



Association of
European Research Establishments in Aeronautics

EREA Position Paper

Accelerating transition towards climate neutral aviation

July 2020

The COVID-19 crisis has hit the global aviation sector hard. It is expected that the recovery process of the sector will carry us over 2024 in order to achieve pre-corona levels, bankrupting many businesses along the way. Private investments in R&D will dry up, and we risk falling significantly behind on our ambition to become the world's first climate neutral continent.

But not all is gloomy. Being Research and Innovation Institutes, we see exciting new innovations coming to be which will revolutionize aviation and the transport system it operates in. Fully autonomous aircraft, revolutionary configurations and new, climate-neutral propulsion mechanism are just few of the areas where significant changes can be expected in the next decades.

The question is not if, but how fast can we make this transition happen. **This is more a political question, than a technological one.**

EREA calls upon the European Commission, and in particular Commissioners Vălean and Gabriel, to renew Europe's aviation vision

Much has changed since 2011, when Flightpath 2050 was first published. Covid-19, but also the extensive digitization has changed the air transport system dramatically. Therefore, **it is time for the European Commission to call upon Europe's aviation stakeholders to draft an updated Vision and roadmap on how to get towards a climate neutral continent in 2050, whilst maintaining Europe's competitiveness and highest levels of aviation safety and security.**

EREA is in the midst of developing its own vision on the future of aviation in a comprehensive study. This study will be made available at the end of the year to all who wish to see it, as we believe our vision is a shared one. **EREA is ready and able to participate in a High Level Group tasked to develop an updated Flightpath 2050.**

Reinforce public funding to accelerate the transition towards a climate neutral aviation

It is clear that European economic recovery is of utmost importance. All measures that contribute to this goal should be carefully considered, including reinforcement of public R&D-budgets that is needed more than ever for successful technological transitions for both EU economy and society. There is ample research that backs the statement that public investments in R&D not just leverage significant private R&D, it also adds substantial value to the economy. Where most countries cut spending, only a few have increased public R&D-spending after the credit crisis hit in 2008. Data suggests that this helped them emerge from the crisis stronger and more competitive. Let us learn from this example. The European Council's agreement on a new MFF and recovery fund unfortunately does not live up to this standard. **We urge the European Parliament and EU leaders to reconsider the EU budget and recovery proposal and make it ambitious and fit for purpose, especially as current circumstances have made this necessary and justified.**

There is no doubt that the first priority of the EU budget should be to find a cure or a vaccine for COVID-19. But at the same time, we must invest in a swift economic recovery to remain at the forefront of Research & Innovation by supporting the development of innovative technologies. We firmly believe that this recovery is an opportunity to accelerate the transition towards a sustainable and competitive aviation sector. **Not stepping up now could mean leaving room for others elsewhere in the world to step into the vacuum. We must not let this happen. Europe should and can lead the way, if we choose to do so. An appropriate, ambitious budget is instrumental in doing so.**

Create the right framework conditions for an accelerated transition

European Research and Innovation will be key to support recovery and transition. The current and previous framework programs for Research and Innovation have supported the creation of European R&I ecosystems integrating Industry, SME, Research Organisations and Academia to jointly work together on solutions to global challenges to implement large-scale projects that each individual nation could not carry out alone.

AIT Austrian Institute of Technology (AT)
CEIIA Centro para a Excelência e Inovação na Indústria Automóvel (PT)
CIRA Centro Italiano Ricerche Aerospaziali (IT)
CSEM Centre Suisse d'Electronique et Microtechnique (CH)
DLR Deutsches Zentrum für Luft- und Raumfahrt (DE)
FOI Totalförsvarets Forskningsinstitut (SE)

ILOT Institute of Aviation (PL)
INCAS National Institute for Aerospace Research "Elie Carafoli" (RO)
INTA Instituto Nacional de Técnica Aeroespacial (ES)
NLR Nationaal Lucht- en Ruimtevaartlaboratorium (NL)
ONERA Office National d'Études et de Recherches Aéropatiales (FR)
VZLU Výzkumný a Zkušební Letecký Ústav, a.s. (CZ)



The upcoming framework program Horizon Europe including its partnerships should continue to support these fruitful, cross-EU and cross-sectoral collaborations with appropriate budget and framework conditions for participation. This applies in particular to public-private partnerships, where strategic, long-term cooperation in ecosystems is at its core. It is absolutely essential that such partnerships are **inclusive and attractive** to all stakeholders and no barriers exist for participation in calls. This includes taking stock of **all in-kind contribution by partners**, which is not the case under the new proposed rules by the Commission.

For every technological breakthrough, Research and Technology Infrastructures were key to prove an idea, test & validate the technology and simulate its effectiveness. For this reason, the European Union together with its Member States have a long history of investing in state-of-the-art Research Infrastructures. However, **in order to bring technologies beyond the lab-environment, applied test facilities, or Technology Infrastructures (TIs), must be fully recognized.** Such facilities are indispensable in the innovation process; without them research cannot be valorised into products and services. Large TIs are expensive to build, run and maintain and rarely can be exploited commercially. EREA institutes manage many of such infrastructures and by doing so, guaranty the technological transfer by helping industry to get from TRL 2 to 6 and beyond.

A recent needs, gaps and overlap study, found that in aviation alone, over 24 facilities and capabilities are currently lacking and need to be addressed as soon as possible. To remain competitive, it is calculated that approximately €400 million extra funding is needed to build and upgrade Research and Technology Infrastructures. **Investing in new technologies is futile if we cannot test, validate and certify them.**

Stronger Together

EREA firmly believes that close cooperation is needed, also amongst ourselves; after all, we are more than the sum of our parts. This is why EREA took the initiative for the Future Sky Joint Programme. Within this framework, the 15 EREA members together define a path on key issues such as aviation safety, energy, noise, UAM, security and circularity. The Future Sky Joint Programme is open to everyone who wishes to join. The broad, inclusive Future Sky approach produced large Flagship projects such as Future Sky Safety¹, ANIMA² and IMOTHEP³, having significant impact on aviation safety, aviation noise perception and management and hybrid-electric propulsion respectively. **What is unique in the Future Sky approach is the joint programming of own institutional research and innovation, making these EU-projects go far beyond their EU funding. EREA calls upon the Commission to continue to support the Future Sky approach.**

But to achieve the ambitious goal of a climate neutral continent, cooperation amongst all partners in the aviation value and innovation chain is vital. **EREA advocates from a well-functioning innovation funnel, starting with bright, new ideas, working towards specific applications and to finally be validated and find its way to the market.** No one programme should limit itself to a specific TRL-range, but instead offer a free flow of technologies towards demonstration and implementation. **Only close public-private cooperation in each phase will yield the desired result.**

Conclusions - EREA calls upon:

- The European Commission, and in particular Commissioners Vălean and Gabriel, to renew Europe's aviation vision;
- Europe's leaders to reinforce public funding to accelerate the transition towards a climate neutral aviation;
- The Commission to create the right framework conditions for an accelerated transition addressing Technology Infrastructures and operational principles for partnerships;
- To foster a balanced coverage of the aviation RTD cycle, both TRLs and different products;
- All aviation stakeholders to join forces and for the European Commission to continue to support the Future Sky approach.

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² Horizon 2020 project funded under Grant Agreement ID: 769627

³ Horizon 2020 project funded under Grant Agreement ID: 875006