



EREA position on impactful aviation research in FP10

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Executive Summary and Key messages

This paper reflects the common position of EREA, the association gathering 15 European research establishments in aviation, and its recommendations for impactful aviation research in the next Framework Programme (FP).

We are an essential part of the complete Research and Innovation (R&I) value chain in one of Europe's world leading and high valued-added industries and we advocate for the relentless pursuit of the goal of a more sustainable and climate neutral aviation for the timely mobility of passengers and goods to ensure the continued economic prosperity and welfare of the EU's member states and international trade.

Aviation is an indispensable part of an advanced and integrated transport system, indispensable for medium and long distances, for special operations such as Search and Rescue, Helicopter Emergency Medical Services, access and services in rural and maritime areas, firefighting, disaster prevention and relief, etc. with its unique capabilities provided by civil and military aircraft from drones to helicopters, general, business and commercial aviation, including new forms of mobility like IAM (Innovative Air Mobility).

For 30 years EREA RTOs have contributed to the FPs RTD&I activities; since FP3 in the aviation perimeter and since FP7 also for security.

(1) The European FPs for R&I (Horizon Europe and its successor) are the key European instrument for implementing European visions and strategies, supporting cross-border cooperation, maintaining and developing European competitiveness and autonomy in key strategic sectors, such as aviation.

(2) Increased investment in R&I is crucial to Europe's future in an era of heightened global competitiveness, where success increasingly depends on the generation and conversion of knowledge into innovation, **it remains essential to continue to allocate sufficient funds to R&I.**

(3) EREA advocates for a coherent overall strategy, with a Strategic Research and Innovation Agenda (SRIA) involving all aviation sector stakeholders, as previously prepared by ACARE, the Advisory Council for Aeronautics Research and Innovation in Europe.

(4) EREA advocates for the whole R&I chain for a strong and well-balanced system in FP10, with a healthy balance between bottom-up and top-down approaches, without domination of one instrument.

(5) EREA support the continuation of the Collaborative research and public-private partnerships - with a balanced governance - allowing strong contributions and cooperation between all stakeholders (e.g. industry, research organizations and universities, operators,) that are the **main successes** of the current FP and the **real added value of EU-wide cooperation.**

(6) EREA recommend that the EU-budget for collaborative aviation research allocated to aviation in FP10 is increased compared to EU-budgets allocated in recent FPs.

(7) EREA calls for high-level European support for aviation Technology infrastructures (TIs) in FP10.

(8) EREA welcomes the Commission's simplification efforts but insists that this simplification must also benefit researchers and their institutions and not compromise European cooperation (cf. Lump Sum approach).

Why is the 10th Framework Programme for R&I essential for Europe?

Added value of FPs compared to national programs

The European FP for R&I (Horizon Europe and its successor, **FP10**) is **the key European instrument for implementing European visions and strategies, and EREA is committed to contribute substantially to European strategy building processes, ensuring Europe's competitiveness in the future.** Particularly in times of **economic pressure, budget cuts and multiple geopolitical tensions** (due for example to external factors), EREA calls for **increased investment in R&I for a better future.**

The reasons for establishing a **dedicated FP10 as part of the next MFF** are:

- To guarantee EU added value, the next FP must be the **key European instrument** to be preserved to implement **European R&I visions and strategies**, to support **cross-border cooperation**, to maintain and develop **European competitiveness and autonomy in key strategic sectors**, such as aviation, also with a view to fostering the **realisation of the European Research Area.**
- **Increased investment in R&I** is crucial to Europe's future in an era of **heightened global competitiveness**, where success increasingly depends on the **generation and conversion of knowledge into innovation.** Particularly in times of economic pressure and multiple geopolitical tensions (due, for example, to external factors), it remains essential to continue to **allocate sufficient funds to R&I.** The golden rule is that funding dedicated to the European R&I FP must benefit R&I activities (all along the value chain), but must not be diverted to other European instruments or used to subsidize private companies outside their R&I activities (such as the Energy Breakthrough program and others).
- **Collaborative research and public-private partnerships**, particularly between industry, research organizations and universities, are the **main successes** of the current FP and the **real added value of EU-wide cooperation.** They are the **2 key instruments for ensuring the rapid transfer of knowledge to applications and hence innovation:**
 - Collaborative projects and public-private partnerships (PPPs) under Horizon Europe's (HE) pillar 2 facilitate genuine European cross-border and cross-sector R&I cooperation, **bringing together the best European players** from industry, RTOs, universities, operators and SMEs **to create a critical mass and achieve objectives impossible to achieve with national programs alone.**
 - They also form the **basis of a European Research Area (ERA)** by establishing trust-based cooperation between European R&I players.
- The European Innovation Council (EIC) adds value to the European R&I landscape, as it deals with scaling-up technologies and enables greater impact. However, the EIC should be **complementing** collaborative research and PPPs and not compete with their budget.

