



Towards FP9

APRE's position on the next Framework Programme

APRE, the Italian Agency for the Promotion of European Research, is a non-profit membership organisation, which brings together the vast majority of public and private players of the Italian Research and Innovation landscape (universities, RTO's, industry, etc.).

Through the Rome headquarters, the EU Liaison Office in Brussels, the regional help-desks and the network of National Contact Points for the EU Framework Programme, APRE provides information, training and assistance to Italian researchers and innovators, to help them take full advantage of the collaboration and funding opportunities of European R&I programmes.

APRE's ultimate goal is the growth, modernisation and internationalisation of the Italian Research and Innovation system.

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This paper represents APRE's contribution to the stakeholder debate and institutional process leading to the adoption of the next EU Framework Programme for Research and Innovation (FP9)¹. APRE, the Italian *Agency for the Promotion of European Research*, participates in this debate by presenting its position on the main issues and trends resulting from the ongoing discussions on FP9.

Framework programmes (FPs) have been supporting the factors driving excellence, long-term growth and prosperity for over three decades, helping policymakers to identify challenges to be addressed, and strengths to build on, when designing national strategies for economic growth. Horizon 2020 has represented a significant shift that has contributed to transform the context in which research excellence, innovation and competitiveness take place at EU level. The next FP should be built on the successful elements of Horizon 2020, representing an evolution, rather than a revolution, as compared with its predecessor.

Looking ahead, Europe needs an ambitious, effective and inclusive ninth Framework Programme, for the benefit of its citizens, the economy and society as a whole. Research and Innovation are crucial for the European society and economy of tomorrow, and the European Union has the potential to become a world-leading global centre for science, technology and innovation. The Union should therefore make R&I a political top priority for the next decade.

¹ The document reflects a broad collegial engagement of APRE's associates, although it does not necessarily reflect the full position of each of them.

1. Europe 2030 Strategy as a new paradigm for FP9

An ambitious and effective ninth Framework Programme should be built on an updated and improved policy paradigm, rooted in the threefold Treaty objectives of «strengthening [Europe's] scientific and technological bases by achieving a European research area» of free circulation, of helping the Union «become more competitive, including in its industry», and of «promoting all the research activities deemed necessary» to support other EU policies².

FP9 should aim at promoting knowledge creation, circulation and application for the benefit of the European society - in a spirit of cooperation and openness (i.e. *Open Science* and *Open Innovation*) and in line with European values of responsible research and innovation -, while also representing a key implementation instrument for the European Research Area. FP9 should continue along the path embarked on by Horizon 2020 - conceived as the financial tool to implement the EU innovation policy (i.e. Europe 2020 Strategy and Innovation Union flagships) - continuing to put a strong emphasis on industrial competitiveness as a key driver of social and economic progress. Also, FP9 should continue to support the key EU policy goals, both at sectoral and cross-cutting level, especially economic growth and job creation.

In the light of the current European innovation deficiencies (e.g. under-investment in R&D; unsatisfactory framework conditions; market fragmentation), there is a need to adapt the next

² Article 179 TFEU (ex Article 163 TEC)

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Framework Programme to a new paradigm, looking beyond Europe 2020 towards a comprehensive and flexible 2030 political strategy. This strategy shall be able to identify EU political priorities in the global context - taking into account and reflecting the United Nations 2030 Agenda for Sustainable Development - while fostering the projection of European values beyond EU boundaries, towards the rest of the world.

2. A budget increase for brighter times

Investing more in R&I is a *must* if Europe wants to achieve its ambitious social and economic goals, and fully reap the benefits of the on-going economic recovery: a budget increase is therefore a necessary precondition for a more ambitious, effective and inclusive Framework Programme, as well as the most appropriate way to address the issue of the high number of quality and potentially innovative proposals that cannot be financed due to a limited budget.

