The Single European Sky & the SESAR programme

EU-Africa Aviation Conference – 2 & 3 April 2009
EUROPEAN CONTEXT
FACTS & FIGURES IN EUROPE

• About 10 millions of flights per year in 2007 (peak days beyond 33,000 flights)

• Fragmented airspace with 72 en route control centres managed by 27 different air navigation service providers maintaining more than 20 different ATM systems

• ATM cost in Europe > € 4 Billion per year

• Eurocontrol organisation created on the basis of inter-governmental legislation

• Fragmented decision-making
EUROPEAN CHALLENGES:

Capacity:
Air Traffic to double by 2030

Safety:
Improvements linked to growth

Environment:
Growth must be ‘green’

Economics:
Incentives & liberalisation

Operations:
Eliminate fragmentation

Technology:
All above & interoperability
THE SINGLE EUROPEAN SKY

Such a growth cannot be sustained through the current fragmented air navigation services organisation and ageing ATM technologies:

- Organisational/procedural and technological leaps are both urgently required
- A regional response is the only way ahead

The Single European Sky legislation provides the necessary framework for a new air navigation services governance in the European region. It is in place since 2004 and have *inter alia*:

- Decision-making processes
- Separation of regulatory and service activities
- Interoperability regulations

http://ec.europa.eu/transport/air/index_en.htm
What is the background for the proposed SES package?

Environmental challenges:
- Foreseen traffic growth will lead to an increase of the contribution of aviation to greenhouse gas emissions (currently 3%, average flight 50 km too long)
- Aviation to contribute to environmental performance
- Inclusion in ETS requires aviation to dispose of improvement tools

Performance challenge:
- Increase safety, flight efficiency, capacity and cost-efficiency
- Build on existing expertise

Fragmentation issue:
- Additional costs for airspace users produced by insufficient progress in the reduction of fragmentation – 1 bn euros (2007) on 8 bn turnover

Safety challenge:
- Reinforce safety of our system
Use the Community method to deliver a seamless sky, in partnership with Member States and stakeholders

Extend SES beyond EU borders to build a European Common Aviation Market, to service competitive airline industry and other users

• One aviation market with single set of rules: competition, state aid, safety and underpinned by a solid trans-European network

• Single institutional context – Community - with EASA single aviation regulatory authority

• Solving complex network issues requires global approach and coordination several processes: FAB, FUA, Route Network, Equipment, Airports etc.
Map of FAB initiatives
01/07/2008
(Source: Performance Review Unit)
An aviation package with four pillars:

**Performance**: framework amending the four SES regulations (co-decision): drive performance of the system

**Safety**: extend EASA competences to airports and ATM: (co-decision): cover all links of aviation safety chain – basis for performance regulation (total system approach)

**Technology**: Endorse the SESAR master plan (Council endorsement): speed up technological innovation to deliver technical tool for performance

**Airport Capacity**: Action plan and Observatory (range of actions): integrate performance scheme in both the air and on the ground

Four pillars under one overarching front: **human factor**
Single Sky II: The PERFORMANCE framework: 3 key measures

- **Introducing** performance regulation: Art. 11 FWR

- **Accelerating the creation and integration of air navigation services in** Functional Blocks of Airspace (FABs): Art. 9a SPR

- **Strengthening the** network functions: Art. 6a ASR
1. The performance scheme (1)
First step: Preparation of performance regulation:
   • Performance Review Body prepares
   • Collection, validation, examination of data on services and network functions
   • Propose Community wide targets to Commission

Second step: Set Targets for the network
   • Commission sets European targets with Single Sky Committee
   • European network level targets cover network functions and are frame for setting local targets

Third step: Translate into National Plans
   • National Supervisory Authorities propose
   • Organise wide consultation - Based on business plans
   • Consistent with European targets
1. The performance scheme (2)

Fourth step: Adopt local targets

- **Commission** approves national plans with Single Sky Committee
- Ensure consistency between European and local targets
- Preserve harmonised performance levels throughout the network

Fifth step: Ensure credibility of the scheme

- **NSA** follow up
- **Performance Review Body** monitors
- **Member States** take corrective actions
- **Commission** ensures effective application
1. Drive ATM performance (3)

Critical issues for the performance scheme

- **Implementing rule** to describe process, choice of indicators, balance between performance areas
- Involvement **industry and social partners** in the process at network and local levels
- **Balance** local with network requirements
- **Member States** involved in target setting and responsible for corrective actions
- Strengthen **governance** of actors in the process
  - Performance Review Body fully independent
  - National Supervisory Authorities competent to manage performance regulatory process
  - EASA to guarantee high safety levels
  - ANSPs to meet performance targets – ideally in FAB context
2. FAB: Foster integration of service provision

FAB as tools for performance

- Maintain bottom-up approach
- FAB’s about synergies between service providers
- 2012 as ultimate deadline for commitment
- Extend scope to lower airspace

