SINGLE EUROPEAN SKY BENEFITS

The ongoing deployment of SESAR is delivering benefits to European passengers and the environment

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A lot has happened in the field of Europe's Air Traffic management system modernisation in the last few years. Single European Sky ATM Research (SESAR) is the technological pillar of the Single European Sky (SES) policy and is an essential enabler for its ambitious goals for higher safety, more efficiency, lower cost and reduced aviation environmental impact. This is good news for European citizens. Just before the summer break, we talked to experts at the SESAR Deployment Manager (SDM).

SDM has already helped to deliver 115 ATM modernisation projects in just over four years. These projects will deliver a cut of over 552,000 tonnes of CO_2 emissions, the equivalent of planting one million trees, by 2030. These first set of completed ATM projects across Europe will save 12 million flight minutes equating to €484 million (US$537 million) of savings, and will generate over €10 billion (US$11 billion) on performance benefits by 2030.

These 115 completed ATM projects across Europe, plus the 234 modernisation projects in progress will, once completed, bring additional performance benefits to the European passengers, citizens and economy. "Our strength is that we bring together all ATM stakeholders, from airlines, air navigation service providers and airports, to the military and the manufacturing industry, in a true collective collaboration to make European air transport better," says Nicolas Warinsko, the general manager of the SESAR Deployment Alliance (SDA), the international not for profit association entrusted in the role of SESAR Deployment Manager by the European Commission.

"In just over 4 years since SDM was set up, we have developed expertise and gained buy-in and trust from the ATM industry, and we deliver performance benefits", he adds.

The SDM function was set up by the European Commission to synchronise and coordinate the deployment of ATM modernisation projects across Europe.

SESAR DEPLOYMENT MANAGER

DEPLOYMENT PROGRAMME 2018

SESAR deployment primarily requires investment by the operational stakeholders, even if it is financially supported by grants from the EU. Operational stakeholders, together with EU citizens, are also the most interested into higher network performance. The European Commission (EC) therefore decided several years ago to award the SDM function to industry. After an open call for proposals this took the form of the SESAR Deployment Alliance (SDA).

The mandate of the SDA ends in December 2020. The EC is considering the potential evolution of the SDM function from 2021. A major consideration is that the SDA is not just concerned about rolling out required technologies and operational procedures. It also aims to grow the industry's culture and the amount of collaboration.

By the end of 2020, this will represent a fundamental legacy enabling a new step for SESAR to deliver always more efficiently and contribute to mitigate faster the current capacity crunch.
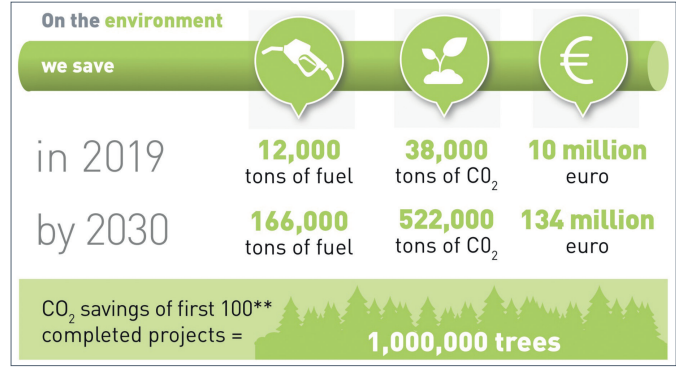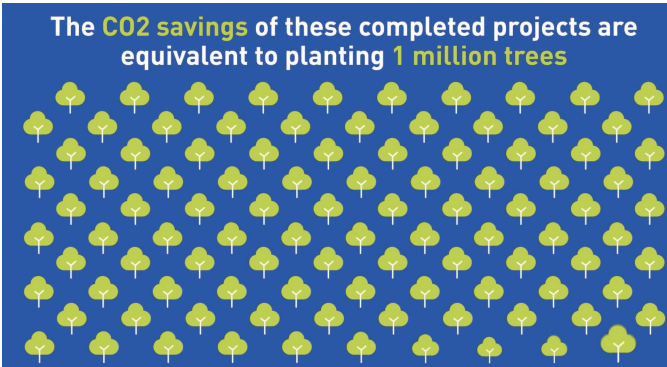
Keeping the industry in the cockpit

In an audience poll conducted during an ATM stakeholder event in June, more than 75% of participants voted to agree, or strongly agree, that SDM is delivering. The European Commission (EC) aims to have the future direction for SDM in place before the end of 2019.

At the end of June 2019, the European Court of Auditors (ECA) published a report on the EU's intervention in the deployment of SESAR. While the report acknowledges the EU-added value of common projects, the report also claims that EU funding in support of ATM modernisation was often not necessary.

