EUROPEAN PHYSICAL SOCIETY

Towards a Common Strategic Framework for EU Research and Innovation Funding

Replies from the European Physical Society to the consultation on the European Commission Green Paper

18 May 2011

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Replies from the European Physical Society to the EC Consultation regarding a Common Strategic Framework for future EU Research and Innovation Funding

The European Physical Society is the premier association for the promotion of physics and physicists in Europe. The EPS federates Physical Societies from 41 European countries, research laboratories and companies active in physics research, and individual physicists. Our Member Societies collectively represent more than 120,000 physicists in Europe.

The EPS provides a European forum for physicists representing national, scientific, and topical interests. Together, they formulate the strategic vision for the EPS, and for the European physics community. The EPS provides channels and resources for the physics community to communicate to policy makers, and the general public. Our Divisions and Groups organize many of Europe's leading events for the communication of physics research. The EPS and its Member Societies are actively engaged in educational issues affecting physics.

The EPS welcomes the opportunity of providing its input to the consultation on the new strategic framework for EU research and innovation funding. Our replies reflect the input representing a potentially large community of users for EU funding, well acquainted with the grant process. The detailed replies are contained in the attached document.

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Working together to deliver on Europe 2020

The questions in this section correspond to Section 4.1 of the Green Paper.

1. How should the Common Strategic Framework make EU research and innovation funding more attractive and easy to access for participants? What is needed in addition to a single entry point with common IT tools, a one stop shop for support, a streamlined set of funding instruments covering the full innovation chain and further steps towards administrative simplification?

The simplification of the application and reporting procedures are important factors to increase the attractiveness of EU research and innovation funding. Their complexity has led to the growth of specialised consulting companies, often required for the coordination of EC projects. Rules in the Common Strategic Framework (CSF) need to be clear and consistent throughout the different programmes.

Current application procedures involve much duplication and detailed financial information. Potential partners need to be contacted and convinced to take part and to contribute significant amounts of time, and often resources in order to complete an application. The two-stage process for the CSF should be considered as the preferred approach. The first stage would consist of a short description of the project. Upon initial acceptance by the EC, a more complete proposal would be submitted.

Expert panels are currently used to evaluate applications. The CSF should have a validation process for monitoring the qualifications experts used in evaluations, and it should be more transparent.

Current reporting procedures place too much emphasis on justifying time spent, rather than on the impact of the project. Measuring outcomes in the CSF should be based on achieving objectives described in the project.

2 How should EU funding best cover the full innovation cycle from research to market uptake?

Curiosity-driven research is often set in opposition to agenda-driven research. It is the opinion of the European Physical Society (EPS) that curiosity-driven research is at the heart of all applications and is the first step in the innovation process. No doubt that if the research is good, it will lead to applications. The CSF needs to explicitly recognise the significance of curiosity-driven research including the associated notion of risk in achieving the goals of the European Research Area (ERA).

The European Research Council (ERC) is widely accepted by the research community as a successful model for encouraging curiosity-driven research. Its

success is based on the use of scientific excellence as the unique criteria for selection, and the CSF should ensure that the structure and financing of the ERC (or of similar bodies) is developed significantly. Europe's long-term innovative potential depends on curiosity-driven research.

Both curiosity-driven and agenda driven research benefit economic development. A series of recent case studies by the Institute of Physics (UK) has quantified this impact in the UK economy. Similar studies should be commissioned on a European scale. In addition, research makes positive contributions to education, and social and cultural development.

To sum up, in order to best cover the full innovation cycle, EU funding should promote curiosity driven research which will in turn trigger and boost agenda driven, applied research with a remarkable overall impact.

When developing agenda driven research initiatives, which are often a priority for policy makers, the EU should make sure that the appropriate partnerships in terms of excellence, competence and resources between (often public) research centres/universities and private enterprises are established and promoted by means of appropriate economic agreements and incentives.

3 What are the characteristics of EU funding that maximise the benefit of acting at the EU level? Should there be a strong emphasis on leveraging other sources of funding?

