



The EIC in Horizon Europe

APRE's position on the next European Innovation Council

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.

This paper represents APRE's contribution to the stakeholder debate and institutional process leading to the establishment of the post-2020 European Innovation Council (EIC) under the next EU Framework Programme for Research and Innovation - Horizon Europe¹. 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 the EIC.

The European way to innovation

The EIC should help enabling the optimal conditions for innovation to emerge and scale-up everywhere in Europe by creating and reinforcing thriving Innovation Ecosystems. This should be done by supporting all forms of innovation applicable to all sectors, possibly considering a full bottom-up approach in designing the new EIC instruments. To ensure the effectiveness of EU R&I spending in terms of value for money and socio-economic impact, 15% of overall Horizon Europe budget should be devoted to the EIC (120 billion euros for Horizon Europe is the minimum needed to achieve EU R&I ambitions).

The post-2020 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 enabling innovation 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

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.

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 ecosystems by creating and supporting all forms of innovation applicable to all sectors that can qualify for support (integrating technological innovation with non-technological innovation, and ranging from 'knowledge intensive service' to 'deep tech' to '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, considering the risk to "favour" specific technological areas and/or applications rather than others.

With this aim 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 funding schemes, represent two key arguments in favour of a substantial budget increase. Given this context, and taking into account the recent European Commission's proposal on the Multiannual Financial Framework 2021-2027, APRE suggests to dedicate to the next EIC at least 15% of the total Horizon Europe budget, considering that an amount of 120 billion euros of funding available for Horizon Europe is the minimum needed to achieve Europe's research and innovation ambitions.

Expand the notion of innovation

Technological innovation has proved to be a driver for economic growth, but if taken in isolation it cannot guarantee competitiveness at the global scale. Therefore, the notion of Innovation in EIC should be expanded, including both technological and non-technological, knowledge intensive, business model, social and design-driven innovation. A broader notion of innovation, means that TRL and TRL based funding schemes should be complemented by other

taxonomies such as Investment Readiness Level (IRL) and the adoption of other estimation methods that consider the social dimension of innovation. At the same time, the Quadruple Helix model and Responsible Research and Innovation/Open innovation should be taken as models to make innovation flourish.

Technological innovation has proved to be a driver for economic growth, but if taken in isolation it cannot guarantee competitiveness at the global scale, as good performances in this field can be achieved through investments. During the last years other forms of innovation, often relying on societal and cultural values and resources, powerfully emerged. The European Commission itself sustained a significant stream of research and experimentation proving that business model innovation, social innovation and design-driven innovation, among others, can have relevant impacts on sustainable growth, inclusion and wellbeing, as well as on long-lasting competitiveness. These forms of innovation, often, but not necessarily, in combination with technological innovation, are at the core of the success of many innovation ecosystems and industries across Europe.

If we will target different innovation dimensions, we shall rely on different measurement and estimation tools. If the TRL has proved to be successful to measure linear, technological innovation, based on its stage of progress, then different types of innovation would need appropriate measurements indicators in order to seize their specific different nature. These methods will allow to evaluate different forms of innovation in a more focused way, as well as to design more appropriate funding instruments to support them.

Other methods able to capture different notions are for example Investment Readiness Level (IRL) or the adoption of models that consider the social dimension of innovation.

The intention of the Commission to focus the future EIC on the front-end of breakthrough innovation is welcome, provided that further financing measures are put in place in

Horizon Europe to support all innovative companies acting in a competitive market. Moreover, the breakthrough nature of innovation is typically assessed ex-post and not ex-ante, taking into account different typologies of innovation beyond the technological one: product, process, organisational, business model, social, design-led innovation, etc. may play a role in co-defining the degree of novelty. Most of the success cases often cited as breakthrough technological innovations do make use of new or recent technologies, but their success is largely based on other factors than technology itself.

If we want to make Open Innovation (OI) and Responsible Research and Innovation (RRI) not only slogans but also a concrete reality, and have society significantly involved in innovation beyond sheer consultation, the EIC should pay attention to connect innovation to ecosystems where diverse actors cooperate in an integrated fashion. In particular, Quadruple Helix (QH) models, where private, public and third-sector organizations engage citizens, researchers, innovators, intermediaries, financial investors and civil servants in a coordinated effort, should be regarded as models to be sustained to make innovation flourish.

Building synergies with other initiatives and measures

Innovation does not flourish in isolation: the creation of healthy ecosystems requires to build strong synergies with other actions and policies meant to support innovation and competitiveness at the regional, national and EU levels. Therefore, the EIC should not be isolated and configured as a silo. Strong synergies at regional, national and EU levels (i.e. synergies between Horizon Europe and ESIF or with the KICs EIT) are needed. To support a smoother implementation of the synergies, simplification of the current set of State Aid rules is necessary.

