

Competitiveness, reindustrialisation and strategic autonomy through leadership in science & technology

Position dated 16 May 2024

The leading universities of science & technology united within [CESAER](#) welcome the efforts of the European Commission and the Belgian Presidency of the Council of the EU towards enhancing competitiveness, industrial policy and strategic autonomy.

We commend the [two recommendations](#) on a code of practice for industry-academia co-creation and citizen engagement for knowledge valorisation. Collaborating closely with industrial and societal partners, universities of science & technology stand at the forefront of these endeavours. Universities play a unique role, combining cutting-edge research & innovation with research-based education training future talent and leaders in science & technology. We reassert the crucial contribution of universities of science & technology in knowledge valorisation and for fostering deep tech innovation, disruptive innovation, and the advancement of key technologies, as elaborated in [Deep tech unlocked by universities of science & technology](#) (May 2023), [Boosting disruptive innovation by fostering new mindsets and co-creating innovation](#) (May 2022), [Key technologies shaping the future](#) (January 2022) and [The role of universities of science and technology in innovation ecosystems](#) (October 2018).

In our [dedicated input paper](#) for FP10, the successor of Horizon Europe, we underlined that we consider “the push towards a more elaborate EU industrial policy” as a trajectory linked to European research & innovation and provided six key design considerations to ensure FP10 is designed in the most effective way.

This position builds upon these previous papers, outlining recommendations for a forward-looking industrial policy. We emphasise the pivotal role of resilient reindustrialisation, competitiveness and strategic autonomy, driven by the development and societal deployment of cutting-edge scientific knowledge and technology. We advocate focusing on strategies to advance leadership in science & technology by (i) playing to our strengths, (ii) nurturing talent, (iii) enhancing Europe's competitive position, (iv) realising the fifth freedom and (v) exploring the establishment of a European Competitiveness Research Council (ECRC).

1) Play to our strengths through excellence and leadership in science & technology

Europe's renowned excellence in cutting-edge science & technology positions it as a vital asset for Europe's progress. Our continent boasts world-class universities and institutions dedicated to advancing science & technology. Strengthening these areas where we excel should be the bedrock for future advances.

- We call on the EU institutions to prioritise harnessing Europe's cutting-edge science & technology by fostering excellence in research, education, and innovation. This reinforcement will strengthen the foundations upon which enhanced resilience, competitiveness, reindustrialisation, and strategic autonomy can flourish.

While recent initiatives such as the [European Chips Act](#) and [Net Zero Industry Act](#) are commendable, we emphasise that untapped potential remains for leveraging Europe's strengths in research, education, and innovation in these policies.

- A key measure of success for ongoing and new policies should be their ability to mobilise new funding for research, education and translation through innovation activities of cutting-edge science & technology.

2) Nurture research & innovation talent for sustainable science & technology leadership in Europe

The attraction, education, and retention of top talent in science and technology are crucial for promoting resilience, competitiveness, reindustrialisation, and strategic autonomy. This begins with research-based education, an area where Europe excels globally.

To leverage our extensive pool of exceptional talent, we underscore the importance of cultivating [high-quality jobs in research and innovation](#). We also advocate for diverse career pathways for early-career researchers and young innovators. This diversity is vital for enhancing capacity and competence at the cutting edge of science and technology, thereby driving progress and prosperity across the continent.

Promotion of sector mobility, exemplified by the facilitation of industrial doctorates and secondments, is a key facilitator. Pioneers like the Marie Skłodowska-Curie Actions illustrate how this can be combined with excellence in research training.

To maintain a competitive advantage, a balanced approach is necessary. This approach should address immediate goals such as reindustrialisation, as well as long-term objectives like enhancing competitiveness. This equilibrium is essential for sustaining leadership in science and technology.

- We reiterate our plea to support modern and stable research careers in Europe with [our previous position outlining specific and concrete recommendations](#).

3) Enhance Europe's competitive position in science & technology through supportive framework conditions

The framework programme for research and innovation is a pillar of Europe's strength, providing a unique global platform. It has been crucial in advancing scientific knowledge and technology, tackling a variety of societal and economic challenges.

