

Technical considerations regarding the implementation of the specific programme of Horizon Europe 2028-34 and its interplay with the European Competitiveness Fund

This technical document serves as input for the negotiations of the future framework programme Horizon Europe 2028-34, specifically for its specific programme [COM(2025)544 final] and its interplay with the policy windows of the European Competitiveness Fund [COM(2025)555 final/2]. It also complements the overarching [Helmholtz FP10 Position of October 2025](#), as well as the [Helmholtz Position paper to the proposed HE 2028-2034 Regulation](#) [COM(2025)543 final/2] of March 2026.

The Helmholtz Association contributes to solving grand challenges facing society, science and industry by conducting top-rate research in the fields of Aeronautics, Space and Transport; Earth and Environment; Energy; Health; Matter; and Information.

Helmholtz welcomes the proposal of the European Commission on the specific programme for the next Framework Programme Horizon Europe 2028-34 and the effort for a planned interplay with the European Competitiveness Fund (ECF) Policy Windows. Based on the experience gathered by our centres in the last framework programmes, we submit the following suggestions for the implementation of the next Horizon Europe along the structure laid down in the proposal for the decision on the specific programme, as well as in the proposal for a regulation establishing the ECF.

European Competitiveness Fund [COM(2025)555 final/2]

Research and innovation can play a key role in deployment actions of the Policy Windows outside of the resources earmarked for Horizon Europe. The transition of research and innovation into deployment can be facilitated by:

- **Fundamental research (especially in low TRL)** is the foundation for innovation in the future. Helmholtz embraces the ambition to speed up and simplify the process of industry uptake based on recent research results, but the current draft can be seen as reducing research to a mere tool for industrial innovation, rather than an investment in future competitiveness.
- **Pre-deployment instruments** are needed to bridge innovation with deployment: Helmholtz regards the transfer of results of excellent science into industry deployment as a priority. We propose to implement part of the indirect actions under the Policy Windows of the ECF not belonging to Horizon Europe as **grants with 100 % funding** to non-profit organisations to support not only applied research, but also early deployment of technological innovations arising from Horizon Europe.
- **Research as a service:** Subcontracting of research organisations to provide services should be easy for beneficiaries of deployment actions in the ECF and allow for a 100 % funding or based on full costs.
- **Preparation of work programmes:** Helmholtz welcomes the proposal to have a dedicated work programme per policy window instead of a monolithic one, as implemented in Horizon Europe 2021-27. Its preparation must follow inclusive and open processes for research actors to easily contribute in their section on research and innovation and Member States for the complete work programmes. In addition, weakening the comitology must be deeply studied before taking a final decision.
- **Thematic Platforms:** The selection of experts for the thematic platforms must foresee a key role of research and innovation actors. In addition, most of the policy windows need several thematic sub-configurations due to the breadth of the areas in the respective policy window.

(Sub)Thematic Platforms could also replicate the role of the ERC Scientific Council in selecting members for panels that evaluate proposals to be implemented as indirect actions in the ECF.

- **Portfolio approach:** Not only deployment actions, but also pre-deployment and research actions with long-term implementation should be thematically connected. E.g. by following the portfolio approach to achieve tangible results, pool resources and avoid disconnected and duplicated efforts. The concept of Moonshot and their suggested areas under the framework programme, if properly implemented, depicts a feasible way to apply the portfolio approach. In this respect, a light advisory structure supporting the respective (sub)thematic platform is needed. Support measures of such light advisory structure could focus e.g. in the area of standardisation or to facilitate market entry.
- **Steering and support of European Partnerships and EIC challenges:** The selection of thematic areas for European Partnerships, as well as EIC challenges must be the outcome of an open and inclusive process, also consulting research organisations. In addition, the ECF should provide support to high TRL activities in the case of the EIC challenges, as well as deployment activities in the case of European Partnerships.

Horizontal aspects in Horizon Europe [COM(2025)543 final/2]

Moonshots

- Helmholtz regards the introduction of the Moonshots as an opportunity (albeit with significant conditions) to implement the portfolio approach in the different programme parts, as well as beyond the framework programme.
- Actions from the European Competitiveness Fund should be especially targeted for contribution.
- Their implementation is currently unclear and must be specified through consultation with stakeholders. E.g., the potential contribution of different programme parts must be, at least, mentioned in the legal text.
- Duplications with the EU Missions must be avoided but Moonshots can draw from the lessons learnt in their implementation.