What shall be funded?

The entire R&I chain and European strategic priorities

EREA finds the following as essential for the content of FP10:

- **Sustainable, climate-neutral aviation** for efficient and timely passenger- and freight-mobility is the basis for economic well-being in EU member states and for international trade. Aviation is an inherent and indispensable part of a highly advanced and integrated transport system, essential for:
 - medium and long distances
 - special operations, such as search and rescue, helicopter emergency medical services, access and services in rural and maritime areas, fire-fighting, disaster prevention and relief

Aviation spans from civil and military aircrafts, drones, helicopters, general aviation, business aviation and commercial aviation.

Innovative Air Mobility is becoming a reality with first applications like delivery of medical treatments or parcels in remote areas enlarging the perimeter of Aviation to ensure wealth and economic growth of citizens. Dedicated R&I activities for both operations and safe and secure vehicles should also be considered.

- Moreover, aviation is a technology field facing **long development times**, with in most cases a process from basic idea (TRL1) to final product (TRL9) lasting 15 to 20 years.
- EREA is in favour of **continuing with the current approach whereby each transport mode has its own program**, especially above a certain TRL level, although a transversal approach can be used for certain low TRL research projects and for intermodality.
- The **existence of a program dedicated to aviation research** will better guarantee the flow of technologies from low TRL to high TRL than generic programs. It is essential that aeronautics and air traffic management research retain a high profile in FP10.
- Given that public funding for technology areas such as aviation will have to stop at TRL6 (in line with WTO rules), the valley of death between TRL6 and TRL8 needs to be covered by other initiatives (such as the European Innovation Fund). But in order to remain internationally competitive, it is essential to **ensure a continuous pipeline of new ideas in the lower TRLs**, so that new technologies are available to keep Europe at the **cutting edge of competitiveness** in good time. With this in mind, the next Framework Program should continue to **support and fund the entire TRL value chain**.
- More specifically, it should adequately support fundamental research (currently located in HE's pillar 1), the **collaborative research activities and public-private partnerships** of the current Pillar 2, technology development, verification through to innovations and market-ready solutions (currently located in Pillar 3).
- EREA calls for high-level European support for aviation **Technology Infrastructures** (TIs) in FP10. For any technological breakthrough, TIs are essential for proving an idea, testing it, validating the technology and demonstrating its effectiveness and impact (which is decisive for scaling up). Europe needs a **large-scale, high-quality TIs landscape** covering the whole TRL scale, as well as a network of smaller facilities serving local innovation ecosystems. To take technologies out of the laboratory environment, applied testing facilities or TIs are essential in the innovation process ensuring validation, ground demonstration, qualification and certification of new technologies and systems. Without them, research cannot be translated into certified products and safe and secure services. Finally, there is traditionally a significant **spill-over effect** from highly innovative aerospace to other sectors including defence technologies and systems. This is why EREA is calling for high-level European support for aviation Technology Infrastructures in FP10.

How shall funding happen?

Structure, Instruments, Rules of Participation / Simplification, and a word on missions and dual use

EREA recommends the following on the structure and instruments to be implemented, and on missions and dual use:

- EREA advocates for the **whole R&I chain, for a strong and well-balanced system**, with a healthy balance between bottom-up and top-down approaches in FP10, without domination of one instrument.
- EREA advocates a **coherent overall strategy**, with a **Strategic Research and Innovation Agenda (SRIA)** for the entire aviation sector, as prepared in the past by [ACARE](#), the Advisory Council for Aeronautics Research and Innovation in Europe.
- A body such as ACARE is indispensable in establishing and monitoring the European strategy for aviation research and innovation because it involves all European aviation stakeholders. It gathers the necessary global expertise, recognizing the complex, high added-value technological challenges specific to the aviation sector and its multi-year development cycles, while maintaining at least its world-leading safety standards.
- The emphasis on **impact-driven demonstration programs**, such as Clean Aviation and SESAR, has accelerated - and **continues to accelerate - the flow of technologies towards market introduction**. However, at the same time, this focus has reduced attention to other parts of the innovation chain, to the point of unbalancing the funding landscape. Since the FP7, the budget for collaborative research and innovation has steadily and markedly decreased, leading to a practical reduction in the funding available for collaborative research in Horizon Europe (HE) Cluster 5, and for aviation in particular (see [Annex 1](#)) **whereas collaborative research**

ensures that no gap for European sovereignty and autonomy is created for the long term. EREA therefore recommends that the EU-budget for collaborative aviation research allocated to aviation in FP10 be increased.

