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Second Package of the Single European Sky and SESAR

**4th of December 2008,
INO Workshop
Eurocontrol, Bretigny**

**DG TREN
Single European Sky and
Modernisation of the ATM
Kasia GRYC**





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Current challenges in the ATM and at the airports

- **ATM challenges:**

- Capacity constraints
- Enhanced safety requirements
- Reduction of ATFM delays and improvement of Target Time of Arrival (TTA) & punctuality
- Environmental dimension: flight efficiency/fuel burn

- **Airport challenges:**

- Capacity constraints related to infrastructure
- Time efficiency (reducing airport related delays)
- Environment: reduction of noise and of gaseous emissions



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Capacity challenge

- ATM Capacity challenges:
 - IFR flights 10 millions/year in 2007 to 17 millions in 2020
 - Air transport demand will grow at 4-5% per year
 - The ATM required increase in capacity cannot be generated by further division of sectors
 - Air traffic routes are not designed efficiently at a European level, but are an amalgamation of the national flight routes: resulting in suboptimal use of airspace and additional fuel burn



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Capacity challenge

•Airport challenges: (based on Challenges to Growth)

- In 2003, 30% of current existing capacity was not used (only 70% was effectively needed), however in 2020, 100% use of the existing capacity of the airport network will not be sufficient to accommodate 3.7 million of flights

- Additional flights can be accommodated at secondary airports and at less favorable hours, which implies a change of traveling patterns for the customers and negatively affects the quality of service

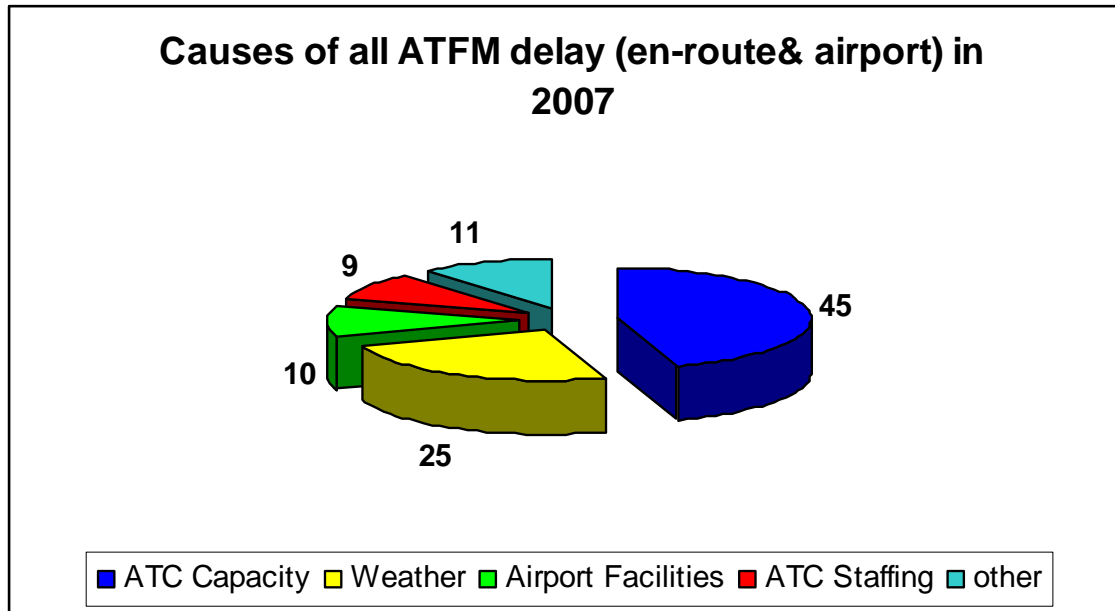


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Delays Challenge

• Causes of all ATFM delays (en-route & airport):