Should Moonshots be properly implemented, these additional aspects would be of particular interest for Helmholtz:

- The Moonshot on the **Future Circular Collider** should provide a link to downstream and side applications (e.g. in particle therapy) of the technologies being developed, as well as technology development for accelerators and detectors in a wider scope for technology development and research and technology infrastructures in particular.
- The Moonshot on **Quantum Computing** must build on the implementation of the Quantum Flagship and include aspects of quantum simulation, as well as use outstanding infrastructures and cutting-edge HPC applications, coupled to the development of research software and skills for researchers.
- The scope of **Fusion Energy** should encompass magnetic confinement fusion, as well as alternative approaches such as, e.g. inertial confinement (i.e. laser) fusion. It should be complemented by indirect actions in the framework of the successor of EURATOM.
- We support the topics on **Zero Water Pollution** and **Ocean Observation**, which address critical environmental challenges. Ocean observation is a strategic pillar of economic competitiveness and security. Key areas in the ocean-based climate economy (e.g. offshore wind, blue carbon solutions, ocean energy and marine services) already depend on high-quality ocean observation data. This dependency is rapidly increasing, also from the security dimension: infrastructure protection, supply-chain resilience and maritime situational awareness.

- **Data sovereignty** is of central importance in various areas ranging from research to AI applications, to achieve critical research data sovereignty in Europe. The principle of data sovereignty should also be the underlying principle throughout the implementation of FP10.
- The area on **regenerative therapies** appears very restrictive in scope. It must build on the Cancer Mission, while extending its impact across diseases. The greatest health and economic gains lie in prevention, early detection and system-level transformation, rather than in therapies alone. A European Health Moonshot should integrate public health, biomedical and clinical research, data and AI, as well as environmental health.
- The use of **next generation AI** is pushing the boundaries of science and supporting technology, as neuromorphic or quantum computing, as well as software. We stress the need of reliable and trustworthy AI.

EU Missions

- Helmholtz considers the EU Missions as a very valuable concept ensuring dedicated long-term funding streams for tackling major challenges.
- Given the time-scale of the mission approach, the challenges they aim to tackle will not be solved by 2030 and additional activities and funding will be required beyond this date.
- Sustainability and completion of existing Missions must be ensured by securing follow-up and transformation funding beyond the research framework Programme to avoid fragmentation and to enable long-term impact.

Additional aspects of the proposal for the regulation of Horizon Europe 2028-34, including the budget and rules of participation, are discussed in a complementary Helmholtz paper here: www.helmholtz.de/brussels (→ 2026 positions).

Pillar I of Horizon Europe [COM(2025)544 final]

Helmholtz welcomes the bottom-up approach of **Pillar I**. Specific considerations regarding its concrete programmes are:

European Research Council (ERC)

- The ERC and the ERC Scientific Council must keep their independence.
- Scientific excellence should remain the sole evaluation criterion.
- The EU contribution to individual grants should be increased to compensate for inflation since their introduction in 2007 to maintain the attractiveness of the grants.
- ERC Synergy Grants are an extremely valuable instrument to support the collaboration of a small group of exceptional researchers. It should be continued and the number of available grants should be increased.
- Although the first indirect actions still need to be granted and an ex-post evaluation will be conducted, we welcome the concept of the ERC Plus Grants, for transformative big ideas to unfold using larger investments that cannot be achieved with the existing grant schemes.

Marie Skłodowska-Curie Actions (MSCA)

- The programme part must be kept bottom-up.
- Helmholtz supports the introduction of directionality through additional calls matching the policy windows of the ECF as a complement to the default bottom-up scheme, provided that they are backed by additional resources made available from the respective policy window of the ECF not earmarked for Horizon Europe (following the best practice of EURATOM 2021-2027).

