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The Royal Danish Academy of Sciences and Letters – Position Paper on the 10th European Union Framework Programme for Research and Innovation (FP10)

Research and innovation (R&I) are cornerstones of the European Union's (EU) capacity to tackle global challenges and enhance societal resilience. In the face of pressing issues such as climate change, public health crises and geopolitical tensions, Europe's investment in research ensures that the EU remains at the forefront of developing transformative solutions that benefit its citizens and the world as a whole.

Relying on research to deliver breakthrough solutions to Europe's challenges requires recognizing basic research as a bedrock of the R&I ecosystem. Basic research expands our fundamental understanding of the world, often providing knowledge we do not yet know we need. During the COVID-19 pandemic, for example decades of basic research in virology, mRNA technology and immunology became essential in rapidly developing vaccines and treatments. Basic research is paving the way for solutions to Europe's complex challenges and driving long-term progress. This makes basic research a crucial part of the EU's efforts to foster resilience, sustain global competitiveness and address the interconnected challenges of our time.

Horizon Europe is built on three pillars: Excellent Science, Global Challenges and European Industrial Competitiveness, and Innovative Europe. While each pillar plays a vital role in the programme's success, the pursuit of excellence must remain a flagship priority. It is this unwavering commitment to strive for excellence that fuels groundbreaking discoveries and drives scientific progress. This pursuit of excellence is critical to maintaining the EU's global competitiveness and addressing the interconnected challenges of our time.

The EU Framework Programme comprises two aspects that are crucial to striving towards excellence. First, collaboration across Europe is of utmost importance. When conducted with a focus on striving for excellence, international cooperation becomes a unique European added value. Second, open competition across Europe also represents a vital European added value. As a result, upholding these principles across all aspects of FP10 is crucial.

As we advance towards FP10, maintaining and expanding the EU's leadership in research is vital. Through robust investment, unwavering commitment to excellence and the strengthening of transnational cooperation, FP10 can solidify Europe's position as a global leader in research and pave the way for a brighter, more sustainable future.

In this paper the Royal Danish Academy of Sciences and Letters outlines its nine key priorities for a successful and ambitious new EU Framework Programme for R&I.

1. Establishing FP10 on the foundation of excellence and competitiveness

The principle of excellence must remain a cornerstone of FP10 as it ensures that R&I in the EU continues to generate transformative solutions that address both current and future challenges. Competitiveness in research is equally essential, fostering an environment where only the most innovative and impactful projects thrive, pushing the boundaries of scientific discovery.

We strongly support prioritizing funding for the European Research Council (ERC), which plays a crucial role in advancing European research. Additionally, the Marie Skłodowska-Curie Actions, which provide young researchers with invaluable training in a truly international environment, should also receive substantial support.

It is essential that the ERC remains the leading European funding body for frontier research, maintaining its focus on scientific excellence and investigator-driven projects across all disciplines. To continue fostering groundbreaking discoveries, the ERC must retain its non-thematic funding structure, ensuring that curiosity and scientific ambition guide research rather than predefined priorities. This approach safeguards the integrity of frontier research, enabling Europe to remain at the cutting edge of global scientific advancements. When otherwise embracing an R&I approach with a strong focus on missions and strategic approaches, it is of utmost importance to ensure substantial room for excellent and groundbreaking research within all areas. Without such a pool of research and researchers, Europe will lose global knowledge influence in the long run.

In a world increasingly affected by disinformation and growing mistrust in science, upholding excellence is more important than ever. A rigorous competitive framework not only attracts the best ideas, talent and collaborators but also reinforces trust in the scientific process by delivering credible, high-quality outcomes.

While Europe is not currently the global leader in research, it aspires to be a major world force in science. To achieve this, the EU must position itself as an attractive and competitive destination for the world's brightest researchers. Scientific excellence flourishes in an open and competitive environment that embraces diverse talent and fosters international collaboration. Strengthening career opportunities, improving research conditions and ensuring competitive funding will help position the EU as a top choice for the world's brightest minds.

Currently, countries outside the EU are outpacing Europe in investments in research, a concerning trend that demands urgent action. To secure long-term competitiveness, we argue that the EU must increase funding for research as it serves as the foundation for all future innovations.

In regard to excellence and competitiveness, we argue that by prioritizing excellence and embracing a competitive approach, FP10 can deliver groundbreaking results,

combat misinformation and ensure that Europe remains a global leader in research, fostering trust and progress in an increasingly complex world.

2. The added value of cross-border research

The EU Framework Programme must deliver added value that goes beyond what individual Member States can achieve on their own. By fostering collaboration across borders, the programme creates opportunities for pooling expertise, sharing resources and addressing complex challenges that no single country can tackle alone.