Innovation does not flourish in isolation: it might be highly dependent on research and on enabling conditions that

belong to local and regional systems. In this perspective, the EIC should not be isolated and configured as a silo. Instead, it should build strong synergies with other actions and policies meant to support innovation and competitiveness at the regional, national and EU levels. With this aim any simplification on the current set of rules on State Aid will be welcome if allowing a smoother implementation of synergies between different levels of funding. As a consequence, Horizon Europe 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.

Furthermore, the EIC should aim at granting wider possibilities of development, diffusion and upscale of innovations, ensuring at the same time their tight connection to Smart Specialization Strategies, policies and actions for Smart Cities and Communities, as well as large-scale initiatives and platforms meant to support Europe's competitiveness through the development of technological infrastructures and frameworks (i.e. Digital Innovation Hubs, Open Innovation Test Beds, etc.). A specific coordination should be thought with the EIT-KICs considering that they are aimed to create favourable environments for creative thought; enable world-class innovation and entrepreneurship to thrive in Europe. Specifically the KICs develop innovative products and services; start new companies; and train a new generation of entrepreneurs.

In this respect, the EIC should have an orchestrating function, providing guidance in the big complex picture of resources, infrastructures and human capital operating in the actual innovation ecosystem of Europe.

An agile governance and simplified implementation

In the definition of the EIC governance we suggest to establish a specific Board with the mandate to contribute to the identification and support of emerging areas of innovation as well as to define

appropriate evaluation criteria and processes. Appropriate coordination with the overall Horizon Europe objectives will be of utmost importance, especially the set up of a system that will ensure that the results of the EIC projects will be monitored to assess their contribution to the achievement of the wider mission-based goals.

Inspired by the ERC model, an EIC Board (composed by relevant entrepreneurial, economic and societal actors and stakeholders) should support and guide the EIC implementation. Additionally, with regard to the impact aspect, this body should help the Commission in identifying EIC evaluation and award criteria, in supporting the organization, monitoring the entire evaluation process and helping in identifying emerging areas of innovation.

The EIC should also implement a better coordination and information about emerging technologies and technological trends: it is mandatory to avoid dissipation of efforts and facilitate the communication between the research community and potential end-users. The EIC Advisory Board should coordinate the effort on the ongoing and systematic identification of new and emerging technologies from EIC portfolio analysis, trends analysis and broader horizon scanning (beyond research). This should be done in tight connection with the Joint Research Centre.

It will finally 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 the EIC Work Programme's 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.

Strengthening the EIC Impact through coherent ex-ante evaluation and systematic ex-post assessment

Besides a further strengthening of the impact assessment aspect, already present in H2020, it will be important to assure a coherence among the different phases of project evaluations: ex-ante, in itinere, and ex-post. It will be important to focus on indicators able to reflect the wider nature of innovation (other than technological), and a wider impact (other than commercial). This intent shall be reflected throughout all project stages, i.e. topics descriptions, proposal templates, selection and briefing of evaluators, up to the ex-post evaluation of the projects and programmes as a whole.

According to the Lamy Report, Horizon Europe should be established on the basis of a broad-based, impact-focused research and innovation policy. Besides a further strengthening of the impact assessment aspect, already present in H2020, it will be important to assure a coherence among the three phases of project evaluation: ex-ante, in itinere, and ex-post.

At the ex-ante level, this impact-oriented approach shall be reflected into proposal templates, topics descriptions, evaluators' selection criteria and the briefings to evaluators. More in particular, we deem important that:

- topics clarify more explicitly when other types of innovation, other than technological, are envisaged and sought;
- evaluations consider all types of innovation, other than technological; evaluators shall therefore be trained in recognizing other types of innovations, and made aware of any other type of outcomes and innovation dimensions which are sought;
- proposals and evaluation templates include statements

able to identify more explicitly any use of R&I results which goes besides and beyond the technological dimension of innovation (e.g. social innovations).

As for the in itinere phase (addressed through review meetings at the implementation and conclusion phase of projects), the Commission should take into account suitable ways to capture and evaluate also the medium and, as much as possible, the long-term impacts of the projects. To do this, a set of indicators predefined by the Commission and referred to objectives to be achieved at different stages – including the use of R&I projects' results – shall be developed. Those could be integrated with a bottom-up approach (i.e. by the candidates within the project proposals), especially for all those areas where methodological approaches are undergoing major evolutions (e.g. social innovation). These indicators shall be able to evaluate the impact of different types of innovation, further than technological, and should tackle the exploitation dimension by considering the use of R&I results – if coherent – beyond the commercial dimension, covering also the policy and social dimensions. They shall be introduced and monitored during the 3 evaluation phases.