- The contributions to the various budget categories should be increased to account for accumulated inflation over the last years.
- The rules for the implementation of MSCA should be precisely formulated, transparent, simple and enable easy alignment with national rules. This would ensure equal conditions for MSCA fellows and their peers financed from national or similar programmes.
- The evaluation of proposals (especially Postdoctoral Fellowships) should be redesigned and simplified to reduce the time-to-grant and better adapt to the growing number of submissions. This would increase acceptance rates of postdocs, since many individual applicants receive multiple job offers that they may accept while awaiting the funding decision.
- The COFUND instrument could be financially flexibilised, for it to be more attractive in countries with higher personnel costs. This would mean the possibility to increase the Union's contribution per fellow, while reducing the number of fellows per grant.

Joint Research Centre (JRC)

- The JRC should maintain its independence from groups pursuing particular interests and should prioritise collaborations with scientific partners adhering to the status quo of research methodology (in particular in ethically sensitive areas).

Pillar II of Horizon Europe [COM(2025)544 final]

Interplay of Horizon Europe with the four Policy Windows of the ECF:

- The section with **research actions** in the work programme of each Policy Window must strictly follow the rules of participation of Horizon Europe.
- In view of changing policy priorities and unforeseeable societal challenges, **bottom-up research topics** must be possible in the broad areas of the four policy windows. A relevant part of the budget should be earmarked for indirect actions implementing these bottom-up topics. To reduce over-subscription, bottom-up topics could use a two-step submission process.
- We need clarity on how the resources earmarked for **collaborative research** will be allocated, also for European Partnerships.
- The **portfolio approach** applied in Pillar II could connect deployment actions in the ECF with research actions in the other Pillars of Horizon Europe, by e.g. using the Moonshots.
- Indirect actions implementing **FSTP** are becoming more relevant. The evaluation and management of cascade grants must be professionalised and ideally conducted by research organisations or national agencies with longstanding experience. The indirect actions should foresee financial support for these administrative activities.

Regarding the **thematic coverage of the policy windows** as in the Chapters IV-VI of the proposal for the European Competitiveness Fund, we would like to mention the following areas, without prejudice that further areas might be supported:

Clean Transition and Industrial Decarbonisation

- In this policy area, the focus should be on supporting the integration of advanced materials into innovative devices and on new approaches to combating environmental pollution.
- Europe is a global leader in polar, high-altitude and cryosphere research and possesses world-class infrastructure for exploring these regions. To maintain this leading position, sustained support is required.

- A dedicated urban transformation agenda should be included in this Policy Window. Priorities should include heat management, water and flooding, mobility and nature-based solutions, with strong urban-rural linkages as well as attention to societal drivers and impacts.
- Links to the Health part should be fostered.
- The use of digital twins should be supported across all environmental, technological and societal systems as they enable data-driven innovation and link fundamental science with real-world applications across sectors. They strengthen Europe's technological sovereignty, accelerate the green and digital transitions, and enhance resilience through predictive, collaborative modelling.
- A dedicated focus on future-proof, integrated energy systems is essential for achieving a clean transition. Priorities should include large-scale renewable integration, energy storage and battery innovation, hydrogen and Power-to-X technologies, sector coupling and digitalised energy system modelling to enable secure, resilient and cost-efficient decarbonisation of industry and society.

Health, Biotech, Agriculture and Bioeconomy

- The internal connections between the four thematic areas of this policy window remain obscure and would result in an in-cohesive and inefficient program part. Health could be established as a stand-alone policy window and research theme, with clear strategic prioritisation, dedicated visibility and autonomous governance. Europe's most valuable asset is a healthy society, which is a fundamental prerequisite for resilience across economic, social and environmental dimensions. Integrating health in a broader cluster risks diluting health-related priorities, weakening strategic focus, and undermining the overall impact of health research and innovation investments.
- Health should be defined as a state of complete physical, mental and social well-being rather than just "workforce productivity".
- At a time when health systems across Europe are under increasing strain, health research and innovation investments should prioritise prevention and early detection, alongside effective therapies, as prevention represents the most scalable and cost-effective means to reduce long-term disease burden, healthcare expenditure and productivity losses across Europe, while delivering the greatest population-level benefits.
- A strong focus on prevention directly supports the sustainability of health systems and strengthens the health economy by reducing avoidable costs, maintaining workforce productivity and increasing long-term societal resilience.
- Support of high-tech devices for advanced forms of particle therapies to be deployed by EU industry, as well as characterisation of bio-based materials should be stressed in this policy window.
- In addition, furthering our understanding of the human brain remains critical for this policy window: A brain atlas, a shared coordinate system of mapped brain regions, offers neuro-medicine a spatial framework for navigation, characterisation and location-based analysis and can strengthen neuroscience-related key technologies.
- This policy windows should support targeted funding for early clinical trials and prepare for new health threats. Early clinical trials are essential for testing novel diagnostics and therapies but often remain underfunded by private sector due to high risks, long timelines and uncertain returns despite their potential to accelerate patient benefit and to stimulate the European health and biotech economy. Funding mechanisms based on scientific excellence similar to the ERC grants are essential to bridge this gap between discovery and late-stage translation. Strengthening this pipeline has a clear and direct link to economic growth, competitiveness and the development of European health and biotech companies.

