as retirement and medical and disability benefits, with a minimum of administrative effort, to foster mobility of RTD personnel
- **Support for families**, e.g. adequate child care and support for spouses in dealing with local authorities in applying for work or residence permits
- **Increasing the proportion and influence of women** in RTD by ensuring that employment procedures are fair and transparent and that women are adequately represented in hiring committees, expert groups and decision-making or advisory bodies
- **Eliminating legal and administrative barriers** in order to allow universities and research institutions more autonomy in hiring and setting salaries for RTD personnel
- **Continuing to supporting mobility and career development** of RTD personnel through EU education programmes, ERC and the Marie Curie actions.

V Cross-border operation of research actors

The key operating principles underlying genuine, effective cross-border cooperation involve the formation of voluntary alliances of the willing according to the principles of variable geometry and a division of labour and responsibility according to the principle of subsidiarity. Whatever the level involved, it should be taken into account that research and innovation each have specific objectives and characteristics that are all essential to the overall process and should work hand in hand. The optimal degree of transnational cooperation amongst research actors depends on the scale and complexity of the research theme involved.

- **RTD funding at the European level** should focus on actions requiring diverse competencies on a scale that the regions or Member States cannot effectively handle. Thus, large-scale tasks going beyond the capacity of any one country and the development of EU-wide processes and standards needed for market take-up should be a particular focus. These should include seeking solutions for societal challenges and can include promoting the global competitiveness of whole sectors in business or industry or the development of large-scale research infrastructures.
- **The coordination of national research programmes** depends on the nature of the theme and the players involved. Whereas to find solutions for global challenges, it can be important to coordinate the national resources of different Member States to achieve critical mass, for RTD areas aimed at stimulating national or regional capacities and economies, this would be counterproductive and inefficient.
- **Strategic research agendas** should be formulated in a cooperative effort by all relevant stakeholders at the national, regional and European level, including research organisations and universities, industry representatives and representatives of regulatory agencies or civil organisations where appropriate. Research organisations and institutes that carry out strategic research as their core mission can make a valuable contribution to this process by identifying knowledge gaps, formulating research and technological strategies to overcome them and pointing the way towards future activities.
- **Strategic research agendas** should be implemented according to the individual roles, capabilities and responsibilities of the various actors at each level – national, regional and/or European. This should be accomplished through a self-determined, bottom-up process of exchanging information and sharing expertise, carried out on a voluntary basis according to the principles of variable geometry and open access.
- **The formation of bottom-up research alliances** starts with pure coordination of research tasks and activities, proceeds through preparation and execution of joint projects and leads eventually to real integration via exchange of research personnel and collaborative RTD activities. Through collaborations with diverse international partners along the entire RTD life cycle, from basic through applied research to market take-up, they form strategic partnerships that act as important intermediaries

linking major stakeholders and expediting the RTD process. Examples of such strategic partnerships are ACARE³, EERA⁴ and ECRA⁵. To catalyse the formation of these strategic RTD alliances, support for coordination and support actions is necessary.

- **An appropriate balance should be achieved between top-down and bottom-up approaches:** Whereas policy-makers are responsible for setting thematic and financial priorities, the strategic RTD agendas can be formulated in a more efficient and expeditious manner if the research organisations, universities and other stakeholders who will have to implement them are closely involved throughout the entire agenda-setting process.
- **The experience of FP7 with the Joint Technology Initiatives (JTIs)** shows that all JTIs have slightly different funding conditions and IPR rules. The very long negotiations leading to the finalisation of all these different rules delay the establishment of such structures by months and even years. Once established, the sheer multitude of conditions binds considerable resources in research organisations, universities and SME who have to analyse them individually in order to decide on their participation accordingly. Furthermore, the matching rules among private and public participants are very complex and may prevent execution of key projects even if all scientific considerations have been settled. We therefore recommend radically simplifying the overall concept.

VI Research infrastructures as magnets for world-class RTD and catalysers of cross-border cooperation

Research infrastructures (RI) play a key role in strengthening the performance and innovation capabilities of European RTD. RI are essential for generating and testing new knowledge in many RTD areas. They serve as platforms for carrying out experiments and measurements and developing scientific collaborations, as well as providing opportunities for training the next generation of highly qualified researchers. 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 supercomputing) and indirectly (e.g. through the development of new detectors and instruments that can provide new services for industry). Through EU support for transnational access in the Framework Programmes, in particular the small and newer Member States are able to make use of RI for their RTD and this in turn contributes towards the integration of European research. Thus, large-scale RI are a key

³ www.acare4europe.org

⁴ www.eera-set.eu

⁵ www.ecra-climate.eu

factor in facilitating cross-border collaboration across the entire RTD life cycle, and this role should be recognised through substantially more financial support from the EU.⁶

RI are characterised by long-term planning and investments that imply a time frame well beyond 2014 and even 2020. Most RI have effective lifetimes beyond 20-25 years. Any policy already developed in this area by the Member States is based on long-term commitments: the EU should develop the capability to support these long-term initiatives, ensuring that its additional resources are not dispersed on an increasing number of low-impact actions, but focused on existing and new RI that make the most significant contribution to the attractiveness and effectiveness of the ERA.