International collaboration has consistently been shown to enhance the quality and impact of research, bringing together diverse perspectives and fostering innovation. The EU Framework Programme plays a unique role in breaking down barriers to collaboration, enabling researchers to build networks that strengthen the European Research Area and drive excellence.

We believe that by supporting these transnational efforts, the EU Framework Programme ensures the creation of high-quality science, fostering innovative solutions that not only enhance global competitiveness but also bring tangible benefits to all Member States and their citizens.

3. Horizon Europe missions need to be relaunched as proper EU missions

Missions have been an integral part of Framework Programmes and European research and development collaboration. If missions are to succeed, we support the belief that they must go beyond the status of R&I missions. Missions require a broader and more integrated approach to be truly impactful.

We echo the view of the Danish Ministry of Higher Education and Science that missions should be relaunched as proper EU missions, with their own legislative framework, distinct from FP10. Many aspects fall outside the scope of the Framework Programme in order for missions to achieve success, though R&I will undoubtedly play a crucial role in them. Our proposed approach would ensure they are not constrained by the limits of FP10 and are instead supported by a combination of resources. By integrating R&I funding from FP10 with additional resources from relevant EU programmes and national initiatives, missions could support the full spectrum of necessary activities, including those beyond the traditional scope of R&I.

If missions are not subjected to substantial reform, we believe they should be removed from FP10. The current setup demands excessive coordination across too many actors while failing to deliver the transformative results expected. It is not enough to develop new technologies; the entire value chain — from research to implementation — must be considered. Missions must therefore go beyond mere technological advancements and actively facilitate the creation of new markets, regulatory frameworks and policy instruments that support adoption and impact.

Without these structural changes, missions are becoming fragmented, inefficient and disconnected from real-world application. We argue that the EU must rethink its approach to missions and relaunch the missions as proper EU missions.

4. A leaner approach to partnerships

We argue that while partnerships play a vital role in FP10, their current scale and complexity risk undermining the very purpose they are meant to serve. If there are too many partners involved in a research programme, it can lead to inefficiencies, administrative burdens and a dilution of focus, ultimately hampering productivity. Funds that should be dedicated to groundbreaking R&I are instead consumed by the overhead of managing overly complex and sprawling partnerships.

We believe it is essential to rethink and limit the number of partnerships under FP10. A leaner approach — focusing on fewer, stronger and thematically clearer partnerships — is necessary to maximize their impact. These partnerships should align closely with EU-wide priorities and provide demonstrable added value through enhanced national and EU coordination.

5. From scientific research to innovation and economic growth

The ability to convert scientific research into tangible innovation is critical for driving economic growth and job creation and addressing global challenges. However, we acknowledge that Europe has not yet reached its full potential in this regard. Extensive analyses and reports have examined this issue but no single solution or approach can address it comprehensively. Several contributing factors have been identified, including the lack of a robust innovation culture in Europe, legislative and regulatory frameworks that do not adequately support innovation and a relatively limited availability of venture capital. While these challenges must be carefully evaluated and addressed, the solution does not lie in creating overly complex partnerships with numerous participants and divergent interests. Simplicity and focus are essential to achieving meaningful progress.

When universities and other research institutions conduct groundbreaking basic research, it is often a blue sky approach with no utility goal. For many companies, engaging in such scientific activities would be too expensive or risky. However, basic research is of chief importance to industry and private companies as they gain access to the latest knowledge, methods and advancements — primarily through research-based education — with graduates and PhDs bringing these insights into the companies.

Moreover, industry can follow breakthroughs in basic research and develop them into innovative solutions. A recent example in Denmark is the development of Wegovy®, which reflects excellent collaboration between university-led basic research and the industry's ability to refine, innovate and bring a product to market.

We argue that FP10 should avoid creating overly complex partnerships and instead prioritize simplicity and efficiency. Furthermore, we see basic research as a fundamental prerequisite for long-term innovation success in the EU. Sustained competitiveness in highly technical fields is only possible if Europe maintains excellence in cutting-edge basic research as the foundation for future breakthroughs.

6. Balancing openness and security in international research collaboration

We argue that maintaining strong research relationships with international partners is essential for advancing global knowledge production and fostering innovation. Collaboration with external partners enriches European research by integrating diverse perspectives, expertise and resources. However, we acknowledge that in the current geopolitical climate — marked by challenges such as Russia's invasion of Ukraine and increasing global tensions — it is vital to strike a careful balance between openness and security.

