Federal Ministry
of Education
and Research

German discussion paper in preparation for the 10th EU Framework Programme for Research and Innovation

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Following the expiry of Horizon Europe, the current EU Framework Programme for Research and Innovation, the 10th Framework Programme (FP10) will come into effect in 2028, providing the basis for European research and innovation funding. At an early stage in the development of the upcoming programme, this paper aims to provide initial stimuli for areas that Germany believes need to be addressed in the design of FP10, without prejudice to the negotiations for the EU's next multiannual financial framework (MFF). It thus also constitutes a prelude to a further participative process with German stakeholders to develop the German position regarding FP10. The Federal Government will define its position regarding the reorientation of the MFF and the budget of individual programmes in due course with a view to the overall political context. No prior commitments of financial relevance will be made regarding individual topics.

The European Union's joint research and innovation policy is a success story, which is primarily based on the Framework Programmes for Research and Innovation. Particularly in light of the current geopolitical climate, this European cooperation must be further intensified in order to strengthen cutting-edge research and future innovations at a European level. Research and innovation (R&I) is a field with clear European added value.

Europe finds itself in the middle of a far-reaching and long-lasting, economic, digital and social transformation. Conditions regarding security policy have also changed fundamentally. The future framework programme needs to accommodate these change processes and take on a significant role within an overarching strategy. In this context, ensuring technological sovereignty through research and innovation, strengthening resilience and Europe's global competitiveness, preserving natural resources and last, but not least, protecting our liberal democracy are paramount. FP10 must have the potential to be a powerful driver of value creation, growth and prosperity in Europe. Excellent and interconnected science and research forms the core foundation for this.

FP10 therefore needs to clearly focus on strengthening basic research, supporting key technologies and accelerating knowledge transfer. Europe must be a pioneer in the creation, mobilisation and application of innovation and knowledge. New ideas and innovations are decisive for the success of the impending transformation processes and for mitigating their social impact. The 10th EU Framework Programme for Research and Innovation will play a key role in this. It can only fulfil this role, if R&I is awarded an appropriate budget. FP10 needs to react more strategically than ever before to the changing global geopolitical situation and the new challenges that this entails. Risks to the freedom of research and teaching, illicit interference and the one-sided transfer of knowledge and technology must be minimised.

In accordance with the principle of subsidiarity, FP10 should only contain measures that offer significant European added value and whose targets cannot be achieved at member state level, at least not with the same degree of effectiveness and efficiency. The programme is not a replacement for national efforts, which are still required from all member states. Achieving the 3 % target for R&I expenditure in the EU remains essential in this and should be endorsed. The framework programme can make an important contribution towards this goal by stimulating national investment in R&I.

In FP10, it will be necessary to focus considerably more closely on R&I activities than in Horizon Europe and to clearly define the goals, content and resources of these activities in contrast to other areas of EU funding. FP10 should not serve as a budget reserve for other EU initiatives that do not have research and innovation as their main focus. The links to other EU programmes and between Directorates-General are to be made more transparent, efficient and effective in future. This will maintain and further strengthen the indispensable role of R&I in addressing growing global crises and challenges and for current and future key technologies. To this end, FP10 must be based upon the critical evaluation of existing programme elements and build on successful funding instruments.

In order to fulfil its potential as a facilitator of R&I in Europe, FP10 must 1) be based on the principle of excellence, 2) support research for pioneering innovations that is open to all topics and technologies and, at the same time, 3) exploit the full potential of research for society, for the development of key technologies and for a sustainable Europe, which 4) requires a strategic, cross-programme approach. Furthermore,

FP10 must 5) be easily understandable and accessible, 6) encourage and promote the European Research Area as a whole and 7) pursue a strategic approach regarding international cooperation.

1. Excellence as core foundation

The current EU Framework Programme for Research and Innovation (Horizon Europe) has an outstanding reputation within the international science community thanks to the fact that project selection is carried out using a high-quality, independent evaluation system in which excellence plays a central role. The **principle of excellence must therefore be upheld and further strengthened as a fundamental evaluation criterion** for funding decisions in FP10. At the same time, the relevance and impact of R&I on major societal challenges also needs to be taken into account. Likewise, FP10 must help promote excellence in member states and associated countries that have a weaker background in innovation.