Framework to facilitate

- Performance regulation focus FABs
- Interaction FABs and Network Management
- SES committee to clear obstacles
3. Strengthen the network management function (1)

1. Improve the European route network
   - Deliver continuous improvement of environmental performance

2. Empower flow management
   - Better implementation of flow management measures
   - Link ATM and airport operations to increase overall efficiency

3. Management of scarce resources
   - Transponder code allocation and co-ordination
   - Frequency allocation and co-ordination

4. Materialize value added of SESAR
   - Synchronise deployment of SESAR and new network tasks
Strengthen the network management function (2)

Develop synergy with Eurocontrol
- Community and Member States as political driving force
- Eurocontrol as the technical and operational centre

Support internal change process to empower and focus towards SES logic
- Focus on network functions
- Focus on Performance scheme
- Focus on SESAR related activities
- Budget must reflect priorities
- Improve governance and industry participation in operational tasks
Conclusions: Let’s do it!

Reform of European ATM system is a real opportunity to improve our system

It is also a challenge: regulatory, technological, environmental Social issues need to be taken into account

SES II is a framework of partnerships with Member States and stakeholders
WHAT IS SESAR?
SESAR IS ORGANISED IN THREE PHASES:

**Definition phase**
Resulted in the European ATM Master Plan

2006-2008

**Development phase**
Managed by the SESAR Joint Undertaking
Based on the Master Plan, results in **Standards**, **new operational procedures**, **new technologies** and **pre-industrial components**,

2008-2016

**Deployment phase**
Implements the results of the development phase, delivers **the performance increase** foreseen in the ATM Master Plan

2013-2025
WHAT IS THE SESAR JOINT UNDERTAKING?

Budget: € 2.1 billion (over 8 years)

Public-Private Partnership

- Innovation from private sector
- Public financial stability & enforcement power
- Members from EU or other countries having signed an agreement with the EC in aviation

THE 4 GOALS OF SESAR

- Enabling EU skies to handle 3 times more traffic
- Improving safety by a factor of 10
- Reducing the environmental impact per flight by 10%
- Cutting ATM costs by 50%
Core members

Aena  AIRBUS  AleniaAeromautica  DES  Deutsche Flugsicherung  

Frequenzi  Honeywell  Indra  NATMIG

NATS  noracon  SEAC  SELEX Sistemi Integrati  THALES

founding members

EUROPEAN COMMISSION  EUROCONTROL
### Key facts

- One single European programme
- 250 projects
- 16 work packages
- 700-1000 persons working full time
- One single management structure
- Leadership on work packages and projects to SESAR partners
- Validation ‘close to market’
- Performance partnership
A WP for every step of the flight

Key steps
• Time based operations
• 4 D Trajectory operations
• Performance based operations over a SWIM/IP network
MINIMIZE THE ENVIRONMENTAL IMPACT OF AIR TRAFFIC

- 10% per flight
Minimize NOx
Minimize Noise
Respect local constraints

> To be implemented at European scale
Accelerating the pace of change: AIRE

- **Atlantic Interoperability Initiative to Reduce Emissions** = agreement between the European Commission and the US FAA
- To improve energy efficiency, lower engine emissions and aircraft noise
- To accelerate implementation of environmentally friendly procedures for all phases of flight
- To perform trials in real conditions
The AIRE partners

- 17 airlines, airports, air navigation service providers and manufacturers to test low-CO2-emission flight procedures in real conditions

- More than 100 trials will be performed in 2009

- Partners:
AIRE domains

In Paris, Stockholm & Madrid

In Iceland & Santa Maria

In Paris, Stockholm & Madrid

In Paris

In Iceland & Santa Maria

In Paris, Stockholm & Madrid

Surface

EnRoute

Oceanic

EnRoute

Arrival

Surface

AIRE
EU-AFRICA COOPERATION: suggestions for ATM
2 concrete suggestions

- **Sharing the lessons learnt from the unique Single European Sky approach**
  - Open for intercontinental cooperation
  - Via EU-UA cooperation committee
  - EU available to share experience with the study group on the “Single Sky for Africa”
  - SESAR JU available to share its work approach

- **A joint “Green” programme between EU & AFRICA**
  - To be evaluated
  - Similar to the AIRE programme
  - ASECNA, Roberts FIR, African Union Commission and Regional Economic Communities as key African partners to move forward

- **Pragmatic approach & quick wins oriented**
CONCLUSION

Air transport is a ‘business’ on a global scale
Modernisation is therefore a world-wide issue
Today’s Regional problems become tomorrows global issues and must be solved only once

*International cooperation & Public Private Partnership are the only ways forward for ATM*
Thank you for your attention

www.sesarju.eu
BACK UP SLIDES
3 main examples of future changes/technologies
THE 4D TRAJECTORY PRINCIPLE

Building railway precision in the sky
THE SYSTEM WIDE INFORMATION MANAGEMENT

The Intranet for Air Traffic Management
AUTOMATION

Human operators concentrate on high value-added tasks