- This policy window is suitable to support very long-term clinical studies (5-15 years) through specific funding instruments. E.g. in prospective studies on disease risk factors or biomarkers for early detection, among others.
- The continuation of the Cancer Mission and large-scale investments under Europe's Beating Cancer Plan, including the expansion and strengthening of Comprehensive Cancer Centres are critical for achieving the goals and delivering long term impact.
- Large research and technology infrastructures can demonstrate their potential in giving unprecedented insights in enzymatic processes, drug interactions and structural adaptations to design novel therapies.
- For biotechnology, crop-based agricultural production is a key pillar for developing microbes and enzymes for bio-based processes and products, as well as a driver for a sustainable bioeconomy. This policy window should also involve implementing circular processes for manufacturing goods.
- Regarding agriculture and bioeconomy, this policy window needs to safeguard ecosystem services that provide goods and resources essential for society and the economy in Europe's future competitiveness. We need a profound understanding of systems and sustainable management to become more resilient to climate and human pressures and enable a competitive and circular bioeconomy.
- Transformation towards sustainability in economic systems and society at large requires an inclusive, resilient, and competitive bioeconomy, which can serve as a powerful instrument to support the transition towards a bio-based economy, aligned with the EU's climate and sustainability goals. A strong bioeconomy fosters EU sovereignty by supporting agriculture in the bio-based economy and promoting bio-based processes.

Digital Leadership

- To strengthen Europe's digital resilience, this policy window should build deep knowledge across the full semiconductor supply chain and scale Europe-made, architecture-agnostic chips (from automotive to GPUs) while accelerating specialised, energy-efficient AI hardware for edge computing and autonomous systems, including neuromorphic, spintronics and quantum technologies (incl. quantum simulation, communication and sensing) via pilot lines and industrial pathways.
- At the same time, Europe must push the frontiers of optics and photonics, including embedded photonic structures for direct optical communication and advanced semiconductor components and detectors.
- The high-tech knowledge also includes a European, sovereign software stack, from operating systems to middleware and libraries to application software and the ownership and maintenance of large-scale high-quality datasets for various applications. Middleware and firmware, as well as operating systems and application APIs must not be forgotten. Sound funding for software development and training will be crucial for progressing with the green transition and digital sovereignty.
- Cybersecurity, privacy and trustworthy AI should be supported in all their many facets.
- In the strategic field of AI, enormous efforts are envisaged towards software and data (models, algorithms, applications) but more ambition is needed on research for specialised hardware for AI made in Europe as alternative to GPU technology.
- Data is crucial for any future system to operate. Especially very large datasets need their foundations in Europe. Since current AI systems, such as LLMs, make use of text and internet knowledge, it is expected to see a rising demand for specialised datasets, including virtual human twins in healthcare or road safety datasets in the mobility domain.
- Strategic data management and critical data initiatives should be strengthened as a core pillar of Digital Leadership, enabling secure, interoperable and trusted access to data. Leveraging

data effectively is essential for the development, deployment and scaling of AI, while ensuring compliance with ethical, legal and cybersecurity requirements. AI in medicine should be explicitly supported through critical health data initiatives, while reinforcing the capacity for innovation in medical AI applications.

Resilience and Security, Defence Industry and Space

- The support of novel approaches to recover or replace critical raw materials from discarded electronics, electrolysers or batteries in our borders will become more prominent in the coming years and it should be reflected in the section for resilience of this policy window.
- Space radiation poses a considerable risk for equipment and organisms alike. The design and test of suitable shielding for electronics and monitoring the long-term effect of (recreated) space radiation in organisms or the human body must be supported under the space section.
- Life Sciences Dual Use Research can enhance societal and individual health resilience and should thus receive more support.
- The role of analytical infrastructures, especially technology infrastructures for potential dual applications should be further explored.