There are fields of research, for example particle physics, nuclear physics and astrophysics, where international organisations, laboratories and facilities ensure worldwide collaboration. In many other fields, EU funding can serve a similar purpose by bringing together partners from different countries that would not have otherwise been able to collaborate. During the project, there is an exchange of ideas and best practice, which add value to the outcome. After the project, the partners often continue to collaborate, creating European networks. Communication and dissemination of project results at the European scale is another benefit of acting at the EU level. EU funding encourages interaction between individuals and institutions in Eastern and Central European countries with Western Europe. The envelope for networking and cooperation (similar to the COST Actions) should be increased, which would help to better prepare research projects in a real European context.

EU funding should not be exclusive, nor should EU funding be conditioned by funding from other sources. On the other hand, EU funding should serve as a lever for other sources of funding.

The requirement for matching funds is often a barrier to participating in EU projects. One reason is that potential partners do not have the matching funds because they did not include the project in its annual budget. Another barrier comes from EC rules regarding expenses, for example overheads, which are far below costs in the institutions.

In order to make greater use of matching funds, it is necessary that the potential partners (by field, by region, etc.) be involved in determining the strategic priorities for a particular programme.

4 How should EU research and innovation funding be used to pool Member States' research and innovation resources? Should Joint Programming Initiatives between groups of Member States be supported?

Pooling member state resources and joint programme initiatives can be important for promoting and supporting scientific research in Europe. However, there are important issues to be addressed.

The involvement of the scientific community in the selection of topics and projects is an essential feature in the success in any programme that pools Member States' resources. The research agendas, capacity and networks are often better understood by the researchers than the policy makers.

While there are economic arguments in looking to increase scale and in concentrating effort, this can lead to the decline of the research activity in Member States with fewer resources increasing the existing imbalances in research potential and funding. Another consideration is the relatively low participation of the new Member States in EU funded projects, which if carried over into CSF would lead to the further isolation of the research communities in these countries.

The cultural diversity in Europe constitutes an advantage in European research, which allows for problems to be analysed from many different points of view and proposing many possible solutions. The competition among the various research organisations also provides motivation for excellent research.

5 What should be the balance between smaller, targeted projects and larger, strategic ones?

Smaller targeted projects are often important for innovation with shorter timescales. Application and reporting procedures need to be very simple to encourage widespread participation. Ideally, there will be many more small projects than large projects.

Scientific excellence should be the only criteria retained in judging the research project, whatever the size.

6 How could the Commission ensure the balance between a unique set of rules allowing for radical simplification and the necessity to keep a certain degree of flexibility and diversity to achieve objectives of different instruments, and respond to the needs of different beneficiaries, in particular SMEs?

Simplification of procedures should not imply the creation of instruments where "one size fits all". Simplification should mean that objectives of the programme are clearly

explained, that the application procedure is clear, with no duplication or unnecessary effort, with simple reporting, and the achievements of the project are clearly demonstrated. This requires a focus on outcomes, rather than the formal procedural requirements.

IT tools should be based on what is well known and accepted by the community if they are to be easily used and accepted. The vocabulary used to describe projects, procedures and expectations needs to be clearly defined and understandable to the user community.

7. What should be the measures of success for EU research and innovation funding? Which performance indicators could be used?

For curiosity driven research, the impact is often seen only on a medium or long-term horizon. Measures of success in the research community are well known and accepted, based on the recognition of the scientific quality through peer review and include publications, communications, citations, patents, etc.

For agenda-driven research, the measure of success should be related to the results achieved, and the lessons learned. The definition of quantitative or semi-quantitative performance indicators will depend on specific research fields. The dissemination of results and achievements, including outside Europe and moreover in scientifically emerging countries, could be an interesting indicator of success.

8. How should EU research and innovation funding relate to regional and national funding? How should this funding complement funds from the future Cohesion policy, designed to help the less developed regions of the EU, and the rural development funds?

Scientific research contributes directly and indirectly to economic development. It also contributes to social and cultural development. While research and innovation funding should be based on excellence, structural and cohesion funding can be used to develop infrastructure for conducting scientific research and education. This would increase Europe's research capacity in the long term.

