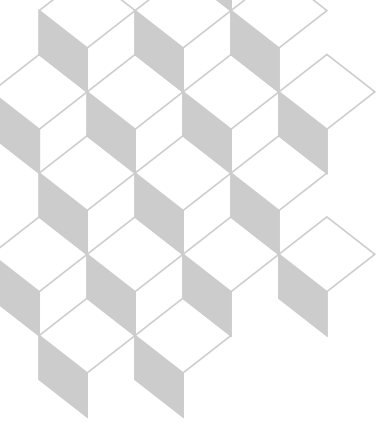




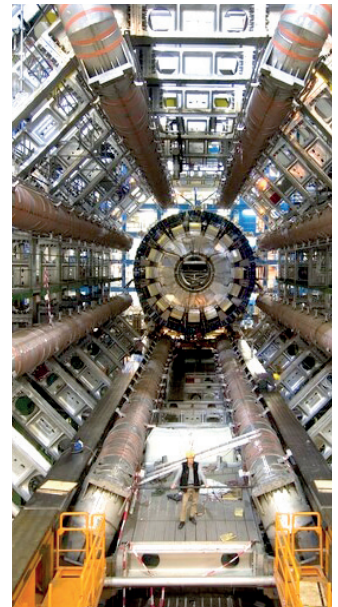
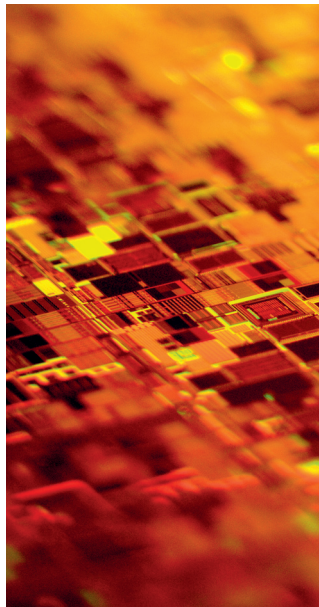
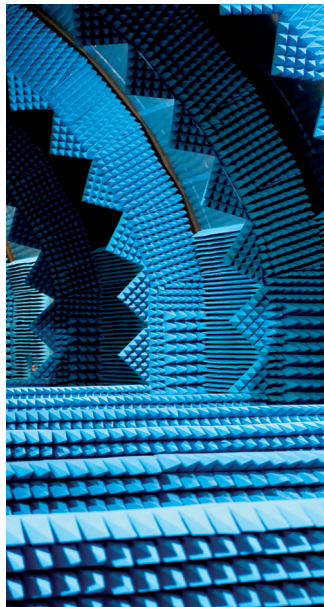
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CEA
POSITION PAPER
10TH FRAMEWORK
PROGRAMME
FOR RESEARCH
AND INNOVATION



ABOUT CEA ■

The CEA is a French public research and technology organisation (RTO). It is also one of the main participants in the 9th Framework Programme for Research and Innovation (FP9), the Horizon Europe programme. The successive FPs are a major and central tool for supporting fundamental and applied research in the European Union. As the design phase of the 10th Framework Programme begins, which should guide and support European research during the period 2028-2034, the CEA would like to make a few comments and recommendations based on its experience of past Framework Programmes, and particularly the Horizon Europe programme, which will come to an end in 2027.



A 10TH FRAMEWORK PROGRAMME TO MEET THE UNION'S CHALLENGES ■

In an unstable and threatening geopolitical context, the EU has set itself new priorities in recent years, such as strategic autonomy, strengthening its competitiveness and reindustrialising its critical technological sectors. These priorities do not replace, but rather complement, the imperatives of making a success of the major societal transitions, in terms of energy and climate, as well as digital technologies, which have guided the political agenda of the period just ending.

Technological leadership is essential if the EU is to fulfil its ambitions. In this respect, closer coupling between the EU's sectoral policies – Green Deal, industrial policy, digital compass – and the priorities of its R&D programme should be one of the keys to designing the future Framework Programme.

