Single European Sky
And
Functional Airspace Blocks

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Outline of this presentation:

1. Single European Sky background
2. Single European Sky current situation and achievements
3. Single European Sky second legislative package
4. Functional Airspace Blocks
Single European Sky

The Reasons

• Revolution in the economic and regulatory landscape of air transport in Europe on the last 20 years

• Before 1987, national markets within the EU were protected and fragmented

• Three successive packages of liberalisation measures (1987-1992) have changed the map

• Largest and most successful example of regional market integration and liberalisation
The Reasons

The aviation single market – key figures

- A €140bn business in 2006
- Carrying over 730 million passengers in 2006 (of which 480 million within EU)
- ~11 million tons of cargo in 2005
- ~35% of world air passenger traffic (2006)
- +150 airlines (scheduled passenger carriers)
- +400 airports (scheduled services)
- ~5,300 aircrafts in service (2006)
- 2.8 million indirect jobs (3% of EU workforce)
- 30 largest airlines alone employ 360,000 staff
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The Reasons

- After the liberalisation of traffic in 1990s EU experienced a level of unprecedented deterioration in on-time performance of air carriers
- One of the reasons identified was the underperformance of the ATM systems: ageing technologies and systems will face considerable traffic increase by 2020
- Other important reason: fragmentation of European skies
- High Level Group report in November 2000
- The EU responded with an ambitious regulatory initiative
European airspace is fragmented according to national borders rather than traffic flows.

More than 60 Area Control Centres in Europe in 2003.
Sectors and routes are designed according to national borders rather than traffic flows.
Traffic is still expected to grow, and even to double between 1997 and 2020.
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Legal Basis

- SES legislative package was adopted by the EU Council and European Parliament and entered into force in April 2004:
  - Framework Regulation
  - Service Provision Regulation
  - Airspace Regulation
  - Interoperability Regulation

European Law

- Supranational law NOT intergovernmental law
- European Law characteristics:
  1. Primacy/supremacy over national laws
  2. Direct Effect
     - Horizontal Direct Effect: EU Regulations
     - Vertical Direct Effect: EU Directives
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Who Does What

- **EU Regulations**
  - Proposed by the European Commission
  - Decided/approved by EU Council of Ministers and European Parliament

- Secondary law (application of EU Regulations)
  - Technically developed by Eurocontrol through mandates
  - Legislation and mandates are decided by Single Sky Committee (SSC) on the basis of European Commission proposals
  - SSC: States (civil and military) plus observers (Eurocontrol, ICAO)
  - Industrial Consultation Body (industry and stakeholders) advises European Commission
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The Objectives

- To restructure European airspace as a function of air traffic flows, rather than according to national borders
- To create additional capacity
- To increase the overall efficiency of the ATM system
- To enhance safety standards
Single European Sky

The Features

- The Single Sky Legislation reforms the organisation of air navigation service provision
- Institutional measures:
  - Separation of regulatory activities from service provision, establishment of National Supervisory Authorities (oversight)
  - common requirements for ANSP, certification & designation
  - bodies which manage implementation (SSC, ICB) involving all stakeholders (staff, military, industry, ICAO)
- Financed by uniform system of charging
- To achieve full Interoperability of the European ATM Network (of systems, constituents and associated procedures)
The Features 2

- New airspace architecture:
  - Setting-up of cross-border functional airspace blocks (FABs) as an intermediate step
  - European Upper Flight Information Region
  - Harmonisation of FL division level and of airspace classification, common principles and criteria for route & sector design
  - Flexible Use of Airspace
  - Rules for Air Traffic Flow Management
- Air Traffic Controller License
- Geographical scope: SES now includes 38 States (EU-27, ECAA, Switzerland, Morocco)
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Achievements (I)

- **Legal and institutional framework in place:**
  - **Single Sky Committee** assists the Commission in adopting the enabling legislation through comitology with civ/military participation, EASA, ICAO and 3rd countries
  - **Industry Consultation Body** enables all industry stakeholders and social partners to contribute to legislation
  - Technical support from **Eurocontrol** in the rulemaking process through mandates
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**Achievements (II)**

- **Separation of service provision from regulation**
  - Each Member State has established a **National Supervisory Authority (NSA)** to ensure effective regulation and for avoiding conflict of interests. NSAs are also exercising a safety oversight function.
  - Since 20 June 2007, air navigation service providers have become subject to **certification** by the NSAs.

