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INTERIM EVALUATION OF HORIZON EUROPE FINAL REPORT

MEMBRI DEL GRUPPO DI ESPERTI APRE

The APRE Expert Group 'Towards the Mid-Term of Horizon Europe' is made up of leading figures from the Italian research and innovation fields.

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SUMMARY

EXECUTIVE SUMMARY

TOWARDS THE MID-TERM EVALUATION OF HORIZON EUROPE

This document is the final report on the mid-term evaluation of Horizon Europe (HE) prepared by the APRE Expert Group (GoE) and represents APRE's official position on the progress of the current Framework Programme (FP).

The document, presented at the APRE Annual Conference on 14 November 2023, has been extensively revised and updated with respect to the first version of February 2023, resulting from an extensive consultation process that took into consideration, using public questionnaires, in-depth bilateral hearings and position paper analyses, the positions of 55 Italian organisations, with 42 belonging to the APRE Member network.

Based on the experience gained in the first two years of Horizon Europe actions, the Expert Group set up by APRE expresses a shared appreciation of the structure, approach and implementation modalities of HE, and of the main innovations compared to previous FPs.

In particular, in reaffirming the fundamental and indispensable role of European research and innovation in addressing the major challenges of the ecological and digital transition and in achieving the goals of the UN 2030 Agenda, the GoE is pleased to note the European Commission's (EC) clear and widespread determination to make the Framework Programme a key instrument serving the Union's strategic orientations. It envisages a programme that is fully suitable, also financially, to fulfil those ambitions.

However, concerning the mid-term evaluation, the GoE's contribution focuses on some observations and suggestions that should be considered as improvements.

The first part of the paper reflects on the broad strategic orientations and the resulting HE programming mechanisms, while the second examines some individual instruments focusing on the new or soundly renewed ones in HE compared to to Horizon 2020 (H2020). The third analyses the operational mechanisms of FP governance.

For each of the topics addressed, the critical issues and the resulting proposals for improvement are briefly presented. The GoE believes that almost all these proposals are feasible in the second phase of HE. In some cases, however, their implementation would require changes in the current regulatory framework and/or technical and bureaucratic timeframes that could be achieved in the next FP.

The GoE identified 52 proposals, all of which are relevant and feasible, albeit with different timing and modalities. The 12 listed below are prioritised by importance and potential impact.

1. Streamline the European research landscape, simplifying its architecture, avoiding redundancies, **promoting and further strengthening synergies and coherence between instruments and programmes** (not only HE) to enhance the impact of European R&I on strategic priority objectives (green and digital transition, AI, health).

2. Contribute more fully to **reducing internal EU disparities in** R&I by placing the actions of the 'Widening participation and spreading excellence' component on a regional rather than national basis, thus moving from the concept of 'Widening countries' to 'Widening regions'.

3. Use systematic **foresight in identifying priorities** through backcasting, also to further strengthen the coherence between EU strategic orientations and FP priorities and, at the same time, to increase the involvement in programming of civil society in all its components.

4. Introduce in the FP budget breakdown a **reserve fund of 10%** of the total annual amount of the Programme, for the funding of research and innovation priorities that emerged after the initial programming phase and are linked to sudden crises and emergencies (geopolitical, health, environmental), also in order to avoid inappropriate budget cuts in the various areas.

5. Complement the ERC and MSCA instruments in Pillar I with the provision of more **collaborative research** opportunities **on low TRL** (1-4) in Pillar II, also based on bottom-up proposals.

6. Adopt a methodology for **ex-ante and ex-post impact assessmen**t that allows - with metrics that reflect the specificities of the themes - for assessing the economic, social and environmental effects of projects and programmes over their entire life cycle.

7. Present the **founding principles of the Missions** more clearly, with a single narrative that reaffirms their prevailing R&I dimension and ensures their function of guiding and connecting different European and national actions/instruments on the strategic objective of the Mission itself.

8. Ensure the **forward-looking and strategic character of the partnerships**, also to guarantee their greater openness and inclusiveness, through a stronger role for the Commission and a rationalisation of their number.