In order to comply with the increasing relevance given to the impact aspect in the entire framework programme we would like to introduce, among others, the importance of a reinforced ex-post impact evaluation, which would bring in utmost consideration social and economic impact in parallel with the fostering of the European Innovation capacity. Ex-post impact evaluation shall be envisioned at a wider level than the single project impact, and shall comprise, for example, cluster of projects or the call level. However, one of the main obstacles of ex-post impact evaluation is the difficulty to reach out to, and engage, consortia and project partners beyond the grant period. In order to bypass this limit, specific incentives and engagement measures could be designed in order to motivate beneficiaries in contributing to these ex-post assessments.

Finding a balance between the support to individual innovators and collaborative innovation

EIC schemes shall ensure a right balance between individual and collaborative traits of innovation, considering both the need of simplification and the relevance of collective, organizational and networking dimension of innovation. Early-stages support also at individual level shall be combined and accompanied with other intervention facilitating the passage to further IRLs.

The EIC draws its current focus on the innovator from the successful long-term experience of the ERC. Nevertheless, attention should be devoted to find the right balance between individual and collaborative traits of innovation. The capacity to integrate outstanding individual qualities and capabilities in a collective achievement emerges as a key feature of successful innovation, which is today often based on multidisciplinary and multisectoral knowledge. The EIC in Horizon Europe should not only support innovators as individuals, but also the collective, organisational and networking dimensions of innovation. This could be done by helping innovators identify valuable product opportunities that can emerge from research, build their network and gain skills that are necessary to bring their concepts into the marketplace. In particular, an emphasis should be placed on strengthening the 'soft' or 'transversal' skill sets of innovators (communication, teamwork, creative thinking, critical thinking, leadership, etc.), which connect the individual to the collective dimension of innovation.

An excessive focus on single entity could induce fragmentation and reduce the leverage effect of funding in wider dimensions. Moreover, the need to find a balance between 'Grand Societal Challenges' and single projects is clearly emerging, and pushing in the opposite direction, towards mission-oriented research and innovation. The funding of the individual in the early stages of innovation should be accompanied and combined with other interventions facilitating the passage

to higher Innovation Readiness Level stages, reducing possible regulatory barriers and opposing possible lacks of harmonized regulations.

Research-based innovation for early-stage technologies: a multi-scale approach

The EIC shall foresee advanced research actions, capable to transfer high-risk/visionary research into new paradigms and results' exploitability. The focus on talents, human capacity and novel ideas ought to be at centre of a multi-scale approach, based on both individual and collaborative measures. Key ingredients of an EIC-enabled R&I ecosystem shall be the promotion of young explorers and the inclusion of experienced innovators out-of-the-market. This will be further enhanced by silo-breaking academic and industrial collaborations around early-stage technologies.

The development of future technological paradigms around new lines of research and interdisciplinary collaboration is a key driver to foster breakthrough innovation and societal advancements of our future. Thus, the EIC shall foresee advanced research actions capable to transfer high-risk research and visionary science into radical new paradigms towards results' exploitability.

A multi-scale approach, focused on talents and novel ideas, should be envisaged in order to support the ecosystem and community building around early-stage innovations. Therefore, agile funding schemes, with a diverse scale of budget, ought to be at the basis of the EIC support, capable to maximise the innovation potential around early-stage technologies and to learn from research and technological failure as an important aspect of social advancement around proofs-of-concept, either giving positive or negative results. Taking advantage from the experience gathered through ERC synergy scheme and Future and Emerging Technologies programme as a whole, R&I communities should be at the

centre of the EIC support. This will enhance the opportunities to build up new research and innovation directions around early-stage technologies, through cross-fertilization and silo-breaking collaboration between academic and industrial final users. Agile multi-actor collaboration among academic and industrial communities could be introduced in the EIC, mainly focusing on high-risk interdisciplinary research and innovation projects for novel technologies and on high impact projects for more consolidated technologies.

Taking into consideration the ERC's specific eligibility criteria and previous positive experience related to the FET Young Explorers scheme, the promotion of early stage researchers and innovators (maximum 4 years after PhD) under the EIC is strongly envisaged. The EIC Young Innovators - identified in the two forms of collaborative and individual funding schemes - might close the gap identified by the ERC and MSCA individual-focused approach. These grants will capture the creative potential of young researchers by fostering their leadership and participation in collaborative research projects targeting exploratory research devoted to the foundation of novel technologies.

Beside the attention to be given to EIC Young Innovators, EIC should support the inclusion of experienced researchers, innovators and managers who represent the second fragile age category of the European Market. Therefore, the inclusion of a Senior Innovator scheme will enhance the growth of novel and disruptive entrepreneurial careers, exploiting the valuable human capacity and the related market opportunities developed by over 50s.

In line with the current Entrepreneurship 2020 Action Plan, these actions should have an appropriate budget and be strongly connected to scale-up funding instruments, so as to allow the growth of a new European generation and communities of young and senior innovators, researchers and emerging communities around breakthrough development.