- EREA is in favour of maintaining the **current HE structure around 3 pillars**, but **pillar 2 should be strengthened in terms of budget and content** in order to improve and **increase European competitiveness in new ideas**, and to ensure that the **whole R&I chain, from low to high TRLs, is adequately covered** using different instruments and governance (see [Annex 2](#)).
- The establishment of FP7 (see [Annex 3](#)) is a good example of how the whole R&I chain can be addressed, through:
 - many small, bottom-up projects to develop new ideas and technologies up to TRL 3-4 (formerly L(Level) 0 & L1);
 - a few large projects with a bottom-up, top-down approach to technology demonstration and integration into subsystems up to TRL-5 (former L2 projects);
 - a few large, targeted demonstration projects with a top-down definition, led by industry (current JU and former L3 projects) from TRL4-5 up to TRL6.
- In FP10, there should be a **governance adapted to the specific instruments** required due to the **difference between bottom-up and top-down defined topics**.
 - For smaller, more open technology development projects, public sector (European Commission) control is needed to ensure transparency and openness for all stakeholders.
 - For the system demonstration part, the current approach of industry-led partnerships seems appropriate.
 - As indicated in point 2, SRIAs prepared and approved on a European scale and involving all stakeholders are essential to provide general guidance for setting up work programs.
- Fundamentally, EREA supports a **mission-driven approach**, orchestrated synergistically by the various Directorates General for problems that are global in nature or occur worldwide. On the other hand, if the missions are pursued in FP10, **EREA urges that the part of these missions funded by FP10 should concern only R&I activities as such, and not mission deployment or implementation activities**, as has been the case under Horizon Europe. EREA agrees that, in order to be successful, missions should not be limited to R&I, and should therefore be extended to the whole of the EU, rather than being restricted to FP10 alone, so that other instruments can implement missions at EU level, as there are other tools dedicated to this purpose, such as the European Fund for Strategic Investments (EFSI), the Structural and Investment Funds (ESIF), the Connecting Europe Facility (CEF), Digital Europe and others.
- **The Commission's Simplification efforts are welcomed if, and only if, researchers (and their institutions) can benefit from them.** Shifting the administrative burden from the accounting phase to the project preparation phase goes against the objective of simplification. Furthermore, if measures such as lump sums lead to less European cooperation within an EU project, due to higher uncertainties, the approach is even counterproductive.
- **EREA recommendations on catalyst to overcome current roadblocks of Horizon Europe and important innovations to be considered in a future FP (i.e., FP10)**
 - A **European Flying Technology Demonstrator** to demonstrate new technologies for next generation aircrafts to enable radical steps to accelerate development cycles and de-risk for industry, complementary to current PPPs demonstrators and aiming to long term new products (N+1 aircraft).
 - EREA insists the need to **maintain civil (HE/FP10) and military (EDF1/2) R&I FPs separate** but promote better synergies between the two.

About Us

The Association of European Research Establishments in Aeronautics (EREA) is a non-profit organisation whose members are Europe's most outstanding research centres in the field of aeronautics and air transport. These Research Establishments are key players in the innovation chain, contributing to the state-of-the-art science for aviation applications, being closely linked to their national governments and industries, and at the same time having a profound knowledge of the aviation industry and its needs. EREA unites 15 European research establishments in aviation, committed to developing the European Research Area and a flourishing European research and innovation ecosystem in aviation.