2. Open-technology and open-topic research for pioneering innovations and a resilient Europe

Groundbreaking discoveries and unplanned, disruptive innovations are notably the result of **excellent, creative, open-topic research and science.** Furthermore, an open-topic approach to R&I is essential in order to develop resilience to unforeseen future challenges. This must be continued and further developed, in particular in the internationally acclaimed and successful European Research Council (ERC), possibly including collaborative research instruments. FP10 should offer **funding opportunities that are not limited to a particular technology or topic,** while following relevant ethical requirements. Pioneering research projects should be funded **at all stages of the innovation chain,** including lower Technology Readiness Levels. Across the programme as a whole, it is important to find a suitable balance between basic and applied research, between projects that focus on technological innovations and on social innovations, between small projects and major initiatives, between blue sky and impact-focused research.

3. Exploiting the full potential of research for society, for the development of key technologies and for a sustainable Europe

It has been seen that supporting cooperation, not only between countries, but also between different stakeholders (science, industry, civil society, politics and administration) creates added value in European R&I funding and is indispensable in tackling global crises. In its basic principle, FP10 must aim to further strengthen cross-border European cooperation between these players. Accordingly, **programme parts focussing on specific topics,** which address global societal challenges and which can be implemented at an instrumental level as collaborative projects should remain the core of the framework programme.

It is necessary to strengthen research and innovation in order to accelerate the pace of Europe's digital and sustainability transformation, improve competitiveness, ensure our security and safeguard our European way of life. **Goal-oriented and impact-driven instruments** as well as general parameters and funding conditions, which also offer scope for creative ideas and original approaches, are vital to this.

The targeted funding of key technologies in general and particularly of **critical key technologies** should be a fundamental principle of FP10. Europe needs to defend its existing technological lead and obtain the lead in new fields. At an international level, Europe must set standards on an equal footing and boost its competitive strength. Europe needs to be in a position to understand, develop and produce key technologies. This means both developing core technologies and technological building blocks itself and also incorporating approaches to systematically translating these into application. Artificial intelligence, for example, will not only continue to be relevant as a research field in its own right, but will also facilitate previously unimagined scaling effects in other areas of research. Questions of social science and educational research also need to be addressed in order to develop the skills necessary to expertly deal with key technologies and social and economic transformations. Pushes in technological and social innovation and new approaches, e. g. in the field of circular value creation, are essential in order

for Europe to become a leading figure in the sustainable, climate-neutral and inclusive economic activity of the future. At the same time, support must be given to the comprehensive transformation of both industry and society in light of future challenges and necessary crisis preparedness measures. This also includes using European R&I funding to help strengthen health systems and advance medical progress as well as to support democracy and social cohesion; a strong social basis is the foundation for our economic resilience. Trans- and interdisciplinary research is absolutely essential in this context. Furthermore, consideration must also be given to how R&I itself can contribute to ensuring that the regulatory framework is developed and adapted as and where necessary, in step with the speed of innovation.

In light of the *Zeitenwende* (turning point in history) and increasing geopolitical tensions, which are accompanied by hybrid threats, attacks on our critical infrastructures and rising extremism, FP10 must be even more effective in exploiting the potential of R&I to strengthen **European security.** In order to take a holistic approach to security, civilian and military research must receive complementary funding. The aim is to capitalise on synergies between military and civilian research.

In order to become faster at translating research results into products and services or changes in action, FP10 needs to continue to improve the interfaces for exploiting R&I. FP10 needs to adopt a **new strategic approach to the transfer of research results,** one that aims to strengthen the European innovation ecosystem as a whole. This must be implemented in research projects, e.g. using transdisciplinary methods, and – in addition to the exploitation activities of the funded projects – must also include programme-wide structural initiatives. These must be closely linked to regional and national transfer policies.

FP10 must support both technological and non-technological innovations as well as social innovations, while also addressing the social implications of these developments and acting to preserve natural resources.