Source: Digest Annual-2007, Delays to Air Transport in Europe, Eurocontrol

• Departure flights: 46% delayed and 22,3% by + 15 min

• Arrival flights: 43% delayed and 22,1% by + 15 min

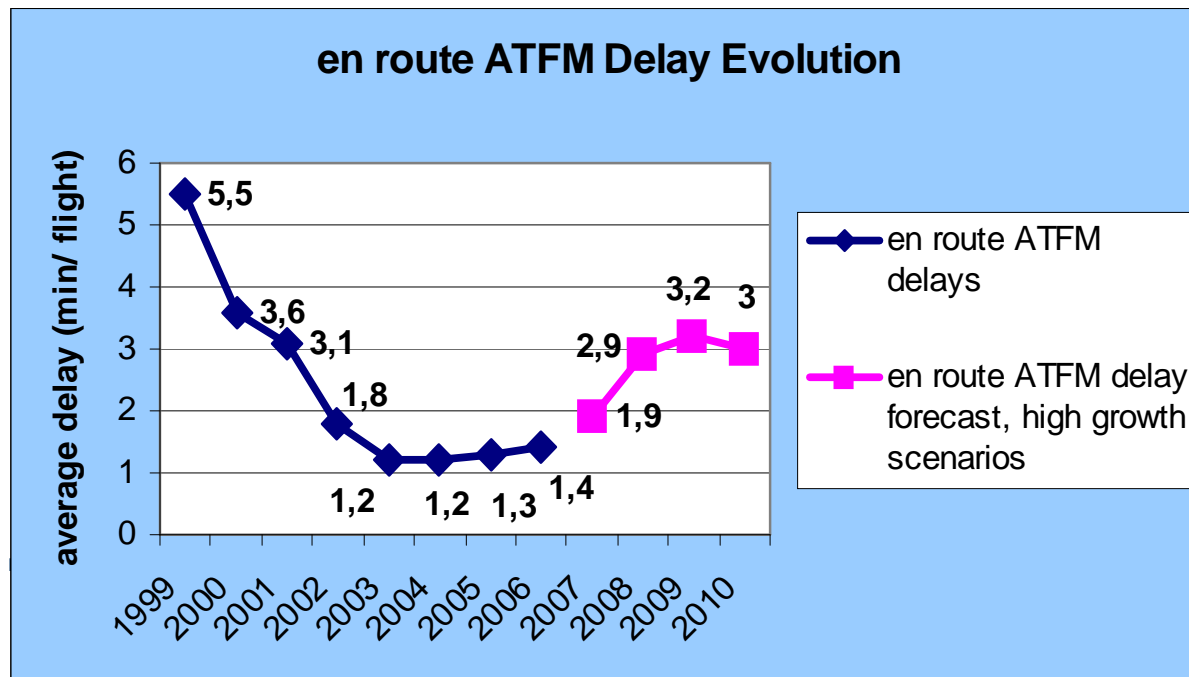


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Delays Challenge

- Delays have an economic impact on service quality, customer satisfaction and on environment
- En route delays are increasing back to 2000 levels (prediction of 2,9 minutes delay per flight in 2008)
- **Vision 2020 Target:** 1% of flights delayed over 15 minutes



source: Provisional
Council 14th of
November 2007





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Environmental challenge

- Overall Transportation contributes to Greenhouse gases emissions at 19,4%
- Aviation's contribution to global greenhouse gases amounts to 3%
- Given the expected air traffic growth (x2 at the horizon 2020 from 2005 levels), research must be focused on greening the aviation and making it more sustainable





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5 major initiatives to globally approach ATM and airport challenges

1. **Single European Sky legislation**
 - 4 basic regulations in 2004
 - Revision in 2008
2. Creation of the **Airport Capacity Observatory**
3. **SESAR R&D programme**: an technological component of the Single Sky aiming at modernisation of ATM systems and technologies
4. **Extension of EASA's competences** in the area of the safety towards the aerodromes and the ATM
5. **Clean Sky**: a joint research programme aiming at greening aviation





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Single European Sky

1. Single European Sky legislation

- Enhance ATM performance by setting binding targets on safety, cost efficiency, capacity and environment
- Accelerate the creation of the Functional Airspace Blocks in order to integrate/consolidate service provision
- Network to be designed and scarce resources managed at European level (frequencies and codes)



Put Eurocontrol's expertise at the disposal of the implementation of the Single European Sky





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SES: integrating capacity management in the air and on the ground

2. Airport capacity action plan

- Better use of existing capacities
- New technologies
- Intermodality
- Observatory for airport capacity
- Improved capacity planning
- Capacity inventory
- Increase predictability: Planning and management in function of required time of arrival



