A European Partnership for integrated air traffic management

4 June 2020

Why a new partnership

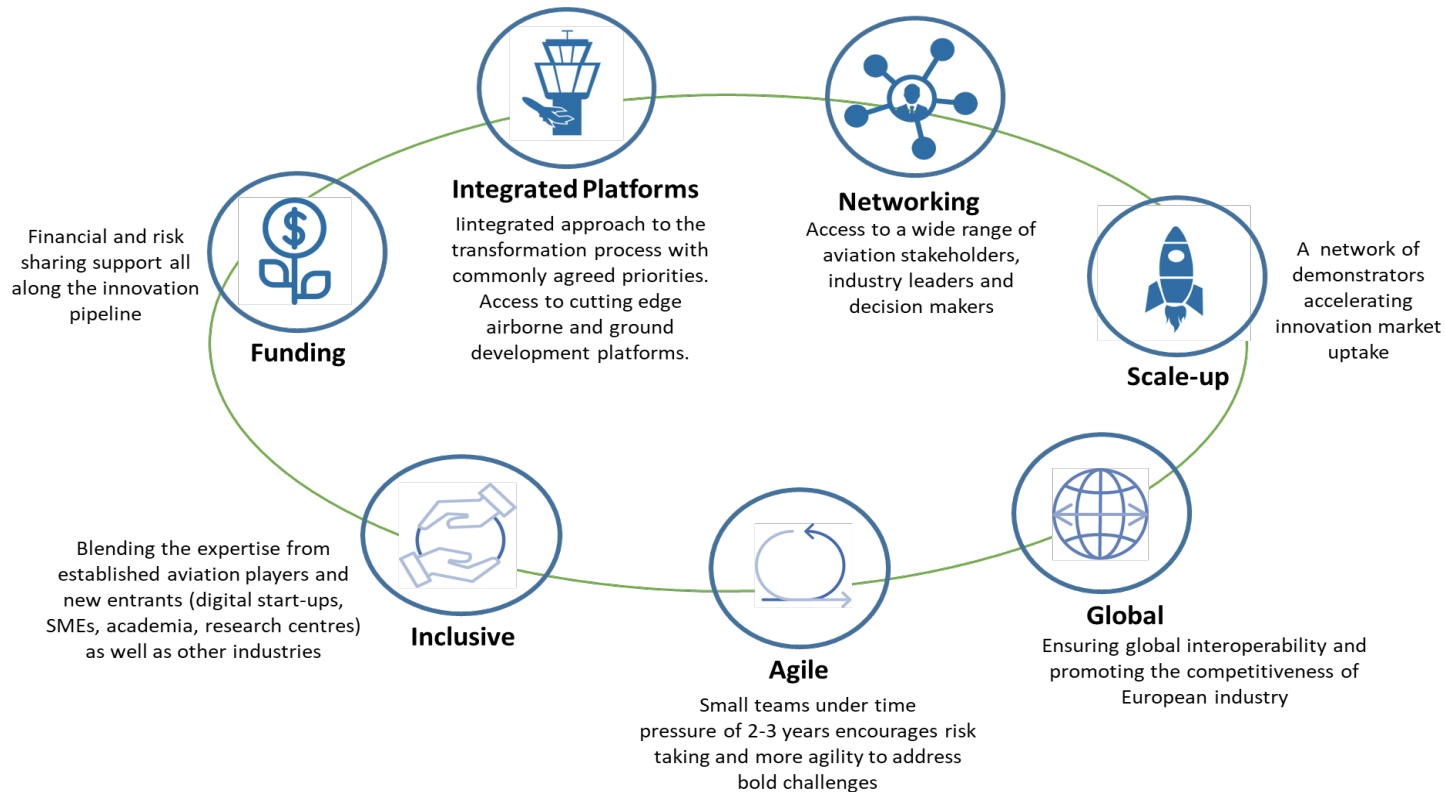- SESAR 2020 will soon have delivered the solutions required for upgrading the old system and implementation is in progress.

