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The Initiative for Science in Europe and EuroScience call for an inclusive and open dialogue with the European Commission on the Horizon 2020 Interim Evaluation while identifying five areas of opportunity and concern.

The European Commission (EC) is preparing an interim evaluation of Horizon 2020. The scientists in EuroScience and the learned societies who are members of the Initiative for Science in Europe (ISE) offer to be involved in this process from the beginning. ISE and EuroScience congratulate the EC on its successes in Horizon 2020, such as continued strong support for the ERC and the broad themes taken up in the Societal Challenges.

To ensure the best possible contributions of science and innovation to the future of Europe and all its citizens, we raise below five key issues for the interim evaluation to address. Furthermore we consider them as well fundamental for the new thinking for developing the next Framework Programme for Research and Innovation. ISE and EuroScience are convinced that Europe must do more to reach outwards and not only inwards, establishing greater partnerships at a global scale. Cooperation through science is the lynchpin of Europe's standing in the world.

The five areas of opportunity and challenge we identified to substantially improve Horizon 2020's impacts are:

- **More room for collaborative basic research to address Societal Challenges:** The Societal Challenges pillar of Horizon 2020 misses out on the potential from projects that include or focus on collaborative basic research as part of the research and innovation cycle across Europe. Such research would likely lead to ground-breaking sustainable solutions for the societal challenges of today and the future. Bringing "market ready" innovations to the public is important. But society will also greatly benefit from mechanisms in the second half of Horizon 2020 that would contribute to collaborative basic research relevant to the Societal Challenges.
- **Greater ERC independence and scope:** The ERC is another natural contributor to the type of research needed to address the Societal Challenges. Robust outcomes from ERC-funded research would likely require further improvements in its independence and financial scope.
- **Greater understanding of the research & innovation dynamic:** Research and innovation are both important but to make the EU's support of innovation more effective, one should bear in mind that the instruments governments use to support innovation—focusing on improving the framework conditions for innovation—are different from those supporting research. At the EU level, among other mechanisms, the EIT could be a crucial part of such support for innovation but needs more thought as to how to make it a successful instrument.
- **Rely on trust for more simplification and better consultation:** Further simplification is possible by relying more on trust. The science and business community's well-defined structures should be used much more effectively and regularly in consultations on work programmes and successors to Horizon 2020. An investigation of transaction and other costs of very large consortia is warranted.
- **Keep the focus on Horizon 2020's initial purposes:** The Horizon 2020 programmes should remain focused on their initial purpose and not be diluted to accommodate under-investment elsewhere in research or related programmes.

1. Strengthen collaborative basic research as part of the research and innovation cycle across Europe to tackle societal challenges

Strong EU support for long-term (basic) research is crucial for a deep understanding of important challenges for the EU and the world such as climate change, food security, the refugee crises, and radicalisation, and for solving these problems. Citizens have a right to expect from science genuine ground-breaking sustainable solutions, not just bringing to the market innovations that are already close to completion.

The societal challenges pillar of Horizon 2020 has only partly fulfilled these expectations. Due to the focus on higher technology readiness levels (e.g. upscaling from the lab to industry scale), the societal challenges pillar misses out on the potential from projects that include or focus on collaborative basic research and would more likely lead to ground breaking solutions. Thereby it omits as well the opportunity for demonstration and innovation actions to ask questions that can best be addressed by basic research. This is because Calls for Proposals discourage or make it literally impossible for consortia with disruptive approaches to apply. Identifying a goal, not outcomes and leaving the path to reach the goal open would, in our minds, be the best way to encourage novel approaches and innovation. This flaw and barrier to new opportunities needs to be addressed by the interim evaluation.

ISE and EuroScience welcome the broad themes in the Societal Challenges Work Programmes compared to the narrower topics in its predecessor FP7. Nevertheless, the Calls for Proposals remain overly narrow and prescriptive. Inviting only the very best pre-proposals to submit full proposals, while maintaining the original threshold to monitor the potential of high quality research and innovation actions, is a step in the right direction too.

The interim evaluation should also review ERA-Nets as these could be modified to broaden their scope again by addressing several related goals, thereby reducing the number of ERA-nets and widening participation (including from under-represented countries), increasing mobilisation of national and EU resources and contributing to resolving gaps on collaborative research.

2. The ERC can do even better with genuine independence and more funding

The research excellence pillar and the ERC as its strongest component continue to demonstrate the value of excellent bottom-up research at EU level. ISE and EuroScience congratulate the European Commission on the success of the ERC which has also contributed to Europe's attractiveness for research and triggered policy reforms at national levels.

One opportunity for improvement that should be considered in the interim evaluation is the reactivation of the Synergy Grants as a potentially powerful mechanism to come up with breakthrough ideas for tackling societal challenges as well as key enabling technologies. This will require, however, additional funds. Ideas should be developed to widen the portfolio of the ERC, particularly in the next framework.

EuroScience and ISE are convinced that the independence of the ERC needs strengthening. As a first step, true independence of the composed structure Scientific Council / Agency has to be ensured. The interim evaluation should think through giving the Scientific Council the mandate for administration and governance, which could have very large positive outcomes for the EC and for scientists. The NSF and NIH in the USA employ this type of administration and governance mechanism. Any discussions about changes in governance mechanisms would of course be complex, but it would be worthwhile to consider them as H20+ is approached.

