



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER

**State Secretariat for Education,
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International Cooperation in Research and Innovation

Swiss Position Paper on the future 9th generation of the European Framework Programme for Research and Innovation

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Summary of Recommendations

1. **Strategic Orientation: Sustainable Development:** Where applicable and relevant, use the Sustainable Development Goals (SDGs) as the reference framework to define the strategic orientation (missions) of FP9. The SDGs as an internationally agreed single agenda with a 2030 time horizon integrating many policy dimensions provides a convergence point to support collaboration across scientific, policy and practitioner communities. Leave however sufficient flexibility in the overarching mission descriptions to be able to respond to new challenges as they appear.
2. **European Added-Value and Complementarity to National Funding:** Continue focusing on instruments and activities that gain value through European and international collaboration, and complement instruments and activities funded at national level. In this logic, restrict the use of co-funding schemes implying European and national money (such as Art. 185 initiatives, JPIs, ERA-NETs or European Joint Programmes), as they blur the subsidiarity principle.
3. **Architecture:** Maintain the 3-pillar architecture, but improve consistency, streamline and ensure interaction between the three pillars and the additional initiatives and funding instruments.
4. **Scientific Excellence:** Keep scientific excellence as the main criterion for project funding. FP9 should serve to fill in the gaps in knowledge production and dissemination, and encourage more excellent scientific research and interdisciplinary discussion.
5. **Expected Impact:** Encourage researchers to make judgments about the contribution or potential contribution that their results might have to the society or economy. By doing so, use non-prescriptive calls for proposals that allow more realistic judgement of the expected impact or potential value of research results to society.
6. **Evaluation Process:** Ensure an evaluation system that is clear and transparent for evaluators and applicants. Provide adequate feedback to applicants in a timely manner. Establish standing evaluation panels for pillars 2 and 3 along the lines of the ERC model.
7. **Valorisation of Research:** Ensure sufficient support to basic research, implement specific measures, and support mechanisms for exceptionally talented innovative researchers. Consider implementing a Proof-of-Concept instrument throughout FP9. Support timely and effective transfer of knowledge and technology between academia, society, policy makers and industry.
8. **European Innovation Council:** Implement a European Innovation Council (EIC) as a concept that complements national actors and focuses on areas where the European and international collaboration results in additional value, in particular for start-ups and SMEs. National and regional innovation support must however remain in the driving seat for local support to new SMEs. Promote innovation with a long-term perspective that complements (rather than replaces) the national or regional innovation support instruments and that does not focus only on disruptive and breakthrough innovation, but also on incremental and process innovation.
9. **Joint Technology Initiatives:** For the existing JTIs, align the rules for funding mechanisms, calls, evaluations, projects and reporting to the ones in the Framework Programme itself, which contributes effectively to streamlining instruments and to boosting access for academia and SMEs in addition to 'big' industry. Before establishing new JTIs, carefully identify the most effective way to use financial resources, seek the right instrument for implementation, and explore beforehand the option of (transnational) collaborative projects within the Framework Programme (contractual PPPs that avoid additional administration bodies for calls, evaluations and projects).

10. **Widening Participation:** Offer excellent researchers in low performing regions better access to the international environment, by supporting them to become more visible for other researchers and networks. The basic logic must however be that FP9 funds excellence, and other funding mechanisms should be used to support widening activities (such as structural funds or national initiatives).
11. **Open to the World:** Enhance international cooperation and so continue building scientific capacity around the globe. FP9 could explore new mechanisms of participation for countries with strategic importance to European research and innovation, thus becoming truly open to the world.
12. **Open Science: Open Access, Open Data and Open Innovation:** Open Science should be a driving force in FP9. Open Research data should be encouraged more strongly. A better-organized and structured approach including well-defined goals and a realistic timeline would help making the European Open Science Cloud (EOSC) a reality.
13. **Integration of the Social Sciences, Arts and Humanities:** Switzerland considers the Social Sciences, Arts and Humanities (SSAH) as important analytical research areas in and of themselves and thus recommends continuing and reinforcing a separate SSAH programme domain in FP9.
14. **Defence Research:** Switzerland strongly believes that FP9 should remain a civilian programme. The European Defence Research Programme should be funded and managed completely separately from the framework programme for research and innovation.