It is in what is now known as Pillar 2 that the bulk of R&D's contribution to EU policies is made. However, with the transition from FP8 to FP9 (H2020 to Horizon Europe), Pillar 2 has lost some of its clarity, and certain areas of research that are vital to the European industry and competitiveness have been significantly weakened. Generally speaking, the very strong emphasis placed on impact in Pillar 2 projects has led to:

- **giving excessive priority to calls for proposals and projects that are more focused on implementing solutions, to the detriment of support for R&D and, in particular, riskier projects. This is particularly true in the case of European Missions.** These are mainly aimed at responding to public policy issues and very rarely at solving research questions;
- **the near-disappearance of upstream collaborative research projects in the Framework Programme,** with Pillar 1 essentially limited to individual projects, and Pillar 2 moving towards increasingly high TRLs. These collaborative research projects with TRLs between 1 and 4 are aimed at advancing knowledge and generating new concepts which, while they may not have a direct application in the short or medium term, are nonetheless essential for fuelling the innovation cycle;

- **the loss of visibility and support for technological research** compared with the Horizon 2020 programme.

In this context, the CEA recommends that the structure of the next framework programme should cover the entire TRL chain, from TRL 2 upwards. Technological research itself cannot be limited to the highest TRLs. It is important to have TRL coherence between clusters and destinations, and to ensure that the entire TRL scale is covered in each theme with the appropriate instruments. In addition, room could be made for smaller projects (with few partners and a moderate budget) designed to support riskier (because less mature) research projects at TRL levels between 2–4.

Furthermore, in line with the EU's economic security objectives, **a significant dedicated effort should be made to develop critical technologies and key generic technologies** that are essential to a large number of sectors of the economy and society (digital technologies, advanced materials, etc.).

Finally, from the CEA's point of view, the European Missions, which are of very little use to research, should not be funded by the Framework Programme. It might be appropriate to bring the Missions under the LIFE programme, which would then be dedicated to demonstration projects.

SUPPORTING TECHNOLOGY INFRASTRUCTURES ■

The industry sector needs tech transfer to boost EU business competitiveness and it needs facilities to deploy innovative solutions for its transition. All this requires a major programme to support technology infrastructures under FP10.

These infrastructures are essential if we are to make the transition from applied research to large-scale industrialisation in cutting-edge technological sectors. The global race for this equipment is making it increasingly difficult for individual countries or stakeholders to pay the ever-increasing sums needed to build, operate and maintain state-of-the-art experimental equipment. However, if the European Union is to achieve its ambitions in terms of major transitions – energy and climate change, as well as digital technology – and if it is to maintain

its sovereignty and strategic autonomy, it must have precisely these capabilities, which are the prerequisite for the emergence of innovative industrial sectors.

This strategy will need to be supported by dedicated financial resources, commensurate with the challenges and the cost of such infrastructures.

The future FP10 should aim at networking existing infrastructures and opening their access to wider European and transnational ecosystems. It should also propose support arrangements for coordinated investments (between the EU, Member States, regions and stakeholders) that would maximise the effectiveness of these major investments for European industry and society.

PARTNERSHIPS ■

The CEA stresses the vital importance of partnerships, which are an appropriate way of designing and implementing R&I activities on a European scale. Their role should be confirmed and extended in FP10, provided that their scope is well defined and that there is a strong commitment from the stakeholders to ensure their effectiveness. Partnerships enable stakeholders to be involved in defining research priorities and structuring communities. Public-private partnerships in particular, whether co-programmed or institutionalised, help bringing together industrial, academic and technological players to achieve common goals. They have enabled the EU to strengthen the coherence of its action in support of European R&D by developing a programme approach that goes beyond the funding of individual projects. They have also helped to forge lasting links between public and private players, going beyond one-off collaborations through individual projects.

Beyond the partnerships newly validated in the 2nd strategic planning of Horizon Europe, the CEA supports the need to structure partnerships in the fields of climate sciences and sustainable fuels. The CEA also supports the creation of a co-programmed public-private partnership on SMRs, whose strategic agenda could be designed within the framework of the new industrial alliance, and whose implementation could be shared between the Euratom programme for issues related to the nuclear component *stricto sensu*, and the FP10 for the more generic subjects necessary for the development of SMRs (digitisation, innovative industrial processes, etc.).