- While modernised in part, the European airspace system still relies on an outdated architecture that will not enable the full potential of new aircraft and other vehicles to be exploited.

- The current crisis demonstrates that the aviation operating environment needs to embrace a much more radical digital transformation to become greener, more cost efficient, predictable, resilient and scalable to fluctuations in demand for air transport.

Make the European airspace the most advanced and environmentally friendly sky to fly in the world
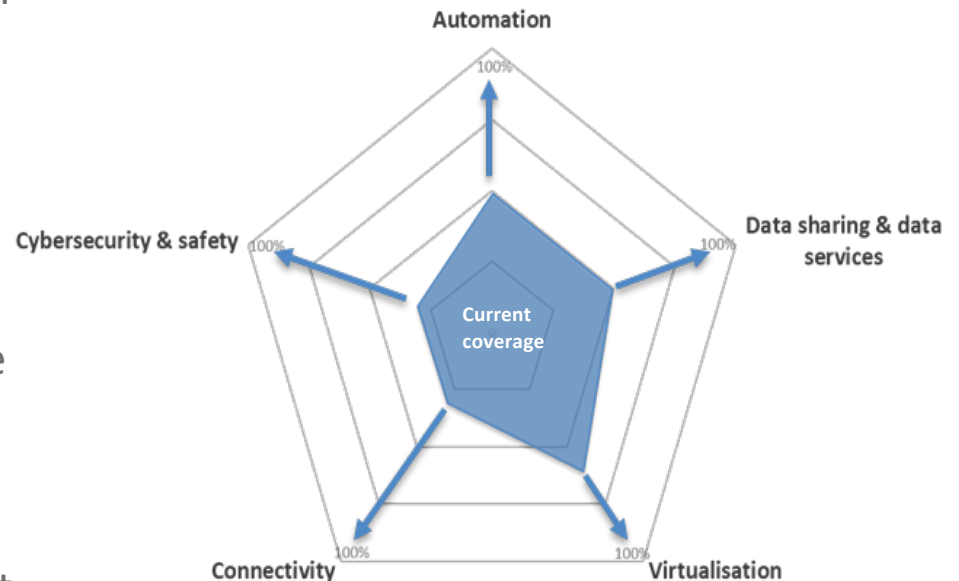
Attributes of the Partnership

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Integrated Platforms
Iintegrated approach to the transformation process with commonly agreed priorities. Access to cutting edge airborne and ground development platforms.

Networking
Access to a wide range of aviation stakeholders, industry leaders and decision makers

Funding
Financial and risk sharing support all along the innovation pipeline

A network of demonstrators accelerating innovation market uptake

Scale-up

Inclusive
Blending the expertise from established aviation players and new entrants (digital start-ups, SMEs, academia, research centres) as well as other industries

Agile
Small teams under time pressure of 2-3 years encourages risk taking and more agility to address bold challenges

Global
Ensuring global interoperability and promoting the competitiveness of European industry