By engaging the full knowledge value chain in science & technology, the framework programme not only strengthens continental resilience but also lays the foundation for enhanced competitiveness, reindustrialisation, and strategic autonomy.

Universities of science and technology play a crucial role in accelerating the pace of science and technology, and provides research-based education for the talents of today and tomorrow.

The successor of Horizon Europe, through [six key design considerations](#), should be substantially reinforced to boost cutting-edge science & technology based on state-of-the-art research, education and innovation in Europe.

- We call upon the EU institutions to prioritise science and technology, reversing the 2.1 billion euros budget cut agreed earlier this year, and instead reinforce Horizon Europe, and significantly increasing funding for its successor, FP10, allocating at least €200 billion.
- We urge swift enactment of the 3% GDP target for research and innovation, along with a 1.25% GDP public effort target as [proposed](#) by the European Commission, both to be achieved by 2030 by all member states in an EU coordinated manner.

In addition to strengthening Horizon Europe and its successor and enhancing national-level funding for research & innovation, a crucial outcome of renewed EU-level efforts should be the ability to leverage world-class research & innovation activities more comprehensively. Therefore, any new funding instruments aimed at fostering resilience, competitiveness, reindustrialisation, and strategic autonomy must allocate a substantial proportion to excellent research & innovation activities across the full knowledge value chain.

We call upon the EU institutions to:

- Future-proof the framework programme for research & innovation by supporting the full knowledge value chain, e.g. by [correcting the current imbalanced approach to TRL](#)
- Ensure that any new funding instruments aimed at enhancing resilience, competitiveness, reindustrialisation and strategic autonomy include a substantial proportion allocated to excellent research & innovation activities across the full knowledge value chain, allowing our continent to play to its strengths through world-class research, education and innovation. This includes [boosting synergies](#) by applying a funding target of at least 3% dedicated to R&I activities in all EU funding programmes 2028-2035.

4) Reinforce strategic autonomy by realising fifth freedom to enable Europe to assume a globally leading role in science & technology

Amid geopolitical and economic tensions, maintaining collaboration with global partners remains imperative. Collaboration fosters mutual benefit and knowledge exchange, enriching scientific endeavours and driving innovation forward. Maintaining collaboration while acknowledging new tensions in the evolving geopolitical landscape underscores the need for a [nuanced approach](#).

Universities of science & technology play a pivotal role in this global engagement, adhering to the principle of being 'as open as possible, as restricted as necessary.' This approach ensures that Europe remains at the forefront of scientific advancement while safeguarding its interests.

- We urge all global parties to uphold and preserve longstanding science & technology cooperation, recognising that effective and structural cooperation takes time to build and dismantling it can be quick with substantial negative consequences.

- We call upon the EU institutions to ensure that ‘as open as possible, as restricted as necessary’ remains a core guiding principle for European policy and funding programmes related to research, education and innovation.

Universities of science & technology play a critical role in [global collaboration](#) by safeguarding their [autonomy](#) and ensuring the continuity of [academic cooperation](#) amidst political and economic tensions.

As we anticipate the future of European research and innovation in FP10, it is imperative to reinforce open and barrier-free collaboration within Europe. Only by working together as a continent, also including United Kingdom and Switzerland, can we assume a leading role in advancing science & technology globally. This effort begins with strengthening the single market and expanding it to fully encompass technology, scientific knowledge and its bearers (teachers, learners, researchers and innovators). In this context, we warmly welcome the recommendation in Enrico Letta's report on the future of the single market that the ‘fifth freedom’ must be swiftly implemented. We underscore the importance that, akin to the construction of the four traditional freedoms through obligatory and binding methods, the fifth freedom must also be established in a similar manner.

- We call upon the European Commission to swiftly pursue a binding and mandatory approach to guaranteeing the fifth freedom, by actively identifying and dismantling barriers to the free circulation of researchers, scientific knowledge, and technology, as [elaborated in our July 2023 position](#).
- We call upon the EU institutions to pursue an enhancement of the single market to encompass all aspects of research, innovation and education, and to swiftly realise the fifth freedom as elaborated by the [Letta report](#).