Introduction

Participation in the European Framework Programmes for Research and Innovation (FP) is one of the priorities of Swiss science policy. The EU Framework Programmes constitutes an essential funding instrument for Swiss researchers and innovators for several reasons. First, FPs foster collaboration and exchange between European researchers, research institutions, private companies and SMEs. Second, FPs are a tool that contributes to global sustainable development and provides solutions to global challenges. Finally, FPs foster science diplomacy that contributes to bridging the world through science by addressing global problems and building international partnerships through scientific collaborations among different nations.

With the views and recommendations presented in this position paper, Switzerland's State Secretariat for Education, Research and Innovation (SERI) would like to contribute to shaping the next Framework Programme for Research and Innovation (FP9). We use examples of Swiss initiatives to illustrate our views and recommendations. In addition, Switzerland takes the opportunity to present in this position paper comments and reflections on some recommendations presented in the report of High Level Group "[LAB-FAB-APP, Investing in the European future](#)"¹.

Multiple national stakeholders contributed to this position paper including the Swiss National Science Foundation, the Commission for Technology and Innovation, swissuniversities, the Swiss Academies of Arts and Sciences and the Euresearch Network. Recommendations on further simplification measures are presented in Annex 1.

1. Strategic Orientation: Sustainable Development

FP9's strategic orientation should take account of the critical role and contribution of science, technology and innovation in building European competitiveness in the global economy, addressing global challenges and realizing sustainable development. Solutions to food security, sustainable health systems, or innovative ecosystems for agriculture are few examples of the powerful link between sustainable development and science, technology and innovation. The 17 Sustainable Development Goals (SDGs) provide a global framework for orientation and offer, where applicable and relevant, an ideal case to combine European added-value research with complementarity to national funding. SDGs allow scientific results to contribute to societal, economic and environmental well-being. As an internationally agreed single agenda with a 2030 time horizon integrating many policy dimensions, the SDGs provide a convergence point to support collaboration across scientific, policy and practitioner communities. Switzerland recommends using the SDGs as the reference framework to define the strategic orientation (missions) of FP9, but also to leave sufficient flexibility in the overarching mission descriptions to be able to respond to new challenges as they appear.

This recommendation goes in line with the proposal of the Commission's High Level Group on maximising the impact of EU Research and Innovation programmes as part of the interim evaluation of Horizon 2020 (HLG) to "*translate global societal challenges (social, economic, environmental) into a limited number of large-scale research and innovation 'missions'*" [...] based on the UN Sustainable Development Goals. How and which SDGs should be translated

¹ [LAB-FAB-APP, Investing in the European future](#)

into “research and innovation missions” and later implemented into calls for proposals will require thorough discussions. Sufficient funding should be provided to research that measure the implementation of the SDGs and FP9’s contribution to the SDGs indicators. An FP9 mission-oriented approach would inspire to better align interests, research and innovation agendas as well as programmes through partnerships of variable geometry. FP9’s mission-oriented approach is likely to attract new stakeholders, innovators and key (funding) partners. This would generate a potential advantage for private funding (instead of substituting it) allowing European research and innovation to protrude itself on the global arena. A FP9’s mission-oriented approach would offer Europe a unique opportunity to bring the Framework Programme close to the needs of the society and citizens. Finally, a mission-oriented approach does not mean a “positive results driven approach”. FP9’s mission-oriented approach should allow failure, negative results, creativity and risk-taking, so that cutting-edge research and innovation take place.

