<u>SESAR in the changing era in Aviation</u>

Dear colleagues, the Aviation world is globally changing. Everybody, from individuals to stakeholders nowadays is looking for faster and economical journeys, faster and fuel saving aircraft, less expensive operations new smart airport facilities and so many other conveniences. People demand this easy and fast moving situation. It's true that all of us like things to move in a relatively fast mode. But, we must very careful avoiding bad consciences from this new slogan of "FAST TRAVELING. Aviation safety is a collective responsibility.

 I would like to share with you some interesting news related to SESAR.

The Single European Sky ATM Research (SESAR) project, as you might know, was launched back in 2004 as the technological pillar of the Single European Sky (SES). Its role was **to define, develop and deploy** what was needed to increase ATM performance and build Europe's intelligent Air Transport System.

A master plan has been developed for SESAR, joining 38 countries. 27 E.U. and 11 non-E.U. countries with their own completely separate air traffic control system

Also in 2007 was established as a public-private partnership the SESAR Joint Undertaking (SESAR JU) with main goal the modernisation of the European air traffic management (ATM) system by **coordinating and concentrating** all ATM relevant research and innovation efforts in the EU, with the ultimate vision to make the Single European Sky project a reality.

By December 2016 the first SESAR research and development program ended, with a total of 63 Air Traffic Management (ATM) solutions, all with a shared goal: **the increase of the number of air operations, the increase of safety, and the reduction of the costs and environmental impact associated to each flight.** <mark>-></mark> <mark>Priority issues for the EU.</mark>

These solutions were developed with a combined work and a fruitful collaboration between the stakeholders, like airport authorities, air navigation service providers, the aviation industry, airspace users **and us as the Professional staff organizations**. IFATSEA has contributed a lot in this process…(what we did?)

<u>Let's see know t</u>**he way forward is** the **SESAR 2020:**

Building on the achievements, knowledge and expertise gained from SESAR1, the ambitious SESAR2020 was initiated early this year addressing many areas critical for the modernization of European ATM.

As I mentioned before, t*he passengers are expecting to have a safe and smooth journey without any delays –**nobody like delays* *or cancellations and to arrive on time at their destination with luggage in hand. Meeting these expectations is the job of Europe's ATM system, which up until now has safely and effectively managed the flow, movement and density of traffic in European skies.*
A total of 25 projects are included in the SESAR 2020 industrial research and large-scale validation activities. These projects will run from now until the end of 2019 and they will deliver new or improved technological and operations solutions **in order to increase the performance of airports, air navigation service provision and the overall European ATM network.**

There is a budget of EUR 260 million for these projects, which is funded by SESAR members and through the EU's Horizon 2020 research and innovation program.

Coming now to the mathematics and the statistics of this project we can see some amazing figures.

SESAR 2020, as the technological pillar of Single European Sky (SES) initiative, which coordinates and concentrates all EU research and development (R&D) activities in ATM, is pooling together around 3,000 **experts** working hard to develop the new generation of ATM in Europe.

1.4 million 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.

Aviation industry employs around 1.4 million people, creating around 5 million jobs, contributing to the **Gross Domestic Product of European Union an amount of 110 million Euros. So, from these numbers we can see that ATM is an essential part of European air transport and aviation, not only to connect cities and people citizens but also as a power for boosting jobs and growth.**

In the light of the expected traffic growth up to 2035 it was revealed that Europe's ATM system, which is mostly based on legacy - ageing technology and procedures, needs to be updated & upgraded. This is exactly where SESAR comes in, as one of the most innovative infrastructure projects ever launched by the European Union. To assist to the required increase in ATM performance, building this innovative and sophisticated Europe's Air Transport system.

