

Outlook from a European Perspective

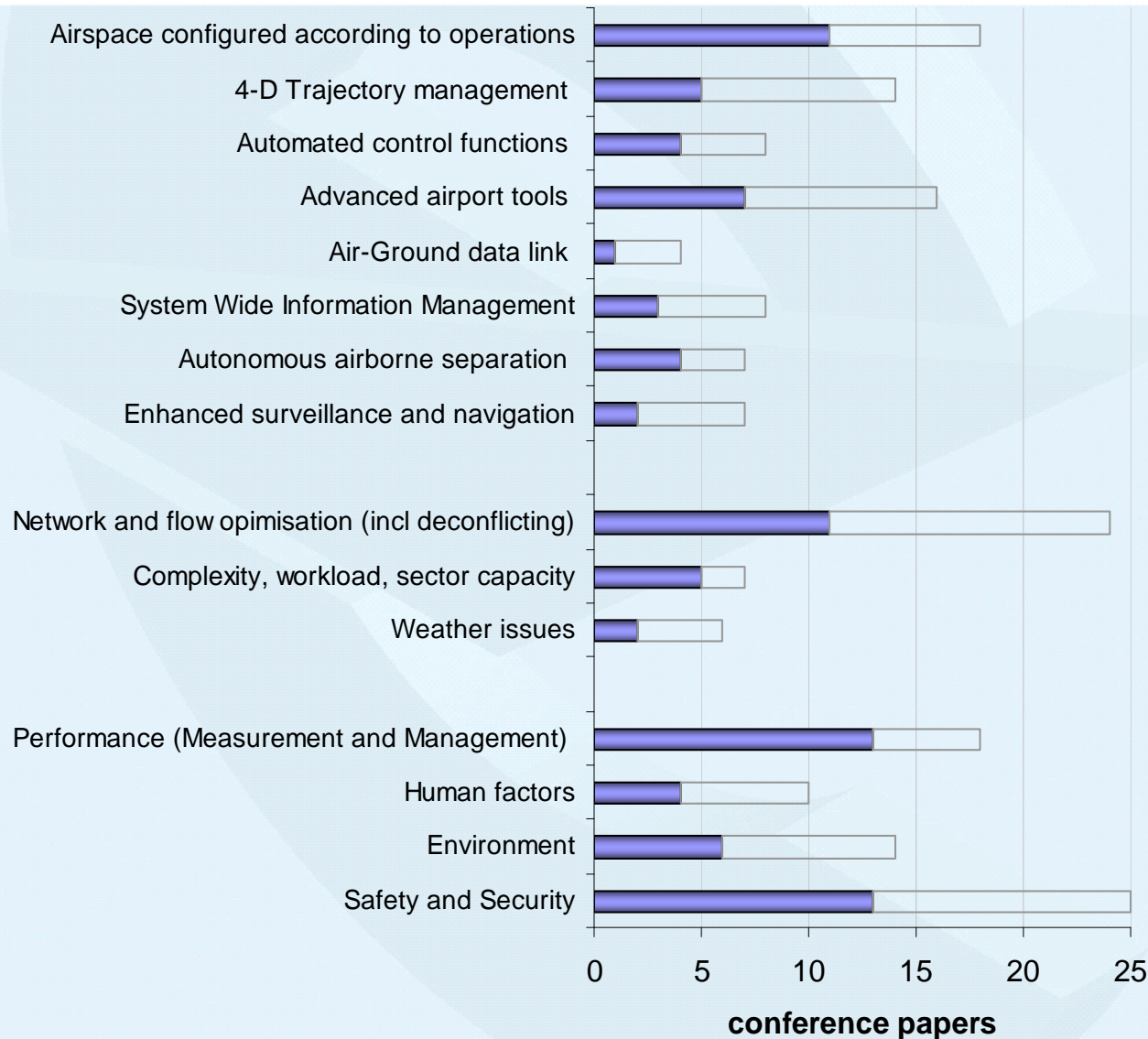
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7th USA / Europe ATM R&D Seminar Objectives

- **Create and reinforce working and personal relationships between leading experts and researchers**
- **This time more pro-active call for papers in support to ACARE, SESAR and NextGen ,**
- **Particular Focus on the definition of the new generation ATM systems:**
 - Network and Traffic Flow Optimisation
 - Air Ground Integration
 - **4D Trajectory Management and Separation (new)**
 - **Enhanced Surveillance and Navigation (new)**
 - Dynamic Airspace Management
 - Integrated Airport Management
 - **Finance, Deployment and Implementation Issues (new)**
 - Active ATM Performance Management
 - Safety and **Security (new)**
 - Environmental Considerations in System design
 - Innovative ATM Concepts

R&D Coverage, Quality and Selection



In general, the quality and acceptance rate of papers fairly balanced throughout the subjects.