5) Explore a European Competitiveness Research Council focused on the accelerated development of new technologies and associated talent

The current strong emphasis on enhancing European industrial competitiveness places a particular focus on Europe’s leading universities of science and technology, which have a vital role to play in the development of talent and the pathway from excellent scientific research to accelerated development of technologies. This emphasis has also brought renewed attention to the integration of global challenges and European industrial competitiveness into a single pillar of Horizon Europe. A question in this context has become whether addressing global challenges should be separated from enhancing competitiveness.

Numerous funding instruments under Horizon Europe and previous funding programmes were designed to foster collaboration, and do so extremely effectively, adding substantial value to Europe. Given that these instruments are oriented towards international collaboration, a question arises: Is there a need for an additional instrument oriented towards global competitiveness?

This instrument would be in addition to the existing structures under Horizon Europe, which continue to deliver very significant benefits to Europe and are in urgent need of financial reinforcement. This new mechanism, backed by additional funding, would be dedicated to supporting transformative scientific and technological research across the full knowledge value chain that will bolster European industrial competitiveness in very direct ways.

Importantly, this mandate would not address intra-European competition but would focus solely on leveraging the full strength of the European continent for global competitiveness.

A potential instrument for this purpose could be called a European Competitiveness Research Council (ECRC). The ECRC would aim to enhance Europe's global competitiveness by focusing on transformative scientific and technological research along the full research continuum that will accelerate and de-risk the adoption of new technologies and support the development of a new generation of top scientists and engineers who can drive industrial success. It would feature a lean structure and a high tolerance for risk. The ECRC would be guided by top talented experts in science and technology from both private and public sectors, maintain maximum autonomy over its research and project choices, its procedures, and its institutional culture, and possess a high degree of financial flexibility and operational freedom. These principles were fundamental to the success of ARPA and DARPA in the US.

This kind of programme works best when there are clusters of companies around the programme, so the ECRC would leverage such an approach to accelerate scientific and technological research and deployment. ECRC would not be intended to replace existing, well-functioning EU funding instruments. Indeed, any new instrument must be financed by additional resources. Diverting funds from current, high-performing EU funding instruments would be counterproductive as it would undermine our continent's capacity and capabilities in science & technology. The ECRC would complement and be distinct from the European Research Council, with its focus on excellent frontier research, and the European Innovation Council, with its focus on innovation in start-ups and small and medium-sized enterprises.

- We propose that the EU institutions explore establishing a European Competitiveness Research Council (ECRC). This council would be committed to identifying and implementing specific funding instruments for fostering transformative research that will support the accelerated development of new technologies and associated talent in science and technology, thereby bolstering Europe's global competitiveness. The ECRC would have maximum autonomy, risk tolerance, financial flexibility and operational freedom to collaborate with and back leading talent in the fields of transformative science and technology.

We stand ready to provide our full support to explore the potential establishment of a ECRC.

In summary, Europe needs much more research and talent in science & technology

For enhanced competitiveness, reindustrialisation, and strategic autonomy, Europe requires a significant increase in research and research talent, especially in the fields of science and technology. Existing funding instruments that are performing well need to be considerably strengthened financially. Concurrently, the exploration of additional mechanisms, such as the potential creation of a European Competitiveness Research Council, should be considered.

Our association offer its continuing support as a proactive and constructive partner, leveraging the unique role of universities of science & technology in research, education and innovation ecosystems connecting from the local, through the European to the global levels.

For more information and enquiries, please [contact](#) our Secretary General Mattias Björnmalm, or our Advisor for Innovation & Sustainability Louise Drogoul.

Please reference this document using <https://doi.org/10.5281/zenodo.11202410>

Rooted in advanced engineering education and research, [CESAER](#) is an international association of leading specialised and comprehensive universities with a strong science and technology profile that advocate, learn from each other and inspire debates. Our [Members](#) champion excellence in higher education, training, research and innovation, contribute to knowledge societies for a sustainable future and deliver significant scientific, economic, social and societal impact.