9. Revise the design of the **EIC Work Programmes** to ensure adequate coverage of "all types of innovation", in line with legislative texts, and reaffirm the role of the EIC as a driving force vis-à-vis private investors, so as to enhance its capacity to intervene in situations of market failure.

10. Improve the composition of the **evaluation panels** to ensure their specific skills and interdisciplinarity and promote greater integration and collaboration between officials from the Directorates-General and Agencies in the selection of evaluators and the ex-ante and ex-post evaluation of projects.

11. Generalise, taking into account the programme features, the **lump sum financing method** to promote a project culture focused on results (the 'Deliverables') and no longer predominantly on process.

12. Improve the **participation of innovative SMEs**, strengthening accompanying and support measures, and facilitating their involvement in collaborative research and partnerships, with an explicit focus on industrial application and market innovations.

STRATEGIC PLANNING

RELEVANCE OF THE PROGRAMME'S OBJECTIVES AND CONSISTENCY WITH CURRENT EU STRATEGIC ORIENTATIONS

CRITICALITIES

Horizon Europe has taken some important steps compared to previous FPs, with calls that clearly reflect HE's alignment with the major strategic directions - Green Deal, digital transition and strategic autonomy. However, there is a twofold need to:

- develop the insights already present in HE to make it more functional for the new strategy as manufacturing capabilities, enabling technologies and skills play a key role in addressing many of the new, demanding challenges;

- avoid the risk of 'over-programming', where a scrupulous adherence of calls to the broad strategic guidelines could lead to excessive FP rigidity, limiting its innovative dimension.

PROPOSALS

1. Continue to ensure coherence between the FP objectives and priorities and the EU strategic guidelines, by ensuring that the TRL of projects, to be systematically spelled out in the calls for proposals, is realistically adapted to the programme objectives.

2. Further promote synergies between programmes, e.g., by selecting projects whose potential results could be easily financed by other instruments. To this end, a checklist of appropriate criteria should be drawn up.

3. Further promote bottom-up programming initiatives (consultations, etc.) at European and national level and clearly highlight their contribution to the drafting of programmes and calls for proposals.

And in the medium term

4. Set the actions of the 'Widening Participation' component on a regional rather than national basis, while ensuring their overall coherence through orchestration at national level, in order to contribute more fully to reducing internal EU disparities in R&I.

IDENTIFICATION OF PRIORITIES AND ALLOCATION OF RESOURCES

CRITICALITIES

The priorities of Horizon Europe were identified based on a strategic vision drawn up 3-4 years before the FP's entry into force. This entails two risks that:

- calls reflect an outdated vision and do not generate the innovation needed to address the most urgent challenges that have emerged or been upgraded since the initial formulation;

- funded research produces minimal, linear increases in known results.

The increased emphasis on impact appropriately reflects the increased focus of the FP on the usability of new knowledge. However, the prescriptive requirement to ensure long-term impact may in some cases discourage disruptive innovation. Moreover, assessing the impact generated by the use of research-developed knowledge and technologies is difficult in the absence of tools and mechanisms to verify ex post increases in TRL.

PROPOSALS

5. Use systematic foresight (not limited to the technological perspective) in drawing up priorities and, through backcasting, a medium and long-term research strategy driven by highly significant socio-economic objectives, thus enabling the justification and legitimisation of priorities for each individual call.

6. Complement the ERC and MSCA instruments in Pillar I with the provision of more collaborative research opportunities on low TRL (1-4) in Pillar II, also based on bottom-up proposals.

7. To further promote interdisciplinary dialogue and research, so as to integrate, from the earliest stages of programming, complementary themes and content that are often dispersed across various priorities, with particular attention to the further, concrete integration of the SSAH (Social Sciences, Arts and Humanities) disciplines, currently often considered 'add-ons' or marginal aspects.

8. Strengthen mechanisms for exploiting results, through (i) enhanced ex-post monitoring of projects, and (ii) greater efforts to transfer new technologies to the market, e.g., by systematically publishing documented good practices.