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Integrated approach across the innovation portfolio:
Able to maximise the impact of innovation, identification of interdependencies with other ATM developments, evaluation of risks/opportunities and react to cover potential gaps.
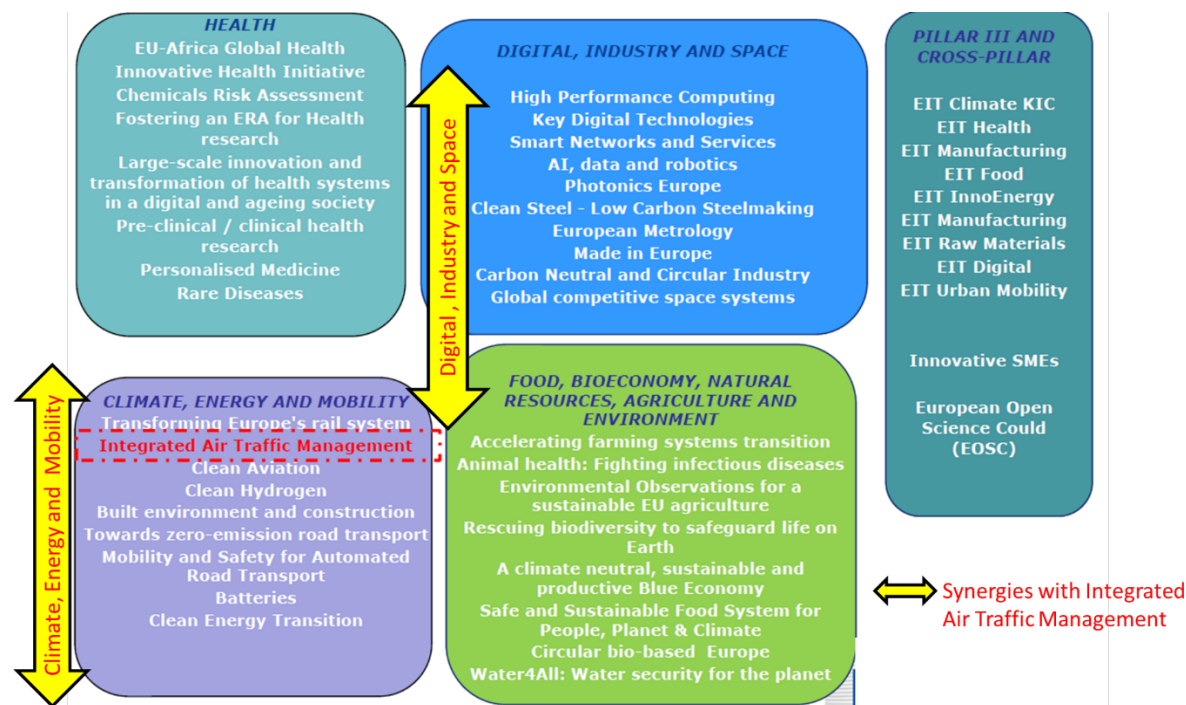
Role of the Partnership

In addition to coordinating and concentrating all EU R&I activities in ATM, the partnership will act as an innovation platform bringing added value beyond the launching of R&I calls.

Role of Chief 'innovation architect' for aviation infrastructure to ensure sharing of roadmaps and cooperation with other European Partnerships and EU research programmes, national research and innovation programmes.

Leveraging of both Horizon Europe and the European Connecting Europe Facility to secure downstream implementation.

