SESAR 2020
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Why SESAR?

In the coming years, European citizens will live in smart cities, travelling door-to-door using green autonomous vehicles and communicating using smart devices. Aviation is very much part of this intelligent transport system and will rely on technological advances to transform its services and enable seamless travel and transport for all. As technological pillar of the Single Europe Sky, SESAR is acting now by defining, developing and deploying what is needed to modernise the air traffic management (ATM), aviation's underlying infrastructure. In doing so, it also supports European Union Aviation Strategy's vision to generate growth for European business, foster innovation and offer passengers with more connections and safer, cleaner and more affordable flights.

What is SESAR 2020?

With a budget of 1.6 billion between now and 2024, SESAR 2020 is the research and development programme within SESAR for delivering the future of air traffic management in Europe. It builds on its predecessor, SESAR 1, to deliver high-performing operational and technological solutions for uptake by the aviation industry. The programme is run by the SESAR Joint Undertaking (JU), which brings together the European Union and Eurocontrol, as founders, as well as 19 members representing airports, air navigation service providers, the manufacturing industry and scientific community.

What's in it for airports?

Up until now, airports were to some extent disconnected from the rest of the ATM network with limited real-time information exchange on flight arrivals and departures. SESAR is making use of advances in technologies to help fully integrate of airport operations into the network and achieve high-performing airport operations. Since it got started in 2008, SESAR has researched, validated and delivered a catalogue of more than 60 technological and procedural solutions many of which targeting airports' operational and business needs. These solutions are bringing tangible benefits in terms of enhanced safety, increased capacity, increased operational efficiency, lower running costs and an improved environmental footprint. Local implementations have already started, as well as synchronised deployment across 24 airports in Europe.

Røst
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Vienna
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Bratislava
Geneva
Zurich
Pápa
Lyon
Milan
Pécs
Debrecen
Nice
Pescara
Sofia
Rome
Madrid
Barcelona
Alicante
Palma de Mallorca

- Large airports
- Medium airports
- Small airports
- Very small airports
- Other

What are the key research areas?

SESAR 2020 focuses on developing solutions in four key areas, namely airport operations, network operations, air traffic services and technology enablers. In the area of airports, the programme addresses enhancement of runway throughput, integrated surface management, airport safety nets, total airport management and remote towers. The programme also addresses emerging challenges such as the integration of drones and cyber security. The research is categorised into three strands: exploratory research, industrial research and validation and very large-scale demonstrations. These strands have been designed as an innovation pipeline through which ideas are transformed into tangible solutions for industrialisation.

Solutions in action

Remote technology at your service

In April 2015, the world's first SESAR remote tower services (RTS) opened for business in Sundsvall, serving Örnsköldsvik airport over 150 km away. SESAR has also delivered RTS solutions to serve two low-density airports or as a contingency tower.
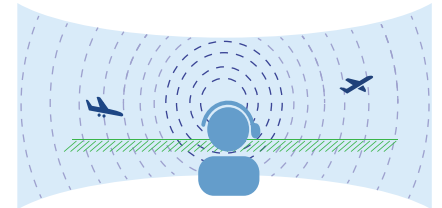
Assigning holding to history

Extended-arrival management (E-AMAN) allows for the sequencing of arrival traffic much earlier than is currently the case, so allowing more smooth traffic management. London-Heathrow has implemented the solution and has already cut holding times in its arrival stacks by one minute, reducing noise emissions and saving airlines over EUR 2 million in fuel bills and 7 500 tonnes of carbon dioxide annually. The solution, which is part of synchronised deployment plans (PCP), has already been implemented in 7 other locations in Europe.
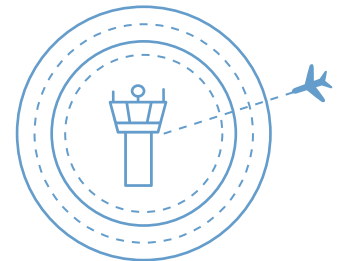
Pioneering noise reduction at airports

Aircraft have become 75 % less noisy over the last 30 years, but growing air traffic means that EU citizens are still exposed to high noise levels. SESAR members are researching enhanced arrival procedures enabled by a ground-based augmentation system (GBAS) to reduce noise impact of arriving aircraft at airports. Within this framework, in March 2017, Frankfurt became the first airport in the world to fully implement GBAS aiming to counteract noise pollution for the neighbouring populations.
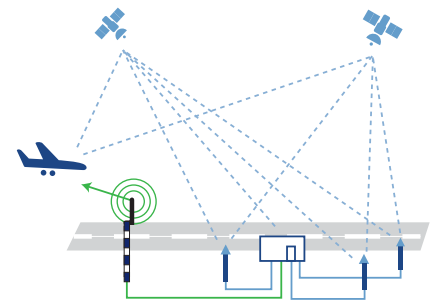
How can airports get involved?

Airports have been instrumental in the development and validation of airport-specific solutions since the beginning of SESAR. Their active participation has been achieved through SESAR JU membership, such as with AENA Aeropuertos, the operator of Spain's largest airports, represented through Enaire, and the SESAR European Airports Consortium (SEAC) which brings together the operators of seven major European airport groups (Heathrow Airport Ltd, Aeroports de Paris S.A, Fluchafen Munchen GmbH, Flughafen Zurich AG, Schiphol Nederland B.V, Swedavia AB and Avinor AS).

In SESAR 2020, more airports are coming on board, particularly through the exploratory research on enhanced safety nets and activities to demonstrate the wider deployment of the programme's solutions (see map of participating airports). Other European airports may take an active role in the SESAR 2020 Programme through the cooperation between the SESAR JU and ACI Europe. This cooperation includes supporting the maintenance, execution and update of the European ATM Master Plan, providing airport expertise to the SESAR Joint Undertaking and contributing to increase awareness about the Programme among ACI Europe's members. Finally, airports may also respond to any of the open calls published on SESAR exploratory research and very large scale demonstration activities.

For more information, visit sesarju.eu

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