==END of 2016 we had 1.6 billion passengers and 10 million flights== (160 passengers per flight)

2012
9.5 million flights
0.7 billion passengers

2035
14.4 million flights
1.4 billion passengers
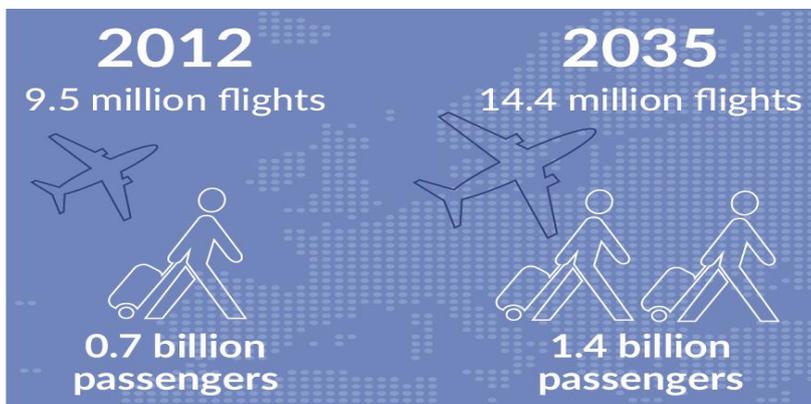
All these would be of low significant if there was any future plan and programing.

SESAR's vision builds on the notion of trajectory-based operations' and relies on the provision of air navigation services (ANS) in support of the execution of the business or mission trajectory — meaning that aircraft can fly their preferred trajectories without being constrained by airspace configurations. … (example with airlines taking longer routes due to route charges between countries)

We have to take the flight as an end to end process

SESAR: 2020 Vision will rely for its success in the following areas.

1) Progressive increase of the level of automation support,
2) System integration by use of standardized and interoperable systems.
3) Integration in the ATM environment of all flight objects.
4) Sharing of Information
5) Airports will be fully integrated into the ATM network level, which will facilitate and optimize airspace user operations.
6) The implementation of virtualization technologies like Remote Towers.
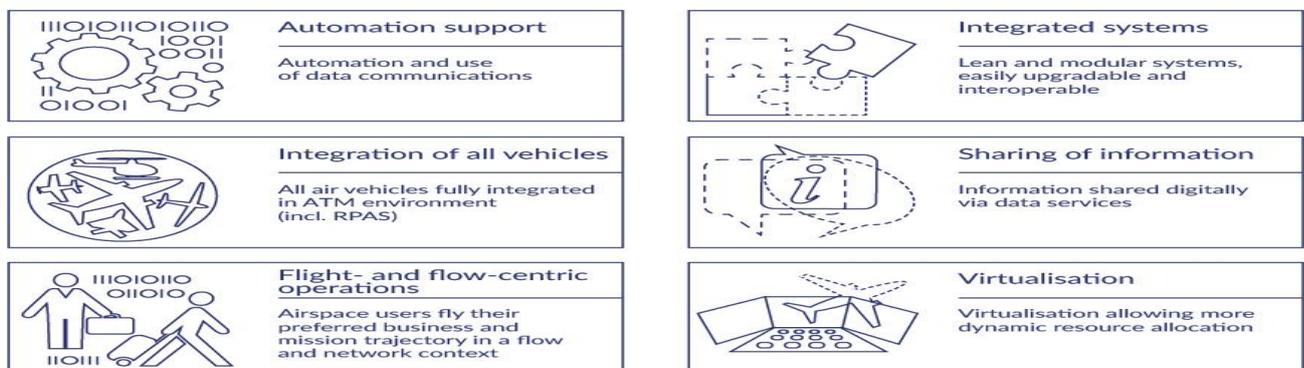
As a synopsis, we can say that we are in front of a very ambitious project in Europe aiming to deliver top of the class on performance, safety, efficiency, environmental friendly and interoperable Air Transport system for the Airspace users and the passengers.

This will be achieved with the

1) The increase in the performance of airport operations
2) The optimization of the Network services
3) The advanced Air Traffic Services
4) And by enabling the whole aviation infrastructure.

This huge effort of SESAR will contribute to the SES goals and comply with the increase of air traffic in the European continent bringing also benefits in four key areas: cost efficiency, capacity, safety , environment and also the security including the very hot issue of cybersecurity where we see huge investments from all stakeholders, airlines, industry, the ANSPs etc. You can see the targets set.