2. European Added-Value and Complementarity to National Funding

FP9 should continue focusing on instruments and activities that gain value through the European and international collaboration, and complement instruments and activities funded at national level. European added-value and strength can be found in the EU-FPs at two levels. In collaborative projects, which do not simply lead to tackling and solving cross-national challenges but moreover allow cross-country learning and networking opportunities. They enable researchers from different regions (also from outside of Europe) and backgrounds (public, private) to work together. Collaborative projects are crucial for challenges that individual researchers or research teams in single countries cannot tackle alone and that require various kinds of knowledge. On the other hand, single schemes such as the MSCA or ERC grants are also unparalleled both nationally and internationally, and they are crucial for attracting talents to Europe from all over the world.

European added-value needs to be understood as complementary to national funding, and not as a replacement. We support the HGL’s suggestion that FP9 should serve to embolden European countries to strengthen their national funding for research as a complementarity to the Framework Programmes. In this logic, Switzerland recommends restricting the use of co-funding schemes implying European and national money in general (such as used in Art. 185 initiatives or Joint Programming Initiatives) and in particular in projects of FP9 (such as ERA-NETs or European Joint Programmes), as they blur the subsidiarity principle.

3. Architecture

Swiss beneficiaries and stakeholders describe the Horizon 2020 structure designed around three pillars as appropriate and efficient. The number of additional initiatives and funding instruments (such as JPIs, JTIs, Art.185 initiatives, EIT, etc.) makes the landscape around the FP however complex and difficult to understand. This complexity could be at least partially reduced by using a single participant’s portal for the calls of proposals of the different projects and initiatives (co-)funded by the FP, such as JTIs and Art. 185 initiatives. During the interim evaluation of Horizon 2020, Switzerland therefore recommended maintaining the same architecture in FP9 but improving consistency, streamlining and interaction between the three pillars and the

additional initiatives and funding instruments. The HLG arrived to the same conclusion and proposed to build FP9 on three pillars “science and skills”, “innovation and competitiveness” and “global challenges”. The HLG proposes the ERC as a central element in the first pillar, the EIC in the second and large scale missions derived from the SDGs to the third pillar.

Switzerland agrees with these three pillars in principle. We support a pillar one that would primarily contribute to excellent frontier research including novel, non-incremental activities beyond the state-of-the art, and based on a plausible outline and an appropriate methodology, where the focus should lie on gaining new knowledge within all science and technology fields. However, in this pillar Switzerland also suggests considering more opportunities for collaborative research for the ERC, a strong MSCA with sufficient funding to continue contribution to training and human resources and last but not least a better link to the successor of Erasmus+.

In point 7 below we present our views and recommendations to the EIC and consequently to the proposed second pillar.

In our view, the overall aim of the pillar 3 “Global Challenges” should be to fund mission-inspired basic and application-oriented research activities that provide new knowledge with the potential of becoming pertinent within academia and beyond, linking research and innovation with society. In this pillar, apart from the classical top-down calls, we strongly recommend to attract excellent researchers through bottom-up, curiosity driven calls for collaborative projects.

FP9’s funding instruments should allow more flexibility to adjust to new challenges, unforeseen discoveries and results or new interesting partners during the course of the project. Whenever possible, FP9’s calls for proposals should be non-prescriptive, allowing for more realistic judgement of the expected impact or potential value of research results to society.

4. Scientific Excellence

Excellent and high qualitative research generates benefits (health, economic, cultural, and environmental) in addition to building the academic knowledge base. Its mechanisms are complex and reflect the multiple ways in which knowledge is generated and utilised. In FP9 scientific excellence must remain the main criterion for project funding. FP9 should serve to fill in the gaps in knowledge production and dissemination, and encourage more excellent scientific research and interdisciplinary discussion. This is the only approach for Europe to remain a key player in the global research and innovation environment.

