4

ESSENTIAL
FACT SETS
ON MODERNISING
EU SKIES

Did you know that aviation and air traffic management in Europe undergo continuous modernization to enhance safety, efficiency, and sustainability?

The Single European Sky's Air Traffic Management Research project – SESAR - spearheads this transformation, aiming to digitally optimize Europe's airspace. SESAR focuses on technological advancements to increase capacity, precision, and punctuality while supporting the European Green Deal objectives by helping to decarbonize air transport.

These efforts support connectivity, performance, and environmental sustainability in European aviation, reducing delays, enhancing safety, and lowering environmental impact. SESAR's deployment contributes to a better passenger experience through improved safety measures, increased capacity, reduced delays, and lower costs, aligning with EU climate objectives and fostering global connectivity.

In this FACT BOX, we touch upon 4 main aspects of Air Traffic Management modernization, aiming to provide you with a view on how your overall passenger experience is being permanently improved through SESAR deployment.

Enjoy reading!

ESSENTIAL
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ON MODERNISING
EU SKIES

1

Air Travellers

AIR TRAVELLERS

Step into the world of modernised air travel with SESAR deployment across Europe. Experience smoother, safer, and more reliable journeys like never before. Reduced flight delays and more predictable travel times make planning more efficient. Beyond the airport, SESAR enhances the quality of life for EU citizens by making air travel more efficient. Safety and security are paramount, ensuring peace of mind throughout the journey, therefore SESAR represents a tool allowing continuous improvements. With increased flexibility and punctuality, SESAR brings efficiency to air traffic management, promising seamless experiences for all travellers.

1

Air Travellers

In the bustling world of air travel, SESAR deployment across Europe is reshaping the passenger experience, making it smoother, safer, and more reliable than ever before.

Reduced Flight Delays

Imagine stepping into the airport knowing that your flight will be as smooth as possible. SESAR's modernization efforts optimize air traffic management, reducing congestion and streamlining flight paths. This means fewer delays, less time spent waiting before departure, and more time to enjoy your destination.

More Predictable Travel Times

With SESAR, predictability becomes more accurate. The uncertainty of last-minute schedule changes or unexpected diversions of your flight are being reduced thanks to digitalization. Enhanced traffic management ensures that your travel times are more reliable, allowing you to plan your journey with confidence. Although we need to be realistic here and unpredictable events like severe weather can always jeopardize travel times, SESAR's modernization reduces the effect of those unforeseen events.

Flexibility and Punctuality

SESAR's modernization efforts provide flexibility in managing air traffic, allowing for more efficient routes and smoother operations. This flexibility translates into punctual departures and arrivals, minimizing unexpected events and ensuring a seamless travel experience for passengers.

Quality of Life

The benefits of SESAR deployment extend beyond the airport, touching the lives of EU citizens in meaningful ways. Picture a world where air travel can be seamlessly integrated into your daily routine. Thanks to SESAR, smoother and more efficient air travel becomes a reality. This translates in less stress and hassle for travelers, allowing them to focus on what truly matters. By adopting new departure or arrival procedures, SESAR also reduces noise for people living close to airports or under flight routes. These and many other technological advancements make our journeys more convenient and enjoyable. Whether it's arriving on time for an important meeting or reuniting with loved ones, SESAR enhances the overall quality of life for EU citizens.

Safety and Security

Safety and security are paramount in aviation. SESAR deployment strengthens security measures across the aviation network, from enhanced surveillance systems to improved communication protocols, security of the data and protection from cyber-threats. These measures not only deter potential hazards and disruptions but also provide passengers with peace of mind, knowing that their safety is prioritized at every stage of their journey.

2

Green is not just a promise

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GREEN IS NOT JUST A PROMISE

Discover how SESAR deployment is modernising air traffic, aligning with EU climate goals and policies to reduce greenhouse gas emissions. By optimizing flight routes and embracing ATM modernization, SESAR supports a greener future. Dive into the details of how SESAR contributes to the European Green Deal.

EVERY **1 EURO INVESTED** IN ATM MODERNISATION **SAVES** 4.3KG CO2

2

Green is not just a promise

SESAR deployment plays an important role in promoting environmental sustainability, aligning with EU climate goals and policies.

Reduction in Greenhouse Gas Emissions

By optimizing flight routes and reducing congestion, SESAR significantly decreases greenhouse gas emissions from air travel. This leads to improved fuel efficiency and a lower carbon footprint, contributing to a more sustainable aviation industry.

Alignment with EU Climate Goals

SESAR's efforts align closely with the EU's ambitious climate goals and policies, demonstrating a commitment to reducing carbon emissions, thus trying to mitigate climate change. By embracing ATM modernization, Europe takes a significant step towards building a greener and more sustainable future.