Pillar III of Horizon Europe [COM(2025)544 final]

European Innovation Council (EIC)

Helmholtz welcomes the increased budget proposed for the EIC to push the success rates way above 10 % for all types of grants. In addition:

- The EIC and its programme managers should be able to independently act and to decide their challenges.
- However, the selection of the challenges for all EIC instruments must be transparent and has to involve research and innovation communities.
- Challenges outside the four policy windows of the ECF must be possible. The EU is facing more challenges than those represented in the policy windows. In addition, new challenges might emerge due to external factors or based on new knowledge.
- Challenges identified by the respective thematic platform in a concrete policy window must receive additional support from the ECF, especially for indirect actions targeting higher TRLs.
- Regarding open calls, we recommend adapting the process applied by SPRIN-D in Germany. This agile funding approach enables quick breakthroughs while considerably reducing time wasted on the preparation of long, ultimately unsuccessful proposals.
- The application of the ARPA approach does not differ considerably from the SPRIN-D scheme, with the project implementation tightly linked to the achievement of milestones. This strict approach requires a very careful selection of meaningful KPIs adapted to the nature of a specific project and critical evaluation of the situation before a project is actually terminated.
- The EIC Accelerator should continue being a suitable instrument to jointly promote translational research and innovation: The [grant component of the EIC Accelerator](#) should be used to its full potential by easing the access of research organisations as subcontractors.
- The EIC Pathfinder and Transition must remain key components of the knowledge-value chain.

Innovation Ecosystems and Knowledge Triangle

Although the details about the integration of the knowledge triangle are completely missing from the proposal of the specific programme, Helmholtz embraces the allocation of specific tasks to each actor in the Knowledge Triangle, and proposes implementing open, long-lived networks to connect them.

Pillar IV of Horizon Europe [COM(2025)544 final]

ERA policies

The implementation of EU support in this programme part should allow for additional financial contributions to co-funded component(s) of EU Partnerships. This would encourage the participation of national, regional or philanthropic actors and others through the COFUND instrument. In addition, the support of this programme part could focus on motivating Member States and their research organisations to voluntarily commit to concrete ERA Actions avoiding the need to oblige Member States to ensure their realisation, while clearly highlighting the excellence as a guiding principle.

Research and Technology Infrastructures

We welcome the long overdue proposed budget increase for this programme part, and suggest the following to maximise its impact:

Budget and horizontal aspects

- The proposed budget for this programme part is required to ensure a comprehensive and coordinated technological development of (large) infrastructures, as well as to provide transnational access to these installations.
- A balanced budget allocation to research and technology infrastructures is needed since the two types of infrastructures serve complementary technological areas and thus both are equally needed to boost research and innovation in Europe.
- The selection of thematic or economic areas for new technology infrastructures must find complementarities to ESFRI by taking into account the existing ESFRI domains.
- Nationally operated infrastructures in EU countries with a relevant share of users from other European and worldwide countries must be recognised in the same way as ERICs and ESFRIs. They play a key role in an effective, coherent and agile European Research Area and constitute an integral part of the unique integrated ecosystem of research infrastructures in Europe.
- The European investment in novel pan-European infrastructures, which might cover up to 20 % of the costs, requires a transparent selection process, in which the scientific community plays a key role. In addition, a dedicated budget line is required for these investments, with a clear ceiling to prevent new infrastructure projects from competing with the rest of the actions (e.g. access) in this programme part.

Access to RI and TI

- Operational costs apart from those related to transnational access (TNA) should not be funded through the programme.
- Indirect actions targeting access should have a long-term perspective, ideally for the whole duration of the framework programme.
- The impact of the COFUND instrument for access to Infrastructures should be thoroughly investigated and its suitability for access be considered. Funding of TNA is already intrinsically a "cofund-tool", as the limited available project budget usually does not allow for covering more than between 5 and 50 % of the actual access costs. This highly reduces the attractiveness of this funding instrument if implemented as cofund and the readiness to offer more than a few percent of the total available user access time for transnational access.
- The implementation of new TNA formats, tailored to the needs of specific target groups or for tackling pressing societal challenges requiring fast breakthroughs, should be more flexible. This should include derogations for SMEs and start-up exempting them from the requirement of

trans-nationality. Funding should also be provided for medium-size projects implementing a concrete prototype of a novel access scheme for validation of feasibility and impact.