A BUDGET TO MATCH NEEDS ■

The budget for the 10th Framework Programme must reach at least €200 billion, in order to contribute to the 3% of GDP objective for research and to be able to respond fully to the challenges facing the European Union, particularly in the fields of energy, the environment, digital technology, health and industrial competition. Such a budget aims at covering all the needs, such as upstream collaborative research, the particular effort needed on key generic technologies and critical technologies, as well as a new programme in favour of technology infrastructures - which cannot replace the EU's historical action in research infrastructures.

Such a budget will also make it possible to increase the selection rate of funded projects. In 2021-2022, Horizon Europe would have required an additional

34 billion euros to support all the excellent proposals evaluated¹, which runs the risk of seeing research project leaders trying to find funding abroad, to the benefit of non-European industry.

Finally, the Framework Programme must be safeguarded so that Europe can stay in the technological race against non-European industrial powers. Continued support for research is essential if programmes are to be pursued, and skills developed and maintained over the long term. This is a prerequisite if research is to serve European society and industry as well as possible in relation to the funds invested. It is also a question of sovereignty and strategic autonomy.

IMPLEMENTATION AND SIMPLIFICATION MEASURES ■

1 | LUMP SUMS

The extension of the use of lump-sum funding for projects in 2023-24 seems to us to have been premature given that the evaluation of the pilot phase in H2020 has still not been completed.

The Commission has done a great deal of communication and discussion with stakeholders prior to implementing this approach. However, there are still doubts as to whether the lump sums allocated to projects properly cover the resources committed to them. As a result of excessive caution, positive evaluations sometimes lead to significant budget

cuts. The lack of presentation of actual costs can also put a strain on budget negotiations between consortia members during the set-up phase².

As far as the practical implementation of projects is concerned, the expected reduction in the administrative burden resulting from the introduction of lump-sum financing remains limited for beneficiaries who are now fully involved in the scheme. The disappearance of financial reporting to the Commission does not reduce the need for internal monitoring of the resources committed in relation to the amounts expected, nor does it reduce the need for consistency in management practices.

¹ <https://sciencebusiness.net/news/horizon-europe/shortfalls-horizon-europe-underline-need-higher-funding-fp10-says-lemaitre>

² <https://www.earto.eu/wp-content/uploads/EARTO-Position-Paper-on-Lump-Sums-Dashboard-8-January-2024-Final.pdf>

The proper management of pre-financing, the financial co-dependence of beneficiaries and the difficulties foreseen in future budget amendments remain points of vigilance.

2 | BLIND EVALUATIONS

The experiment of blind evaluations of proposals should be stopped in FP10. These prevent project authors from providing a coherent and informative argument as to their ability to carry out the project (no details should allow them to be identified in the project description) and it has not been proven that this effectively eliminates the real or perceived effects of a reputation bias.

3 | CO-CONSTRUCTION PROCESS

It is crucial that, together with a reaffirmation of the objective of co-construction of the work programmes, the European Commission gives more reasonable deadlines to the Member States and Associated

States for submitting their comments/proposals on documents that are very cumbersome to analyse.

4 | A KNOWLEDGE EXPLOITATION POLICY CONSISTENT WITH THE EU'S INDUSTRIAL AMBITIONS

The experience of recent years shows that the existence of excellent R&D does not protect the EU from technological dependence nor does it guarantee the competitiveness of its industry. While not all the solutions to this challenge fall within the scope of the Framework Programme, certain measures could be taken to ensure that EU investment in science and technology more directly reinforces value creation and employment on its territory.

In this respect, the CEA advocates the introduction of the principle of 'first exploitation in Europe' of research results stemming from 100% public funding. This would be a reciprocal measure compared with existing provisions in other regions of the world, such as the United States and China.