Tackling Societal Challenges

The questions in this section correspond to Section 4.2 of the Green Paper.

9. How should a stronger focus on societal challenges affect the balance between curiosity-driven research and agenda-driven activities?

Societal challenges can often only be met by results from curiosity-driven research and must be a major element in the CSF. Agenda-driven research is also necessary and the quality and efficiency should be improved. This requires that scientists be

involved in setting the priorities, objectives, and timeframe for research into societal challenges.

Scientific excellence should be the main criteria for funding for both curiosity-driven and agenda-driven research. This will attract the best researchers from around the world to European institutions.

10. Should there be more room for bottom-up activities?

Yes. The active involvement of the scientific community in programme development provides motivation to researchers, and input to both curiosity and agenda-driven research.

11. How should EU research and innovation funding best support policy-making and forward-looking activities?

Enhanced dialogue among the research community, policy makers and industry in all fields is necessary. A working relationship needs to be created and maintained.

Regular contacts between researchers, policy makers and industry would help to focus programmes and their objectives and timeframes. They would also allow for establishing roadmaps for future developments. A good example in this instance is the European Strategy Forum on Research Infrastructures (ESFRI).

12. How should the role of the Commission's Joint Research Centre be improved in supporting policy-making and forward-looking activities?

The Joint Research Centre (JRC) already plays a role in advising the EU on its policy making and implementation. Highlighting this role would be a starting point. One way would be to involve learned societies in establishing and reviewing the JRC's policy statements made in their respective fields. In parallel an in-depth and complete audit of the JRC's activities could also be appropriate in view of an actual improvement of its role.

13. How could EU research and innovation activities attract greater interest and involvement of citizens and civil society?

Involvement can be spontaneous or directed. Normally when it is spontaneous, it is as a reaction to something important or detrimental to citizens and or society. Directed involvement, e.g. through a questionnaire, is very low, unless the issues themselves are provocative. In order to ensure involvement and interest, it is necessary to change attitudes through public outreach, education, and information. In this respect, the role of learned societies, such as the EPS and its Member Societies (acting on the European and on the national scale respectively) should be enhanced.

Strengthening competitiveness

The questions in this section correspond to Section 4.3 of the Green Paper.

14. How should EU funding best take account of the broad nature of innovation, including non-technological innovation, eco-innovation and social innovation?

Scientific excellence should be the main criteria for funding research and innovation in the CSF. Incremental innovation (which can include non-technological, eco and social innovation) is more suited to other types of funding instruments.

Where innovation represents a significant advance or contribution to science and technology, or to EU policy, then funding could be considered. Examples include advances of scientific theory, standards and protocols. The process for the valorisation of research outcomes should be reinforced. This will depend on the objectives defined in the programme.

15. How should industrial participation in EU research and innovation programmes be strengthened? How should Joint Technology Initiatives (such as those launched in the current Framework Programmes) or different forms of 'public private partnership' be supported? What should be the role of European Technology Platforms?

Many formal and administrative barriers exist which hinder effective cooperation between industrial and academic research communities. The EU should encourage partnerships and one method would be to create mechanisms to foster mobility from academia to industry and vice versa for researchers.

Economic incentives should also be considered that enable commercial companies to invest in in-house research, in collaborative research, and with external partners.

The current Joint Technology Initiatives (JTIs) were developed through bottom-up replies to strategic priorities. The CSF should continue to allow for bottom up initiatives.

16. How and what types of Small and Medium-sized Enterprises (SME) should be supported at EU level; how should this complement national and regional level schemes? What kind of measures should be taken to decisively facilitate the participation of SMEs in EU research and innovation programmes?

There should be no limit to the participation of SMEs in the CSF and its programmes. Their capacity and willingness to participate depends on the information and the programmes, and the conditions for participation. Involving SMEs into European projects can be beneficial to them for a variety of reasons including contacts, networks, and sharing of best practice, in addition to innovative developments.

Specific programmes would have to target SMEs without lowering the threshold of scientific excellence. Again an economic policy of incentives for SMEs would be advisable.