The EU Sustainable and Smart Mobility Strategy has highlighted the importance of more efficient ATM operations, which would unleash the "great potential [...] for sustainability, helping to cut excess fuel burn and CO2 emissions". Current SESAR deployment activities, are amongst the most urgent steps to be undertaken to increase the efficiency in day-to-day operations and reduce unnecessary greenhouse gas emissions, by virtue of a more efficient ATM system.

CP1 IS EXPECTED TO ENABLE OVER **12.600.000 TONS OF CO2 SAVINGS** WHICH IS MORE THAN THE **YEARLY CO2 EMISSIONS OF 1.5M EU CITIZENS**

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2

Green is not just a promise

Health and Environmental benefits

With reduced aviation emissions, SESAR helps improve air quality, leading to healthier environments and better quality of life for EU citizens. Cleaner skies mean fewer pollutants in the air, benefiting both human health and the environment.

Contributor to the European Green Deal

The European Green Deal is an ambitious plan that aims to make the European Union the world's first climate-neutral continent by 2050. To achieve this goal, it is essential to address various sectors, including aviation, which contributes to greenhouse gas emissions.

CP1 covers 13% of the CO_2 reductions of all Air Traffic Management related measures currently taken by the Aviation industry to contribute to the 2030 decarbonisation objectives of the European Green Deal.

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BY
ENHANCING EFFICIENCY,
REDUCING EMISSIONS,
&
SUPPORTING THE
TRANSITION TO A MORE
SUSTAINABLE AVIATION,

SESAR PLAYS A **PIVOTAL**
ROLE IN MAKING THE
EUROPEAN **AVIATION**
SECTOR **MORE**
ENVIRONMENTALLY
FRIENDLY

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2

Green is not just a promise

Air Traffic Management (ATM) modernization, especially through the deployment of SESAR, plays an importantrole in advancing the following objectives of the European Green Deal:

Enhanced Efficiency and Reduced Emissions
Modernizing ATM systems leads to improved efficiency in air traffic operations. SESAR focuses on optimizing routes, reducing flight delays, and enhancing airspace utilization. These measures translate into shorter flight paths and less time spent in holding patterns, which, in turn, reduce fuel consumption and emissions. According to estimates, SESAR deployment can result in one third of ATM inefficiencies avoided and as such support the overall aim of a 6-10% reduction in CO_2 emissions per flight contributing significantly to the EU's climate goals.

DEPLOYMENT FACT

7.2M

Tons of CO2 saved by modernising ATM in Europe

sesar DEPLOYMENT MANAGER

2

Green is not just a promise

Improved Collaborative Decision-Making

SESAR promotes collaborative decision-making processes among all stakeholders in the aviation industry, including airlines, airports, and air navigation service providers. By sharing data and coordinating activities, air traffic can be organized more effectively and bottlenecks can be avoided. This results in reduced fuel burn, lower emissions, and minimized environmental impacts.

Noise Reduction Measures

ATM modernization is not limited to emissions reduction; it also focuses on mitigating noise pollution. SESAR deployment includes the development of quieter approaches and departures, reducing the noise footprint of airports. This aligns with the European Green Deal's objectives to create a healthier and more sustainable environment for communities living near airports.

ATM modernization, particularly through SESAR deployment, is an important element in achieving the goals of the European Green Deal. By enhancing efficiency, reducing emissions, and supporting the transition to a more sustainable aviation, SESAR plays a pivotal role in making the European aviation sector more environmentally friendly. As the EU continues to invest in research, innovation and deployment of modernization projects within the aviation industry, it is well on its way to becoming a leader in green aviation, contributing to a more sustainable and climate-neutral future.

MODERNISING
AIR TRAFFIC
MANAGEMENT
#AsOne

3

Economical flightpath

3

ECONOMICAL FLIGHTPATH

Discover how SESAR deployment contributes to economic growth, job creation, and global competitiveness. By modernizing air traffic management systems, SESAR enhances efficiency, attracts more passengers, and strengthens the aviation industry. Aligned with EU economic policies and objectives, this initiative prioritizes innovation, investment, and a sustainable growth. Join the journey towards digitalised skies for generations to come.

3

Economical flightpath

SESAR deployment brings substantial economic advantages, fostering competitiveness, job creation, and economic growth across Europe.

Increased Competitiveness

By modernizing the ATM system, SESAR enhances the competitiveness of EU airlines and airports on a global scale. Streamlined operations and improved efficiency attract more passengers and businesses, boosting revenue and profitability for the aviation industry.

