



The aviation industry employs around 1.4 million people and supports between 4.8 and 5.5 million jobs.

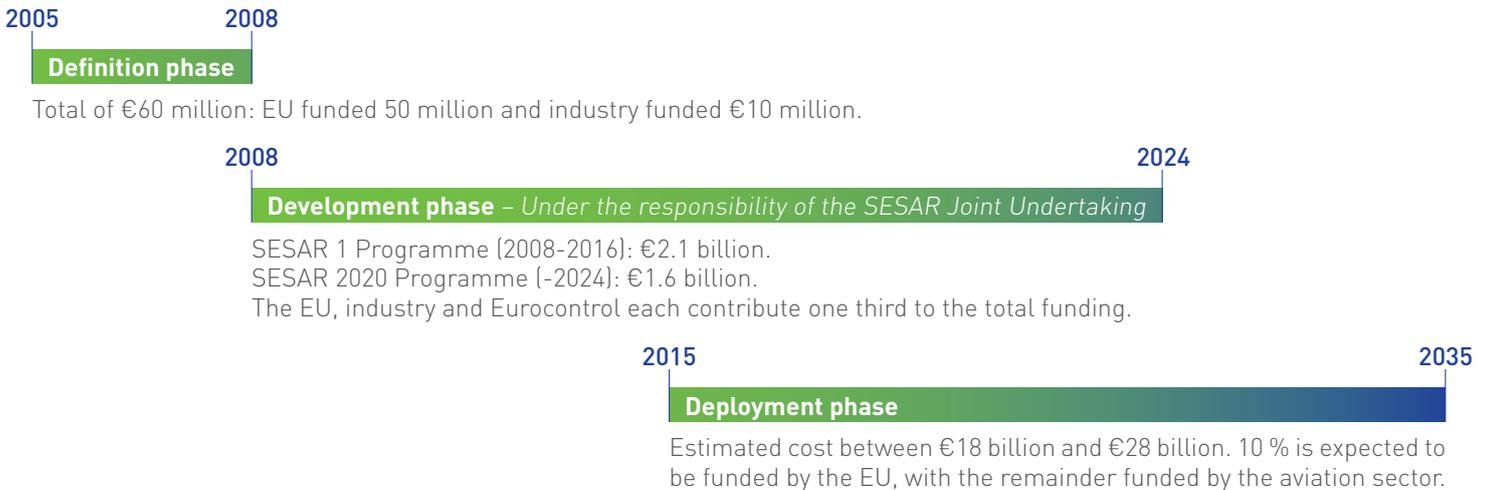
110 billion

The aviation contributes an overall impact of €110 billion to the EU's GDP<sup>1</sup>.



Aviation, supported by air traffic management (ATM), is a key driver of EU economic growth, jobs and trade, and essential for the life and mobility of its citizens. However, the current ATM system is highly fragmented and reliant on ageing technology, leading to inefficiencies of €4 billion annually. The role of SESAR is to define, develop and deploy what is needed and build a more connected greener, safer ATM system for Europe in aviation and air transport.

## SESAR has three phases



## SESAR JOINT UNDERTAKING

A unique public-private partnership, in place since 2007, uniting:



2 founding members:  
EU and Eurocontrol



19 industry members



100+ companies  
from across air traffic  
management



60+ universities,  
research centres  
and SMEs



3,000 experts from  
aviation and ATM

## OUR VISION

With SESAR, the future of air traffic management is characterised by:

- > Increased automation
- > Integration of all aircraft into the system, including drones
- > Increased virtualisation, regarding provision of services irrespective of the location of physical infrastructure
- > Flight-centric operations, so airlines can fly their preferred routes
- > Interoperable systems, allowing connectivity of systems across borders
- > Improve information sharing, creating an intranet of services and applications accessible by all aviation stakeholders

## OUR ACHIEVEMENTS

Since its establishment, the SESAR JU and members have taken ATM research 'out of the lab' onto real systems and into real-life air traffic operations across Europe and internationally. They have:



Conducted 300  
industrial research  
projects



350 validation  
exercises



30,000 flight trials



More than 90  
industrial prototypes



60 new or improved  
operational  
procedures and  
technologies (SESAR  
Solutions)



Over 40 exploratory  
projects to push  
the boundaries of  
knowledge on ATM  
and aviation

<sup>1</sup> European Commission

## MILESTONES

- > **The world's first flight in four dimensions (4D-3 spatial dimensions + time) in 2012 and 2014** to enhance flight predictability and therefore punctuality and efficiency.
- > In **2013**, the SESAR JU delivered a first set of solutions selected by the European Commission for Europe-wide deployment<sup>2</sup>, coordinated by the SESAR Deployment Manager. The **24 solutions** to be deployed between 2015 and 2024 across Europe are expected to deliver approximately **€12.1 billion worth of performance gains for some €3.8 billion of investments**<sup>3</sup>.
- > The opening in **2014** of the **world's first remote tower facility** in Sweden, serving a location 150 km away. Remote tower services are a means to provide access to remote regions and boost regional economies. Sweden is planning to launch another 12 remote towers in the next years. Germany and Ireland have expressed an interest too.
- > In **2015**, the world's first **flight trial of a large civil drone integrated into commercial traffic**.

**By end of 2016, the SESAR JU will have delivered 60 solutions, offering the following performance gains:**

- **2.3% in fuel consumption and emissions per flight** = 3mths of CO<sub>2</sub> emissions savings of small EU country (Ireland)
- **4% air navigation service cost** = about €2 reduction on the cost per flight for a typical EU round trip
- + **11% in airport capacity** = additional movements per hour
- **30% flight time variance** = 95% of flights will be able to stay in planned timeplan
- **34% increase in airspace capacity** = reduced delays on all EU flights despite traffic increase

## OUR FUTURE

- > Looking beyond to 2035, the SESAR project could potentially generate recurring benefits ranging from €8 Billion to €15 Billion per year.
- > Overall, SESAR promises the following gains<sup>4</sup>:



### Efficiency and predictability

Up to 6% reduction in flight times and up to 30% reduction in departure delays



### Environment

Up to 10% reduction in fuel burn and CO<sub>2</sub> emissions;



### Capacity

A system capable of handling up to 100% more traffic, and up to 10% additional flights landing at congested airports



### Cost-effectiveness

Up to 40% reduction in air navigation services costs per flight

- > Or, for an average trip in Europe:



### Safety

Improved by a factor of 3-4 times coping with traffic increase



20 minutes shorter door-to-door travel time



10kg in fuel savings per passenger



€15 in ticket savings

**It is estimated that for every euro invested in SESAR R&D there is a €6 return-on-investment.**

## SESAR 2020

- > Research and innovation activities will continue under SESAR 2020, with focus on four areas:
  - High performing airports (estimated 25% of 2020 industrial research budget)
  - Advanced air traffic services (24%)
  - Optimised ATM network services (14%)
  - Enabling aviation infrastructure (37%)
- > The programme will create an innovation pipeline, moving ideas into industrial research and large scale demonstrations.
  - €20 million will ensure the safe integration of drones into airspace. By 2050, drones will represent a quarter of air traffic.
  - €12-15 million will address cyber security to ensure information can be shared securely among all stakeholders.
  - €85 million will be used to fund exploratory research projects.

<sup>2</sup> Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan

<sup>3</sup> Official proposal on the content of the PCP (edition 1.0), 6 May 2013, SESAR Joint Undertaking. All figures are undiscounted.

<sup>4</sup> European ATM Master Plan (2015 edition)