- **Transparency of charges**
  - A **common charging scheme** ensures full transparency in the establishment of air navigation service charges.
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Achievements (III)

• **Harmonisation in licensing of controllers**
  - Harmonised level of competence and an improved mobility of workers (Important social dimension as there are i.e. 16.500 ATM controllers within the EU)

• **Advances in the efficient use of airspace**
  - Common provisions for the flexible use (civil and military) of airspace
  - Harmonisation of airspace classification in the upper airspace above FL 195 classified as Class C Airspace
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Achievements (IV)

• Towards interoperable equipment
  - An effective interoperability mechanism has been established to adopt implementing rules (Regulations) and to develop Community specifications (Standards)
  - So far 4 implementing rules & 2 Community specifications have been adopted
  - Indispensable mechanism for the efficient implementation of SESAR
New Context (I)

- **Environment**
  - Aviation’s share of EU greenhouse gas emissions (currently 3%) is predicted to increase.
  - Network improvements could save up to 4.8 mil tons of CO² per year

- **Fragmentation**
  - Significant additional costs for airspace users (€ 2 bn per year could be saved by reducing fragmentation)
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New Context (II)

• **Capacity**
  - Very important increase of traffic within the next 20 years with EU enlargement and Open Skies agreements

• **Economics**
  - Cost efficiency improvements are not sufficient
  - Current European route network is an amalgamation of national routes that makes additional flight length 15% longer than domestic flights, resulting in additional costs of €2.4 bn per year
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Single European Sky 2nd package: What are our goals…

- put the emphasis on the right governance using the Community method as driving force of aviation regulation
- ensure the highest safety standards by implementing a comprehensive Total System Approach
- focus on a more efficient and performing air transport network including the pan-European perspective
- establish a sustainable European air transport system reducing the effects of aviation on the climate change
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Second Legislative Package

Will be based on 4 pillars

- **PERFORMANCE**: SES
- **TECHNOLOGY**: SESAR
- **SAFETY**: EASA
- **CAPACITY**: Network “Gate-to-Gate”
Second Legislative Package

PERFORMANCE (I)

• Introduction of a **performance-driven approach** and framework, including independent performance review body at European level

• **Performance regulation** with specific European targets

• Better flight-efficiency to be achieved through **improvement of the network architecture** and more efficient use of routes

• **Network management function**, responsible for the European route design and the management of resources and planning of SESAR deployment

• **Acceleration of the creation of Functional Airspace Blocks**
Second Legislative Package

TECHNOLOGY

- **SESAR** the technological component of the SES
- **SESAR program** in 3 phases
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Second Legislative Package

SAFETY

• Extension of EASA (European Aviation Safety Agency) competence to airports, air navigation services and air traffic management

• Implementation of the Total System Approach
Second Legislative Package

CAPACITY

• To integrate capacity management in the air and on the ground

• Action Plan for airport capacity, efficiency and safety in Europe

• Establishment of an Observatory to exchange and monitor data/information on capacity requirements in support of the Network Management Function

• Increase predictability: Planning and management in function of required time of arrival
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Network Management Function: Information