Global Market Competitiveness

Europe's modernized ATM system positions its airports as global leaders, offering efficient and reliable services to airlines and passengers worldwide. This competitiveness strengthens the aviation sector and drives economic growth, benefiting not only the industry but also the broader economy.

Moreover, current SESAR deployment addresses – directly or indirectly – all urban nodes located on the Core and Comprehensive network identified in the TEN-T Guidelines. In particular, the technologies implemented by SESAR will directly improve the throughput of all major European airports and will make sure that citizens and goods can move freely, efficiently and in a sustainable matter across Europe.

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2.3M

Tons of fuel saved
through SESAR deployment

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3

Economical flightpath

EU Economic Policies

SESAR deployment aligns with the EU policy objectives in the aviation sector, but it is also fully consistent with the overall long-term goals of the Union in the transportation and mobility domains. It explicitly contributes to the "development and modernisation of the trans-European networks", and helps the Aviation industry to move forward in its path to contribute to the "EU long-term decarbonisation commitments".

Alignment with EU Objectives

SESAR deployment aligns closely with the EU's economic development strategies, promoting innovation, spurring investment, and creating highly-skilled jobs. By prioritizing ATM modernization, Europe strengthens its position as a global leader in aviation while driving economic prosperity for its citizens.

SESAR deployment is a truly pan-European initiative and as such it delivers "European added value": by design, it is as a tool to improve the overall ATM system and infrastructure throughout the whole European Union and even beyond: currently it involves over 100 organisations, spanning across 26 EU Member States and 8 Third countries and distributed along all geographical areas of the European Network.

INVESTMENT

2.8B

1.5B Euro invested by the aviation industry

+

1.3B Euro invested by the European Commission

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3

Economical flightpath

It's all about the people

SESAR deployment centers around people. It's driven by a diverse group of professionals dedicated to improving safety, efficiency, and sustainability in European airspace. These individuals, including air traffic controllers, pilots, engineers, policymakers, and aviation experts, lead the integration of innovative technologies into air traffic management (ATM), prioritizing safety and security while advancing industry competitiveness.

They understand the broader impact of their work, emphasizing passenger well-being, environmental preservation, and sustainable development. Collaboration is key, with stakeholders from government, private enterprises, regulatory bodies, and academia forging partnerships to navigate the complexities of modernizing Europe's ATM infrastructure.
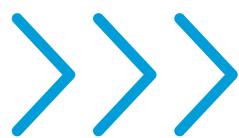
SESAR deployment is more than a technical upgrade; it's a testament to the ingenuity, resilience, and collaborative spirit of those in the aviation sector. It empowers individuals to embrace innovation, overcome challenges, and collectively shape a more efficient, sustainable, and interconnected future for European aviation. Let's acknowledge the dedication of over 500,000 individuals driving progress, ensuring safe and accessible skies for generations to come.

9.6B

Euro saved
by modernising ATM
in Europe

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4

As One behind SESAR deployment

AS ONE BEHIND SESAR DEPLOYMENT

The Single European Sky is an ambitious initiative launched to modernise European air traffic management, making it safer, more cost-efficient and environmentally friendly. As the technological pillar, SESAR, is harnessing new technologies and accelerated digitalisation to contribute to making SES a reality. SESAR is composed of three phases: definition, development and deployment. Discover SESAR, a groundbreaking collaborative program aimed at modernizing and harmonizing ATM systems across the continent. Delve into the regulatory framework of Common Projects, which set out specific targets and timelines for essential ATM functionalities. Learn how common projects play a key role in enriching the performance of ATM operations. Meet the SESAR Deployment Manager, the orchestrator behind the deployment of these changes, and explore the unpredictable factors challenging ATM modernization.

4.

As One team behind
SESAR deployment

Framework

The completion of the Single European Sky is defined as a policy priority by the EC for the Aviation sector: such completion is highly dependent on the progress made with the implementation of its technological pillar, SESAR, which is reflected in the EU ATM Master Plan and in the SESAR Deployment Programme.

SESAR is a collaborative program established to modernize and harmonize ATM systems across Europe. Its deployment phase, coordinated by SESAR Deployment Manager, involves the synchronised implementation of innovative technologies, operational procedures, and infrastructure upgrades to enhance airspace capacity, safety, efficiency, and environmental sustainability.

Common Project One (CP1), as defined by European Union Regulation 2021/116, serves as a the framework guiding SESAR deployment activities. CP1 sets out specific performance targets, operational requirements and timelines for implementing essential ATM functionalities. It lays the foundation for a seamless and integrated European airspace whilst at the same time increasing its overall performances, reducing delays, congestion, and enabling a significant reduction of the environmental impact of aviation.

