From Flightpath 2050

to a Strategic Research and Innovation Agenda

for European Aviation

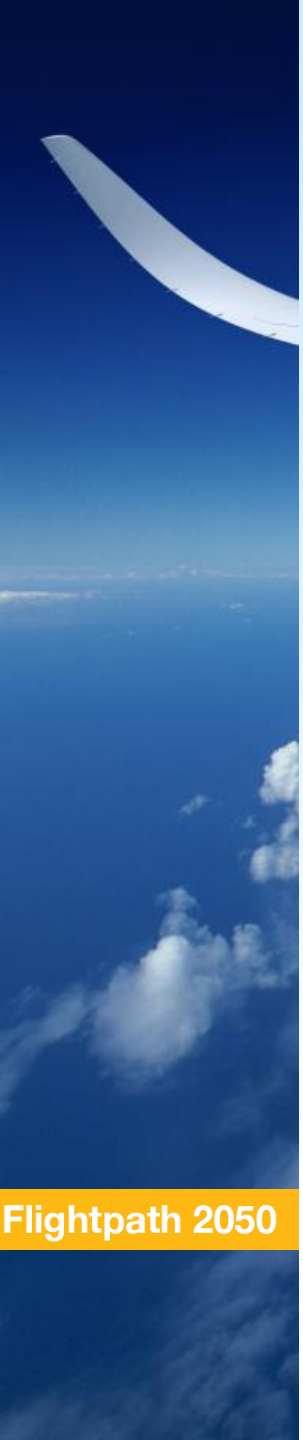
21 Oct. 2011: Potential EHEST role and contribution

Flightpath 2050

ACARE
The Advisory Council for Aviation Research and Innovation in Europe

Why is a new vision needed ?

- Vision 2020 covers 2000-2020
- Research actions launched today will find applications in the market / the society in 2020
- The world is evolving fast with new technologies, new societal challenges and globalisation
- An inclusive vision for Aviation (Aeronautics + Air Transport) is needed
- Input for the next EC Framework Programme for Research and Innovation 'Horizon 2020' starting in 2014.



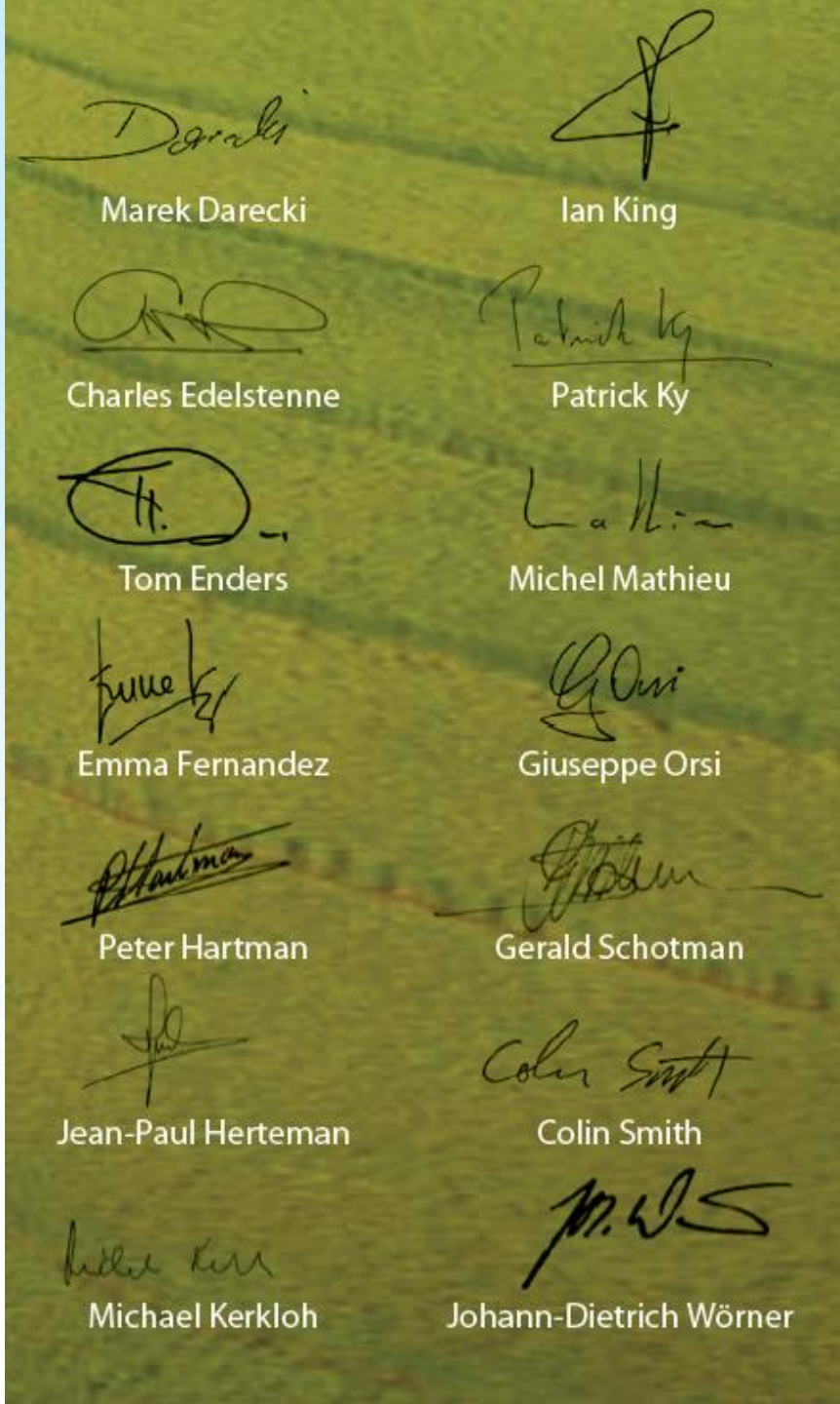
The High Level Group on Aviation Research

