

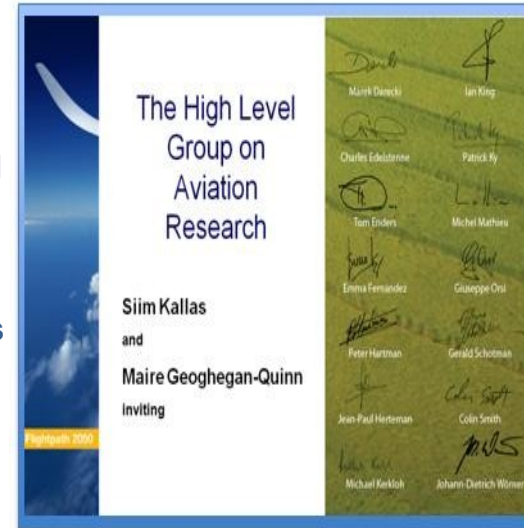


ACARE Strategic Research and Innovation Agenda Outlook

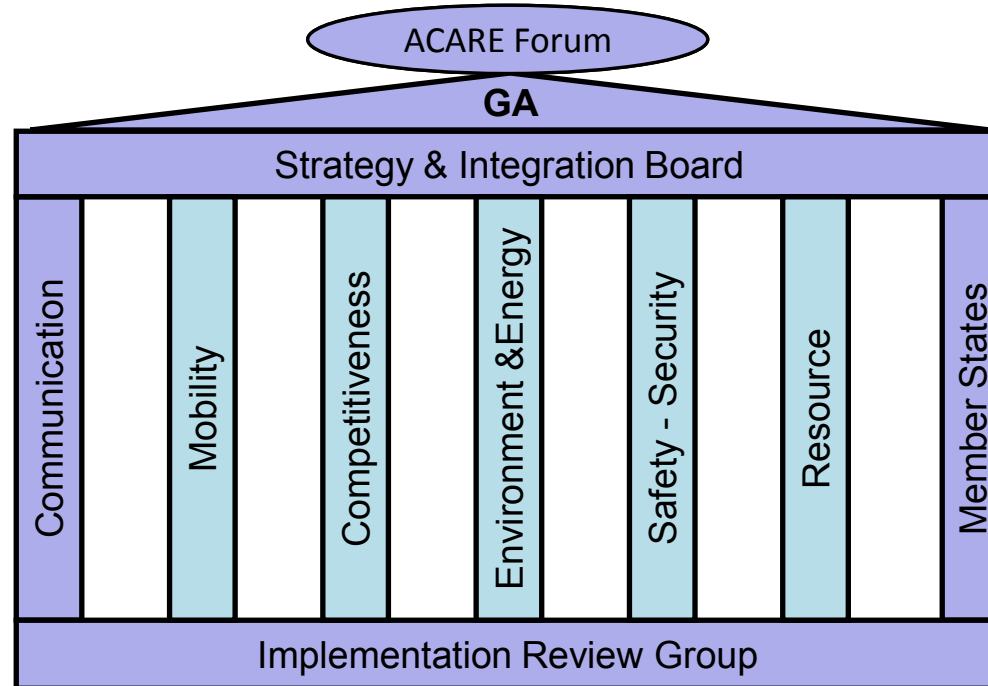
Bruno Mazzetti
Chairman ACARE Italia

FIRST ANNUAL WORKSHOP OF ISAFF
ROME, 4 NOVEMBER 2014

- Establish a network for strategic research in aviation for all European stakeholders
- Develop and maintain the Strategic Research and Innovation Agenda (SRIA) and monitor implementation at European and national levels
- Make strategic and operational recommendations to achieving the goals of Flightpath 2050
- Maintain links with the relevant technology sectors and other transport modes
- Develop and implement a communication strategy to promote awareness of the SRIA
- Facilitate stakeholder co-operation in Europe and internationally as well as aviation representation at events and forums



- 27 Member States
- European Commission
- Manufacturing Industry
- Airlines
- Airports
- Air Navigation
- EASA
- Eurocontrol
- Research Centres
- Universities
- Energy
- Regulators
- Over 50 members