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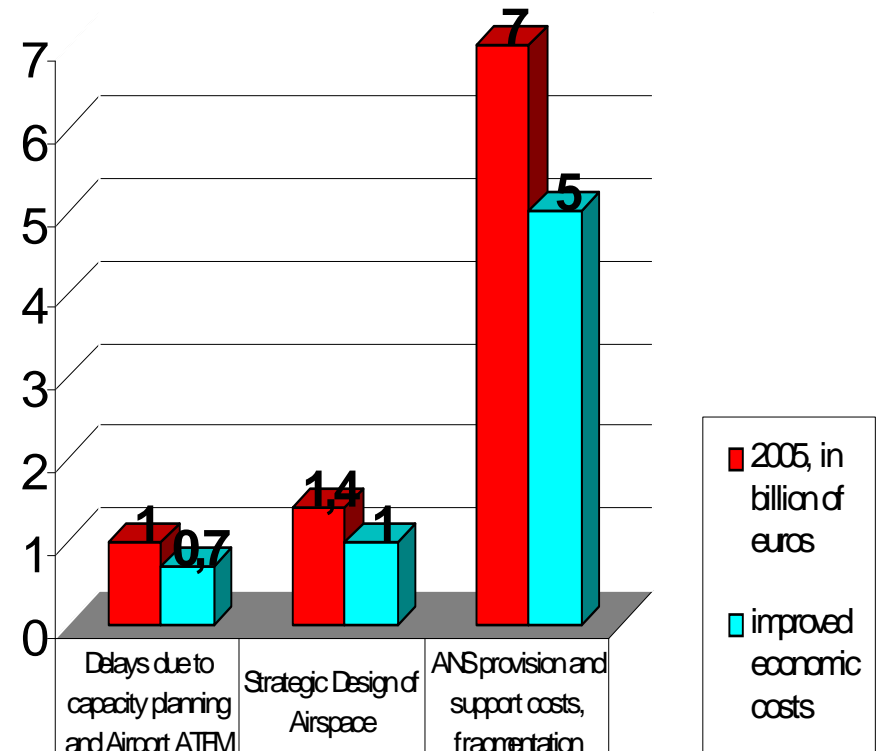
Expected benefits form the full implementation of Single European Sky:

Source: Eurocontrol, Performance Review Commission, December 2006

Environmental benefit of 5 million tons CO2 obtained by direct routes

- **Reducing fragmentation, creating economies of scale and decreasing support costs 2 bn euros**
- **Eliminating en-route horizontal inefficiencies in strategic airspace design 0,4 bn euros**

Costs of air navigation services



■ 2005, in billion of euros	1	1,4	7
■ improved economic costs	0,7	1	5



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Second package of the SES: The performance pillar

Framework Regulation

- Improved performance of the ANS of the SES- sustainable development is part of the objectives of the SES
- Article 11 sets up the main features of the “Performance scheme” with binding targets
- The performance objective encompasses further reaching goals than these set initially in the first SES by including:
 - Economic efficiency of the AN services (unjustified cost shall not be charged to airspace users)
 - Environmental efficiency



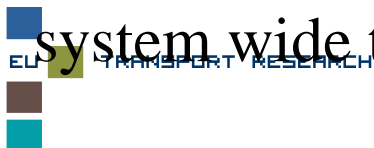
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The performance pillar

Performance Review Scheme, art. 11 of the FR:

- PR Body shall:
 - collect ATM relevant data from SESAR, national authorities and airspace users, ECTL
 - Advise EC on system wide pan-European targets
 - The targets will be discussed and voted in the Single Sky committee
- The National Supervisory Authorities shall:
 - Consult the stakeholders on the national binding targets
 - Issue national performance plans with binding targets, consistent the system wide targets
- The EC will verify the compliance of the national plans towards the system wide targets