3. Innovation as a complement to, not a substitute for, research, and how to support it

EuroScience and ISE appreciate the need to better link research and innovation as one goal of Horizon 2020. However, we are concerned about ideas for supporting innovation that may be to the detriment of, especially, long-term (basic) research. Governments' primary role is to support (long-term) research. Preserving the right balance and recognizing the appropriate roles of governments, and the EU in contrast to national governments in particular, should be key issues for the interim evaluation.

Government policies on innovation differ from those for research and development. Public sector agencies do promote and even implement innovations in, say, education or health systems. But innovation policies ensure effective interactions between private industry, the R&D system and perhaps other stakeholders to make sure that the huge public investments in R&D lead to the greatest possible use, and to economic and social development. Improving the framework conditions for innovation may include financial support when governments have explicit missions (e.g. defence), innovation-friendly regulations and public procurement, and tax deductions for R&D expenses. In general, private financing drives innovations. Exceptions would be for example co-financing to overcome orphan diseases or to improve orphan crops.

The Interim Evaluation is, of course, about the role the EU has to play, so it is important to recognise that as regards supporting innovation, national or regional governments are often the key players.

Particular issues for the interim evaluation to consider are the EIT, for which the scientific community urges major improvements, and the performance of other current instruments, such as the SME instrument. The evaluation should seriously address the critical report by the European Court of Auditors which concluded that the financial model for the EIT is unsustainable. In addition, if it would be decided to establish a European Innovation Council, one of its goals should be to bring some order to the broad array of EU innovation support measures. But the Interim Evaluation should, in the first instance, clarify what instruments are really supporting innovation. The terms 'innovation' and 'innovative' are used in very loose ways. It would be invaluable for all participants involved in research and development to have a common understanding of innovation-support instruments.

4. Simplify by relying on trust; consult in a more structured way

ISE and EuroScience recommend that the interim evaluation pays due attention to three issues.

One is further simplification of procedures. The evaluation may look into the elaborated schemes for planning and deliverables at the stage of writing proposals, which is rather uncommon for anything but very applied and short-term research. With respect to accounting, improvements have been made, but trust is still not a guiding principle. The interim evaluation may once again look at how national funding agencies handle the use of taxpayers' money as possible comparators. Lessons must be learned.

A second issue concerns the preparation of Work Programmes. The review should have an in-depth look at the current practice of consultation. EuroScience and ISE think there is not enough transparency. The scientific and the business communities have well-defined structures such as learned societies, sectoral science organisations and sectoral business organisations. Involving these in a dialogue (beyond one-way online consultations or written submissions), complementing the Advisory Boards (whose members are identified by the EC), will improve the quality of and the support for the eventual programmes.

The interim evaluation may also want to look at the size of the consortia in many EC projects. This includes the EIT but also the JTIs and others. Very large consortia tend to be inefficient as they involve significant transaction costs. Furthermore, some of the large consortia projects in

Horizon 2020 have been viewed as being untransparent in their funding and decision procedures. While transaction costs in large projects do tend to be higher overall, it is certainly important that any evaluation effort looks at whether at least some of these costs could be mitigated through mechanisms such as broader ERA-Nets and contractual Public-Private Partnerships.

In general, whether projects are large or small, high-quality and transparent evaluation, funding and administrative decisions should always be employed. Pre-selecting consortia (a major criticism of the Flagship Human Brain Project) and, in general applying different criteria to define “merit” or “excellence” for the evaluation of research in large consortia projects compared to smaller, individual investigator-driven projects runs counter to the values of research communities. It is also clear that this approach will most likely lead to less robust and less usable research results and eventually poorer societal outcomes.

Similarly, contractual Public-Private Partnerships (cPPPs) would better serve an open transparent process more so than Joint Technology Initiatives. They are based on an agreement between an industry / academia / Member State consortium and the European Commission to jointly develop a part of the Work Programme subject to final decisions by the EC and the Member States. The respective calls for proposal, evaluation and decision are part of the standard EC calls procedure. Therefore cPPPs could be called as well “Preferred Partnerships” or “Research-Innovation-Interfaces”.

5. Assure excellence while widening participation

It is also crucial that the various Horizon 2020 programmes remain true to purpose: countries and the EC must keep improving the application of Structural Funds to help countries and regions to catch up and not introduce inappropriate goals in e.g. Excellence Programmes. Underinvestment in science in many EU member states in the context of austerity measures imposed on their economies cannot be addressed by reducing or diluting a focus on excellence, nor can disparities in participation rates among member states. The interim evaluation should look at whether the benefits of the ‘Spreading Excellence and Widening Participation’ programme really accrue to the intended scientists and regions, apart from any other criticisms of what member states should do themselves.

The above five areas of opportunity and challenge identified by the ISE-EuroScience consultation process represent our first major findings. We would be happy to continue this dialogue with the European Commission’s research family and our own broader memberships, and look forward to receiving your feedback.

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Disclaimer:

ISE and EuroScience are organisations of learned societies and related institutions, and individual scientists, respectively. Both organisations have broad membership bases. Of course the thinking within organisations and between individuals varies. This document articulates areas of major concern for EuroScience and ISE but doesn't claim to represent specific views of individual members. Individual members may put forward their own views on specific points at a later stage.