



The future of Air Traffic Management

Patrick KY, Executive Director

Madrid – 1 April 2011 – Plenary Session 4

founding members



The future is creating the CHANGE in European ATM



FACTS & FIGURES



2.1 bio€

15 members

13 associate partners = 110 companies in total

Present in 23 countries

2.054 people working on SESAR

300 projects



SESAR IS A UNIQUE PUBLIC-PRIVATE PARTNERSHIP

Members



New associate partners since July 2010 / March 2011



3 FUNDAMENTAL CHANGES in FUTURE ATM

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**



SJU INVOLVES ALL ACTORS

A Multi-Stakeholders approach
at the heart of our way of working



Major/Hub



GA/BA



Leisure



Cargo



Regional



Low Cost



DELIVERY APPROACH: SESAR RELEASES

MASTER PLAN

2010

2011

2012

2013

2014

STEP 2

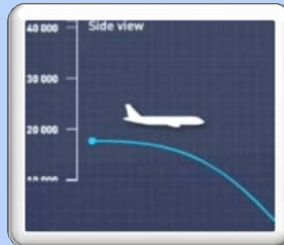
STEP 1

PROGRAMME



R&D PROJECTS

MATURITY
 • Concept
 • Requirements
 • Prototype
 • Validation
 • Safety and Business Cases





Satellite based Communication & Navigation



Advanced Flexible Use of Airspace

Complexity Assessment & Resolution



Cruise climb

Collision Avoidance Monitoring



Airborne Spacing & Separation

Extended AMAN

Time based separation
Point Merge
AMAN & Point Merge



Business & Mission trajectory
Trajectory Management Framework
Trajectory authorisation & revision using datalink



Performance Based Navigation
Cruise climb
Free routing



Integrated Departure & Arrival Manager

Integrated Controller Working Position



Approach Procedures with Vertical Guidance

Dynamic vortex separation
Continuous Climb & Descent

Optimised RNP

Low Visibility procedures using satellite GBAS

Pilot Enhanced Vision

Enhanced situational awareness



Arrival & Departure Management

Enhanced situational awareness

Brake to vacate
Surface planning & routing

Remote Tower

Ground safety nets
Surveillance
Ground System Enhancement

Network Management



Advanced Flexible Use of Airspace
Enhanced ATFCM Process



User Driven Prioritisation Process



Airport Operations Planning
Network Operations Planning

System Wide Information Management



System interoperability with air & ground data sharing

Sector Team Operations
Enhanced Short Term Conflict Alert
Conflict Detection & Resolution
Integrated Controller Working Position



Enhanced Decision Support Tools

Bridging innovation into ATM

Work Package E

- ✓ Scope of long-term research within the programme
- ✓ Applying ideas from across many domains into ATM
 - Automation, Complexity, Economics

Long-term research

- ✓ Academia & research establishments forming networks of excellence

Scientific Committee

- ✓ 12 European scientific personalities; including an astronaut, professors & researchers

- Providing a mechanism for networking and exchange of ideas and results across all ATM research activities
- Objective is to foster innovation and achieve results ready for development



Two Research Networks

ComplexWorld *(July 2010 – 2014)*

- Mastering Complex Systems Safely
- 86 Participants
- Sponsoring 7 PhDs

HALA! *(Sept 2010 – 2014)*

- Towards Higher Level of Automation in ATM
- 70 Participants
- Sponsoring 6 PhDs *(another 6 in 2012)*



52 different universities in total
23 IND + SMEs
15 R&D Est.

31 different Countries (incl USA, South America, Asia, Australia)



18 Research Projects

Automation (9 Projects)

- Rationale for introducing automation (1)
- Role of the Human (3)
- Resilience – System Degradation (1)
- Change Management (1)
- Control theory and algorithms (3)

Complexity

- Intelligent Modelling (1)
- Emergent Behaviour (3)
- Agile Systems (2)
- Non-Determinism (2)