RI, both national and international, operating with an “ERA-open access” mode (i.e. offering free access to researchers selected only on the basis of quality by peer review) are almost completely financed by the Member States, with an yearly integrated effort estimated at 10-15 billion EUR (EU contributions total about 50 million EUR, i.e. less than 1%), and with an aggregate past investment in construction well above 100 billion EUR. The amount of open access offered annually for all RI is around 20% of the total, i.e. of about 2-3 billion EUR, with several RI already offering more than 50% open access.

The “ERA open access” mode of operation represents in fact effective “cross-border agency” funding of projects of researchers coming from other countries, selected by open peer review on equal footing with national researchers.

Since many RI are truly European facilities in the sense that they offer transnational access to researchers from all over Europe, the high operating costs incurred through more intensive transnational activities should not remain the sole responsibility of regional and national funding. Rather, new concepts for financing such RI should take into consideration their coordination at regional, national or EU levels and should include long-term, stable financial resources for RI to provide substantial transnational access.

The two main critical aspects in this regard are the increasing lack of sustainability for ERA open access operation of high-quality national RI owing to decreasing and diluted EU support in the last Framework Programmes (now fallen below 1% of the cost of operations), combined with the increasing stress on national funding due to the financial crisis.

The EU policy on RI should focus not only on the development of “new” RI, but also aim at achieving the most effective use of both existing and new RI for a competitive ERA. “New” RI represent only a minor fraction of the RI that must be supported in order to increase European RTD capacities. This is particularly true for developing partnerships between widely different regions, which can be achieved by selecting and upgrading existing facilities and opening them to international use.

⁶ One example of pooling together resources include coordination in the area of high-performance computing, www.prace-project.eu

Specific measures to strengthen RI include:

- Substantial efforts should be made to realise the ESFRI projects, as proposed in the Innovation Union communication.⁷
- Innovative concepts are needed to provide more stable, long-term financing for RI, especially for operating costs. Since European RI provide transnational access for scientists throughout the EU, a long-term and larger proportion of operating costs (20%) should be supported by the EU where they are incurred through expanded transnational activities. Reimbursement of operating costs should be possible via infrastructure-specific flat rates.
- More funds need to be made available for opening a larger percentage of Europe's excellent facilities to Europe's best scientists. Only this approach will ensure increased returns on investment for innovation, human resources, skills, and society in general, allowing also a more balanced development across Europe.
- The Cohesion and Structural Funds should also be used more extensively for transnational access and development of RI.
- More effective integration might be achieved through the reimbursement of costs for access to RI necessary to carry out project activities in other programme areas like collaborative research projects, the ERC, Marie Curie actions or SME activities.
- To reinforce the global competitiveness of European RI, technological upgrades and new instrumentation for specific user groups should be funded independently of specific project activities.
- Coordination activities aimed at using European RI more efficiently should also receive more support.
- Without the necessary tools, research cannot succeed. Excellent European researchers must have access to the best RI in Europe. Ensuring access to RI across borders is therefore a domain in which Horizon 2020 could play a direct and significant role in guaranteeing the effectiveness of the ERA. Consequently, it should be one of the funding priorities within Horizon 2020.

VII Knowledge circulation: knowledge transfer and open access

Transfer of knowledge (KT), especially from knowledge generators to knowledge users, has been recognised as one of the main bottlenecks in the drive to establish a genuine European information society, a society based on high added value creation, services and living standards. Efforts to bring knowledge providers and knowledge users more closely together should address both groups.

⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Europe 2020 Flagship Initiative Innovation Union COM(2010) 546 final, p. 11.

Increasing awareness amongst researchers about IPR and KT opportunities as well as incentivising universities and public research organisations to develop and implement strong KT strategies and structures are critical. The academic and public research sector will be more motivated to promote entrepreneurship if it is given more latitude to develop and exploit research results and profit from any resulting revenue. The role of entrepreneurship can also be reinforced on the level of individual researchers by placing more emphasis on career benchmarks such as collaborations between innovative scientists and industry and/or scientific entrepreneurs. Patents and licenses may serve as one of the benchmarks or proxies for excellence for both institutions and individuals.

The private sector, on the other hand, would be more inclined to invest in academic institutions (both in terms of capital investment – e.g. financing infrastructure and personnel – and research investment) if the framework conditions were more beneficial to them (e.g. through tax reductions).

Facilitating career transfers from academia to industry and vice versa and/or the possibility to work part time in both “worlds” would create further benefits.