A comprehensive response to Vision 2020 *Strategic Research Agenda*

- *Responding to society's needs*
- *Securing global leadership for Europe*

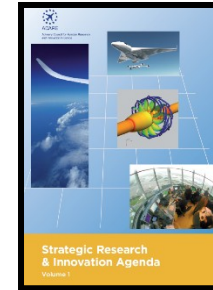


A decade of
Successful
Innovation

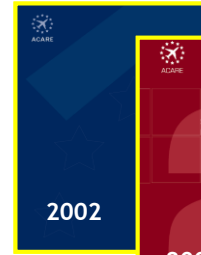


New thinking
to go beyond
2020

Flightpath 2050



SRIA- 2012



2002

SRA-1



2004

SRA-2



2009

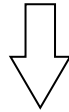
Addendum

www.acare4europe.org

Vision 2050

Responding to society's needs

Securing global leadership for Europe



**Five Objectives of the
Strategic Research & Innovation Agenda**

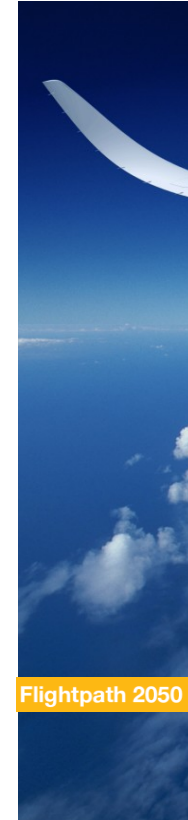
Meeting Societal and Market Needs

Maintaining and Extending Industrial Leadership

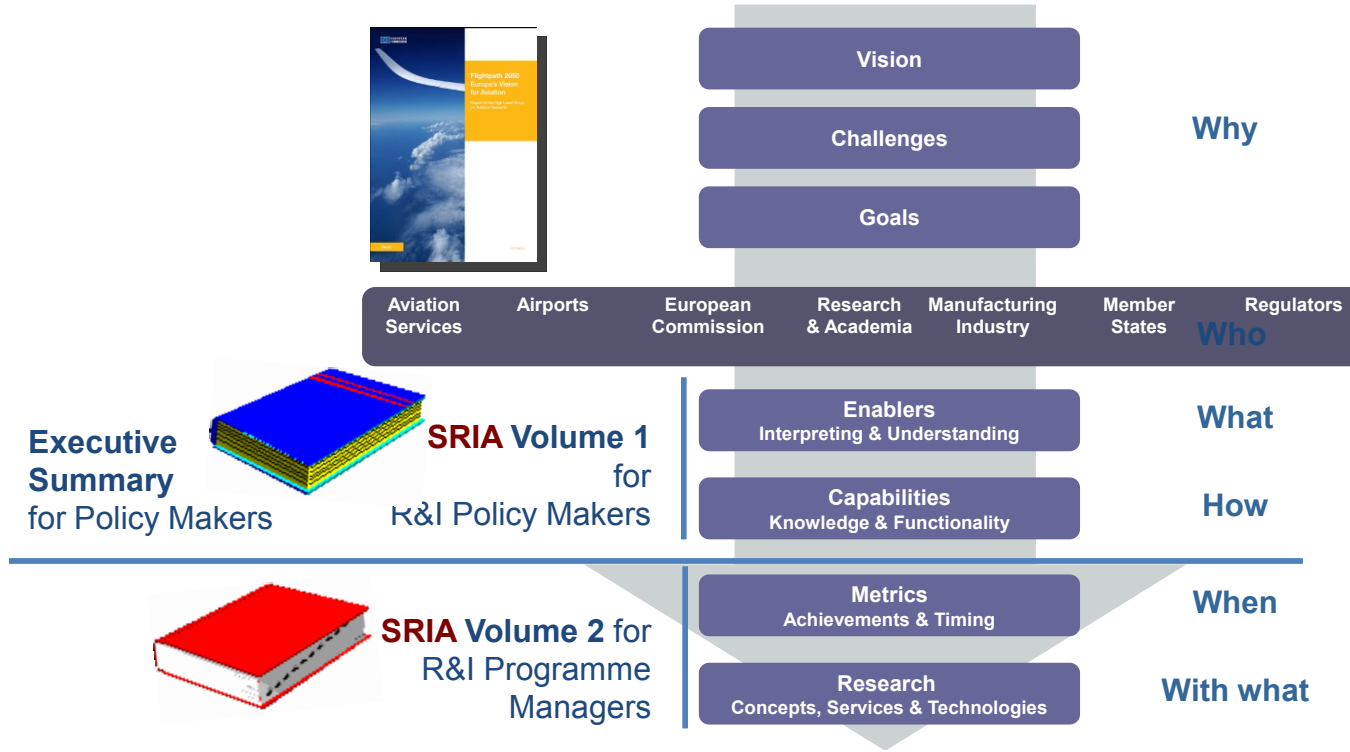
Protecting the Environment and the Energy Supply