To this end, the potential of **transition instruments to translate research into application** are to be further explored, and must also take aspects related to human capital into account. Being open to and connected with various European and national programmes can significantly increase the impact of the market realisation of new innovations. Equity capital from the **European Innovation Council (EIC**) should be further developed as a second pillar for financing high-risk projects and opened up to other innovation-focused areas of the framework programme. Efforts should be made to strengthen the links within the European innovation ecosystem and to utilise synergies, for example with the Eureka network.

4. A strategic, cross-programme approach for FP10

Effective research and innovation funding requires a framework programme built on the principle of excellence with a broad, open scope and which also considers the relevance of the funded projects for their competitive and social impact. In order to fully realise the effectiveness of R&I for competitiveness and society, a **strategic approach** must be more strongly anchored within FP10. From the beginning, this must be closely coordinated with the member states and associated countries so as to ensure complementarity and efficiency at the various levels.

It is vital to be able to deal with manifold current and future challenges systematically. To this end, research and innovation funding needs to be clustered together thematically using a **strategic portfolio management** system. Better networking and portability between initiatives and measures are required, as well as more targeted support, in order to be faster and more systematic in following up on good ideas from basic research with application-oriented research. FP10 therefore needs to utilise strategic portfolios and group together initiatives relating to core topics to ensure that pressing challenges are addressed comprehensively with well-coordinated funding strategies. Building on the existing cluster programme committees, committees

representing the member states should be set up for each portfolio and take on a key coordinating role. Steps must be taken to ensure that the portfolio managers and committees have access to all relevant topic-specific information from the various different programme elements, initiatives, partnerships and missions. The topics of such portfolios are – also with a view to their number – to be chosen with care. Portfolios extend beyond topic-based collaborative research and comprise activities from all pillars of the framework programme that relate to a certain topic. **European Partnerships** (including the EIT KICs) in particular should be closely integrated in such a portfolio management system and thereby further simplified, refined and more selectively and strategically used.

The strategic mission-oriented approach is to be strengthened in FP10. The **EU Missions,** a new tool introduced in Horizon Europe, must therefore be revisited. The current EU Missions have ambitious, measurable goals, with defined deadlines, which have the potential to facilitate transformative changes. Before the end of their current lifetime, a review must be carried out as to whether they have met these goals. It is essential that new mission approaches, which could address current or upcoming challenges, are **designed in a more focused, cross-programme manner** in order to realise their transformative potential outside the realms of R&I. To this end, it would be necessary that the topics and related challenges are defined from the very beginning in a closer collaboration between the member states and all relevant Directorates-General at the European Commission. This cannot be fully achieved by a programme which only has limited scope to ensure implementation. Closer coordination between the various departments in the European Commission and the member states would therefore be necessary.

It is important to continue systematically facilitating **synergies** with other funding instruments at European, national and regional level, thereby enabling them to have an even greater impact.

In order to ensure the relevance of R&I funding in a highly dynamic political, scientific and technological environment for its entire period, FP10 must also have the **capacity to react to short-term developments appropriately and effectively.** A corresponding mechanism **("agility reserve")** would need to be explored in view of the EU's upcoming multiannual financial framework. This would make it possible to respond quickly to unforeseen short and medium-term demands (as recently seen in the global chip shortage and the COVID 19 pandemic). At the same time, it is imperative that **comitology be strengthened** appropriately in order to ensure sound member state participation, even when changes occur at short notice.

5. Clarity and transparency for efficient and accessible funding

Thanks to the evolutionary nature of their approach, the framework programmes have succeeded in creating tailor-made research funding instruments with a high degree of detail. However, the large number of different instruments has also resulted in increased complexity and duplication in some areas of individual instruments. FP10 must therefore aim to be **clearer and more accessible.** Transparent targets for the individual funding instruments will ensure **coherency** across the entire framework programme. This will be supported by an overarching portfolio approach.