Without the timely deployment of CP1, the goal of building more sustainable, resilient, efficient, and effective ATM in Europe will become more difficult to achieve, with negative short and mid-term outcomes for the aviation industry as a whole, as well as for the European passengers.

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AS ONE
TEAM

102

Partners involved in
SESAR deployment.

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The Role of Common Projects in ATM Modernization

Common Projects play a vital role in coordinating and harmonizing ATM modernization efforts within the SESAR framework. By establishing clear objectives and requirements, timelines, and performance targets, Common Projects facilitate collaboration among stakeholders, including air navigation service providers, airports, airlines, and regulatory authorities.

These Projects promote the adoption of standardized SESAR solutions and interoperable technologies, ensuring compatibility and consistency across different the whole European airspace. Moreover, Common Projects enable economies of scale by pooling resources and expertise, thereby optimizing investment and maximizing the benefits of ATM modernization initiatives.

Common Projects play an essential role in guiding ATM modernization through SESAR deployment: they foster collaboration, standardization, and harmonization among all involved operational stakeholders. Through concerted efforts and sustained cooperation, stakeholders can leverage on the potential of common projects to transform the future of air traffic management and unlock sustainable growth for aviation.

4.

Civil -Military collaboration

Modernisation through SESAR deployment contributes to the dual use of the European airspace and the underpinning Air Traffic Management infrastructure and systems, both for civilian and military/defence purposes.

Integrating the movement of military troops or assets, the main objective of the EU military mobility approach, is one of the objectives of the CP1, ensuring that military operations can be accommodated in the European Network without any prejudice to the safety and performance of all operations.

As SESAR deployment addresses and facilitates early and synchronised adoption of CP1, it is considered that a better use of the European airspace would increase the efficacy of European militaries, which is increasingly important in the current geopolitical scenario.

In particular, a more effective and efficient provision of air navigation services in Europe will benefit all types of Airspace Users flying into the European airspace, be it commercial or military traffic. This becomes evident when considering that military air forces manage the biggest fleet in Europe (more than 12.000 aircraft operated), and as such will directly take advantage of the possibility of operating such fleet in a safer, efficient, and environmentally efficient manner.

DEPLOYMENT FACT

34

Countries involved
in SESAR deployment.

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DEPLOYMENT MANAGER

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4.

SESAR Deployment Manager

The SESAR Deployment Manager role and function is defined by the Article 9 of European Commission Implementing Regulation (EU) N°409/2013. Under the oversight of the European Commission, this function consists of the synchronization and the coordination of the deployment of a set of essential functionalities in the European ATM Master Plan by the Member States of the European Union and their operational stakeholders.

The SESAR Deployment & Infrastructure Partnership (SDIP) is the organization which has been selected by the European Commission on 01/06/2022 to perform the SDM function until 2027.
A strong industrial partnership stands behind SESAR Deployment Manager under the oversight of the European Commission. It represents all perspectives and standpoints of the operational stakeholders from the ATM industry:

4 Airlines: covering 3 million flights with around 500 million passengers per year (one third of the overall European passengers) with an operating network that touches all EU Member States;
15 Air Navigation Service Providers: safely controlling around 8 million flights per year (around 80% of the air traffic in the EU), as well as all major traffic flows operated in Europe;
Airports: ACI Europe representing over 500 airports of every size across 55 countries, able to provide the full airport operational perspective;
EUROCONTROL - Network Manager as the consortium coordinator: the best placed to provide a network-wide view, both in terms of technological deployment but also in terms of operational interoperability to ensure seamless functioning of the European ATM network.

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293

The number of projects in operation
delivering benefits
to passengers today.

Unpredictable factors impacting ATM modernization

While ATM modernization in Europe holds great promise for improvements, the aviation industry will always be subject to a myriad of unpredictable factors ranging from weather events to technical aspects, political, social, and economic dynamics. Adapting to these challenges requires robust contingency planning, stakeholder engagement, and a flexible approach to ensure the resilience and sustainability of ATM systems in the face of uncertainty.

One of the foremost unpredictable factors is the weather. Adverse weather conditions such as storms, heavy fog, or volcanic eruptions can disrupt air traffic, leading to delays and cancellations. These disruptions not only affect the operational capacity of ATM systems but also pose challenges to the implementation of new technologies and procedures. However, SESAR deployment and ATM modernisation includes specific technologies to make sure such weather events can be mitigated and their impact on air travel can be reduced to the minimum.

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Dedicated members forming
the beating heart of
SESAR deployment.

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Delivering benefits to European passengers, citizens, environment and economy
Partnering in #SESAR deployment - March 2024

84%

Of Common Project One deployment implemented or in progress.

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MODERNISING AIR TRAFFIC MANAGEMENT
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