The work of the SDM has pioneered putting in place ATM R&D. The rules governing the project have always included a review clause to adjust any shortcomings. Therefore, SDM is supportive of the Court's objective of ensuring public money is

Below: SDM has already helped to deliver 115 ATM modernisation projects in just over four years

The CO2 savings of these completed projects are equivalent to planting 1 million trees

On the **environment** we save

	tons of fuel	tons of CO$_2$	euro
in 2019	12,000	38,000	10 million
by 2030	166,000	522,000	134 million

CO$_2$ savings of first 100** completed projects = **1,000,000 trees**

well-spent and addressing the needs of the European economy and citizens. The Court does not recommend a stop to funding. This is because significant progress in synchronizing ATM modernization in the context of SESAR deployment was made in the past few years and has now also been recognized by the ECA.

Modernising Europe's ATM is not only necessary to reduce delays but also of key importance to battle climate change and achieve greater sustainability. The result of pro-active coordination co-funded by EU is that nearly 90% of the Regulation is either completed, on-going or planned. It is this high level of preparation and anticipation by all stakeholders which is the actual benefit of the EU investment in SESAR deployment

Digitization as a game changer

SDM coordinates several digitization projects in European ATM. Within its mandate as Data Link Services (DLS) Implementation Project Manager, SDM has made significant progress. (see maps below)

Mid July, SDM launched a website focused on the implementation of Automatic Dependent Surveillance – Broadcast (ADS-B) to provide a frequently updated snapshot of the ADS-B deployment status in Europe. The website is part of the information exchange set up by SDM to facilitate a timely and synchronized implementation of ADS-B throughout Europe. SDM, with support from Eurocontrol, is executing the European ADS-B Implementation programme and monitoring the growth of ADS-B uptake in accordance with Surveillance Performance and Interoperability regulation (SPI IR).

ADS-B involves an aircraft using a certified position source to determine its position which it then broadcasts in short intervals by means of a data link in the radio frequency spectrum.
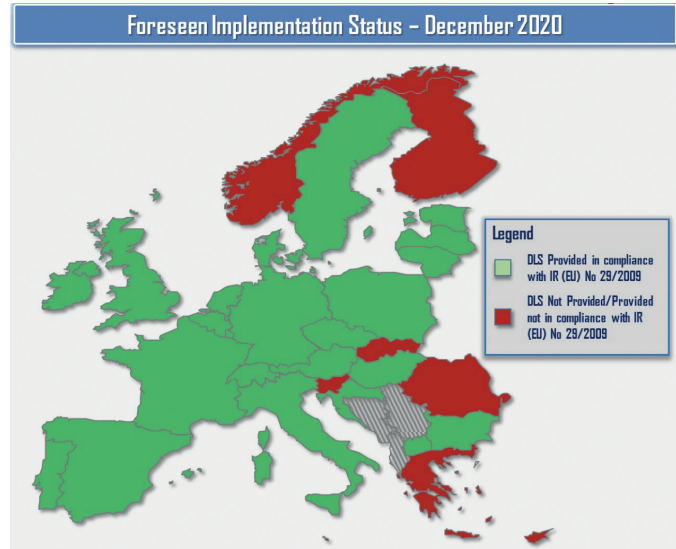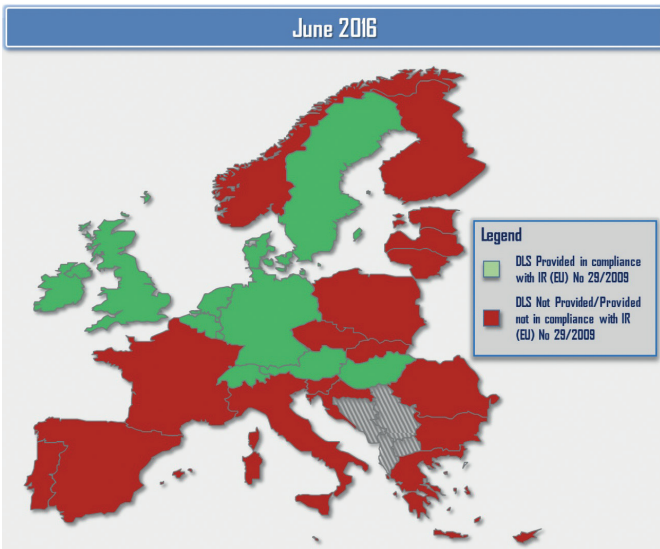
Conversely, an aircraft can be fitted with an ADS-B receiver – processor to display the detected ADS-B transmissions from other aircraft to the pilot.

With ADS-B, cost-effective real-time visibility is provided to air traffic control and to other equipped ADS-B aircraft with position and velocity data transmitted periodically. In high complexity environments such as the EU airspace, ADS-B is envisaged to operate in conjunction with existing independent cooperative chains, greatly enhancing accuracy, data availability and reducing frequency load.
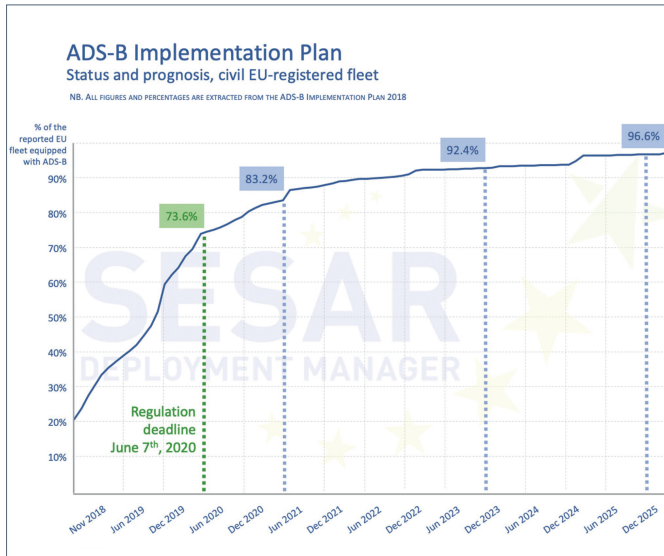
The adoption rate of ADS-B is in line with the Airspace User's plans reported to the SESAR Deployment Manager (SDM), which established that 70 to 75% uptake could be achieved in the EU registered, SPI-IR mandated fleet by the compliance deadline of June 7th 2020.