Combining the necessary resources and funding in one partnership: Will produce a substantial leverage effect and help reach the challenging objective of climate neutral aviation.
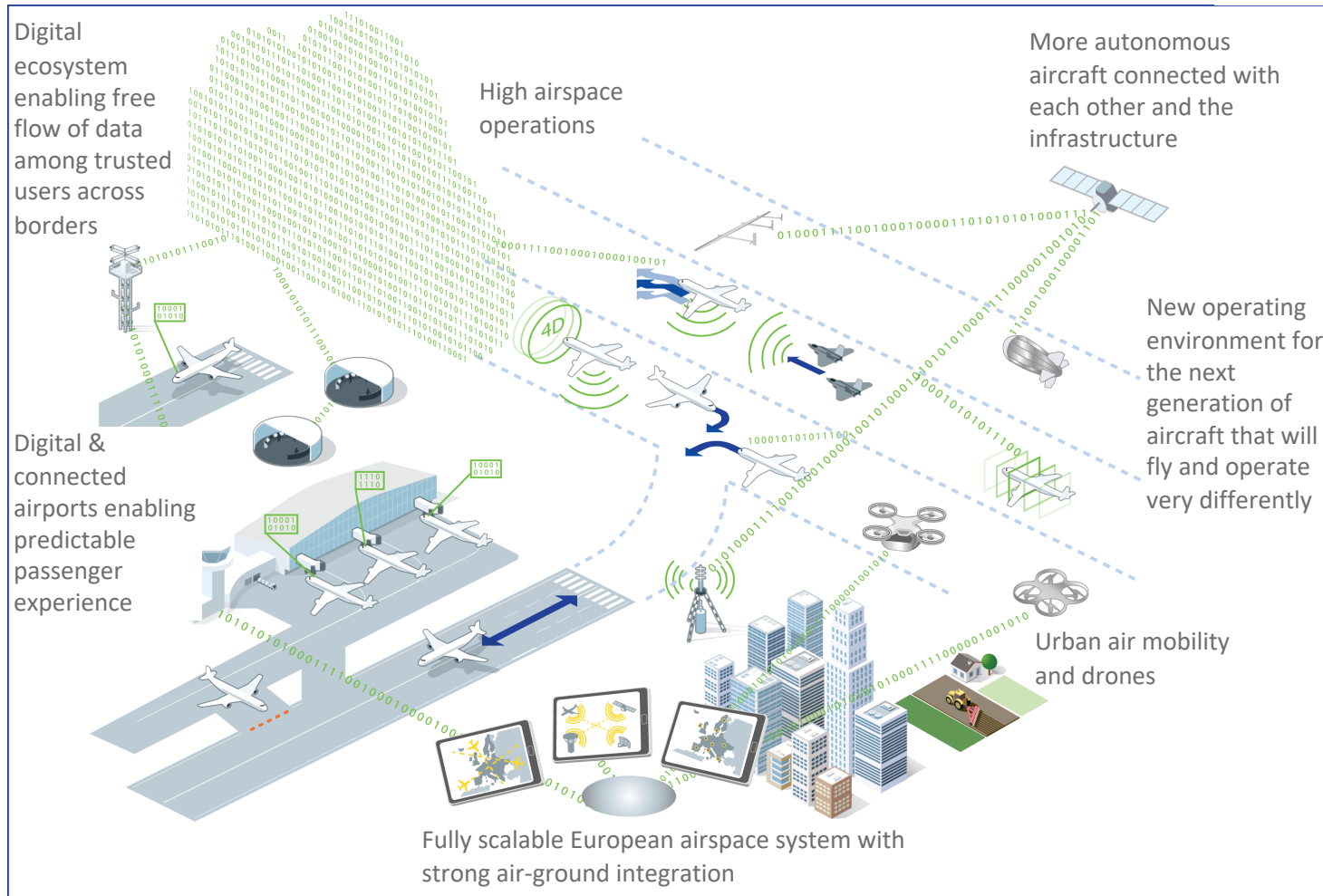
Maximise Synergies across Horizon Europe

Also Coherence and synergies in relation to major national (sectorial) policies, programmes and activities

The partnership will leverage local investments as well as complement the research and innovation needs by looking at the wider European goals and applications.

What we want to achieve – the impact

Digital ecosystem enabling free flow of data among trusted users across borders

High airspace operations

More autonomous aircraft connected with each other and the infrastructure

New operating environment for the next generation of aircraft that will fly and operate very differently

Digital & connected airports enabling predictable passenger experience

Urban air mobility and drones

Fully scalable European airspace system with strong air-ground integration

While capturing horizontal synergies with other partnerships such as Clean Aviation

Future innovation portfolio - challenges

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Air-ground integration and autonomy