Of crucial importance to all parties is the achievement of an EU patent, which should be the priority of the EU in the earliest possible time frame.

Use of model contracts like DESCA⁸ for the Framework Programme Consortium Agreement or legal frameworks like ERIC⁹ for the RI should be encouraged, as they have been specifically developed to help their users to set up and manage their research consortia easily.

All stakeholders, both public research organisations and universities as well as private firms, in particular small and medium enterprises, would benefit from open access to publicly funded research results. However, the rules governing EU funding should not restrict the protection of intellectual property rights, but rather leave room for individuals to determine how their research results can best be disseminated, balancing commercial exploitation and societal benefits. The EU could take on an important role in formulating policies on open access to publications and research data and coordinating existing initiatives in EU member states, e.g. by facilitating agreement on common wording of mandates and national policies. In addition, research institutions, libraries, and funding bodies should be encouraged and supported in implementing specifications.

⁸ www.desca-fp7.eu

⁹ ec.europa.eu/research/infrastructures/index_en.cfm?pg=eric

VIII International dimension

The EU must develop a clear, more focused strategy for international cooperation, with different specific, clearly formulated goals and appropriate measures to achieve them that are coherent with the overarching goals and instruments of all EU RTD programmes.

For example, seeking solutions for global challenges might require long-term, open, reciprocal collaborations with different countries on a large scale, whereas achieving global competitiveness in certain key market areas would require a different approach, where commercial exploitation of RTD is the main focus and IP considerations might limit collaborations and access to results to selected partners.

Initiatives like these cannot be achieved by the Member States alone; rather, a concerted effort is also needed at the European level to achieve critical mass and visibility also for the Member States: The USA, the strongest RTD player in the world, for example fails even to mention the EU as a partner in its recent strategic papers and policies, whereas collaboration with China and India are discussed at length.¹⁰

Strengthening the ERA and making the EU an attractive place to carry out RDI activities might require such actions as the following:

- Expanding international access to (and financing for) research infrastructures
- Fostering world-class talent by strengthening measures such as the ERC or the Marie Curie actions
- Reciprocal agreements between the EU and selected Third Countries enabling their scientists to participate in each other's funding programmes
- Expanding some bilateral S&T agreements to EU-wide agreements
- Pooling networks of national S&T counselors together to achieve more visibility
- Organising joint events promoting the EU as an RTD region, opening national offices located in strategic Third Countries to other Member States or the EU.

IX Managing and monitoring the ERA partnership

Without doubt, further integration in the ERA is a difficult, complex and delicate task that will require the concerted efforts of all stakeholders and an appropriate time frame. Member States have for 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 in EU programmes.

¹⁰ SFIC workshop on EU-US cooperation, Brussels, Oct. 18-19, 2011

In this respect, of crucial importance are the following points/considerations:

- Clear, transparent priority-setting processes as well as clear and measurable objectives for all actions are necessary. 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. Stakeholders will accept more integration of the ERA if it creates a win-win situation for all. To this end, better elucidation of each step in the ERA integration process is necessary to gain the acceptance of the Member States and stakeholders. The stakeholders would appreciate greater involvement of the Commission, e.g. through the presence of Commission official in the Member States to explain Commission initiatives and listen to stakeholder views or hold it on-the-spot consultations in the Member States with national stakeholders (administration as well as research).
- Diversity is not the same as to fragmentation, diversity is important to foster competition, which in turn fosters excellence. In fact, it is very possibly not the fragmentation of European RTD per se, but rather the fragmentation of EU research policies and programmes that hinders European researchers from interacting more freely with their partners and prevents the ERA from being fully established.
- Nationally agreed joint programmes should not lead to a reduction in the funds available either at the European level or at the national level, on the assumption that the “other” level can cover all the necessary funding in key RTD areas.
- The idea of orientating RTD support on large themes – societal challenges – is good as long as it leaves up to the individual stakeholders the selection of appropriate scientific approaches, tools and partners.
- Fundamental research is a seed bed for all kinds of innovation and should have a key role in European RTD funding programmes. Application-oriented research is to be reinforced as a link between fundamental and applied research.
- Simplicity, a low administrative burden 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 RTD and developing joint strategies with MS for international collaboration is crucial in the framework of international competition for the best brains.

Again, without the necessary tools, research cannot succeed. Excellent European researchers must have access to the best RI in Europe. Ensuring access to RI across borders is therefore a domain in which Horizon 2020 could play a direct and significant role in guaranteeing the effectiveness of the ERA. Consequently, it should be one of the funding priorities within Horizon 2020.

This paper presents a consensus of the views of the Helmholtz Association and its centres.
Please direct further questions and comments to:

Dr. Susan Kentner
Helmholtz Association Brussels Office
Rue du Trône 98
B-1050 Brussels

susan.kentner@helmholtz.de

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