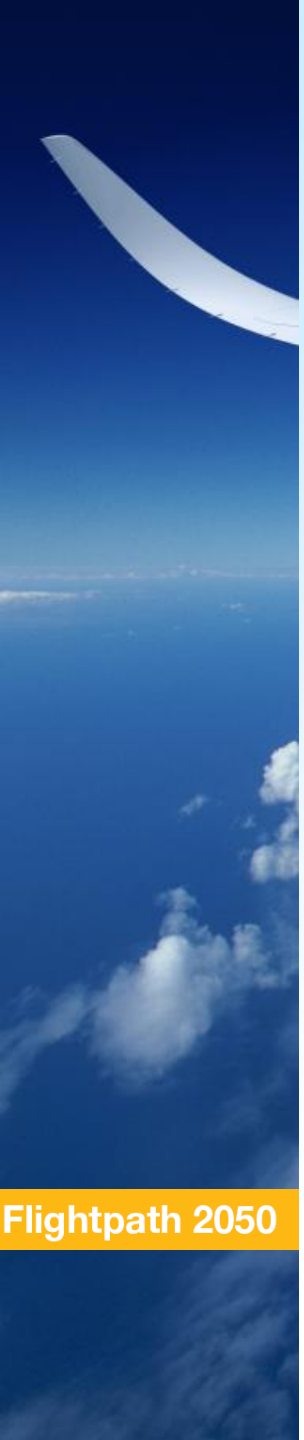
Siim Kallas

and

Maire Geoghegan-Quinn

inviting





Flighpath 2050

Europe's Vision for Aviation
Maintaining Global Leadership &

Serving Society's Needs

- **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 and Education**

Flighpath 2050 was presented at Aerodays in Madrid 30/03-01-04 2011

see http://ec.europa.eu/research/transport/publications

Meeting Societal and Market Needs

- European citizens are able to make informed mobility choices

- 90% of travellers within Europe are able to complete their journey, door-to-door within 4 hours.

- Flights arrive within 1 minute of the planned arrival time

- Air traffic management system is capable of handling 25 million flights a year in Europe

- A coherent ground infrastructure is developed

Maintaining and Extending Industrial Leadership

- The whole European aviation industry is strongly competitive

- Europe maintains leading edge design, manufacturing and system integration capabilities and jobs

-Streamlined systems engineering, design, manufacturing, certification and upgrade processes have addressed complexity and decreased development costs

Protecting the Environement and the Energy Supply

-75% reduction in CO_2 emissions per passenger kilometre to support the ATAG target, a 90% reduction in NO_x emissions, 65% reduction of the perceived noise (Reference: 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

Ensuring Safety and Security

-The European air transport system has less than one accident per ten million commercial aircraft flights. (- 80% for specific operations e.g. SAR, reference: 2000)

- Occurrence and impact of human error is significantly reduced through new designs, training processes, technologies that support decision-making.
Just culture adopted uniformly across Europe as an essential element of the safety process.

