

## ASD position paper on Horizon Europe strategic plan towards FP10

### 1. Introduction

The aeronautics sector plays a key role in enabling a sustainable, technologically sovereign and resilient Europe and represents 108 Bn€ of turnover and over 389 000 direct employees<sup>1</sup>. Constantly reinventing and pushing the boundaries of technology, the aeronautics sector brings important global drivers of innovation with regards to aircraft, engines and systems as well as enabling technologies for Air Traffic Management (ATM) and operations. ASD promotes partnerships with actors representing the full value chain from research centres to SMEs and from suppliers to Original Equipment Manufacturers (OEMs) located across the entire European Union and associated countries. By joining skills and key competences from relevant sectors and stakeholders, ASD with its research partners enables European technological aviation leadership and develops industry-leading technologies to transform the aeronautics sector, bringing together multiple applications and high-end solutions.

The two major European Aviation research programmes, Clean Aviation (greener and more efficient aviation technologies) and SESAR 3 (Digital European Sky), act as catalysts for the whole innovation chain in Europe. Thanks to their long-term technology roadmap and financial commitment, the two institutionalised partnerships have proven their efficiency and added value for both public authorities and innovation chain.

The Clean Aviation Partnership is focused on the development of new disruptive aircraft technologies, and will deliver innovative demonstrators of the next generation aircraft, with up to 3 different concepts - hybrid electric regional aircraft, - ultra efficient short and short-medium range aircraft, and - hydrogen-powered aircraft. The modernization of ATM through SESAR 3 is a key enabler to improve the performance of the EU air transport system, to increase safety, security and to maximise infrastructure capacity. ATM infrastructure is also an important component of the EU Aviation Strategy, contributing to a most efficient and environmentally friendly sky to fly in.

The European aeronautics sector, including ASD, has through [Destination 2050](#) adopted an ambitious roadmap to reach net zero carbon emissions by 2050 and to significantly contribute to the EU 2030 goals. This roadmap is mirrored at global level by the global civil aviation sector through ATAG's Waypoint 2050 initiative and ICAO's Long Term Aspirational Goal for International Civil Aviation to reach net zero by 2050. Through those initiatives, the global civil aviation sector is on track to meet the objectives of the EU Green Deal and UNFCCC COP 21 Paris Agreement.

The successful implementation of those roadmaps depends on a four-pillar approach (new aircraft and engine technology, Sustainable Aviation Fuels (SAF), Air Traffic Management (ATM) & operations, as well as smart economic measures). New technology (aircraft, engines, systems and ATM) will play a key role, in particular in the longer term towards the 2050 goals.

Moreover, the European aeronautics sector also faces other upcoming EU environmental requirements (such as the EU REACH legislation) which require the development of alternatives while ensuring the continued safe and efficient operations and airworthiness of aeronautical products and systems. The European aeronautics sector is also committed to address the emerging topic of non-CO<sub>2</sub> emissions which requires more research.

Dual-use technologies, in particular the field of emerging technologies such as Unmanned Aircraft Systems (drones), Innovative (or Advanced) Air Mobility (IAM/AAM), need to be further developed as it has been in the recent EU Drone Strategy 2.0.

In the context of growing external threats, the cyber-protection of civil aviation has also grown in importance. Continued improvement to aviation safety remains paramount.

Continued public funding for R&D is essential to meet those ambitious EU goals and for the EU aeronautical industry to remain competitive at a global level. The European aeronautics sector is ready to play its part through co-investing into research & development. However, it needs continued and increased support from the EU in terms of funding for research & innovation.

This position paper shows where ASD<sup>ii</sup> sees the need for European research efforts on aeronautics over the next 10 years. It is critical to consider the priorities in research in conjunction with the funding instruments and the application possibilities to achieve technology leadership, global competitiveness and strategic autonomy.

## **2. Recommendations on the R&I challenges: Focus on aeronautics priorities for FP10**

ASD's top priority for the Framework Programme 10 (FP10) is to ensure sufficient public funding is available to allow for the continuation of both the Clean Aviation and SESAR public private partnerships while also providing additional public funds to address emerging topics outside the scope of Clean Aviation/SESAR. This will contribute to maintain a global leadership and a high level of competitiveness of the European aeronautics sector.