Airports

Network Management Function

Airlines

ATM

FAB  FAB  FAB
FUNCTIONAL AIRSPACE BLOCKS

- FABs reflect need in Europe to organise airspace and service provision **according to operational requirements** rather than to national boundaries
- **Fragmentation of European airspace:** one ATC system per country
  - **Diverging performances:** each SP functions in national legal & institutional environment
  - **Suboptimal size** of ATCCs and of sectors
  - **Economic cost:** € 2.4 bn
  - **Low productivity** rate when compared to Australia, Canada, US
  - **Safety:** safety levels between SPs vary significantly
  - Small scale of operations hampers swift introduction of **new technologies**
FUNCTIONAL AIRSPACE BLOCKS

• Objectives:
  - Achieve maximum capacity, efficiency and safety of the SES ATM network
  - Reduce fragmentation
  - Take into account real traffic flows and not national borders
  - Harmonisation of procedures and infrastructures
  - Consolidation of service provision
  - Homogenous charging policy
FUNCTIONAL AIRSPACE BLOCKS

• **Legal requirement** (Airspace Regulation): MS shall reconfigure their upper airspace into FABs

• **Definition:** “airspace block based on operational requirements, reflecting the need to ensure more integrated management of the airspace regardless of existing boundaries”
Functional airspace blocks shall, inter alia:
(a) be supported by a safety case;
(b) enable optimum use of airspace, taking into account air traffic flows;
(c) be justified by their overall added value, including optimal use of technical and human resources, on the basis of cost-benefit analyses;
(d) ensure a fluent and flexible transfer of responsibility for air traffic control between air traffic service units;
(e) ensure **compatibility** between the configurations of upper and lower airspace;

(f) **comply with** conditions stemming from regional agreements concluded within the ICAO; and

(g) **respect regional agreements** in existence on the date of entry into force of this Regulation, in particular those involving European third countries.
Expected performance improvements from FABs (I)

• FABs are the explicit tool to address the airspace fragmentation, but implicitly other aspects of fragmentation are also potentially addressed by FABs: airspace fragmentation can hardly be addressed in isolation given its link with service provision (operational, technical, financial, social) and supervision.
Expected performance improvements from FABs (II)

Proposed performance framework with KPAs (Key Performance Areas) and KPIs (Key Performance Indicators) to evaluate progress overtime:

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<thead>
<tr>
<th>Safety</th>
<th>Efficiency</th>
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<td>Economic</td>
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<td>Airspace events per flight-hour</td>
<td>Financial cost-effectiveness</td>
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<td>Safety maturity of Regulators and ANSPs</td>
<td>Routing extension</td>
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<td>Compliance with ESARRs</td>
<td>Environmental impact</td>
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FUNCTIONAL AIRSPACE BLOCKS

Map of FAB initiatives
01/07/2008
(Source: Performance Review Unit)
FABs initiatives: Experience so far (I)

• Process for FAB creation slower than initially expected
  - In 2008, only one official notification expected (UK/IR)

• Mismatch between
  a) airspace users expectations (“Quick wins”, restructuring of airspace and service provision), and
  b) current FAB initiatives (in most cases, a phased process, with main savings after 2015)

• FABs provide genuine momentum for closer regional cooperation

• A lot of resources are devoted to feasibility studies

• ANSPs reluctant to pursue “aggressive” integration scenarios due to lack of incentives and to a number of complex issues to be resolved (e.g. social)
FABs initiatives: Experience so far (II)

- Most FAB initiatives are looking at a wider scope than just airspace optimization (cooperation in service provision, training, procurement…)

One of the reasons for slower process than anticipated
FABs initiatives: Experience so far (III)

- Real opportunities for improvements in airspace organisation, particularly in **route and sector design**: FABs have the potential to address $\frac{3}{4}$ of route extension issues
- This would represent **substantial benefits for airspace users** (especially with the current high fuel costs): impact on **environment** non-negligible (lower CO2 emissions)
- FABs should significantly **improve efficiency and safety** through:
  - Common management of airspace (increased capacity, more flexibility…)
  - Increased interoperability of ATM systems which in some FAB initiatives even leads to commonality of systems
  - Common procurement and maintenance of systems
  - Common training
  - Common data and shared situational awareness.
Thanks for your attention

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