The expected constraints and competitive pressures on the overall EU budget for the post-2020 Multiannual Financial Framework - particularly due to Brexit and to Member States' conflicting budgetary priorities - reinforce the need to adequately explain to European citizens any request for increasing R&I public funding. On the one hand the effectiveness of EU R&I spending in terms of value for money and socio-economic impact, and on the other hand the massive oversubscription of Horizon 2020 (with a success rate down to 11,6%), represent two key arguments in favour of a substantial budget increase.

Given this context, and taking into account the scenario's recommendations outlined in the *Reflection paper on the future of EU finances*, APRE pleads for a substantial increase of the budget share dedicated to competitiveness, and suggests to invest in the next FP at least 15% of the total post-2020 budget: an amount of 120 billion euros of funding available for FP9 is the minimum needed to achieve Europe's research and innovation ambitions.

3. Keeping the Horizon 2020's three pillars to ensure continuity

The three-pillar structure, as it was introduced and shaped within Horizon 2020, has demonstrated to be effective, being able to balance EU funding over the R&I ecosystem and reflecting well the whole innovation chain, from frontier to applied research, to close-to-market actions. APRE supports the call for maintaining the current structure, especially as a means for ensuring continuity and stability, so that the Framework Programme configuration can be readily approached and comprehended by an increasingly broader public. This also includes keeping a strong focus on research-based and industry-driven innovation, and strengthening research on enabling technologies, as well as maintaining an appropriate balance between top-down and bottom-up approaches. Any modification in the Horizon 2020 three-pillar framework should carefully consider advantages and disadvantages, and be properly explained to the relevant R&I community, in order to guarantee a smooth transition from current to future operations.

An important effort should be oriented instead on promoting cross-pillar interaction. In this regard, the *mission-oriented* approach proposed for FP9 - with the new missions working horizontally throughout the pillars and covering the whole spectrum of TRL scale - could represent an effective response to the need of ensuring a continuum between fundamental and applied research, supporting a broad spectrum of research activities in all areas of the programme.

4. The right balance between mono-beneficiary and collaborative frontier research

Frontier research should continue to be a key component of the Framework Programme. The European Research Council (ERC) has proved to be one of the most convincing European success stories and should therefore be retained along with its mandate to

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fund excellent, frontier research across all disciplines. Similarly, the Marie Skłodowska-Curie Actions (MSCA) have demonstrated to be a well-functioning and internationally recognised programme, able to cover several aspects of research thanks to its wide range of actions, as well as to valorise and enhance the human capital working in the research field. These frontier research mono-beneficiary bottom-up actions should be strengthened with the allocation of an increased budget.

Beside this, the first pillar should enhance and valorise the role of collaborative research, starting with increasing its dedicated budget (extremely limited at present). Indeed, the FET programme is a clear expression of the importance of collaborative frontier research, playing a pivotal role in ensuring that the most promising ideas and technologies move outside the lab in a structured framework and in continuity with the key actions of innovation oriented bodies such as the new EIC and EIT. Similarly, Research Infrastructures activities – regardless of where they will be located in FP9 – are crucial to strengthen research and innovation capabilities in Europe. As the existing tools are currently not targeted at providing investments to establish or heavily rejuvenate research and innovation infrastructures, there is a need to network those infrastructures more efficiently across Europe to further support knowledge growth and innovation.

5. The European way to scale up innovative business activities

The future European Innovation Council (EIC), even though it will not be able to overcome all the constraints and weaknesses in the innovation arena, should play an outstanding role in removing the main obstacles coming from inadequate EU and national framework conditions, bureaucratic burdens, governance issues, financial shortcomings and cultural hindrances (such as those limiting risk acceptance and skills development), focusing on the creation of favourable enabling ecosystems.

The EIC should help steer the strategic coordination of the whole EU innovation policy framework. This implies having a role on enabling the optimal conditions for innovation to emerge and scale up everywhere in Europe. Also, the EIC should be set up as the EU single entry point in view of signposting innovators and rationalizing the existing funding programmes (EIC acting as a funding compass for innovators), putting forward new ad hoc innovation funding schemes and programmes.