Great response in:

Safety, performance, flow and airspace management

Unfortunate:

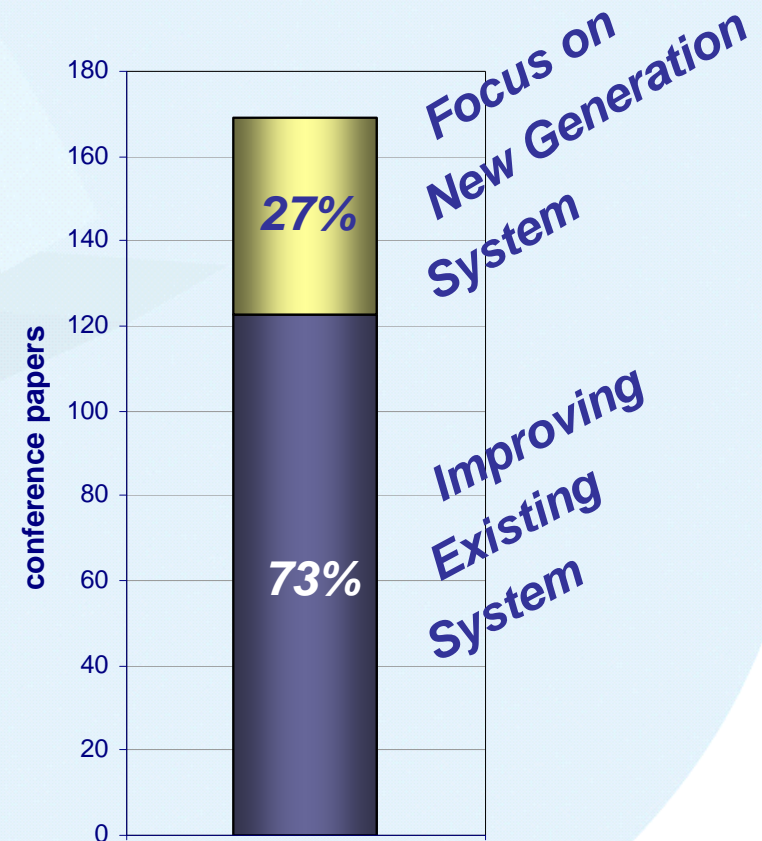
Low response on emerging issues:
4D, ASAS, Automated control functions

all (4) security papers rejected.

New Generation System vs Improving Existing System

27% of the received papers address aspects for the definition and design of the New Generation System

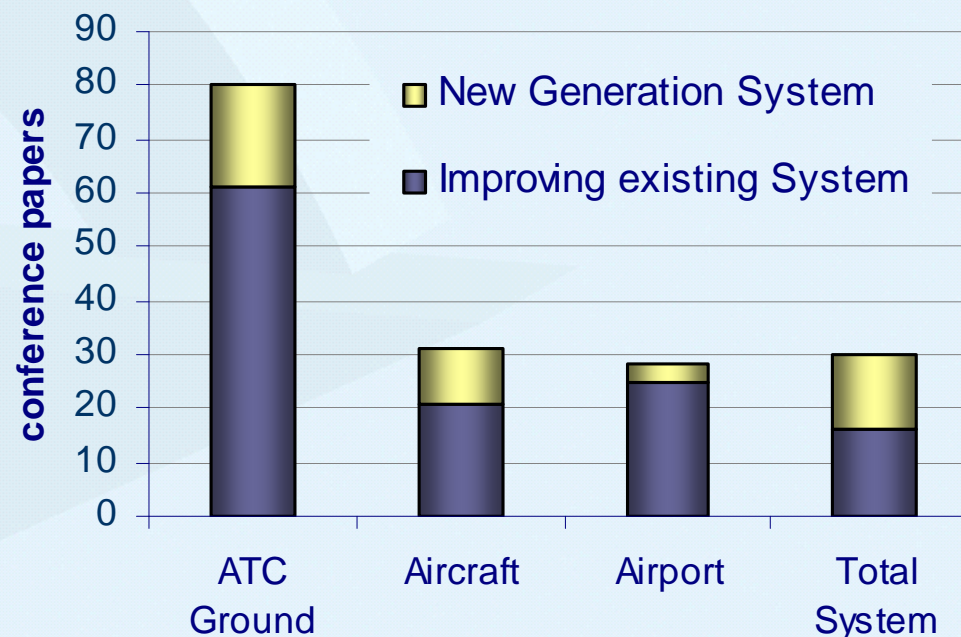
73% of the received papers refer to improvements of the existing system



