IFPEN POSITION PAPER

10th FRAMEWORK PROGRAM FOR RESEARCH AND INNOVATION

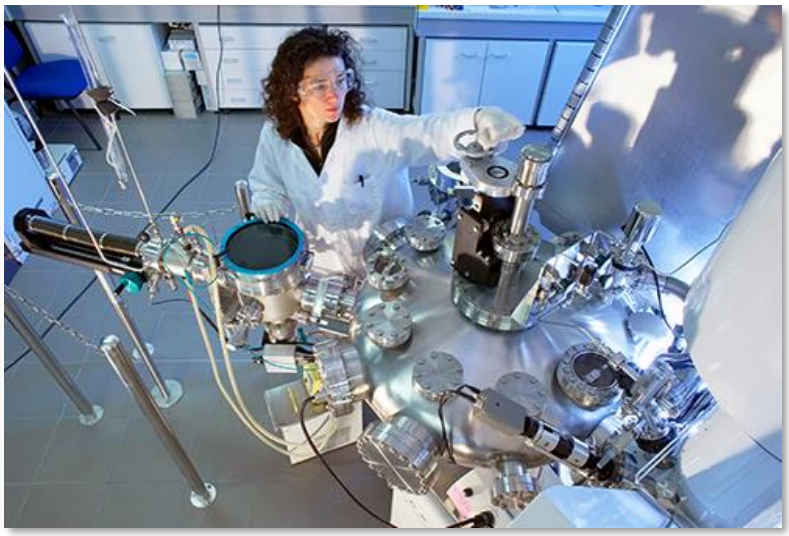
Innovating for a low-carbon and sustainable world

June 2024

IFP Energies nouvelles

IFP Energies nouvelles (IFPEN) is a major public research and training player in the fields of energy, mobility and the environment. From scientific concepts within the framework of fundamental research, through to technological solutions in the context of applied research, innovation is central to its activities, hinged around four strategic directions: climate, environment and circular economy; renewable energies; sustainable mobility; responsible oil and gas.

IFPEN's work focuses on providing solutions to the challenges facing society and industry in terms of energy and the climate, to support the ecological transition. IFPEN's own graduate engineering school, IFP School, prepares future generations to take up these challenges.



A FRAMEWORK PROGRAM DESIGNED TO ADDRESS THE CHALLENGES FACING EUROPEAN SOCIETY

The Horizon Europe funding programs (2021-2027) and the preceding Horizon 2020 equivalent (2014-2020) have considerably enriched the scope and quality of research and innovation in Europe, with impacts that exceed anything that could possibly have been achieved on a national or regional level. The research and innovation activities they have supported have been on a much larger scale, more complex and more ambitious than would have been feasible without the backing of the European Union (EU), making it possible to accelerate the development of solutions addressing the major challenges facing science and society by pooling efforts and resources across the continent.

These programs have supported fundamental and applied research in a multitude of scientific fields, making it possible to conduct projects in areas such as energy, the environment and health, to name but a few. Projects financed by Horizon Europe encourage international cooperation, facilitating the participation of researchers and organizations from third countries. This openness has provided a platform for forging solid partnerships with players from around the world, thereby reinforcing Europe's position as a leading research and innovation hub.

However, despite these successes, the budget allocated to Horizon Europe may be perceived as being inadequate insofar as science and innovation are fundamental components when it comes to overcoming the societal challenges facing Europe. Moreover, success rates remain relatively low (around 16% success rate for proposals in the first two years of Horizon Europe, and around 12% in H2020), due in particular to intense competition, while setting up projects requires a greater workload than for other research and innovation funding programs. These associated financial and human costs are not taken into account by Europe.

In this context, IFPEN proposes a set of recommendations concerning the future European Framework Program dedicated to research and innovation, FP10, which is set to cover the period 2028-2034.