Keeping a grant-based funding while encouraging the use of alternative forms of funding

Grants are fundamental especially when R&I are particularly risk in terms of investment. Further financial sources should be conceived as complementary and target especially actions closer to market. Essential to improve efficiency and usage of further financial sources (crowdfunding, blending) in close interaction with EIC beneficiaries, private sector, and financial intermediaries. Access to grant can be facilitated for those innovators able to certify that they already found a good part of their financial needs through different forms of funding.

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) while further financial sources for R&I activities should be conceived as complementary and not as substitute to grants, and should target especially actions closer to the market.

On the other hand these alternative sources (crowdfunding, blending, etc.) and financial instruments (debt, equity, etc.) are particularly important for start-ups, high-growth and innovative SMEs, i.e. the targets of the future EIC. We welcome the launch of recent initiatives aimed at boosting investment in innovative start-up and scale-up companies across Europe (such as VentureEU), as well as the proposal for the post-2020 single investment fund (InvestEU). On this point we also expect that the existing regulatory barriers to trans-national investment should be adequately identified and removed, in order to improve and to make more attractive the European business environment. It has therefore become essential to improve the efficiency and utilisation of alternative EU financial instruments in close interaction with EIC beneficiaries, the private sector, including financial intermediaries.

Pushing towards the concrete introduction of OI and QH models may increase the opportunities for SMEs to cooperate also with large companies and the public sector (hackathons, pitching events are helpful opportunities in this sense). In order to enable a more favourable innovation ecosystem, EIC should support innovation in different phases with a combination and complementarity of different instruments - grants and alternative forms of funds - and services and with a customised and flexible blending depending on sectors, time to market and investment volume. Applicants should be informed and driven in order to be aware of the different opportunities and match them in line with their funding needs. The access to grant might be also facilitated for those companies, notwithstanding the highly innovative nature of their value proposition, able to certify that they have already found a good part of their financial needs through different forms of financing.

Focus on market discovery means services based on innovation readiness

EIC schemes shall follow an use-oriented exploitation concept. As a consequence, the engagement of a wider community of innovators to validate assumptions, value proposition and strengthen impact is necessary to guarantee a problem led approach. Services tailored on innovation matter shall be conceived for the several types of EIC beneficiaries and become standard practice at European landscape. The same services shall be provided for a specific time-frame and followed up by specific funding.

The use-oriented exploitation concept underpinning the EIC should enhance and reinforce a range of services aimed to support a shift among the R&D community and young entrepreneurs in being proactive, understanding use and exploitation models and engaging a wider community of innovation actors (entrepreneurs, business, investors, makers, citizens, etc.) to validate assumptions, the unique

value proposition of R&I results and to widen and strengthen impact.

To support breakthrough “market-creating” innovation it will be crucial to make available services going beyond a “solution-based approach” in favour of a “problem led” one, based on the needs of specific target groups/communities. Such services should:

- consider the new approaches of co-development and sharing economy and adopt lean methodologies to consolidate innovations originating from R&D;
- contribute to building a new generation of entrepreneurial and mobile researchers and innovators in Europe, able to gain cross-sector exposure, build bridges for cross-border cooperation and bring to life breakthrough innovations;
- link the EIC Community of funded innovators to investors and business partners willing to invest in and scale up early stage technologies and start-ups;
- promote access of research into Living Labs to stimulate the shift from “solution-based” to a user led and market creating innovation;
- contribute to provide access to international networks of potential partners, to complement value chains, develop market opportunities, and find investors (formal, informal institutional and corporate) and to attract the best innovators by connecting them to local and European ecosystems;
- streamline content for events (brokerage events, pitching sessions, ...) and matching platforms and strengthen competences and capabilities of innovators;
- facilitate access to support schemes minimizing risk of failure for ambitious and long-term spin-offs.

The EIC shall therefore promote access to a well defined set of services granted in all phases, tailored on the innovation maturity of the beneficiaries, based on use-driven approaches (co-creation, open labs, living labs, co-creation, etc.). Furthermore, the EIC shall ensure tools to contribute to embed such services and their use as current practice among the European innovation community.

Universities should make sure that a new generation of entrepreneurial innovators understand what use led and market creating disruptive innovation is and how to approach R&D projects to ensure the highest impact of R&D results. As first examples of such a kind of service we consider developing exploitation strategies (uses of results); «How to pitch» research results; “Business” modelling for exploiting research results; Assessment of intellectual capital; Investment readiness assessment; «How to pitch» business proposition; participation to mentoring schemes, Pitching events and Access to EU Testing Infrastructures.

In addition, the valorisation of project results could be enhanced by ensuring that those services are provide for a specific timeframe and are followed up by dedicated funding.