Application and implementation processes for Horizon projects continue to involve a great deal of administrative work. Further **streamlining and acceleration of processes,** including making it easier to utilise synergies with other EU programmes, is also required. The expansion of lump sum funding, which was introduced for individual Horizon Europe calls, should be examined. However, care must be taken to ensure that these really do lead to simplification in the actual implementation processes. Simplifying administrative work should be an explicit objective for the executive agencies. There needs to be a critical examination of the cost and effort involved during the research proposal process resulting from the **large number of secondary goals** that researchers need to fulfil in addition to their primary research. These should rather be addressed at **programme level.**

In times of growing scepticism towards science and research, FP10 must also improve its **communication** and take a more strategic approach to communicating the relevance of R&I for society and the fundamental importance of academic freedom for the European Way of Life.

6. Advancing the implementation of the European Research Area

The EU Framework Programme for Research and Innovation is a key part of the European research and innovation system. The EU member states are responsible for ensuring the effective development of the **European Research Area (ERA).**

Under FP10, the aim should be to promote research excellence and innovation in Europe through cross-border cooperation and bringing together the best stakeholders in R&I, thus contributing to the **implementation of the ERA** and its Policy Agenda in particular. In addition to R&I policy, links with the European Education and Higher Education Area, to shared European data spaces and to European digital and industrial policy are of particular importance.

Europe has a unique and rich landscape of **research infrastructures.** Access to them is decisive in facilitating world-class scientific research. Under FP10, funding in this area must be better linked with national funding activities and with other EU programmes. Technology and research infrastructures both represent important elements of the R&I ecosystem. Whilst the responsibility for building and operating the infrastructure landscape lies primarily with the member states, support measures at European level are necessary in order to facilitate access for all member states and to aid network-building and coordination between these infrastructures. At the same time, the future usability of research data needs to be strengthened, while taking the FAIR principles into account.

FP10 should also use targeted approaches to support **scientific excellence in countries of the European Research Area that have a weaker background in innovation.** National measures to strengthen innovation capacities are a prerequisite for successfully catching up and closing the innovation gap. FP10 should include a separate mechanism with specific provisions and containing targeted measures to support excellence and innovation in countries where this is needed. Decisions regarding which member states should be granted access to these measures are to be made based on appropriate empirical evidence. The aim is that, over time, fewer and fewer countries would use such specific funding. The impact of these measures can be further boosted by l**inking them with complementary national measures and other EU programmes.** This should increasingly be made a requirement.

By means of the widening measures, FP10 is especially well-suited to contribute towards restoring the **research and innovation capacities of Ukraine** and ensuring that Ukraine is more closely integrated in the ERA in the long run.

7. A strategic approach for international cooperation

Openness is an important principle of international EU research and innovation cooperation under FP10. At the same time, efforts must be made to reduce dependence on actors who might not share European values and principles or who might even act to the contrary. Europe must continue to be in a position to act with scientific, technological and political sovereignty in the future. Strengthening **resource and technological sovereignty in critical areas** – also with regard to promising market opportunities for sustainable technologies and business models – is therefore a priority in the development of FP10.

Sovereignty does not mean autarky. Under FP10, **cooperation with non-EU states should therefore be developed strategically.** In particular, institutions from our **closest scientific partners in Europe,** such as Switzerland and the United Kingdom, should be eligible to participate in FP10 subject to the same funding conditions as institutions from EU member states and EEA countries. **Association processes must be sped up** and involve less uncertainty for the institutions participating in the programme. Collaboration with countries outside Europe which share our values will also be further expanded. Close cooperation with the international Eureka network can also serve to aid this purpose. At the same time however, cooperation with other third countries should be further developed, on the basis of values and interests.

In times where system rivalries are on the rise again, more stringent requirements must be met with regard to **research security.** The *Zeitenwende* calls for a more strategic approach, one which brings the principle of academic freedom more in line with Germany's and the EU's security interests. Measures that protect research from actors and behaviours that represent an

economic, strategic and/or European and international security risk are a fundamental element of a comprehensive understanding of research security. Particularly in light of global competition, Europe must act to prevent unwanted leakage of knowledge and illicit interference. Relevant mechanisms are to be structured so as to avoid setting conflicting goals and to create synergies where possible. Building on the guiding principle of "as open as possible, as closed as necessary", care must be taken to ensure that measures to protect research security are proportionate to the risks and dangers.