5. Expected Impact

There is strong evidence that scientific research makes significant contributions to society. Research affects the lives of everybody who has ever used a car, a phone, or a computer, or who has ever taken a medicine. Research also influences the way we educate our children, organize our hospitals, and consume energy. FP9 should encourage researchers to make judgments about the contribution or potential contribution that their results might have to the economy or society. However, individual projects should not be held responsible for achieving the expected impact of the Framework Program. As recommended by the HLG, expected impact should be defined across the complete set of activities of the FPs rather than in each single project. It is important

to acknowledge that the general public and a researcher might value the impact of research in different ways. The impact of research may also vary from discipline to discipline and may even have different connotations in different geographical or cultural setting. In this context, also funding research that tackles this questions is relevant. FP9 should fund research projects that assess the definition of “research impact” and provide comprehensive evidence of the views of the society, producers of research, suggest better and reproducible ways to identify and measure societal impact or develop metrics for assessing research impact. Finally, FP9 should bring citizens and researchers closer together, by working out ways to involve citizens in the discussion about the importance of research for society and by encouraging researchers to communicate their research results in a more accessible way to the general public. This will increase the impact and attractiveness of FP9 but also could allow a more active participation of the public.

6. Evaluation Process

The evaluation system of FP9 should be robust, fair, and time-effective. The process should be clear and transparent both for evaluators and applicants. Access to the full evaluation reports should be provided to the applicants in a timely manner, such that the feedback allows applicants to understand the outcome of their evaluation and supports them in improving their project idea in the future. Contrary to a one-suits-all process, the evaluation system should meet the diverse and complex nature of scientific research.

The main aim of the evaluation process in FP9 should remain ensuring that only “excellent” projects are being funded. In other words: Research activities funded by the European Union need to envision ambitious scientific goals and have to be executed in a high-quality fashion. This includes incorporating appropriate, validated and cutting-edge methods in the proposal and describing realistic results with the potential of becoming valuable, pertinent or useful in the near or more distant future.

In order to have evaluation experts being fully committed, we suggest to establish standing evaluation panels for pillars 2 and 3 along the lines of the ERC model. These panels should be preferably mixed, including experts from academia, business, civil society and other relevant stakeholders.

7. Valorisation of Research

Basic research is crucial for feeding the innovation pipeline. The EC needs to recognise but also strongly support this extraordinary value. Not only investments in basic research but also specific measures and support mechanisms for exceptionally talented innovative researchers should be implemented in FP9. FP9 can play an essential and even pioneering role supporting and reinforcing a sound basis for an innovative, creative, sharing and open Europe. At the same time FP9 should ensure timely and effective transfer of knowledge and technology between academia, society, policy makers and industry.

FP9 could implement a dynamic Proof of Concept (POC) funding scheme across the entire programme and not only in pillar 1. Instruments such as the Proof of Concept (POC) provide the much needed flexibility to experiment with early results in research and innovation and come up with application ideas that were not originally foreseen. Moreover, they allow for an effective

exploitation of research results as well as supporting and facilitating the realisation of further reaching impact.

8. European Innovation Council

The establishment of a European Innovation Council (EIC) should bring added value, avoid duplication and build on excellent science with a focus on research-driven innovation. The EIC should only complement national actors and focus on areas where the European and international collaboration results in additional value, in particular for start-ups and SMEs. The EIC should ensure the promotion of innovation with a long-term perspective. It should complement and not replace the national or regional innovation support instruments, who must remain in the driver seat for local support. SMEs funded through the EIC should focus not only on disruptive and breakthrough innovation, but also on incremental and process innovation. Exclusive focus on disruptive innovation would result in a one-dimensional, short-sighted and short-term investment. Disruptive innovations are rare occurrences that can hardly be anticipated or even steered.

In our view, the EIC should have three main objectives:

First, the EIC should play a guiding role in providing an overview over the complex mix of the European R&I landscape and in increasing the transparency of the different funding initiatives. We propose to provide an accessible one stop shop offering a mix of existing instruments in a clear and understandable way to the innovator, such as the SME instrument, Fast Track to Innovation, Horizon Prizes, FET Open and other projects and initiatives as relevant in the corresponding programme parts.

