SESAR: 2020 Vision

Delivering best-in-class, globally interoperable and high-performing Air Transport for Airspace Users and Citizens

- Enabling the delivery of safe, cost-efficient and environmentally responsible Air Vehicle & ATM operations, systems and services

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**High Performing Airport Operations**
- Capacity, Safety, Environment, Efficient, Effective, Networked

**Optimised ATM Network Services**
- Collaboration, Balancing Demand & Capacity, Environment, Efficiency

**Advanced Air Traffic Services**
- Synchronisation, Capacity, Safety, Environment, Cost

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**Enabling the Aviation Infrastructure**
- Providing shared technical services across the aviation domain
- Communications, positioning, navigation, timing and SWIM information
- Air vehicle operations, systems & services
SESAR2020: Three Research Phases

- **Exploratory Research**
  - Concentrates on early maturity excellent science and initial applications to ATM
  - Uses H2020 open calls

- **Industrial Research & Validation**
  - Concentrates on maturing and validating through applied research, pre-industrial development and validation of high benefit applications for ATM
  - Uses an industrial PPP with involvement of all stakeholders

- **Very Large Scale Demonstration**
  - Concentrates on taking the concepts and technology to a wider geographic and stakeholder application to reduce deployment risk
  - Uses a mixture of industrial PPP and open calls
SESAR 2020 Research Maturity

Technology Readiness Level (TRL)

1  2  3  4  5  6  7

Open Calls  Industrial Partnership  Open Calls

1. Exploratory Research
   - Fundamental Scientific Research – To TRL1
     • Thematic Approach
     • Establish the Science
     • Engage Universities
     • Reach outside of ATM

2. Application-Oriented Research – To TRL2
   - Structure aligned to Industrial Research for transition

3. Industrial Research & Validation – To TRL6
   - High Performance Airport Operations
   - Advanced Air Traffic Services
   - Optimised ATM Network Management
   - Enabling Aviation Infrastructure
   - Working in Partnership

4. TRL2 (V1) Gate

5. TRL4 (V2) Gate

6. TRL6 (V3) Gate

7. Very Large-scale Demonstrations

VLD – From TRL6
   - High Capacity Airport Operations
   - Advanced Air Traffic Services
   - Optimised ATM Network Management
   - Enabling Aviation Infrastructure
   - Engaging the wider Community

FROM INNOVATION TO SOLUTION
OBJECTIVES

• To contribute to the European ATM Master Plan towards long term objectives beyond 2035 (i.e. 2050 timescale)

• To contribute to the identification of innovative solutions not yet identified in the ATM master plan but which would accelerate the realisation of the SES targets

• To deliver a sustainable and healthy body of research activities across a range of research networks in Europe
Challenges for SESAR 2020 Exploratory Research

• Support the realisation of the ATM Master Plan Step 3
• Identify innovative solutions, not yet in the ATM Master Plan, with potential to accelerate the realisation of the SES targets by 2020, 2035 and towards the 2050 vision
• Deliver a range of sustainable research activities with application for ATM in Europe
• Implement maturity level criteria and a suitable gate process for content management and decision-making related to research projects that address low maturity activities
• Integrate the most beneficial aspects of E-OCVM and the TRL maturity and lifecycle
• Enable the research pipeline concept with a maturity assessment process that allows for fast-track and includes a sound economic and benefit argument to transfer results into an industrial PPP at TRL2
Principles & Organisation

• **Excellent Science & Outreach, including:**
  – Automation, Robotics & Autonomy
  – Complexity Science, Data Science & Information Management
  – Environment & Meteorology for ATM
  – Economics, Legal & Regulation
  – ATM role in Mobility and Intermodality
  – Communications, Navigation, Surveillance, Positioning & Timing

• **Application-oriented Research, including:**
  – High Performing Airport Operations
  – Optimised ATM Network Management
  – Advanced Air Traffic Services
  – Enabling Aviation Infrastructure
  – ATM Operations, Architecture, Performance & Validation

• **Transversal Activities**
  – Knowledge Transfer
  – Future ATM Skilled work-force
Launching Exploratory Research Phase

- H2020 open calls, so not limited to SJU Members.
- Maximum H2020 budget of €85M
- First Call budget of around €20M
- Objective is to launch first call by end of 2014, beginning of 2015
- The call will be open for a period of 4 months
Recognising scientific excellence

• Marc Perez-Batlle
• Gonzalo Arnedo Tobaruela
• Enrique Casado
Summing up: SIDS 2014

- SID’s 2014 more than 330 registrations
- Around 54 papers submitted
- 30 selected papers and posters presented
• SIDs 2015 confirmed for Tuesday 1st December to Thursday 3rd December 2015 in Bologna, Italy
Thank you for your attention