17 How should open, light and fast implementation schemes (e.g. building on the current FET actions and CIP eco-innovation market replication projects) be designed to allow flexible exploration and commercialisation of novel ideas, in particular by SMEs?

No comment

18. How should EU-level financial instruments (equity and debt based) be used more extensively?

No comment

19. Should new approaches to supporting research and innovation be introduced, in particular through public procurement, including through rules on pre-commercial procurement, and/or inducement prizes?

Please see our comment about economic incentives under item 15.

20. How should intellectual property rules governing EU funding strike the right balance between competitiveness aspects and the need for access to and dissemination of scientific results?

Intellectual property rights are designed to protect innovation, investments and added value. Flexibility is needed to ensure the proper balance between access and protection. The acknowledgement of the contribution and achievements of research agencies and institutions could be improved. One example to illustrate this point: the World Wide Web was created at CERN (European Organisation for Nuclear Research) about 20 years ago, and the recognition of this important contribution by CERN has been and still is rather weak.

<u>Strengthening Europe's science base and the European Research Area</u>

The questions in this section correspond to Section 4.4 of the Green Paper.

21 How should the role of the European Research Council be strengthened in supporting world class excellence ?

Scientific excellence should continue to be the primary criteria for receiving an ERC grant. The CSF should ensure that the ERC structure is maintained and strengthened. The widespread acceptance in the scientific community has shown

that this is a successful model for funding curiosity-driven research, and funding should be significantly increased.

EU funding including ERC grants should be additional funding and not replace national funding.

22 How should EU support assist Member States in building up excellence?

EU support for research should be given using principally scientific excellence as the criteria. The best researchers from around the world should be attracted to conduct their research in Europe, and encouraged to start and maintain collaborations with groups of scientists based in Europe. Within EU Member States, employment conditions for researchers need in some cases and in some countries to be improved so as to achieve better uniformity and ease researcher mobility in all directions. The EU could contribute by compensating for diversities, while respecting national employment standards.

Excellence in research and innovation is closely related to the quality of education and training that is available. Among the areas where the EU could drive excellence in education and training include setting minimum national standards for education and teacher training; promoting the necessity for scientific topics to be taught in school curricula at all levels and establishing minimum curricula; support and promotion of scientific training, including high quality PhD programs.

The EU could also monitor national education and research budgets, in order to publish objective comparisons, and encourage national investments.

23. How should the role of Marie Curie Actions be strengthened in promoting researcher mobility and developing attractive careers?

Researcher mobility can be supported through easier administrative procedures, local assistance in integrating the host institution, and EU wide agreements regarding medical insurance, unemployment and retirement rights. The EU could act as a facilitator, respecting national working rules and rights.

24. What actions should be taken at EU level to further strengthen the role of women in science and innovation?

The European Platform of Women Scientists has done much research on gender issues and the EU is encouraged to use their specific recommendations on this issue. European science needs to take advantage of the potential offered by women scientists, which can lead to more creative innovation and research. Actions enhancing the role of women in science, showing women as role models and excellent researchers is one possible action. Proposing family-friendly financial instruments (child care etc.) in all actions is another important point which would not only encourage women but be a benefit to families in general.

25. How should research infrastructures (including EU-wide e-Infrastructures) be supported at EU level?

Research infrastructures, including universities are key elements for research and innovation. They need to be supported both at the national and European levels. Ensuring the widespread transmission of technical and managerial know-how among them is also one of the roles that the EU could play.

26. How should international cooperation with non-EU countries be supported e.g. in terms of priority areas of strategic interest, instruments, reciprocity (including on IPR aspects) or cooperation with Member States?

Research is a global activity and the EU is encouraged to support international cooperation with non-EU countries in Europe in particular the Russian Federation and other newly independent states. The EU is also encouraged to develop instruments that enhance relations with countries and researchers in Asian-Pacific countries, and in developing countries in Latin America and Africa. In addition to fundamental, curiosity-driven research, areas of strategic importance include education, energy, environment and health.

27 Which key issues and obstacles concerning the ERA should EU funding instruments seek to overcome, and which should be addressed by other (e.g. legislative) measures?

No comment