Second, setting-up the EIC should be thought of in the perspective of innovators (SMEs, start-ups, entrepreneurs and researchers) who have brilliant innovative business ideas but lack research or business competencies, access to relevant scientific and business networks, a competent workforce and sufficient funding to realise their ideas in the form of an innovative product or service. Coaching and mentoring should be available to guide unexperienced innovators through the different innovation support landscapes and through the projects of the Framework Programme. Most innovators have little experience in the management of Intellectual Property Rights (IPR) at European level. Coaching and mentoring support at European level would help them to commercialize their ideas.

Finally, the EIC should be able to identify 'gaps' in the R&I landscape in terms of innovation support and introduce actions to bridge these gaps, regarding the principle of subsidiarity of its instruments. In this sense, the EIC should support single innovative ideas, which due to lack of funding, would otherwise not be possible or whose market potential could not be achieved. Work towards bridging the "valley of death" should make sure that promising results from applied research find their way to the market by connecting single projects to international value chains. As an example serves the *BRIDGE Programme*, managed by the Swiss National Science Foundation (SNSF) and the Swiss Commission for Technology and Innovation (CTI, as from 2017 InnoSuisse, the Swiss Agency for Innovation). BRIDGE aims to better exploit the economic and societal potential of scientific research by promoting the transfer from scientific knowledge to innovation.

9. Joint Technology Initiatives

The Swiss research and innovation community appreciate the existing Joint Technology Initiatives (JTI), as they allow the pooling of forces among industry partners in certain strategic areas. JTIs contribute to fostering collaboration between the public and the private sector and hence foster novel applications from a continuous interplay between basic and applied research – the way innovation really happens, rather than in a linear way along a classical value added chain. We are however of the opinion that the following aspects should be carefully considered before implementing new JTIs. First, identify the most effective way to use financial mean. Second, seek the right instrument for implementation. Finally explore beforehand notably the option of (transnational) collaborative projects within the Framework Programme, e.g. through contractual PPPs, which avoids creating even more administrative units and bodies for managing the calls, evaluations and projects. For the existing JTIs, align the rules for calls, evaluations, projects and reporting to the ones in the FP itself. Avoid using national co-funding and consistently integrate the results of JTIs in the FP data reporting (eCORDA). These measures contribute effectively to streamlining instruments and to boosting access for researchers from academia and SMEs. To increase the success of the existing JTIs in the future, the EC and industry should also consider making SME participation in the JTIs more flexible. Currently, the SME participations are under the 20% goal as envisaged by Horizon 2020; a more adjustable procedure to the needs of SMEs could improve this, such as introducing more flexible rules for entry for SMEs.

10. Widening Participation

FP9 must continue to focus on excellence if Europe wants to increase its competitiveness as a whole continent. However, FP9 could offer excellent researchers from low performing regions better access to the international environment by supporting them to become visible for other researchers and networks, e.g. in platforms such as Euraxess. Further measures could be to expand teaming not only to ‘brick and mortar’ projects, but also to projects that allow the diffusion of good practices such as how to set up the governance of an institution, tenure-track models, tech-transfer, institution valorization, etc.

In contrast to the FP that should support excellence, other funding mechanisms should be used to support widening activities.

Notably structural funds should be used to support pan-European networks of research and technological infrastructures that allow to link up low with high performing regions on the long term.

Ideally, the structural funds could have a dedicated budget to fund FP9 projects that do not receive funding but are above the threshold, applying the same rules as the FP for these funds. This is the only way the Seal of Excellence principle can work well and hence does not cause an extra burden on the national or regional level. Also, parts of the structural funds could be managed centrally by the European Commission for research and innovation projects, thereby providing more efficient synergies with FP9 and better coordination of regional ‘Smart Specialisation Strategies’.

As a complementary measure, national initiatives can foster the return of excellent researchers from low performing regions in their home country. An example to follow could be the programme from the Swiss National Science Foundation “[Promotion of Young Scientists in Eastern Europe](#) (PROMYS)”. PROMYS is addressed to young researchers from Eastern Europe who have studied or worked in Switzerland for at least two years and would like to continue their careers in a new Eastern European member state. Grants include the researcher's salary (at the level of an assistant professor), a research grant and, employees' salaries in an Eastern European Member State. The duration of funding is up to five years.