One good example

A project called **(RISE)** – "Required Navigation Performance Implementation Synchronized in Europe" It ended in December 2015. Under the two year project, 43 new Performance Based Navigation (PBN) procedures were designed and demonstrated for deployment at ten airports throughout southern Europe. *The RISE project has increased the implementation of performance based navigation throughout Europe over the past two years through collaboration and flight demonstrations.*

 The RISE project has focused on improving airport access by removing existing circle-to-land approaches, without relying on ground navigation infrastructure, lowering the weather minima and allowing shorter tracks resulting in track mile savings and continuous descent operations. NAVBLUE, the Air Traffic Management (ATM) services arm of Airbus, managed the project in collaboration with four European Air Navigation Service Providers (ANSPs); DCAC of the Republic of Cyprus, NAV Portugal, DSNA of France, and the Hellenic Civil Aviation Authority (HCAA). Air France, Novair and TAP Portugal were also involved in the more than 500 flight trials that were part of the project.

Some recent deployed solutions are (from the 3rd of March)
1)Collaborating across borders to reduce delays, NATS and sees controllers from the four countries working together to slow down aircraft when there are significant delays at the airport, reducing the amount of time they'd otherwise have to spend in the fuel intensive holding stacks just outside Heathrow.

2) Ground surveillance Radar, Lights, runway, increased capacity!
This SESAR Solution is a fully automated safety system using ground surveillance radar, which provides crews and vehicle drivers with immediate, accurate and clear indication of the runway occupancy status. It is estimated that between 50% to 70% reduction of the most serious runway incursion occurrences can be expected thanks to this system. The solution is part of an ambitious strategy to increase the airport's runway capacity in full safety. **,**

3) Freedom in Europe's skies : In Blue Med this is a major airspace project jointly coordinated and implemented by ENAV and MATS, which will provide the ability of all operators to flight plan any direct route by indicating only an entry and an exit point in Free Route airspace.**,**

4) Increasing resilience at one of Europe's busiest hubs: consistent time-based spacing between arriving aircraft in order to maintain runway approach capacity**,**

5) Remote towers: keeping Europe connected
Remote tower technology, which draws on a range of advanced technologies, offer small and medium-sized airports the means to maximise their operations and services while reducing fixed costs.

and from April : Pioneering noise reduction at airports: Ground-based augmentation system GBAS-enabled approach procedures. It involves raising the angle from 3 to 3.2° during the final approach as an active measure to counteract noise.

SESAR 2020 & IFATSEA

So, where we stand as IFATSEA in relation to these developments.

- With the new contract in place with SESAR -JOINT UNDERTAKING IFATSEA can follow all the developments
- What is for ATSEP in Europe? By following all these new projects closely, it is very productive. We can extract what is useful for us and at the same time we are trying our best to influence the developments.

Defiantly we will come in front of a lot of challenges in a wide number of areas.

Many hub <mark>airports are saturated</mark> and innovative solutions will need to be explored to increase capacity on the runway and wider apron area, and in the terminal airspace area.

At the same time, the <mark>environmental impact of aviation in and around airports</mark> will need to be reduced and the quality of service to airspace users improved, with more fuel-efficient procedures and predictable operations.

Regional airports also need support and <mark>more cost-efficient ATM services</mark> must be developed at these vital facilities, for example with the advent of remote tower services.

The economic pressure on airlines will mean that all ATM actors will have to improve their cost efficiency. <mark>New business models will be required</mark> to deliver more affordable ATM services, with common service provision to reach economies of scale comparable with those in North America, and virtualization of services which already exist in the IT domain. This paradigm change requires SESAR2020 to explore new architectures which will evolve from the current monolithic systems to more open and modular architecture.

Providing a <mark>secure, safe information network</mark> will require new cyber tools with secure encryption keys for the various stakeholders. The cyber threads are more than ever a reality nowadays.

At the same time, the <mark>use of drones in civil airspace</mark> will require a vast library of safety cases based on many different operational scenarios.

If we transfer all these developments in our domain we can see that our Job, our profession is changing bringing to us a lot of challenges but at the same time new opportunities. New ATSEP disciplines will be evolved meaning new jobs, roles and duties.

Our duty, our goal as professional entities is to help our members to overcome the challenges by giving them the knowledge and the skills and to encourage them to take advantage of all these new professional opportunities.