The broad principles

SUPPORTING R&I AT EVERY STAGE OF MATURITY, PARTICULARLY COLLABORATIVE FUNDAMENTAL RESEARCH

As its guiding principle, the next framework program should provide financial support at all stages of maturity. As well as continuing to provide substantial funding for the innovation and demonstration phases, which are essential for technology transfer with the aim of rapidly rolling out viable industrial solutions on a large scale, support for fundamental research must be unwavering, so as not to ultimately limit European innovation to "medium-tech" sectors. To this end, **it is vitally important to ensure collaborative research is not limited to the innovation component but to also facilitate its implementation and increase the share dedicated to technological readiness levels (TRL) 1 to 4.**

PROMOTE DISRUPTIVE INNOVATIONS

To promote innovation, several measures can be considered:

- Encourage more **bottom-up project design** in all aspects of the framework program. This approach would make it possible to explore the most innovative and disruptive solutions of the scientific community to address global challenges.
- Create **more funding opportunities for cooperation between academia and industry**, particularly at lower technological readiness levels (TRL). This would foster knowledge transfer and stimulate innovation in its early stages.
- Allow **exploratory modules to be added to mid-high TRL projects and vice-versa**. This approach would promote the acceleration of technological development and innovation, while reducing the risk of division between TRLs.
- **Safeguard the European Innovation Council (EIC) financing window**, which offers funding continuity throughout the maturity chain, including for demonstrators. For maximum effectiveness, the notion of "disruptive innovation" could be more precisely defined. Funding levels should be increased to ensure the Council fully fulfils its remit. Lastly, a significantly increased success rate will encourage more innovators to submit proposals.
- **Diversify project sizes and budgets** to meet the variety of needs of potential beneficiaries and encourage greater participation.
- **Facilitate links between potential applicants** by proposing relevant, reliable and innovative networking platforms, based on artificial intelligence, for example.

CONTINUE FUNDING THE EUROPEAN RESEARCH COUNCIL (ERC) PROGRAM AND MARIE SKŁODOWSA CURIE (MSCA) INITIATIVES

Promoting interdisciplinary research with an emphasis on collaborative approaches between different scientific fields is crucial. This approach encourages innovation and the discovery of original solutions for complex problems that cannot be tackled in isolation by a single discipline. This also guarantees the more efficient use of resources and better knowledge integration.

At the same time, particular attention needs to be paid to supporting young researchers and innovators by providing attractive funding and career development opportunities. Investing in the next generation of scientists and entrepreneurs is essential to ensure the sustainability of Europe's long-term scientific and technological excellence.

Financing high-quality fundamental research, supporting the best researchers and their most innovative projects, remains essential to ensure that Europe remains at the forefront of scientific research and contributes to major advances in various fields of knowledge.

FP10 should **maintain funding for programs such as the European Research Council and Marie Skłodowska-Curie initiatives**, which have proved so successful over the years.

Changes to the structure of FP10

AN FP10 THAT SUPPORTS EXCELLENCE AND COMPETITIVENESS

Excellence for a competitive European economy is at the heart of FP10. It is vital to ensuring that European research and innovation continue to leave their mark on the challenges of today and tomorrow. However, to realize this ambition, some aspects of the existing framework program need to be revised:

- The current design of the framework program, hinged around four pillars subdivided into themed groups, can make it difficult to identify calls for proposals for

subjects at the interfaces between themed subdivisions. This can lead to funding opportunities being missed, applicants responding to the wrong calls for proposals, as well as the risk of duplication. Subjects at the interfaces between themed groups are consequently often neglected. Consequently, it is vitally important to make these cross-cutting themes more visible, by assigning a specific label to them, for example, to make them easier to identify and manage within the framework program.

- In order to test radically new ideas, it is imperative to **increase funding for collaborative projects with a limited number of partners (<10 partners)**. Such projects foster excellence by offering a flexible framework and enabling a diversification of collaborations with limited resources and durations.