Europe needs to reinforce its innovation eco-systems by creating and supporting all forms of innovation applicable to all sectors that can qualify for support (from 'deep tech' to new business models, including 'traditional' sectors), recalling that breakthrough innovation means also research driven innovation. The use of a fully bottom-up approach in designing the new EIC should be also evaluated and balanced with the risk to "favour" specific technological areas and/or applications rather than others.

APRE rejects the idea that the future EIC could fully replace the Industrial Leadership pillar under FP9. Investing in enabling technologies is key to reinforce Europe's competitiveness and industrial leadership: a specific support for them should therefore be maintained in the next FP. Also, collaborative research on industrial technologies is of outstanding importance for validation and demonstration activities, and benefits all actors of the value chain (SMEs, large companies, RTOs, academia). Additionally, a SMEs-dedicated instrument should be preserved as distinct from the EIC, so as to meet the specific objectives of all innovative small and medium enterprises, including those focussing on incremental innovation. This is especially a must if the Union wants to contribute to the modernisation of the European industrial base, supporting the transition towards Industry 4.0, in which SMEs - together with large industries - play a fundamental role.

6. The new missions to work throughout the three pillars

A mission-oriented approach will likely represent one of the most interesting novelties of FP9. The new missions - defining a specific target to be met by a certain date, or focussing on resolving a specific societal problem within a set timeframe - could guide and support the resolution of the global challenges of our time.

The mission-oriented approach - striving to develop complete solutions to specific techno-economic or societal challenges, rather than focusing on individual technologies or market sectors - spans several sectors and stimulates collaboration between different technological and scientific disciplines, with missions working horizontally throughout the three pillars and covering the whole spectrum of TRL scale.

A mission-oriented approach to programming in FP9 should recognise the importance of cross-pillar interaction and greater synergies between research programmes and sectors. The new missions should create critical mass in strategically important areas and ultimately maximise the societal and economic return on investment for the EU.

The UN 2030 Agenda for Sustainable Development should act as the preferred reference framework within which selecting missions and setting targets for FP9: the UN policy framework is comprehensive, of global strategic importance and could facilitate EU added value to complement the national plans for achieving the Sustainable Development Goals.

The new missions, regardless of how they will be outlined in FP9, should be clearly communicated to and easy to understand for the general public. The mission-oriented approach should be outlined at legislative level, and the broadlines of the missions should be clearly defined in the legal acts establishing the new Framework Programme.

7. Coherent *mission* management through effective on-going and ex-post evaluation of projects

While an effective evaluation - based primarily on planned deliverables and expected impacts - is mandatory to ensure a proper selection and funding of project proposals, on-going and ex-post evaluation of projects based on clear criteria and concrete indicators would be paramount to assess the project's contribution to the overall high-level targets defined by the Framework Programme, and thus the actual adherence to work programmes' expected impacts. This aspect, always relevant to provide evidence of the most appropriate use of public funding, is even more important in a *mission-based* programme.

A *mission-oriented* approach implies managing several different projects running along a wide time frame, which must contribute to the achievement of the mission targets: in this context, on-going and ex-post evaluation of projects should be aimed at ensuring that project activities fully contribute towards the identified mission targets. A sort of *mission control* function - possibly performed by independent experts under the responsibility of the Commission - would be useful in order to ensure a continuous and effective supervision of all the different activities (projects) concurring to the common *Mission* final goal, and in order to assure the coherence of the projects results with the mission targets. In line with this on-going monitoring and vetting activity, FP9 could also consider the implementation of funding schemes providing further financing for projects that will have demonstrated their effective contribution to the *mission* goal and the need for additional investment.

This consistent *mission* management would eventually be an effective way to move from a "programme of projects" to a "programme of programmes".

8. The key to strengthen FP9-ESIF Synergies

The need for strengthening synergies between the future Framework Programme and the European Structural and Investment Funds (ESIF), as well as the European Fund for Strategic Investments (EFSI) and the Connecting Europe Facility CEF, has been broadly acknowledged. In this regard, FP9 and future ESIF should be conceived and designed with complementarity from the beginning, starting from the definition of the respective regulations at European Commission level. A portion of ESIF dedicated to Research and Innovation - notably to interregional R&I activities - could be implemented through a centrally governed funding and modalities aligned with those of the FP.