STREAMLINING INNOVATION INITIATIVES ■

The CEA supports the consolidation and development of the European Innovation Council, which in the FP10 should be better coordinated with the societal challenges and technological research aspects of Pillar 2. This Council has been one of the major success stories of the Horizon Europe programme. Its primary purpose, to support the development and growth of deep-tech start-ups which fills a gap in the private market, remains as relevant and necessary as ever for the years to come.

On the other hand, the added value of the European Institute of Technology (EIT) has yet to be assessed,

with a view to clarifying EU action and making it easier to understand. Some of the Knowledge and Innovation Communities (KICs) have been able to find a viable economic model after the end of EU subsidies, and as such have their rightful place in the European innovation ecosystem. On the other hand, the search for financial sustainability through the participation of certain KICs in the framework programme - in competition with R&I players - is not desirable and, with the EIC gaining momentum, it no longer seems useful to launch new KICs. Furthermore, the added value of a central EIT structure seems questionable.

DEVELOPING SYNERGIES BETWEEN EURATOM AND HORIZON EUROPE

Nuclear research can no longer be considered and planned in complete isolation from the general issue of new energy systems. Nuclear energy is a component of more integrated and complex low-carbon energy mixes. All of these dimensions, and the interactions between production, storage and network management tools, need to be considered as a whole.

The CEA advocates an integrated approach to the definition of priorities and instruments under the Euratom programme and the 10th Framework Programme. Synergies between the 10th Framework Programme and the Euratom programme could be usefully sought on subjects such as the use of digital tools, R&D on materials, nuclear data, the place of nuclear power in decentralised production systems, etc., which concern the nuclear sector and other energy sectors. Synergies should also be sought in sectors such as health, safety, the environment and space.

More generally, the Commission needs to monitor the interface between Horizon Europe and Euratom, so as to avoid certain research projects being de facto eligible for neither of the two research programmes. This is the case for many projects with high practical implications, such as those relating to radioisotopes.

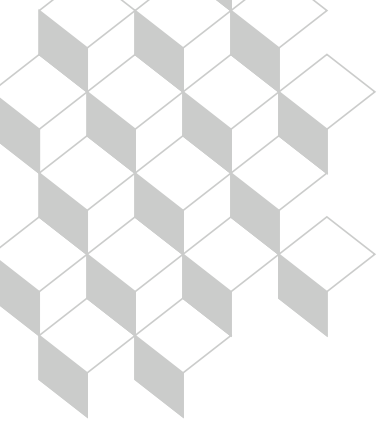
The EIC could extend its funding to breakthrough innovations and technologies in nuclear energy, whether they concern the production of nuclear energy by fission or fusion or the non-energy applications of nuclear sciences and techniques.

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As France's largest government research organization, the CEA informs public policy and provides public- and private-sector organizations with access to science and technology research so that our society can more effectively navigate the transformations currently underway in energy, health, technology, and global security and defense. This 20,000-person-strong organization possesses nine world-class research facilities across France and engages in partnerships with academic research laboratories and businesses around the globe.

The CEA is a major center for R&D and innovation in:

- **LOW-CARBON ENERGY (NUCLEAR AND RENEWABLE)**
- **SECURITY AND DEFENSE**
- **TECHNOLOGY RESEARCH FOR INDUSTRY**
- **FUNDAMENTAL RESEARCH (MATERIALS AND LIFE SCIENCES)**

The organization's throughline is research in service of national and European scientific, technological, and industrial sovereignty for a safer, more resilient world for all, now and in the future.

Specifically, we provide public- and private-sector stakeholders with knowledge and innovations vital to building a low-carbon energy system. Our energy-systems research is holistic and integrated. We look at existing low-carbon energy production technologies like nuclear and solar PV, as well as new emerging/energy technologies; investigate the interactions of different energy vectors in the storage, management, and conversion solutions that will enable tomorrow's grids; and study how circular economy principles can be applied to energy.

Beyond the science, we always consider the technical, economic, environmental, and societal costs and benefits of our research and results.



For more information, see www.cea.fr