And in the medium term

9. Introduce in the subdivision of the FP budget a reserve fund of 10% of the total annual amount of the Programme, for the funding of research and innovation priorities that have emerged after the initial programming phase and that are linked to sudden crises and emergencies (geopolitical, health, environmental), also in order to avoid continuous and inappropriate reallocations/cuts of budgets in the various areas. If the reserve fund is not used, the earmarked resources can be recovered and used in the last year of the Programme.

10. Adopt an impact assessment methodology that, while using different metrics to reflect the specificity of the themes, allows for comparing programmes by assessing the economic, social and environmental impacts of projects on a common qualitative-quantitative scale (1-10, for example). At the same time, promote capacity building initiatives aimed at developing a "culture of impact" within the Commission.

INSTRUMENTS

MISSIONS

The 5 Missions launched at the beginning of HE have adopted approaches that are not always aligned and, as a result, the critical issues identified may not automatically be important for all 5 Missions. Since this is a new instrument, it is difficult to draw conclusions in this running-in phase. However, some risks can be pointed out.

- The lack of coordination between the various EC services involved, between them and the Mission Board, and between the Missions themselves and the related national and regional initiatives, which is crucial considering that the main aim is to promote the systemic approach to R&I and multi/trans-disciplinarity.

- Regarding the choice of priorities, the risk of resource dispersion may emerge, also depending on how the priorities expressed by the Board are translated into calls.

- A possible proliferation in the number of Missions could undermine the effectiveness of initiatives already undertaken.

PROPOSALS

11. Explain with a single, clear narrative the founding principles of the Missions, with reference to their normative value (such as to generate greater impact), and especially their prevalent R&I vocation, which currently varies significantly from Mission to Mission.

12. Complement and strengthen the HE Missions as a means to further strengthen the link between EU strategic orientations and Framework Programme priorities. This could be achieved by integrating the calls of the Missions with the thematic programmes (Clusters), so that the expertise generated by Cluster projects is better exploited. Such an integration would help reduce the risk of duplication between Clusters and Missions and increase the overall level of synergies within the Programme.

13. Critically evaluate the effectiveness of governance, and the role of the bodies involved (Board, Assembly, DG R&I, other DGs).

14. Considering the very wide range of topics, it is crucial to ensure that (i) efforts are focused on a limited number of thematic and geographical priorities, as is partly the case in some of the current Missions (albeit with different criteria), and that (ii) the objectives of the Mission calls are ambitious but achievable.

EUROPEAN PARTNERSHIPS

Over the years, partnerships have enabled the private sector to be heavily involved. Through partnerships and, in particular, through Joint Undertakings (JUs), it has been possible to finance even large-scale demonstration projects (first-of-a-kind, pilot line or flagship) and, more generally, to finance projects with a high TRL

CRITICALITIES

Despite the steps forward in the 2021-27 Horizon Europe programming, especially with the streamlining of the overall partnership landscape, some critical issues remain and still do not allow for the full use of these important instruments.

- The high number of partnerships may lead to confusion and resource dispersion, a risk which is also increased by the lack of clarity of synergies/complementarity with other European and national instruments. For example, the subscription to funds on some JUs may be lower than the total available, due to the low participation of large enterprises, which in turn is attributable to the presence of other instruments that are not always synergic (IPCEI, Recovery Fund).

- The formulation of calls is excessively complicated, especially for new proposers (and in some cases calls remain open for too short a period), with different funding rates that may result in a demotivation for certain instruments (e.g., the funding rate of some JUs is perceived as too low compared to HE calls).

PROPOSALS

15. Strengthen the Commission's guidance and support activities for institutionalised and co-programmed partnerships, specifically, in (i) the building phase of partnerships, so as to ensure the establishment of an adequate network of stakeholders, and (ii) the distribution of funds.

16. Simplify JU calls and harmonise the different contractual procedures to reduce the effort required for project drafting, especially for SMEs and RTOs (research technology organisations).

17. Ensure greater coherence and synergy between the various projects financed by, e.g., increasing transparency or even by introducing the figure of the Programme Manager pioneered by the EIC for partnerships.