New Generation System vs Improving Existing System

Focus on New Generation System:

Total System: 42%
Aircraft: 32%
ATC Ground: 24%
Airport: 11%



Total System: consensus on the integration of all services into a common network as the key objective for the new generation system

New Generation System vs Improving Existing System

Is this the effect of market driven research:

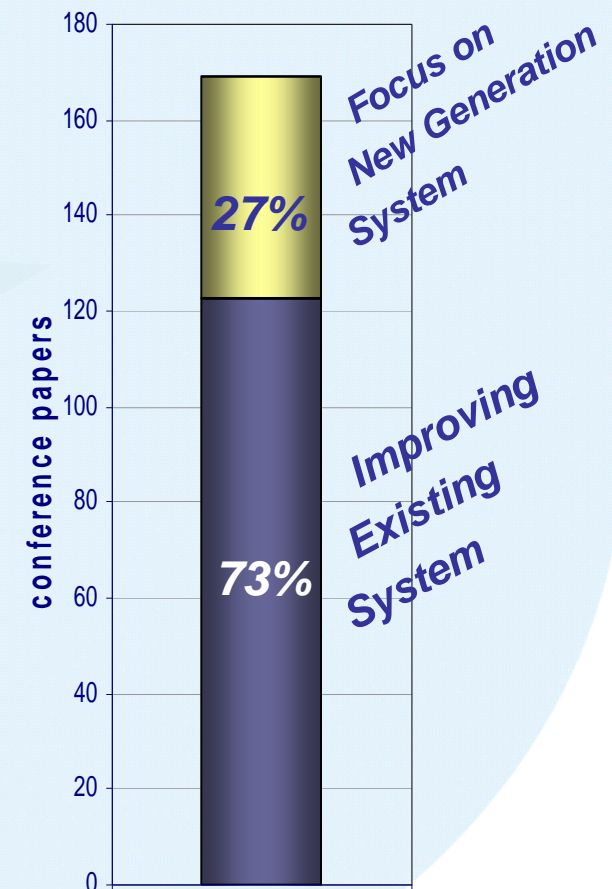
- Focus on **conservative / evolutionary R&D**
- Resistance to address “hot topics” with conflicting views on future system

Long-term oriented research:

- Meant to be courageously looking outwards,
- Should not be funded / driven by the market
- Should be **government funded** with quite some **freedom to seek its direction**

Outlook Europe:

SESAR agreed ConOps / Implementation Packages to become a **booster for R&D** with focus on **New Generation System**



Concrete Functionality vs Background Understanding

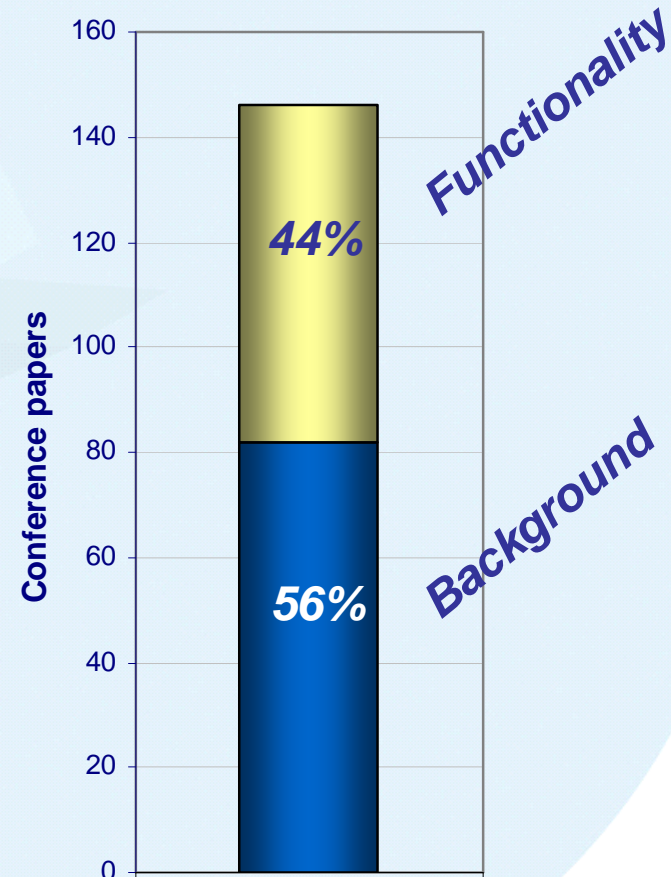
44% of the papers focus on concrete system functionality (CDA, Multi-Sector, sequencing & merging...)