Connected and automated ATM

AI for aviation

Virtualisation and cyber-secure data sharing
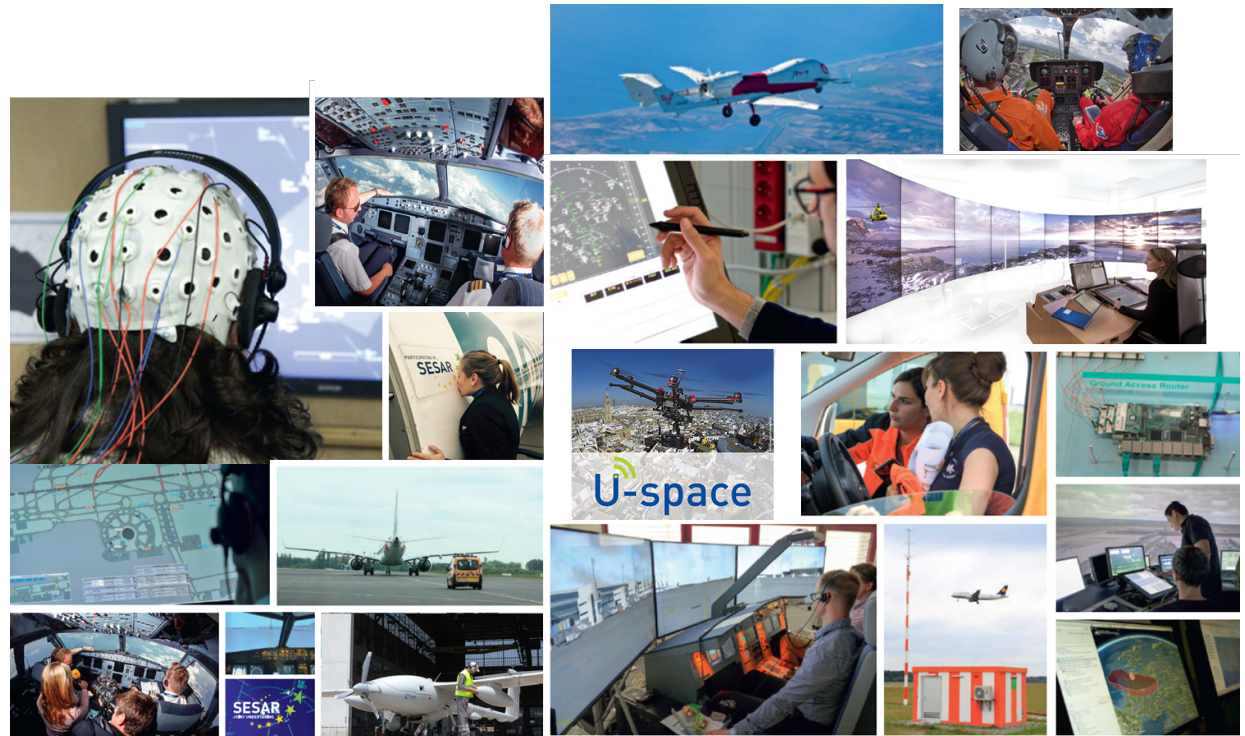
U-space and urban air mobility

Capacity-on-demand and dynamic airspace

Focus on breakthrough technologies & digital services

Civil/Military interoperability and coordination

Critical characteristics of the future European Airspace System – Post COVID

- **Scalable** - the capacity of the ATM system need to be able to adapt quickly and flexibly to traffic demand variations without generating negative externalities (cost, delay, emissions…).

- **Economically sustainable** - ATM fixed costs need to be reduced to the minimum, so that unit costs of the service are less dependent on the volume of traffic handled.

- **Environmentally efficient** - building on low traffic levels, optimal trajectories should be the new norm.

- **Resilient** - system resilience is urgently needed to reduce the risk that a progressive return to operations over the course of the summer is subject to unforeseen airspace closures or capacity disruptions.

- **Predictable** - the new sanitisation measures will increase complexity and inter-dependencies, a safe and reliable passenger journey will require the elimination of any uncertainty whether airborne or at airport.

Critical technology enablers

2025

2030

2035

- ECAC-wide implementation of **cross-border Free Route, air-ground** and **ground-ground** connectivity
- Launch **airspace re-configuration** supported by **operational excellence** Programme
- Set up an **enabling framework** for **ADSP**, **capacity-on-demand** service and **rewards for early movers**, first ADSP is certified

- Implement **virtual centres** and **dynamic airspace configuration** at large scale
- Gradual transition towards **higher levels of automation** supported by SESAR Solutions
- **Capacity-on-demand** arrangements implemented across Europe
- **New ATM Data service provision model** is implemented across Europe

- Transformation to **flight/flow centric operations**
- **Trajectory-based operations**
- **Service-oriented** air traffic management

- **Automation** – only way forward to provide scalability at a sustainable cost.

- **Virtualisation** – an urgent must-have for resilience and predictability.