- To train and support the new generation of infrastructure scientists, it has been proven to be extremely successful and highly appreciated by (industrial) users to have a dedicated person at the infrastructure from a team of experts to provide full-round support along the whole lifecycle of the TNA project. This is especially relevant for users from new areas of science or from SMEs and industry, as these infrastructure scientists supported by the TNA project are capable of translating between science and industry.
- The access pilots of 2026-27 offering financial support to Third Parties (FSTP) are a good starting point to include further financial flexibility and further tools in indirect actions for infrastructures. These should include more flexible subcontracting conditions and FSTP more realistic budget caps for cascade grants to a concrete infrastructure under the next Horizon Europe: In long-running indirect actions providing access to infrastructures outside the consortium, highly-requested infrastructures can reach this cap too soon and be unable to provide access for the remaining implementation time of the indirect action. In addition, it should be possible to allocate cascade grants to small teams of actors from industry, RTOs and institutions from applied research, supporting the development of industrial challenges into research projects that could be realised at RTIs.
- More transparent and professional evaluation of proposals funded through FSTP or cascade grants are needed. If sub-projects funded through these cascade grants are not managed through the F&T portal, their calls should at least be announced.
- In long-running indirect actions reimbursing expenses for TNA based on unit costs, it must be possible to update the unit costs to refactor inflation or repurpose budget to adapt to the demand of concrete infrastructures during the lifecycle of the project.
- Also, access projects must be able to have more flexibility when allocating budget to TNA: From proposal writing to provision of access at (nearly) the end of the indirect action research priorities and demand change.

Technological development

- More flexible collaboration formats of RTIs with industry are needed to support technological advancement: PCP and PPI have been proven to be too cumbersome to be implemented in short-lived indirect actions.
- Technological sovereignty requires a stronger involvement of infrastructures in strategic funding instruments such as those from the policy windows of the ECF or European Partnerships.
- The involvement of infrastructures in collaborative projects under Pillar II should be simplified by enabling access-related cost reporting, analogue to the established rules on transnational access.
- National infrastructures coordinating their technology development or major updates with their European peers through technology roadmaps should receive EU support for concerting their efforts and for joint development activities. Such funding needs novel instruments adapted to the long timespan for development and the need of industry suppliers for reliable mid to long-term planning security to invest in development.

Infrastructures as data generators

- The role of Infrastructures as generator of big data must be adequately recognised and supported with measures to enable data exchange and facilitate scientific and commercial use of data.

- The implementation of EU Partnerships based on MoU under this programme part (e.g. EOSC) must acknowledge the in-kind contributions of non-for-profit members in associations implementing the EU Partnership beyond EU support.

Widening

The widening programme in its current implementation in 2021-27 successfully motivates researchers to increase their collaboration network in eligible countries. The proposal for “transition countries” must be carefully studied to include further factors in its selection. We suggest:

- Turn selected universities, RTOs and cities in widening countries (including “transition countries”) into innovation leaders by creating innovation missions for widening countries.
- Design calls for long-lasting indirect actions (7-10 years) to build “Innovation Capability Missions”: Each mission should include governance reforms, an IP policy and a strategy for entrepreneurial activity. Funding should be provided in different phases for the design and pilot projects, implementation and scaling up of activities. The EU could support proposal offices, IP, licensing support, entrepreneurial programmes for students and researchers, seed funding for proof-of-concept and spin-offs, and training for research managers and technology transfer professionals.
- Align these efforts with research excellence and regional clusters. Strengthening the institutes and clusters from widening countries around Excellence would accelerate progress and create stronger spillover effects for the wider research ecosystem. This includes promoting excellent institutions and implementing ERA Chairs-type programmes with an EU-level position, as proposed in the Draghi report under the names of ERC Institutes and EU Chairs programmes to attract top researchers. Such measures would also help prevent brain drain and contribute to a more balanced ERA.

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