56% of the papers focus on general background understanding, incl. methodologies and models (Safety meth., Human Factors, flow models...)

Do we always have to start from scratch?

Need to improve reusability of R&D results:

ATM R&D knowledge base,
global acceptance of R&D methodologies
Harmonised models and simulators



Concrete Functionality vs Background Understanding

Focus on

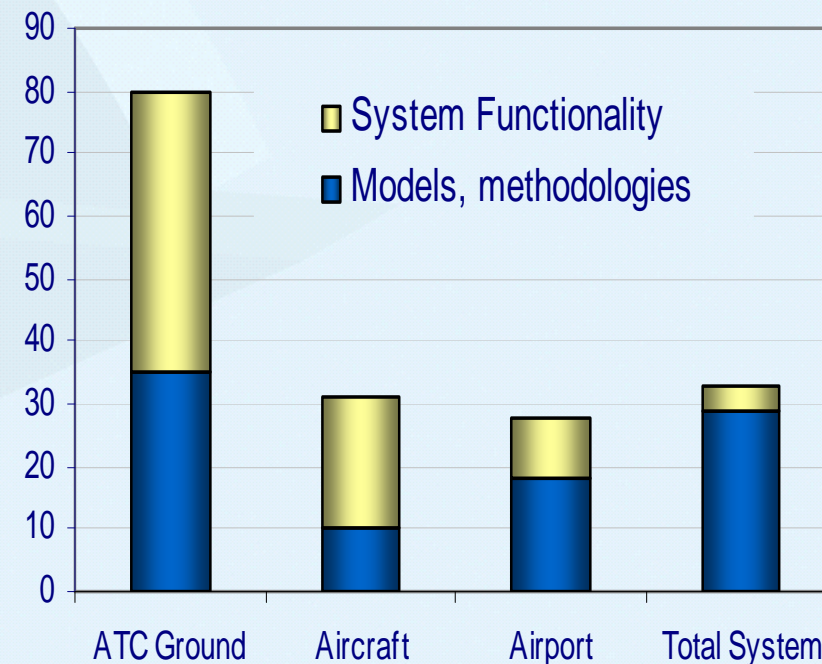
Background understanding:

Total System: 88%

Airport: 64%

ATC Ground: 44%

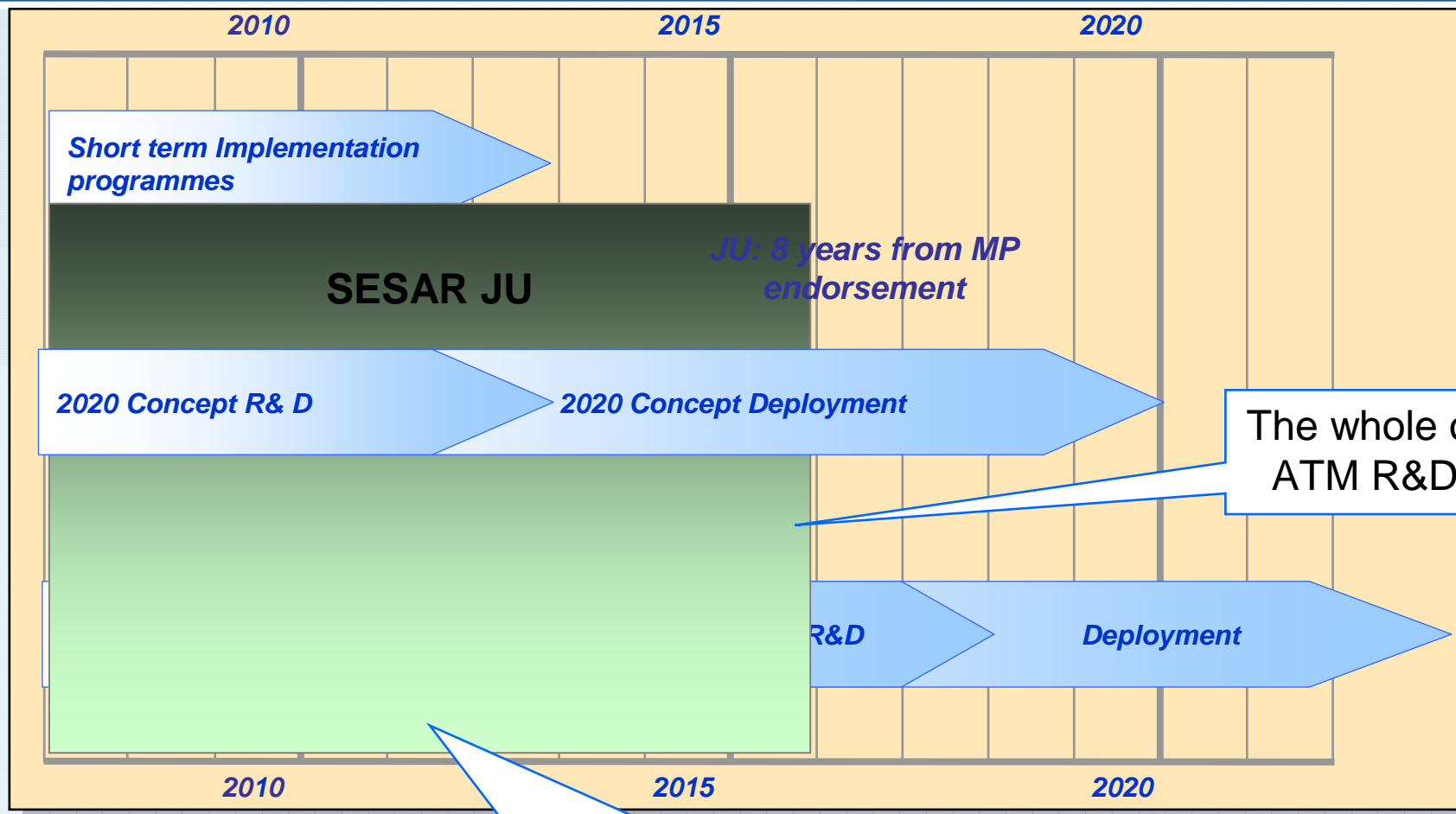
Aircraft: 32%



Airport: Need for integrated airport strategies and harmonised ops concepts

Total System: late consideration of total system view, high complexity dimension
Need to be emphasised in R&D programmes

Scope of R&D in SESAR



Coordination needed with aeronautics research

Differences and Similarities between Europe & N. America

- **ATM SERVICE**
 - Nb & governance of Service Providers
 - Source of Finance
- **WEATHER**
 - Severity (?)

- **SAME PRESSURES**
 - Safety, Growth, Costs
- **SAME COMMERCIAL CUSTOMERS**
- **SAME OBLIGATIONS**
 - ICAO
- **SAME CONSTRAINTS**
 - Environment, financial
- **SAME OPPORTUNITIES**
 - High Competence
 - Advanced Technology

SESAR/NextGen leading edge of wider harmonisation needs

2 REGIONS WITH SIMILAR ISSUES
CAN WORK TOGETHER AND CONVINCING OTHERS OF THE BENEFIT

What we need for SESAR / NextGen

- Systematic, **structured comparison** of respective ConOps' to identify key interoperability requirements
- **Analyse differences** with respect to reasons, benefits, mitigation etc.
- To **understand respective R&D plans** and implementation roadmaps for coordination of standards work, regulation activity etc.
- **Sharing resources:** experiments, data, components, models, etc; coordination of projects; balanced exchange of knowledge.
- Validation **results 'certifiable' by transatlantic counterparts.**

- SESAR and NextGen will introduce a **system wide streamlined top-down R&D work planning and monitoring**
- Systematic structured exchange / comparison / harmonisation will take place
- ATM Seminar objectives partly redundant
- Risk: The Seminar becomes obsolete
could be replaced by
SESAR resp. NextGen integrated R&D coordination fora
- Need to review seminar scope and objectives

A possible target scenario for the future:

- *Build on the momentum of the present Seminar and organisational structure*
- *Widen scope to “**Global ATM R&D Symposium**”*
- *Three pillars approach:*
 - ***Maintain Quality***
 - ***Global Compatibility***
 - ***Long Term***
- *Frequency & fit with other ATM events tbd*