Science is inherently international. While we recognize the risks associated with collaboration on research with dual-use concerns and critical technologies with certain countries, outright restrictions on partnerships would significantly hinder knowledge production and limit access to valuable research opportunities. It is essential that Europe remains open and outward-looking. Closing itself off would be detrimental not only to Europe but also to the progress of European research. A more nuanced approach is needed — one that protects Europe's strategic interests while preserving its ability to engage in meaningful international collaborations.

It is crucial to recognise that the global landscape is evolving, and the EU Framework Programme must remain adaptable to these changes. FP10 should actively promote the formation of partnerships with countries where scientific collaboration is currently limited or underdeveloped. Expanding research ties with new and emerging partners will enhance Europe's global research network, diversify knowledge production and strengthen scientific diplomacy. In an increasingly complex geopolitical environment, the EU must adopt a progressive approach that both safeguards its strategic interests and fosters international cooperation in science and innovation.

7. An interdisciplinary approach

We argue that tackling complex and wicked problems requires an interdisciplinary approach that brings together expertise from across various disciplines. Challenges such as climate change, public health crises and the digital transformation cannot be solved within the confines of a single field. They need innovative solutions created based on the integration of multiple perspectives.

Innovation thrives at the intersections of disciplines, where collaboration fosters the exchange of ideas, methodologies and insights. Different disciplines each contribute

unique knowledge that, when combined, leads to more comprehensive and impactful outcomes.

Interdisciplinary research is also fundamental to basic research as it drives the discovery of new knowledge and unlocks breakthroughs that would not be possible within a single discipline. Many of the most significant scientific advancements, from quantum computing to biomedical innovations, have emerged at the crossroads of multiple fields. By combining insights from diverse disciplines, researchers can explore new frontiers, challenge established assumptions and develop novel theoretical frameworks.

We believe that FP10 must prioritize fostering interdisciplinary collaboration, breaking down silos and encouraging researchers from different fields to work together. Although interdisciplinary research can be more challenging to undertake, it is essential for developing effective solutions to today's complex challenges.

8. Strengthening diversity

We believe that diversity and inclusion are essential for the future of European R&I. By embracing a broad and inclusive approach, the EU can ensure that all segments of society contribute to and benefit from scientific progress. This not only strengthens the legitimacy of research but also fosters creativity and innovation by incorporating diverse perspectives and experiences. This is backed by a 2024 All European Academies (ALLEA) position paper, which states:

"Focusing exclusively on narrow definitions of excellence and innovation can be problematic as they can create division, and run the risk of losing creative and original research that does not map neatly onto such indicators."

Ensuring diversity in knowledge and approaches — beyond a narrow focus on technological innovation — enhances the quality and relevance of research outcomes. Promoting gender balance and fostering diverse talent in FP10 will help create a more equitable and supportive scientific landscape, encouraging broader participation and collaboration. Inclusive policies and environments will attract and retain the best minds, creating a richer and more dynamic R&I ecosystem.

In this context, it is also necessary to revisit the process for identifying and selecting projects for funding. The current evaluation and selection mechanisms should be examined to ensure that they do not inadvertently exclude unconventional, interdisciplinary or high-risk research with transformative potential. A more nuanced and flexible approach to assessing excellence could help capture groundbreaking ideas that might otherwise be overlooked, ensuring that European R&I remains at the forefront of global innovation.

Despite the vast potential of scientific research to drive progress, some areas remain underfunded, even when they have the potential to create significant societal benefits. Research that falls outside mainstream priorities or that does not align neatly with traditional funding criteria risks being overlooked, limiting opportunities for groundbreaking discoveries. As stated in Article 27 of the United Nations Universal Declaration of Human Rights, everyone has the right to share in the benefits of scientific progress. Ensuring a fair and inclusive distribution of research funding is not just a matter of advancing knowledge but also a question of equity and social responsibility. FP10 must work to close these gaps by supporting diverse research fields and ensuring that scientific advancements benefit all.

9. Expanding the ERC's budget

The ERC is a cornerstone of European research excellence, driving scientific breakthroughs and fostering world-leading innovation. Its investigator-driven approach has been instrumental in funding pioneering research that not only advances fundamental knowledge but also lays the groundwork for transformative applications across various fields.

To maintain and strengthen Europe's position as a global leader in research, the ERC budget must be significantly expanded in FP10. Increased funding will ensure that more groundbreaking ideas receive the support they deserve, allowing Europe's best researchers to push the frontiers of knowledge and address pressing societal challenges. A well-funded ERC enhances Europe's global competitiveness by attracting and retaining top-tier researchers, fostering talent development and reinforcing Europe's role as a hub for scientific excellence.

Ensuring sufficient funding for the ERC is not just an investment in research but a strategic commitment to Europe's long-term resilience, economic growth and ability to respond to emerging global challenges.