End-to-end digitalization

SDM is also facilitating and coordinating the SES Digital Backbone (Single European Sky (SES) Digital Backbone), which aims to underpin an essential data exchange

June 2016

Legend
- DLS Provided in compliance with IR (EU) No 29/2009
- DLS Not Provided/Provided not in compliance with IR (EU) No 29/2009

Foreseen Implementation Status – December 2020

Legend
- DLS Provided in compliance with IR (EU) No 29/2009
- DLS Not Provided/Provided not in compliance with IR (EU) No 29/2009

Above: Status of the implemenation of Data Link Services in Europe

ADS-B Implementation Plan
Status and prognosis, civil EU-registered fleet
NB. All figures and percentages are extracted from the ADS-B implementation plan 2018

On **operational efficiency** we save
in 2019: 738,000 flight minutes → 29 million euro
by 2030: 12 million flight minutes → 484 million euro

On **capacity** we save
in 2019: 363,000 minutes of delay → 10 million euro
by 2030: 6,2 million minutes of delay → 178 million euro

Rright: Potential operational efficiency increases and capacity benefits from implementation of SESAR programs in 2030 compared to this year

infrastructure by creating an overarching framework for its sustained operations. This includes components deployed and used by a wide range of related SESAR deployment Implementation Projects.

Last year, the A6 Alliance of ANSPs and Eurocontrol published a White Paper which proposed the creation of an SES Digital Backbone governance through an all-inclusive SES Shared Services Alliance (the "3SA"). The 3SA-SDB proposal calls for further strategic alignment between operational stakeholders that are engaged in several SESAR deployment Implementation Projects that are managed by the SESAR Deployment Manager. As a result, SDM is today facilitating and coordinating the next steps in execution of its mandate to synchronize deployment.

Interoperability deployment

Implementation of Interoperability (IOP) projects can be considered as the missing data links to move forward on ATM Functionality #5 (Initial System Wide Information Management). In July this year, SDM organised a roundtable. This roundtable showed a wide attendance to the meeting organized by SDM from all stakeholders' groups (Air Navigation Service Providers, Manufacturing Industry, Eurocontrol and the Network Manager).

The Flight Objects strives for an automatic synchronisation of trajectories and seamless coordination between the different ATC-units. This does not only require technical means to exchange the data, but also an alignment of the operational concepts used by the concerned ATC-units, hence the deployment of IOP projects requires a synchronized deployment and is one of the key enablers to the Airspace Architecture Study and backbone in a successful Single European Sky.

In a next phase the great buy-in of the stakeholders will be passed to the EC. SDM considers the IOP level of maturity high enough to propose to start the coordination for this Implementing Project and manage the work as per DLS and ADS-B implementation, where SDM has a proven track record. All stakeholders agreed that SDM should lead this project.

SESAR Deployment Programme

End December 2018, the updated version of the SESAR Deployment Programme was approved by the European Commission. Currently the Planning view and the Monitoring view are being updated and will, once approved by EC, further guide all stakeholders implementing SESAR deployment in Europe. ❖

ABOUT SESAR DEPLOYMENT MANAGER

The SESAR Deployment Manager (SDM) function is defined by the Article 9 of Commission Implementing Regulation (EU) N°409/2013. Under the oversight of the EC, the SDM function consists of the synchronisation and the coordination of the deployment of the Common Projects.

A Common Project is a Commission Implementing Regulation which mandates the implementation of the most essential operational changes in the European ATM Master Plan by the Member States of the European Union and their operational stakeholders.

The first Common Project is known as the Pilot Common Project (PCP).

The SDM synchronises and coordinates implementation against the SESAR Deployment Programme which is a project view of the Common Projects organizing their implementation into optimum sequences of activities by all the stakeholders required to implement.

To develop and maintain the SESAR Deployment Programme in close consultation with all the stakeholders is another important task under the SDM function.

The SDM function is performed by the SESAR Deployment Alliance (SDA). The SDA is a "Not-for-Profit" International Association (AISBL) set-up under Belgian Law and composed of leading airlines, airports and air navigation service providers – the managers and users of Europe's airspace.

SDA coordinates the implementation of 225 ATM modernisation projects of which 105 already completed and bringing benefits to the European passenger.