International Cooperation in Aviation

TAKE OFF Event
Vienna
21/11/2012

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DG Research & Innovation
European Commission
Outline

• Introduction
• Flightpath 2050 & SRIA
• Horizon 2020
• International Cooperation
Why Aviation

EU27 External trade by mode, 2010

By volume

- Sea: 74.6%
- Road: 14.7%
- Rail: 3.8%
- Air: 6.3%
- Other: 0.6%

By value

- Sea: 50.8%
- Road: 17%
- Rail: 1.3%
- Air: 8%
- Other: 22.9%

<1% tonnage of EU trade makes ca. 23% of value

http://www.atag.org
Economic Impact: Aviation vs. Car Industry

POWERING THE EU ECONOMY
Key facts and figures from European Union air transport

7.8 million
Jobs supported by aviation in the European Union

€475 billion
Aviation's EU economic impact (including direct, indirect, induced and tourism catalytic)

3.9%
Of EU GDP is supported by aviation

http://www.atag.org

Figures on the car industry in Europe
The automotive industry as a whole (automotive producers, supply chain and aftermarket, including thousands of SMEs) is of strategic importance to the European economy, representing 12 million direct and indirect jobs, 4% of GDP and a €90 billion trade surplus (in 2011). This industry is the biggest private investor in research and innovation, spending around €30 billion annually.

Air travel development

Air traffic has doubled every 15 years.

Air traffic will double in the next 15 years.

20-year world annual traffic growth 4.7%

World annual RPK (trillion)

Source: ICAO, Airbus
20-year new deliveries of PAX and freight aircraft

19,520 single-aisle aircraft
  +353 aircraft over GMF 2011

6,970 twin-aisle aircraft
  +60 aircraft

1,710 very large aircraft
  +30 aircraft

28,200 new aircraft
  +443 aircraft

Market value of $4 trillion

Source: Airbus GMF
Environmental Impact

Frozen technology 5% p.a. (air traffic growth)
Fleet replacement by new technology aircraft -1.3% p.a.
Better aircraft utilisation -0.3% p.a.
Operational measures -0.1% p.a.
Infrastructure measures -0.2% p.a.
Technology retrofits -0.1% p.a.
Biofuels -0.7% p.a.
Economic measures -2.2% p.a.

This model comprises the benefits of all measures considered.
Only under very beneficial conditions all of them will be realised.
Depending on governments mainly for infrastructure (e.g. SES).
Advisory Council for Aeronautics Research in Europe and "Vision 2020"

- 80% cut in NOx emissions
- Halving perceived aircraft noise
- Five-fold reduction in accidents
- ATS capable of handling 16 mio. flights a year
- 50% cut in CO2 emissions per passenger/km
- 99% of all flights within 15 min. of timetable

How is the 50% CO2 Reduction Achieved?

Airframe 20-25%
Engines 15-20%
Operations 5-10%
ACARE achievements so far

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
Europe's Vision for Aviation: Flightpath 2050

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

- Responding to society's needs
- Securing global leadership for Europe
Achieving the Vision: A renewed Advisory Council for Aviation Research and Innovation in Europe

General Assembly
Meets 1-2 times per year
EC provide the Secretariat

Permanent Groups
- Monitoring Group
- Member States Group
- Communication Group

Steering Group
- WG1) Meeting Societal and Market Needs
- WG2) Maintaining and Extending Industrial Leadership
- WG3) Protecting the Environment and the Energy Supply
- WG4) Ensuring Safety and Security
- WG5) Prioritising Research, Testing Capabilities & Education

Ad-Hoc Groups
(to be installed by the SG)
The SRIA engagement
(Scategic Rsearch and Innovation Agenda)

• Overall ~ 300 participants in the five ACARE Working Groups
• Stakeholders from 18 countries
• Balanced representation of stakeholders
  • Industry: 33%
  • Academia: 29%
    • Air Transport: 10%
    • EC: 10%
    • MS: 9%
    • Others: 9%
Flightpath 2050

March 2011 Aerodays

Sept. 2012 ILA

SRIA

www.acare4europe.org

From Vision to Strategy

Short (2020), medium (2035) and long term (2050) Research and Innovation actions enabling to reach 2050 goals
FP 7 ends in 2013...what's next...