GIVE MISSIONS THEIR FULL POTENTIAL

The Missions, set up as part of Horizon Europe, are tasked with developing a range of solutions and initiatives around major contemporary challenges, i.e. meeting the real needs of European society. The Missions thus operate beyond the framework of individual research and innovation initiatives, adopting instead a more global, co-design approach on a European level. Therefore, we propose that they should be **removed from the framework program to allow them the full scope of their intended societal mission**.

SYNERGIES BETWEEN PROGRAMS

The need to establish synergies at European level between different research and innovation programs is widely recognized, but concrete action in this area often remains limited, despite the significant potential advantages of such synergies: they could foster better coordination between research efforts, avoid unnecessary duplication, maximize the impact of investments and reinforce European competitiveness.

Funding needs

THE IMPORTANCE OF AN AMBITIOUS RESEARCH BUDGET

To tackle existing challenges and shape the future, **we must have an ambitious research budget.** The Horizon 2020 evaluation revealed that an additional budget of €159 billion would have been necessary to adequately finance all of the high-quality proposals submitted[1], highlighting the **clear discrepancy between research needs and the funds available.**

An ambitious research budget, crucial to boosting Europe's competitiveness on the global innovation stage, needs to strike a **subtle balance between stability**, to ensure the continuity of research projects and guarantee the financial security of the organizations involved, **and flexibility**, to adapt to the unforeseen and necessary evolutions of the constantly changing research and innovation landscape. This flexibility would make it possible to allocate resources where they are most needed, depending on emerging societal challenges, while being set within a framework of transparency for the benefit of research and innovation players.

INCREASE THE BUDGET FOR DEMONSTRATION PROJECTS

It is crucial to **increase the budget allocated to demonstration projects** that play an essential role in transferring research results into concrete, commercially viable solutions. However, these projects often require considerable financial resources in order to achieve their full potential. Consequently, by increasing the demonstration project budget, FP10 will be able to help take an innovative idea through to actual industrial implementation,

[1] REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND COUNCIL- Ex-post evaluation of Horizon 2020, the EU framework program for research and innovation – COM (2024) 49 – 29 January 2024

thereby fostering the large-scale adoption and dissemination of innovations. This will also help stimulate the European economy by creating new industrial and commercial opportunities and by reinforcing the EU's competitiveness on the world stage.

Specific measures relating to funding and management

In order to maximize the effectiveness of funding and management instruments within the framework of FP10, a number of improvements are required, including:

- Transparency and simplification: it is crucial **to make the Partnership selection and operating processes transparent and accessible to all the players concerned.**
  - Simplifying, or even standardizing, administrative procedures and funding rules will reduce the administrative burden and encourage the participation of researchers and companies, especially SMEs.
  - Greater transparency and openness is called for, with regard to the selection and contractualization between the European Commission and private partners, of Joint Undertakings (JUs), as well as the way in which they roll out their work programs.
  - Horizon Europe's co-programmed partnerships offer specific advantages over co-financed partnerships and joint undertakings. Unlike co-financed partnerships, whose funding depends on national priorities and thus guides European cooperation, and joint undertakings, which are more rigid due to complex legal structures and less open, co-programmed partnerships enable rapid adaptation to technological developments and market needs. Moreover, they are accessible to players of all types: academia, local authorities, research institutes and companies of all sizes. As a result, they foster close collaboration between all stakeholders, leading to innovations that can be taken to market quickly since they meet specific needs. By extension, they also reinforce European competitiveness on the global stage. Prioritizing co-programmed partnerships in FP10 will thus maximize the impact of research and innovation investments, while addressing Europe's strategic needs.
- **Transparent monitoring of "lump sum" projects:** while this form of funding offers a degree of flexibility and advantages in terms of administration, it also raises legitimate concerns relating to its impact on the diversity of costs and expertise provided by the various partners. Indeed, by focusing on a global lump sum, there is a risk of levelling out costs, thereby masking specific local characteristics and varying levels of expertise of the different players involved in a project.
- **Publication of a full annotated grant agreement within the first few months of the new framework program.** This initiative will help provide better transparency and a clear understanding of funding conditions for the beneficiaries of research and innovation grants.

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