In particular, the following research streams, need to be addressed each of them responding to aeronautics challenges whilst contributing, at a global level, to reaching environment objectives and safer, more efficient and interoperable flights, including innovative aerial services:

- Strengthening of research on highly efficient aircraft propulsion systems, innovative wing/fuselage airframe configurations & systems and collaborative platforms;
- Continued efforts on noise and non-CO<sub>2</sub> emission reduction;
- Second generation of electric technologies aiming at propulsive system hybridization and (battery) electric propulsion, and second generation of aviation native/aviation compatible fuel cells;
- Innovative infrastructures e.g. for liquid hydrogen airport hubs
- Critical and sustainable materials, production methods and tools and life-cycle management, especially for the recyclability and circularity of materials in view of extensive reduction of mass;
- Carbon Capture Utilisation and Storage, as well as Climate /Emissions Modelling;
- Digital technologies, including Artificial Intelligence, to increase autonomy and connectivity;
- Additional focus on physical phenomena, aerodynamics, acoustics, combustion, environmental phenomena and mechanical modelling, as well as modelling of industrial and physical processes of electric and electronical technologies;
- Safer operations and cyber security technologies on board and on ground, based on a more resilient on board and ground infrastructure ;

- A digital ATM system contributing to the delivery of the Digital European Sky, including with an increase in flexibility and scalability of airspace management and safe integration both existing and new categories of airspace users;
- Digital next generation of Communication, Navigation, Surveillance (CNS) technologies enabling the delivery of the Digital European Sky;
- Integration of aviation into a multimodality transport system;
- Emerging concepts such as unmanned aircraft systems (drones) and Innovative (or Advanced) Air Mobility (IAM/AAM) aligned with the Strategic Drone Technology Roadmap, including dual-use technologies to accelerate innovation across domains.

### 3. Recommendations on the processes and implementation

#### a) Role of Industry

The European industry, including the aeronautics sector, is a major market driver, promoter and co-investor of Research and Innovation. Therefore, the European Commission should include industry in the co-creation process for work programmes as well as the future FP10 structure and content. In the upcoming High-Level Group for FP10, industry, with actors representing the full value chain, should therefore be represented and should be consulted at latter stages for defining the FP10 work programmes. Industry, providing the actual solutions answering to new societal needs like decarbonisation and smart, safe and effective mobility, is part of the proven ecosystem of large companies, SMEs, universities, and research institutes built up over 30+ years of successive Framework Programmes (FPs) and should thus remain eligible for EU research and innovation funding.

#### b) Provide adequate funding for EASA

ASD with its partners is also committed to support the EU in introducing the future standards and the necessary regulatory tools to enable a fast uptake of new and innovative solutions. A lot of work is required in this domain. The level of resources of the European Aviation Safety Agency (EASA) to handle this work is limited. The Agency will face difficulties in fulfilling the extra tasks it received to support the Clean Aviation JU and SESAR JU, as per the Single Basic Act (Council Regulation (EU) 2021/2085), as well as to support other relevant research and innovation activities. Additional EU resources should therefore be provided to EASA.

#### c) Maintaining partnerships and strengthening collaborative research

Large public-private partnerships (PPP) for aeronautics in previous Framework Programmes (e.g. Clean Sky2 and SESAR2020) have proven to be highly valuable and inclusive instruments and have successfully delivered innovative technologies and deployable solutions. ASD and its research partners remain committed to the success of large partnerships under Horizon Europe, especially Clean Aviation, SESAR3 and Clean Hydrogen. The PPP approach needs to be further maintained and shaped in FP10, as partnerships are highly efficient and targeted. Institutionalised partnerships on aeronautics (also named JTIs) are based on a long-term financial commitment of both public authorities and the aeronautics research community, which gives long-term visibility and stability for R&I activities. The relatively long-term nature of this approach matches the extended timescales and

the long product life cycle that are typically required in aeronautics. Last but not least, the PPP approach with large size integrated programmes for a specific sector is the best way to ensure the critical mass for the success of research programmes.