Legal Aspects

- Legal implications of new operating paradigms



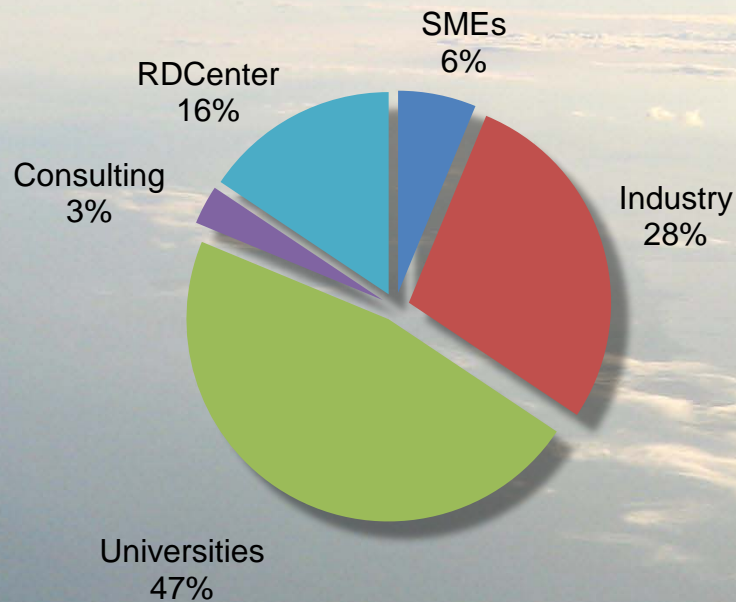
30 months duration max.



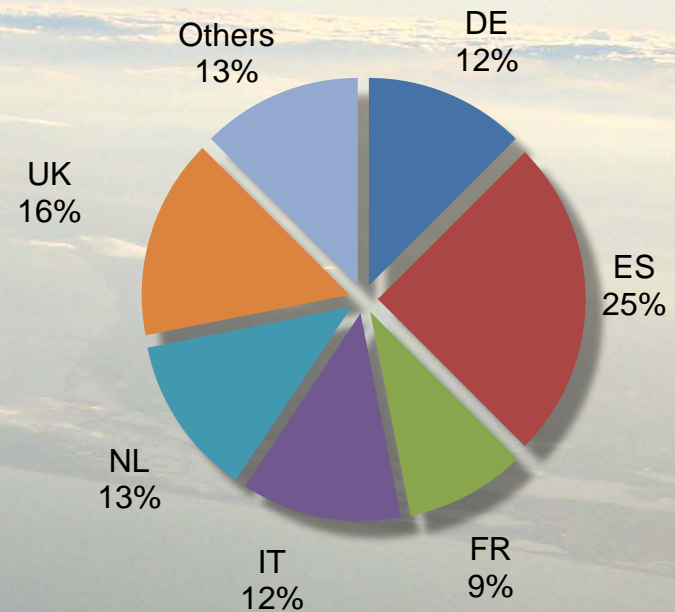
STATUS TODAY - DISTRIBUTION

Participants in Workpackage projects – Call 1

ORGANISATION TYPE



ORGANISATION COUNTRY



On-going call for Associate Partners of the SJU

Objective: need to **complement the expertise** brought by the SJU Members to the SESAR Programme in specific fields

Eligibility: SME's, universities and institutes of higher education, research organisations

Scope: 6 lots - Information Management, Network and Airport Collaboration, Technical Service Management, Airborne and CNS Systems, Modeling to support validation, UAV/UAS

Deadline: 4 May 2011

Co-financing: up to 75%

A current opportunity to join SESAR and contribute to the SESAR Programme

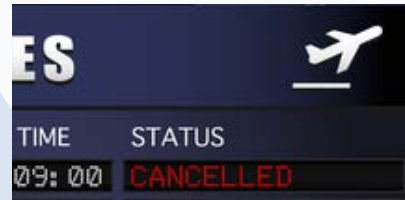


OUTLOOK 2011

**Strong buy-in
of entire Air
Transport
Community /
Validation
Exercises**



**First
components to
be delivered
with SESAR
first Release**



**5.000 AIRE
trials with 40
players**



**Stronger
International
cooperation**





INNOVATION WILL PROVOKE CHANGE

**CHANGE CULTURE WILL PROVOKE
INNOVATION**

**WORKING TOGETHER WILL PROVOKE
FASTER DELIVERABLES**