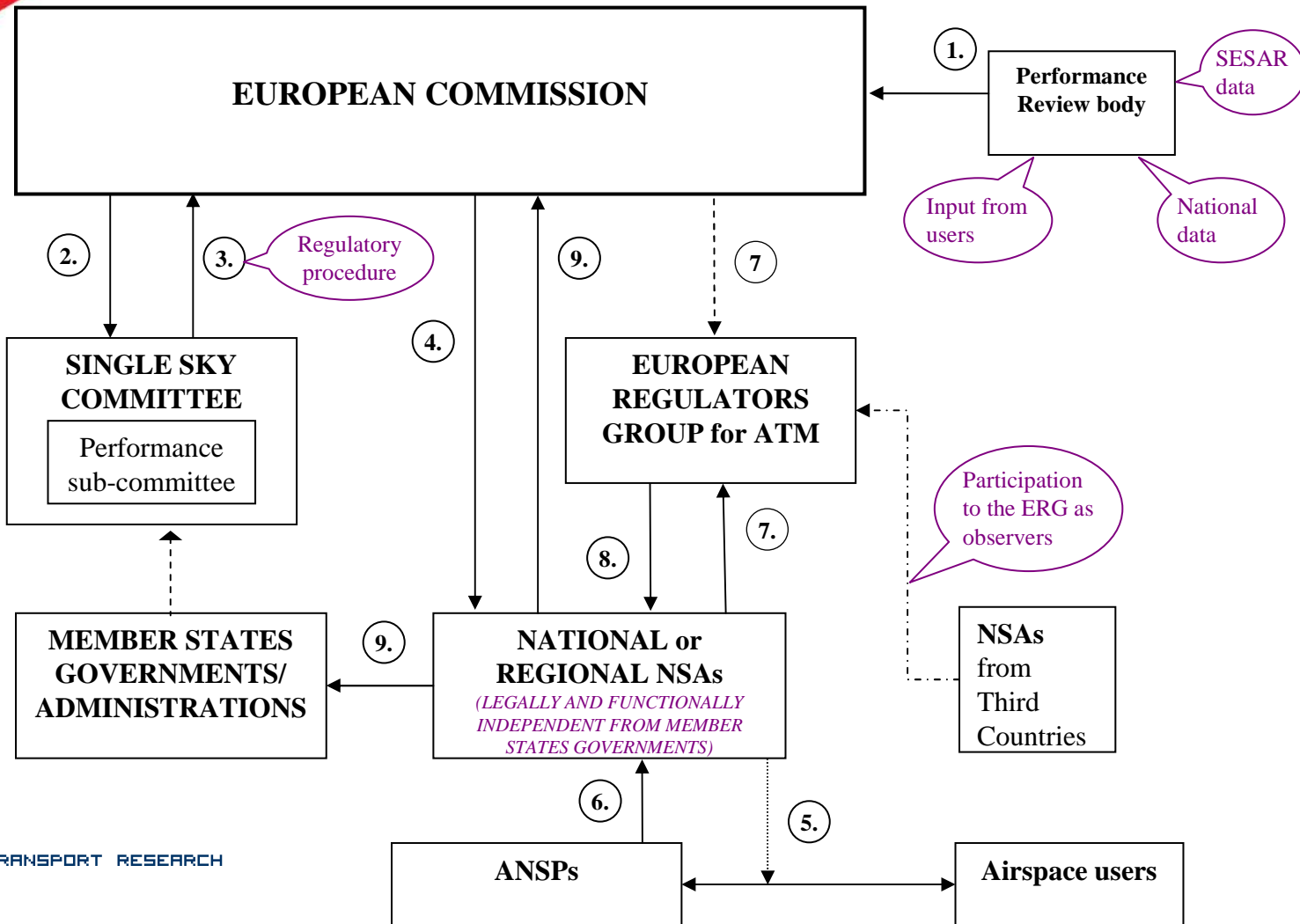




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Performance Review Scheme: local target setting





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The Network management pillar

Network management and design: art 6 of the Airspace Regulation

- EC shall ensure that the following functions are carried out:
 - The design of the European route network
 - Coordination of scarce resources (radar frequencies, radar transponder codes)
 - Additional functions may be added after consultations with industry and applying regulatory procedure (comitology) with EP's scrutiny right
 - Implementing Rules for the detailed implementation will be developed



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Second package of the SES:

The Functional Airspace Blocks pillar

FABs: art. 9a of the Service Provision Regulation

- The FABs are shifted from the Airspace regulation towards the Services provision regulation:
 - Stress on the common provision and consolidation of ANS
 - not limited to the upper airspace but also concern the lower airspace
 - 7 criteria for the establishment of the FABs
- Art. 2.3 strengthening of the mutual recognition of the ANSPs in the Functional Airspace Blocs



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SESAR as technological component to SES

- A consistent, focussed and users-driven project
- Ambitious but realistic objectives for the European ATM infrastructure at the 2020 horizon:
 - **Triple capacity**
 - **Reduce by 50% ATM costs**
 - **Environmental impact per flight -10%**
 - **Increase safety by factor 10**
- A European project which needs to be synchronised with other international initiatives



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Organisation of SESAR in 3 phases

2004

2008

2013-16

2020 >

Definition

Development

Deployment

Define the different technological steps, programme priorities and operational implementation plans.

Develop new equipments, systems or standards, through defined and coherent R&D activities;

Deploy the new system through a large scale production and implementation of the new ATM infrastructure.



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Development phase managed by the SESAR Joint Undertaking

- **The aim of the development phase:**
- Development of new equipments, systems or standards, which will ensure a convergence towards a fully interoperable ATM system in Europe
- **Management of the Development Phase is ensured by the Sesar JU**
- An initiative of the European Commission under Article 171 of the Treaty
- Established by a Council Regulation adopted on 27 February 2007
- **The value added of the Joint Undertaking:**
 - Allows to combine public and private resources
 - Full involvement of stakeholders
 - Single management of R&D
 - Coherence of the project
 - Political control by Community



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Members and funding of the JU

The funding:

- 700 M€ from the Community
- 700 M€ from Eurocontrol (in kind and in cash)
- 700 M€ from other partners (ANSPs, airlines, industry, third countries)





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Focus on the Concept of Operations

1. Performance Driven: 11 key performance areas inspired by ICAO standards, aiming at significant improvement of ATM processes.
2. Process Orientated: the SESAR concept focuses on the Trajectory management and Conflict resolution and management
3. Trajectory Based: the airspace users' individual trajectory in 4 dimensions
4. Founded on SWIM: real time data available to all ATM actors



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Disclaimer: the Second Package of the Single European Sky legislation is currently discussed in the Council and therefore the presented information is subject to changes in the Council and in the European Parliament

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Air transport portal: http://ec.europa.eu/transport/air_portal/traffic_management