The collaborative research programme also plays a key role in bringing the future innovative solutions at a higher level of maturity. The collaborative research programme should be strengthened.

#### **d) Rules for participation and processes**

There is a need for industry-compatible terms and conditions for participation in Framework Programmes; they are essential to work efficiently and correctly, especially for intellectual property rules, access to R&I results governed by the principle 'as open as possible, as closed as necessary' while taking in account the legitimate interests of the beneficiaries. This also applies during the execution of the large and multi-beneficiary research actions.

Processes need to be simplified, easy to implement for large companies as well as for SMEs, and offer certainty through the following principles:

- Reduction of administrative burden and streamlining of reporting;
- Non-generalization of the lump sum approach;
- An enhanced use of the co-creation process with stakeholders;
- Priority-driven and focus-oriented collaborative research work programmes well interfacing and complementary to PPPs;
- Recognition of the possibility for industrial exploitation by evaluators in the collaborative research programme;
- Implementation of stable rules for participation throughout the duration of an FP;
- A balanced approach between different Technology Readiness Levels and topics to avoid a maturity gap, especially in the critical TRL 4-5 range, paving the way for the future.

Once the formal decision process of the UK association is over between the EU and the UK, swift implementation of the EU-UK association agreement is of common interest across European industry and would encourage greater collaboration on key research partnerships such as Clean Aviation and the SESAR Joint Undertaking. The continued gridlock harms European industry, resolving this issue would strengthen Europe's position on the global stage, supporting an environment of European cooperation on sustainability which will be critical to the successful delivery of the net zero transition.

#### **e) An increased budget for FP10**

While the first green generation solutions will be technology ready for deployment in 2028, the challenges associated with the ambitious targets of climate neutral aviation for 2050 will continue to require significant investments in R&I for the aeronautics sector. The goal is to integrate them in sustainable products able to operate efficiently. Therefore, FP10 needs to be one of the key priorities of the next EU Multiannual Financial Framework (MFF) with adequate funding, including for the whole aeronautics value chain. It is a prerequisite for the sector to innovate towards the necessary next green and efficient technology generations to perfect its green conversion and to boost its digital transformation while maintaining high-quality jobs in Europe, as well as EU leadership in an increasingly competitive landscape. It will also enable to attract green investors and the future

generation of students and researchers. The Commission needs to guarantee an adequate budget for partnerships and for the collaborative programme and should also ensure that new policy priorities are met with new financial resources.

**f) Create an effective framework and propose tools to implement cooperation and synergies**

Synergies have been a major leitmotiv since the beginning of Horizon Europe; but implementation remains difficult. An effective operational EU-wide framework for cooperation and synergies is required for FP10 with supporting legal, policy and financial tools, including cooperation mechanisms with the following future initiatives:

- Industrial alliances such as the Alliance for Zero-Emission aviation,
- The European Defence Fund, to foster dual applications,
- The EU ETS Innovation Fund, to support the development and deployment of solutions and important Projects of Common European Interest (IPCEIs), to accelerate the market uptake,
- Research & test infrastructures suitable for new technologies while enhancing EU sovereignty.

#### 4. Conclusion

ASD with its research partners strongly supports European research programmes and is ready to contribute to the co-creation of the 2025-2027 strategic plan and the future FP10. ASD recommends:

- Maintaining partnerships and strengthening collaborative research;
- Creating an effective framework to implement synergies;
- Improving alignment between the programming and funding rules of different EU funds;
- Simplifying the rules and processes and decreasing administrative burden.

We consider a constructive dialogue with responsible services of the Commission - before and after the EU elections - to be a key enabler for the success of European R&I in aeronautics. ASD with its partners remains at your disposal for further exchanges on the Horizon Europe strategic plan towards FP10. \*\*\*\*

[Signed by] Jan Pie, Secretary General of ASD

Brussels, 09 May 2023

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<sup>i</sup> Here is the link to the report on the [Economic impact of the European Aerospace and Defense Industry for more information](#).

<sup>ii</sup> This position paper represents the view of the ASD civil aviation community and does not cover space, defense, and security matters.