Overall, the Common Provision Regulation (CPR) should be revised accordingly in order to remove major regulatory features hampering synergistic funding at programme and project level. More concretely, differences in implementation timeframes and selection criteria, and the lack of specific provisions on transnational R&I projects (including demonstration and scale-up of Horizon 2020 projects and deployment of their outcomes), limit the possibilities for stakeholders to combine ESIF and Horizon 2020 funding. Synergies could be enhanced by e.g. exempting ESIF funding from state aid legislation when combined with funding from the R&I Framework Programme (which is already exempted from this regulation).

9. Keeping a grant-based funding while encouraging the use of non-prescriptive funding schemes

There is a wide concern among stakeholders about the *grants vs loans* approach. APRE believes that a wider use of financial instruments at the expenses of grants should be avoided, as grants are fundamental especially when research and innovation are particularly risky in terms of investment: financial incentives in form of grants should therefore be preserved, for all actors

in the value chain (including small, medium and large enterprises). Loans and other financial instruments for R&I activities should be conceived as complementary and not as substitute to grants, and should target especially actions closer to the market.

Nevertheless, the use of non-prescriptive funding schemes - so that applicants can choose the most appropriate instruments (e.g. grants, public procurement, prizes, financial instruments) - could be strengthened and encouraged also to contribute to open and enhance participation. The possibility for applicants to choose between cost-based or lump-sum funding for their projects could be a solution in view of the reduction of administrative efforts.

10. EU Partnerships: going ahead and rationalising

EU partnerships with countries and industries have demonstrated their added value (Joint Programming Initiatives, Initiatives under Articles 185 and 187 of the TFEU, contractual PPPs, EIT KICs, European Innovation Partnerships). Co-funding mechanisms remain pivotal to streamline national and European research, as well as reducing fragmentation and duplication. In order to fully reap the potential of EIT KICs, their integration into the FP should be enhanced, so as to ensure a better coordination and complementarity with the other R&I initiatives. The European Commission should also continue enabling and stimulating Public-Private Partnerships (e.g. JTIs), as unique platforms fostering cooperation and creating the critical mass for innovative breakthroughs.

At the same time, there is a common view on the excessive complexity characterizing such environment: the existence and operations of the partnerships should be reconsidered on a case-by-case basis, taking into account their relevance and fitness for purpose. Fragmentation and duplication could be reduced not only by fostering these EU Partnerships, but also improving the level of coordination and integration between EU and national funds as well

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as encouraging the harmonization of the rules. Overall, EU R&I Partnerships should be operating in complementarity with other Framework Programme actions and according to principles of transparency and accountability.

11. Simplifying rules to open participation and improve efficiency

Further simplifying the administrative procedures, consistently with the significant improvements already brought by Horizon 2020, is necessary in order to enhance the efficiency of the Framework Programme, as well as to open the participation to a potentially wider range of applicants, and to encourage and promote the participation of newcomers. Increasing the user-friendliness and reducing administrative burdens for applicants and project participants is essential to achieve this. The Participant Portal website should become even more the one-stop shop for all the project-cycle steps from application to final reporting, covering and centralising all R&I initiatives across the EU budget (including the whole range of EU R&I Partnership actions).

Another key aspect is the evaluation process, which could be improved by ensuring full correspondence between evaluation criteria, objectives, deliverables and expected impacts; by diversifying criteria according to the different types of funding actions; by striving for an enhanced matching between evaluators' skills and proposals' content; and by providing proposers with high-quality substantial feedback, so as to better orient their future proposal preparation efforts and improve their success prospects. Additionally, a consistent two-stage evaluation procedure should be maintained and further promoted in FP9, to make the selection process more efficient and address the issue of oversubscription: the first stage should be made more selective, thus reducing the burden on proposers and leading to a higher success rate in the second stage.

