✈ Flying: A freedom reaching its limits

In 2008, 10 million flights took place in European airspace, which equals to around 27,000 flights every day[1]. The smooth and safe handling of all these flights is guaranteed through air traffic management (ATM).

ATM is done by ground-based controllers who direct aircraft on the ground and in the air. Their primary tasks are to prevent collisions, to organise and expedite the flow of traffic – in short to be the eyes, ears and guides of pilots, 24 hours a day, 7 days a week.

This system has worked very well in the last decades. But ageing technology together with a constant increase in traffic, higher environmental awareness and the need for cost efficiency calls for a fundamental change on how aircraft are directed in future.

AIR TRAFFIC MANAGEMENT'S THREE MAIN TASKS:

- **Air traffic control** – managing the movements of aircraft

- **Airspace management** – organising airspace so as to handle different types of air activities, traffic volumes and resource needs

- **Flow and capacity management** – prioritising aircraft to ensure an orderly flow

AIR TRAFFIC MANAGEMENT TODAY

As a passenger you do not 'feel' air traffic management as long as everything runs smoothly. If the opposite is the case, you immediately notice it: your plane is delayed, doesn't take off at all or you circle above your destination airport until your pilot gets the green light to land.

Europe does not have a single sky with air traffic control managed at the European level. Each country is responsible for its own sky, with handovers between controllers and technical systems at each border crossing.

In today's system, flight departures and landings are done on a first come, first served basis with airports being the bottlenecks. But holding in the air or on the runway is not only aggravating for you as a passenger. It has negative effects on the environment due to higher fuel burn and increases costs for airlines.

AIR TRAFFIC MANAGEMENT TOMORROW

Air traffic management technology needs to be catapulted to the 21st century to cope with these challenges. While you may be able to write text messages with your mobile phone in the cabin, your pilot still uses antiquated VHF radio to communicate with air traffic controllers.

The European Commission initiated in 2004 the Single European Sky project with SESAR (Single European Sky ATM Research) being its technical pillar. SESAR involves developing a new ATM system to handle more traffic with greater safety and at a lower cost. Its new technologies and procedures will also reduce the environmental impact of flying.

[1] Eurocontrol, Annual Report 2008.

Why does air traffic management need to be modernised?

Situation today:	Tomorrow's challenges:	Without modernisation, we'll have:
• ATM is at limits	• More traffic	• Reduced mobility
• Ageing technology	• Environment	• More delays
• First come, first served	• Cost efficiency	• Safety issues
		• Increase in costs
		• More CO_2 and noise emissions

Today's partners for Tomorrow's aviation

✈ Revolution in the sky

Mobility is not only vital for you as a passenger but also for European companies. An ever more crowded sky leads to more delays which in return cost airlines between €1.3 and €1.9 billion a year[2].

SESAR: MODERN TECHNOLOGY FOR AN INNOVATIVE EUROPE

SESAR will introduce a paradigm change in air traffic management. At its heart is a co-operative structure closing ranks between ground and air. The new technology will enable a fast and easy information exchange not only between air traffic controllers and pilots, but useful messages will in future also come in real time from airline operation centres, meteorological services, or airports. With more information on what is happening for example in the destination airspace, flights can be better planned and congestions can be avoided. Predictability of departure and arrival times will increase and unnecessary waiting times will be a memory of the past.

Through SESAR, the capacity limits of today's system will be lifted and the direction of aircraft will become more efficient. At the same time, SESAR is all about safety. This is always the number one priority in aviation, but using current technologies there is an upper limit to the number of flights that can be managed. The new system will also lower costs for the airlines which in return means for the passenger that ticket prices will not rise because of an ageing ATM system. Finally, the environment will benefit from SESAR technology. Better planning of the flight from taxiing to the runway to the arrival at the destination airports means less unnecessary fuel burn and also less noise.

SESAR GOALS FOR 2020

- enable threefold increase in capacity
- improve safety by a factor of 10
- cut ATM costs by half
- reduce environmental impact by 10%

SESAR: WHAT DOES IT MEAN FOR YOU?

Selecting your destination will be more fun. SESAR means more capacity, and more flights.

Booking your ticket will be cheaper. SESAR ensures mobility, keeping costs low.

Planning your journey will be more precise. SESAR allows exact flight scheduling, limiting your waiting time at the airport and on the runway.

Reaching cruising altitude will be faster. SESAR enables a steep ascent, allowing you to use your electronic devices sooner.

Flying will be more environmental friendly. SESAR flights are more direct and efficient, limiting your carbon footprint.

Descending will be smoother. SESAR flights will land in an optimal curve, reducing fuel burn and noise.

Arriving will be on time. SESAR facilitates the exact planning of your arrival, minimising the waiting time for you and those who pick you up.

And finally, SESAR ensures the continuous smooth delivery of goods, which is vital for you and European business.

Enjoy your SESAR flight!

[2] European Commission

www.sesarju.eu

WHAT'S NEXT

SESAR is a fast moving programme and concentrates on implementing benefits from an early stage. While we will introduce innovative technologies as of 2013, we will make a difference already in 2010:

Time to upgrade from your old 56k modem?

You might not believe it, but the speed in which information is transferred between airport, air traffic control centre and the aircraft on the ground can be compared to your old 56k modem. SESAR speeds up telecommunication technology at airports to the 21st century.

How can more fuel be saved?

Imagine you drive down a mountain. You will not speed up only to brake in front of a turn. You know that by driving like this, you would burn extra fuel. Instead, you will choose a constant speed where you need to use the brakes as little as possible. Today, aircraft descend in stages which leads to the burning of unnecessary fuel. With new SESAR procedures, descending will soon be smoother and thus more environmentaly friendly.

SESAR IS A HUGE TEAM EFFORT

Founded by the European Commission and Eurocontrol, the programme's members represent the whole aviation community. These include **airport operators** (AENA and SEAC – a consortium made up of BAA Airports Ltd, Flughafen München GmbH, Fraport AG, Schiphol Nederland B.V., Aéroports de Paris and Flughafen Zürich AG) and **air navigation service providers** (DFS, DSNA, ENAV NATS and NO-RACON – a consortium consisting of Austro Control (Austria), AVINOR (Norway), EANS (Estonia), Finavia (Finland), IAA (Ireland), ISAVIA (Iceland), LFV (Sweden) and Naviair (Denmark)), as well as **equipment makers** (Frequentis, Honeywell, Indra, NATMIG, the SELEX Consortium and Thales) and **aircraft builders** (Airbus, Alenia Aeronautica).

Several of these members are made up of groups of companies, sometimes with subsidiaries or partners, meaning that a total of 70 organisations participate. Altogether these organisations have provided € 2.1 billion to finance this important research and development project.

SESAR has cleared the runway and is up and running, with a truly international team of public private partners on board — building the future of flying today.

For more information on SESAR, go to www.sesarju.eu.

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