18. Improving information and training tools and mechanisms for beneficiaries, through (i) the completion of the mapping of active partnerships, also to foster the participation of newcomers and prevent

partnerships from becoming closed clubs, and (ii) the inclusion in the Commission's databases of the lifecycle of projects financed by co-financed partnerships and the monitoring of participation in the relevant calls..

And in the medium term

19. Ensure that the associations and organisations contributing to co-programmed partnerships, and some institutionalised partnerships, guarantee full transparency in access and contribution modalities from the partnership building phase

20. Clarifying some crucial aspects such as how the European Institute of Innovation and Technology's (EIT) Knowledge & Innovation Communities (KICs) are phased out.

EUROPEAN INNOVATION COUNCIL (EIC)

CRITICALITIES

■ The legitimate and shareable aspirations and ambitions of the EIC have clashed with the limitations related to how the instruments are implemented. In fact, the European bureaucratic system has proved to be unprepared for the management of instruments that, by their very nature, must be flexible and autonomous.

■ The EIC instruments were created based on the functioning of the US DARPA and are not fully adaptable to the European context with its predominance of SMEs and a still undeveloped capital market.

■ Contrary to the original design of reducing the risks of high-potential deep tech companies, innovative ideas have grown in countries and sectors where capital is available and projects already being developed have been supported, thereby penalising markets where venture capital is struggling.

■ EIC aims to stimulate private investment in innovation, and it is important to clarify whether the EIC fund should complement the private market with patient and higher-risk funds, or whether it should insist on the mandatory presence of co-investors. More flexibility in the EIC model is desirable.

■ More generally, doubts remain about the ultimate goal: To promote all round innovation or to focus on deep tech?

PROPOSALS

On the EIC as a whole

21. The EIC 2024 Work Programme has begun to incorporate some practices of simplification. However, there is still a need to further reduce the complexity of the management system, which today involves countless boards, working groups and digital platforms, and does not help in facilitating the identification of both political and operational hubs that are essential for the development of the programmes.

22. Above all, simplify access to support services and the new three-step evaluation procedure (which commit a large amount of resources without, however, proving to be effective in terms of supporting applicants or reducing time-to-grant), strengthen mentoring also by involving the actors of local systems that could develop innovation ecosystems around the financed enterprises..

23. Define and delimit more clearly the role of the Programme Managers, a figure currently under discussion as they perform a strategic task, although they cannot fully represent the complexity of the issues and the different levels of the projects financed.

24. Revise the design of the Work Programmes to bring them into line with the agreements underpinning the programmes, which speak of 'all kinds of innovation' and, thus, not exclusively of deep tech and/or disruptive innovation.

25. Evaluate the impact of EICs, overall by monitoring the R&I investments made post-funding by beneficiaries, for both equity and grant funding, so as to provide useful impact assessment elements also for the relevant local systems..

On specific instruments

26. Recover, at least in part for the Accelerator the spirit of a public risk fund, able to take responsibility for financing those innovations that are truly visionary and with little bankability, but disruptive in their possible future implications.

27. Promptly proceed with the choice and operational adoption of a definitive management model for the Accelerator, which assigns to the actors involved (Member States, EIB, external manager Alter Domus) clear roles compatible with their competences and the perimeter of their legitimacy.

28. Consistently with the original intention, increase, again for the Accelerator, the funding shares reserved for open HE calls.

29. Clarify the mechanisms for allocating the resources available for the European Innovation Ecosystem (EIE) and formulate more targeted calls, to enhance the capacities of local contexts to support the scouting and development of innovations and enable the EIE to effectively fulfil its assigned role of creating inclusive and efficient innovation ecosystems that can meet important challenges (economic and social recovery, sustainability, resilience).

30. Promptly assess whether the transition from the H2020 FET Programme to the HE Pathfinder Programme has produced the expected results, especially regarding a growth in TRLs, and also assess the impact on the research communities of this conversion from H2020 instruments, still in the run-in phase, to the new instruments.