11. Open to the World

International cooperation in research and innovation is the most effective way to address today's global challenges. FP9 should clearly position itself globally and pursue being the leading research and innovation programme worldwide to overcome these challenges. Thus, FP9 should enhance international cooperation and so continue building scientific capacity around the globe. FP9 could explore new mechanisms of participation for countries with strategic importance to European research and innovation, thus becoming truly open to the world. FP9 could offer more flexible mechanisms for the participation of researchers from third countries by means such as co-funding. Example of such a flexible mechanism is the [GlobalStars](#) initiative developed in the EUREKA framework for the innovation domain.

12. Open Science: Open Access, Open Data and Open Innovation

The considerations and decisions made during Horizon 2020 about making research results (publications and data) better accessible and reusable are a relevant step towards Open Science. Switzerland believes that public access to scientific results (publications and data) will benefit science and society. Open Science should be a driver force of FP9.

Data sharing benefits numerous research-related activities: reproducing analyses, testing secondary hypotheses, developing statistical methods, teaching, aiding design of future studies, policy decision making, and preventing error, fraud and selective reporting. Albeit considering the challenges related to it, such as the critical relationship between private and public interests on Open Science, FP9 should encourage Open Data more strongly.

FP9 should put in place an electronic system to track publications and data published and so assess compliance to the Open Science requirements as well as challenges and barriers encountered by researchers or data and publication users.

The European Open Science Cloud (EOSC) is described as “*a vision for a federated, globally accessible, multidisciplinary environment where researchers, innovators, companies and citizens can publish, find, use and reuse each other's data, tools, publications and other outputs for research, innovation and educational purposes*”. In order to make this vision reality, a better-organised and structured approach should be taken. This approach should involve stakeholders at the various levels (users, funders and data providers) and be communicated in a transparent and timely manner. A well-defined goal and a realistic timeline should be part of the approach. The fundamental question of sustainability should come to the forefront in the agenda and be

discussed early in the process. We are looking forward to the publication of the EOSC implementation plan and the nomination of an EOSC board to move the concept forward.

13. Integration of the Social Sciences, Arts and Humanities

Science helps addressing the challenges that society faces. FP9 should tap the contribution of Social Sciences, Arts and Humanities (SSAH) to fully address these challenges. The SSAH disciplines are important analytical research areas in and of themselves and cover a diverse range of academic fields spanning from educational sciences to neuropsychology to literature, from business and finance to epistemology. Their contributions are important to help explain human behaviour as well as the conditions and dynamics of social change. The contribution of SSAH research is essential to the scientific endeavour, equal to that of other scientific disciplines.

In furthering steps already made in Horizon 2020, we would like to make the following recommendations: First, continue and reinforce a separate SSAH programme domain in FP9. Second, ensure engagement from scientists across disciplines, including from relevant SSAH domains, during the process from problem formulation to call drafting and design, through to evaluation. Third, make the inclusion of SSAH expertise a mandatory evaluation criterion when an SSAH contribution is called for in a research topic. Forth, do not consider “Non-research activities”, e.g. project management, communication or consulting tasks as SSAH contribution. These should be excluded when quantifying SSAH integration, even if the individuals for those tasks may have an SSAH background. Fifth, enhance possibilities for adequate analysis of intensity and patterns of interdisciplinarity within FP-funded projects, e.g. by adapting the participant portal so that applicants need to indicate their disciplinary background and by counting joint publications by scientists from different disciplinary backgrounds.

14. Defence Research

Switzerland strongly believes that FP9 should remain an entirely civilian programme. The European Defence Research Programme should be funded and managed separately from the framework programme for research and innovation.

For inquiries, questions or reprints:

State Secretariat for Education, Research and Innovation SERI
Myriam Cevallos Christen, Myriam.Cevallos@sbfi.admin.ch