-Weather and other hazards are precisely evaluated and mitigated

-Seamless operations through fully interoperable and networked systems (incl. manned and unmanned vehicles)

-Efficient boarding and security checks allow seamless security

-Air vehicles are resilient by design to security threats

-The air transport system has a fully secured global high bandwidth data network, hardened and resilient by design

Prioritising Research, Testing Capabilities and Education

- European research and innovation strategies are jointly defined by all stakeholders

- Networks of multi-disciplinary technology clusters are created

- Strategic European aerospace test, simulation and development facilities are identified, maintained and continuously developed

- Students are attracted to careers in aviation. Courses offered by European Universities closely match the needs of the Aviation Industry

Flightpath 2050

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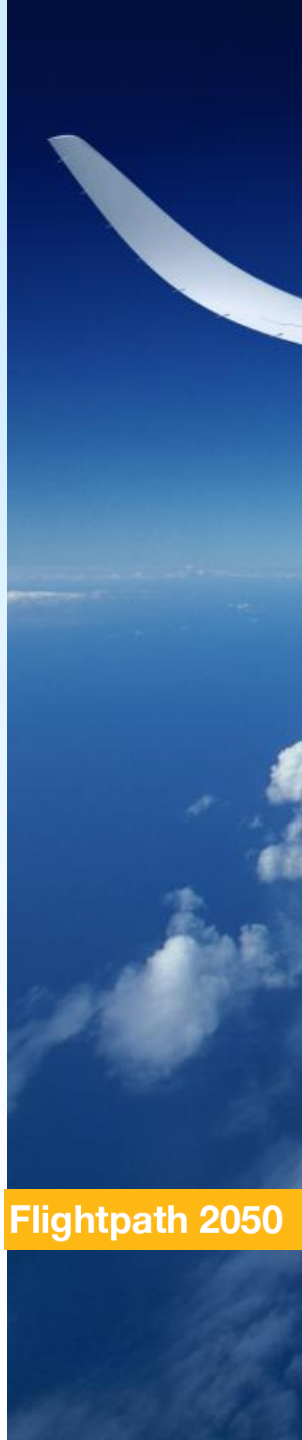
The Advisory Council for Aviation Research and Innovation in Europe

Achieving the Vision: a renewed Advisory Council for **Aviation** Resarch and **Innovation** in Europe

New Terms of Reference and structure adopted at the Paris Air Show 21/06/2011



Achieving the Vision: need for a new Strategic Research and Innovation Agenda for European Aviation

The new SRIA should:

- Spell out research and **innovation** actions needed to reach flighpath 2050 goals
- Address short term - medium term- long term
- Be properly structured, organised and prioritised

The SRIA is expected to be composed of:

- An Executive Summary for High Level Decision Makers
- A Core part for Research and Innovation Policy Makers (Vol 1)
- A Technical Volume for Research and Innovation Stakeholders (Vol 2)

WG 4 Safety and Security ToR Elements

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WG-4 shall be populated with a balanced participation of experts drawn from the aeronautics industry, air transport, freight operators, security, safety regulators and academia, incorporating expertise from other transport modes

Main Enablers of FP 2050 goals (here safety only)

- Lessons learned, analysis of incidents / occurrences, proactive hazard identification
- Safety management systems throughout the whole chain of Air Transport activities
- Innovative approach to standardisation and certification processes;
  safety requirements at component, product, system and system of systems level
- Air vehicle mission management systems and procedures;
  optimising trajectories to ensure hazard and collision avoidance throughout all flight phases and on the surface
- Protection and responses which enable hazard risk management through appropriate modelling including atmospheric and climatic models
- Capabilities and capacities of human performance in Aviation
- IT developments to ensure operation's safety and facilitate safety assessment and certification
- Modernization of CNS systems and their integration ⇨ highly efficient and safe ATM system

WG 4 Safety and Security

- 1st meeting 12 October 2011 at EASA
- First Action Item to all WG-4 members and contributors:
  Conduct a brainstorming and provide your ideas and thoughts as a bullet item list (about 2 pages) addressing the following safety and security topics:
  - What is your vision on short, medium and long term in safety and security?
  - What will be in your view new developments and how to implement such new systems/developments?
  - What could be obstacles and show stoppers?
  - How to transit from now into the future?

Contribution by Helicopter Community

- WG-4 members
  - Sepp Huber, Europcopter
  - Dave Price, Bond Airservices
  - ESSI / EHEST representative to be nominated
- EHEST representative
  - EHEST role: Contributor or Reviewer
  - Full member of WG-4
  - Coordinator with all EHEST members
  - Currently Clement is place holder

Timeline

- 30/03 - 01/04/2011: Publication of Flightpath 2050 at Aerodays
- 21/06/2011: Launch of the new Advisory Council for Aviation Research and Innovation in Europe
- Autumn 2011: Strategic Transport Technology Plan (STTP) adopted (concerns all transport modes, aviation part compatible is with Flightpath)
- 15 November 2011: first outline of the SRIA (5 pages esch WP) for adoption by the ACARE General Assembly 28 Nov.
- 31 March12: delivery of full SRIA by WGs for finale editing and comments
- July 2012 (Farnborough): Text of New Strategic Research and Innovation Agenda presented
- Sept. 2012 (ILA Berlin): complete SRIA published
- mid 2012- mid 2013: Preparation of the Work Programme for 2014
- January 2014: 'Horizon 2020' starts