31. Increase resources for Proof of Concept and, thus, for Pathfinder and Transition.

OPERATIONAL GOVERNANCE

EVALUATION PROCESS

CRITICALITIES

The general structure of the evaluation process of HE proposals almost entirely reproduces that adopted in H2020, and highlights similar, and in some cases, more pronounced and visible criticalities.

- The proposal evaluation process now, almost entirely (also due to the pandemic), takes place in remote mode, making an open dialectical confrontation among evaluators effectively impossible.

- The evaluation process has been enriched with a number of important indirect aspects (gender, open science, SSH, ethics, etc.), but these are often difficult to measure.

- On the other hand, the legitimate aspiration for evaluation objectivity often produces standardised and artificially analytical formulations.

- There is still a very high number of situations where a clear mismatch arises between the evaluators' scores and comments, and/or in which the evaluators' critical judgements are insufficiently substantiated.

- The mechanisms that allow proposers to appeal against the Evaluation Summary Report (ESR) are fundamentally ineffective as the Redress procedure is purely formal and does not allow them to challenge the substance of the evaluation, while the Rebuttal procedure has so far failed, creating more bewilderment for proposers than real added value.

- For 2-stage calls, the approach taken is that the evaluation of the second stage starts from scratch and is often entrusted to different evaluators. Therefore, proposals assessed as worthy of passing to the second stage are then evaluated in such negative terms that the positive evaluation given in the previous stage is not justified in retrospect.

- There is a general feeling that the evaluation process does not guarantee sufficient transparency and impartiality, such as in the transition from individual to final panel evaluations, or in the allocation of residual funds to projects placed on the reserve list.

PROPOSALS

32. Recreate the conditions for a more direct and real (in-person or remote) confrontation with the evaluators, especially for the consensus meeting, that would help overcome the formalisms of the current procedure.

33. Improve the process of selecting panels of evaluators, also by resorting to sectoral scientific societies and associations, whose choice is the crucial step for the quality of the evaluation, guaranteeing complementarity, equanimity and competence also concerning aspects that are not strictly scientific (e.g., the afore-mentioned 'indirect aspects'). Redesign the 'evaluator assessment' mechanism.

34. Re-establish continuity in the process to ensure coherence between the strategic objectives formulated in the work programmes and the evaluation of how proposals respond to these objectives, for example, by making the involvement of Commission Policy Officers in the evaluators' briefings more systematic.

35. In 2-stage calls, ensure more continuity also in the transition between 1st and 2nd stages, both in the choice of evaluators and in the recording of the evaluation of the 1st stage, with at least one evaluator being involved in both the 1st and 2nd stages. Lighten the effort required for the preparation of the first internship and further limit the number of proposals entering the second internship.

36. Facilitate the mechanisms of interaction between proposers and evaluators, also by introducing the figure of the Scientific Officer, both for proposal evaluation procedures and for any redress activated by the proposer. This figure would be aware of the contents and would contribute both to (i) making it possible to discuss the merits of the proposals (and not only the procedural aspects), and (ii) providing proposers with concretely useful elements for future proposals.

37. Ensure greater transparency in communication between applicants and the Commission/Agencies. To this end, it is important that applicants are informed about the final ranking of their proposals, and that in the case of 2-stage calls, applicants receive the 1st stage ESR..

EXECUTIVE AGENCIES

CRITICALITIES

The gradual establishment of the Executive Agencies probably helped to alleviate research management costs and free officials from heavy and repetitive administrative tasks related to the evaluation and contracting phase. However, this relocation has created a discontinuity in the whole process, separating the phase of defining the FP and its priorities from that of evaluating, selecting and monitoring projects. Some Agencies already have officials with sectoral scientific expertise, which has helped to improve the interaction between DGs and Agencies. In general, however, except for a few good examples (e.g., MSCA), Agency officials are mostly limited to an administrative role, and are often unable to manage the interconnections between programmes operating within the same sector. As a result, they do not provide adequate guidance and orientation to potential applicants.

PROPOSALS

38. Ensure the continuity of the entire scientific process through better integration between Agencies and DGs. Thus, the officials who defined the calls for proposals to be evaluated should be involved in the choice of evaluators, in the coordination of the various evaluation panels and in the ongoing and ex post scientific evaluation of projects. This would, among other things, lighten the, often excessive, workload of the agencies' Project Officers.