Simplification should be extended also to project implementation and audit procedures (e.g. by streamlining the financial rules and reporting requirements), so as to focus them primarily on project outcomes rather than on financial reporting.

12. Promoting International Cooperation while safeguarding European interests

Participation from third countries has considerably declined in Horizon 2020, compared to FP7, mainly due to the different status and rules of participation for emerging economies (e.g. Brazil, Russia, India, China, Mexico). In FP9 it is necessary to strengthen and further incentivise international cooperation: open collaboration based on common scientific and technological expertise eventually reinforces research and innovation in Europe as a whole. Targeted calls and earmarked resources, to be specifically dedicated to international cooperation, could be modulated within the different areas based on relevance and common interest. At the same time, Europe should safeguard its interests and ensure a level playing field for European actors at international level. Collaborations with industrialised countries and emerging economies must consider competition-related aspects and safeguard Europe's independence, while using science diplomacy to address global challenges and open new markets.

FP-funded networks specifically aimed at fostering international cooperation and sustaining the participation of Third Countries in the Framework Programme had demonstrated to be highly successful in FP7 and in the first years of Horizon 2020. The European Commission should reconsider to fund again such platforms to better identify R&I collaboration priorities and ensure a more effective exchange of knowledge. Actions aimed at incentivising the international dimension of Open Innovation should be adequately promoted in FP9.

13. Towards a SSH-STEM co-designed research and innovation

Tackling global challenges implies addressing complex problems. In order to capture this complexity, interdisciplinary research and a stronger dialogue between STEM and SSH disciplines is necessary. Horizon 2020 initiated an explicit effort towards this new approach, which should be further pursued.

Shifting from a *SSH embedding* to a *SSH integration* approach, the European Commission has progressively valorised the important and complementary role of SSH disciplines in Horizon 2020 projects, calling for an SSH/STEM dialogue not only at the project implementation level, but as of the concept-level definition, starting from topic description. However, further steps in this direction are still needed. For this reason, APRE advocates for a continued reflection and attention on the specific capacity of SSH disciplines to describe and define, together with STEM disciplines, problems and challenges as of the very beginning of the process, through a *real co-design approach*. Effective collaboration between SSH and STEM disciplines requires a real cultural shift in the way problems – and topics – are defined and subsequently addressed; in the way project concepts are co-designed (fostering transdisciplinary research); in the way indicators are chosen, and SSH intangible impact is taken into account and evaluated.

14. Valorising Framework Programme R&I results

Horizon 2020 has established a set of rules concerning the exploitation and dissemination of project results, including their protection through intellectual property (IP), with the aim of better reaping societal

and economic benefits from EU-funded R&I initiatives. In this respect, the Open Access principles need to be balanced with the protection of scientific information, Intellectual Property Rights and commercialisation prospects, as well as to take into account the different OA policies of the beneficiaries at project level.

The *market-oriented* exploitation concept provides a better view of market impact of R&I projects and can be defined as any exploitation process of research outcome that has a commercial objective and contributes to gaining or increasing economic returns and competitiveness. Taking note of this emphasis on the concept of innovation, generally understood as the commercial introduction of a new or significantly improved product or service, it would be useful to enhance and reinforce a range of services to help Research Technology Organisations, individual scientists, SMEs become more entrepreneurial and better use the results of EU funded research and innovation projects.

Those support services (e.g. Common Exploitation Booster, Common Dissemination Booster, Coaching and business acceleration services for SME Instrument), which cover a wide range of issues (e.g. exploration of market opportunities; protection and management of IPRs; prototyping and industrial demonstration) should be more broadly made available for FP9 beneficiaries to use on a voluntary basis, and should be provided at project level rather than to a group of different projects, in order to avoid shortcomings linked to IP issues.

In addition, valorisation of project results could be enhanced by ensuring that the relevant contracts provide for a specific time-frame and dedicated funding after the completion of the research work.