Ensuring Safety and Security

Prioritising Research, Testing Capabilities & Education



Flightpath 2050



- September 2011 – July / September 2012
- Overall ~ 300 participants in the **five** Working Groups
- Stakeholders from 18 countries
- Balanced representation of stakeholders
 - Industry: 33 %
 - Academia 29%
 - Air Transport 10%
 - EC: 10%, MS: 9%
 - Others 9%



**Identify short (2020), medium (2035) and long term (2050)
Research and Innovation actions enabling to reach 2050 goals**

Working Group 3

Protecting the Environment and the Energy Supply





3. Protecting the Environment and the Energy Supply

In 2050 technologies and procedures available allow

- 75% reduction in CO₂ emissions per passenger kilometre,
- 90% reduction in NO_x emissions, and
- 65% reduction in perceived noise emission of flying aircraft

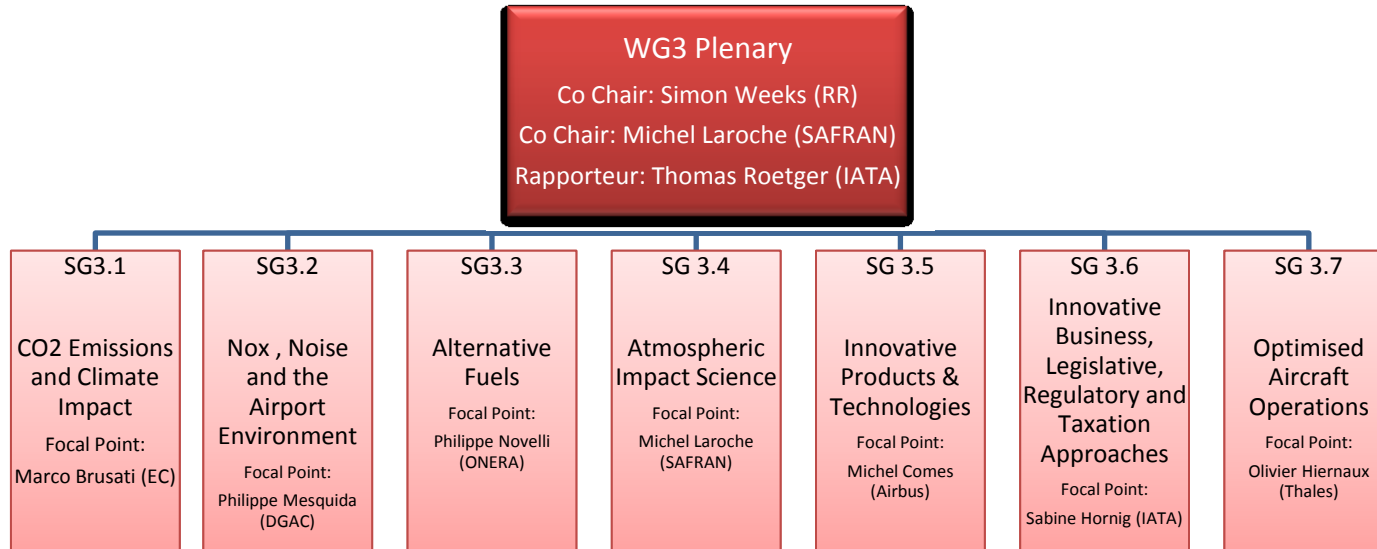
relative to the capabilities in 2000.

Aircraft movements are emission-free when taxiing.

Air vehicles are designed and manufactured to be recyclable.

Europe is established as a centre of excellence on sustainable alternative fuels

Europe is at the forefront of atmospheric research



Environment and Energy Enablers

Environmental Targets

Identify key potential contributors

Allocate specific targets to each

Atmospheric impact science

Understand local interactions between air vehicle / atmosphere

Provide climate scientists with accurate models of initial impact

Cooperate with climate scientists.