39. At the same time, to contribute to the afore-mentioned integration, the Agencies should undertake further thematic specialisation (e.g., Green Deal, digital, health, etc.), especially through an appropriate training of Project Officers (but also of Financial Officers).

40. Improve the link between the Commission, Agencies and researchers, also to avoid the funding of projects that are not aligned with the reference policies. Therefore, the Agencies should equip themselves with Programme Managers capable of having an in-depth and complete overview of the programmes active in the various thematic areas of intervention.

SIMPLIFICATION

CRITICALITIES

Much has already been done to simplify rules and procedures. However, the level of complexity remains high due to, on the one hand, the increasing delocalisation and proliferation of actions managed in different ways and with rules that are not always uniform and, on the other hand, the introduction, with each new FP, of new tools, procedures and rules that are added, in most cases without eliminating them, to existing instruments. The introduction of lump sum financing is promising, despite some reservations typical of the early stages of a new procedure.

PROPOSALS

41. Generalise the lump sum so as to shift the focus (today still focused on the process) to the results (Deliverables), and refine it to restore flexibility in the process (e.g., to facilitate the transfer of resources between work packages).

42. Ensure that all documentation is published at the same time as the Work Programmes, with particular reference to the Annotated Model Grant Agreement.t.

And in the medium term

43. Further standardise the rules of participation, procedures and contractual rules to simplify the entire tendering process and facilitate the participation of SMEs and small organisations, which are not always able to make their own choices.

44. Revisit the objectives and rules of cascade funding, (i) limiting its applicability to clearly defined cases, so it actually facilitates the participation of less well-equipped actors (SMEs, newcomers), (ii) establishing maximum allowable budget thresholds, and (iii) recognising and remunerating cascade management costs (e.g., 10% of the value of the cascade itself).

SME PARTICIPATION

CRITICALITIES

Horizon Europe is an essential tool for supporting innovative projects that would have difficulty finding resources at national or regional level. However, smaller actors, such as SMEs, face certain challenges in participating in calls for proposals:

- ■ Only partial responsiveness of the different types of Horizon Europe support to the needs of SMEs.

- ■ Insufficiency of targeted instruments to encourage SME participation.

The SME Instrument was abandoned, and the new instruments that have replaced it are still being tested and evaluated.

PROPOSALS

45. Undertake a qualitative analysis, in addition to the quantitative analysis already carried out, of SME participation in the Framework Programme with the aim of fully assessing the impact of projects on SMEs.

46. Strengthen capacity building activities for the winning companies, so that SMEs can also develop and strengthen skills they acquire through the projects they participate in.

47. Undertake targeted actions to stimulate and support the scientific/technological growth of non-technological SMEs and their transformation into high-tech enterprises..

And in the medium term

48. Based on the positive experiences of the past, it would be crucial to strengthen the accompanying and support measures for SMEs, with a specific focus on industrial application and market innovations.

49. Improve coordination between existing SME instruments that are linked to Horizon Europe, e.g., Eurostars 3 (European Partnership for Innovative SMEs).

50. Encourage SME participation with specific measures such as (i) 100 per cent financing for IAs, and (ii) the introduction of reward mechanisms for SMEs.

INTERNATIONAL COOPERATION

CRITICALITIES

- The principle of reciprocity, although widely supported, is difficult to apply since the countries involved are both members of a club (e.g., the EU) and individual states that can independently enter into bilateral agreements with third countries.

- The available budget may prove insufficient in a globalisation context in which education, science and research activities have an inherently international dimension..

PROPOSALS

51. Establish and clearly articulate the strategic priorities of international cooperation - which themes with which countries - and make the specific objectives explicit in the individual calls (e.g., attracting talent, transferring knowledge and technology, contributing to global goals, etc.).

52. In applying the above, develop specific calls, with specific resources, to enable actors from Member States to transfer good practices, and to help researchers from third countries to participate in HE..