- **Trajectory-based** air traffic management and eventually **flight centric** – the new norm to position Europe as the most environmentally friendly and advanced sky to fly in the world.

Using a proven delivery mechanism

Achievement of the digital European sky requires the delivery of a wide range of technological and operational solutions that are currently in various maturity levels.

The innovation pipeline is required to deliver and accelerate the market uptake of research outcomes:
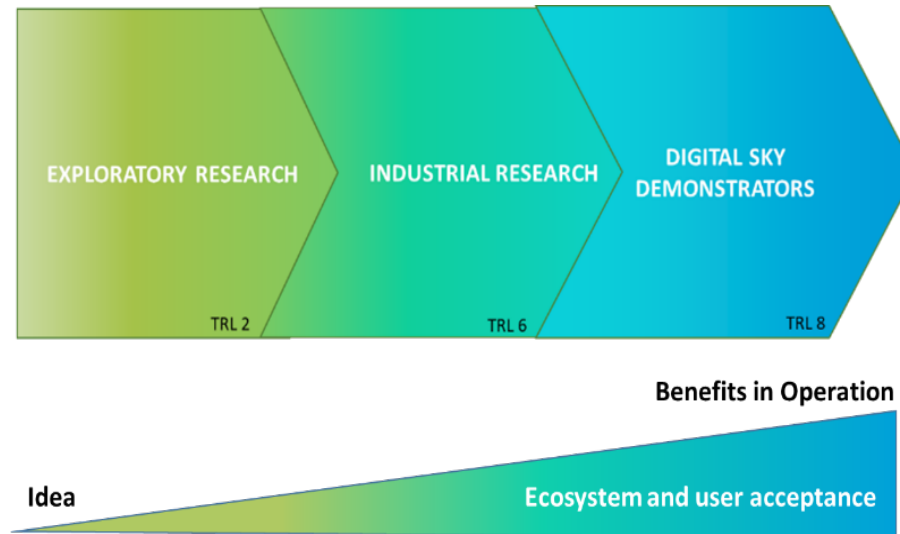
An agile R&I ecosystem will ensure that upstream research needs and policy objectives are well addressed by the projects by overcoming any unnecessary "silo effects" between e.g. exploratory and industrial research.

The innovation pipeline makes it possible to transition more rapidly from exploration (low TRL) to demonstration (high TRL) and the market.

Accelerating market uptake through a network of demonstrators

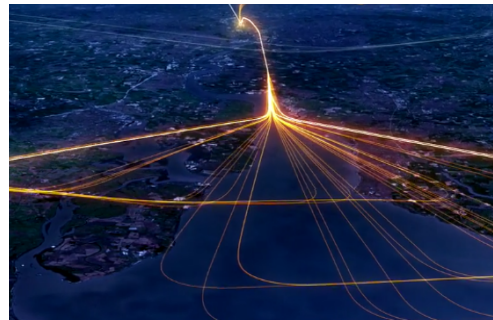**For early movers**

People oriented

Focused

Standardised & certified

Help shape future regulations

AVIATION GREEN DEAL DEMONSTRATORS

One of the flagship initiatives will be oriented towards accelerating market uptake of solutions enabling "perfect flights"

Why an Integrated ATM Partnership?

Problem 1: The current ATM systems and technologies in the EU are not 'digitalised' and are therefore not able to effectively adapt to the fluctuations in demand for ATM services.

Problem 2: The European ATM system and technologies are not designed to accommodate an increasing number of new forms of mobility and air vehicles that are more autonomous and use digital means of communication and navigation.

Problem 3: The performance of ATM is not optimised, in particular from an environmental perspective, resulting in unnecessary greenhouse gas emissions.

Problem 4: Current technologies do not facilitate cross-border service provision in the internal market, and without a European research coordination and implementing body the national scientific capacity will lack the coherent approach.

It is extremely unlikely for national programmes to emerge on an ad-hoc basis, especially in a post-COVID 19 world, and solve local issues without generating increased European fragmentation.

Thank you for your attention

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