EREA is registered in the EU Transparency-Register under No. 010397411668-54

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Annex 1

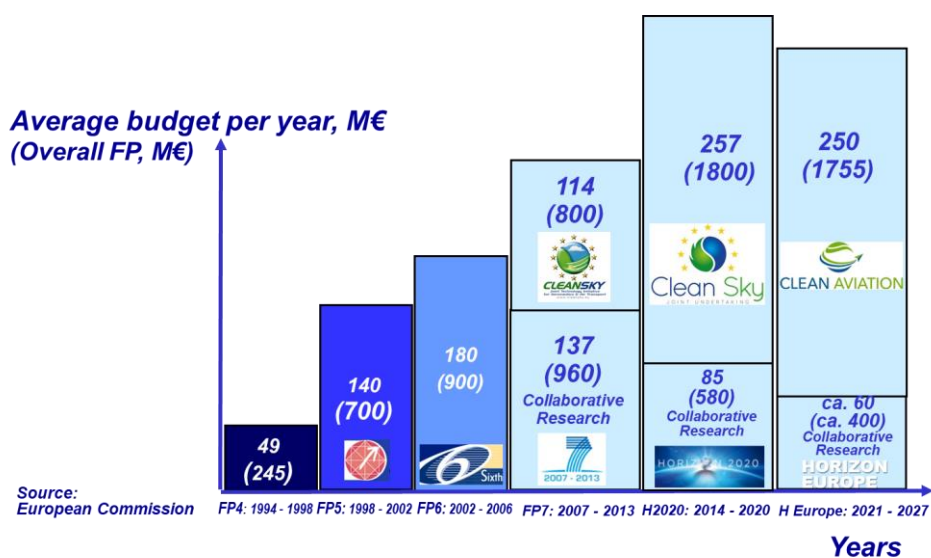
Comparison H2020 & Horizon Europe



	Horizon Europe		H2020	
Excellent Science	25,0 Bill. €	26,2%	22,2 Bill. €	34,6%
Global Challenges	53,5 Bill. €	56,0%	27,0 Bill. €	42,0%
Industrial Competitiveness			12,4 Bill. €	19,3% = 61,3%
Innovative Europe	13,6 Bill. €	14,3%	2,6 Bill. €	4,1%
Widening / ERA	3,4 Bill. €	3,5%		

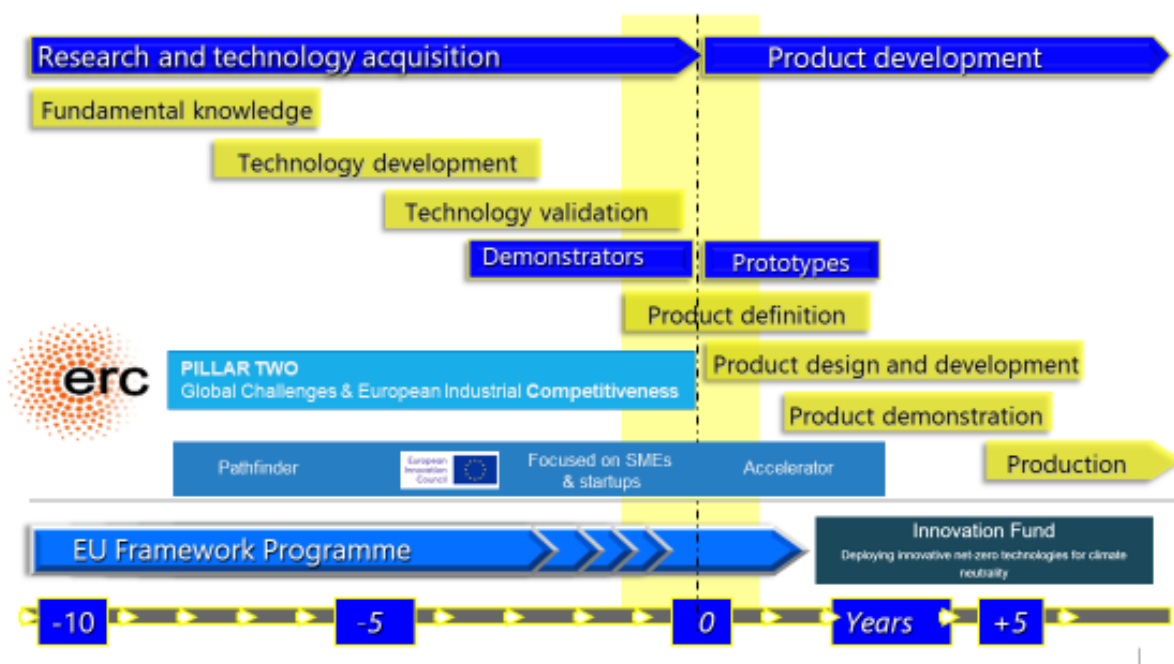


From FP4 to Horizon Europe – Aviation budget



Annex 2

Innovation process



Annex 3

Missing Funding Instruments