Alternative fuel

Optimized specification

Consolidate biomass potential

Transformation process.

Global policy.

Environment and Energy Enablers

Optimized A/C operations

Situation awareness (weather, airports traffic, other vehicles)

Multiple parameters optimization

Capitalize on SESAR capabilities.

Innovative products and technologies

System level approach

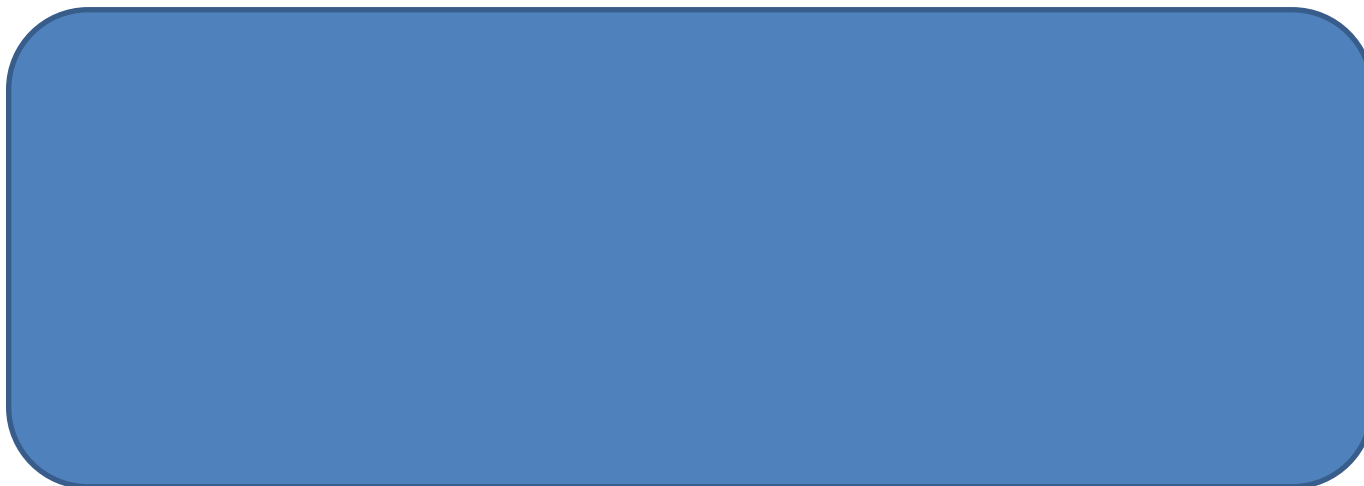
Vehicle architecture

Propulsion/aero integration

Energy management

More Electric' Architectures

'New materials (composite, nano...)



Priorities

- Urgently strengthen field of renewable fuels and energies for aviation in order to close implementation gap
 - Development of EU policy and incentives for large scale deployment of alternative fuels in close agreement between Transport and Energy area
- Ambitious research activities towards emissions reduction goals
 - Airframe and engine fuel efficiency and technologies for particles reduction
 - Operational and infrastructural (ATM, airports) efficiency improvements
 - Early (low-TRL) initiation of long-term radical technology development
 - Consider regulatory and business framework – link to socio-economic studies
- Strengthen activities on noise reduction in order to ensure meeting SRA1 2020 noise goal
 - Maturing noise reduction technologies to TRL6 over the 2015-2018 period to ensure the achievement of the SRA1 2020 noise target

Results main messages

- Progress has been made on all environmental goals
- To reach the 2020 objectives, we need more efforts on top of the planned programs CleanSky 2 and SESAR 2
- On alternative fuels, quantitative targets should be defined to accelerate progress in R&D and deployment.

The following areas were prioritized by WG3 members for the 2016/17 call of H2020:

- Research on critical technologies for high-level emissions reduction goals that are **not** in CS2
- Reinforcing activities on noise reduction in order to ensure meeting noise goals
- Urgent recovery action to deliver wide scale deployment of alternative Low Carbon aviation fuels by 2020 to enable carbon neutral growth
- Developing a better understanding of the contributions of aviation emissions to our climate and environments local to airports