The Cooperation Programme breakdown (€ million)

- Socio-economic Sciences and Humanities €610
- Transport (including Aeronautics) €4180
- Space €1430
- Security €1350
- Health €6050
- Food, Agriculture and Biotechnology €1935
- Energy €2300
- Environment (including Climate Change) €1800
- Nano production €3500
- Information and Communication Technologies €9110
The EU Framework Programme for Research and Innovation 2014-2020
What is Horizon 2020

- Commission proposal for a 80 billion euro research and innovation funding programme (2014-2020)

- A core part of Europe 2020, Innovation Union & European Research Area:
  - **Responding to the economic crisis** to invest in future jobs and growth
  - **Addressing people’s concerns** about their livelihoods, safety and environment
  - **Strengthening the EU’s global position** in research, innovation and technology

http://ec.europa.eu/research/horizon2020
What’s new

• A single programme bringing together three separate programmes/initiatives*

• Coupling research to innovation – from research to retail, all forms of innovation

• Focus on societal challenges facing EU society, e.g. health, clean energy and transport

• Simplified access, for all companies, universities, institutes in all EU countries and beyond.

*The 7th Research Framework Programme (FP7), innovation aspects of Competitiveness and Innovation Framework Programme (CIP), EU contribution to the European Institute of Innovation and Technology (EIT)
Three priorities:

1. Excellent science
2. Industrial leadership
3. Societal challenges
Priority 1. Excellent science

Why:

• World class science is the foundation of tomorrow’s technologies, jobs and wellbeing

• Europe needs to develop, attract and retain research talent

• Researchers need access to the best infrastructures
Priority 2. Industrial leadership

Why:

- Strategic investments in key technologies (e.g. advanced manufacturing, micro-electronics) underpin innovation across existing and emerging sectors
- Europe needs to attract more private investment in research and innovation
- Europe needs more innovative SMEs to create growth and jobs
Priority 3. Societal challenges

Why:

- Concerns of citizens and society/EU policy objectives (climate, environment, energy, transport etc) cannot be achieved without innovation
- Breakthrough solutions come from multi-disciplinary collaborations, including social sciences & humanities
- Promising solutions need to be tested, demonstrated and scaled up
Proposed funding (million €, 2014 - 2020)

<table>
<thead>
<tr>
<th>Area</th>
<th>Funding (million €)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health, demographic change and wellbeing</td>
<td>8 033</td>
</tr>
<tr>
<td>Food security, sustainable agriculture, marine and maritime research &amp; the bioeconomy</td>
<td>4 152</td>
</tr>
<tr>
<td>Secure, clean and efficient energy*</td>
<td>5 782</td>
</tr>
<tr>
<td>Smart, green and integrated transport</td>
<td>6 802</td>
</tr>
<tr>
<td>Climate action, resource efficiency and raw materials</td>
<td>3 160</td>
</tr>
<tr>
<td>Inclusive, innovative and secure societies</td>
<td>3 819</td>
</tr>
</tbody>
</table>

*Additional €1 788m for nuclear safety and security from the Euratom Treaty activities (2014-2018). Does not include ITER.
Next steps

**Ongoing:** Parliament and Council negotiations on the basis of the Commission proposals

**Ongoing:** Parliament and Council negotiations on EU budget 2014-2020 (including overall budget for Horizon 2020)

**Mid 2012:** Final calls under 7th Framework Programme for research to bridge gap towards Horizon 2020

**Mid 2013:** Adoption of legislative acts by Parliament and Council on Horizon 2020

**1/1/2014:** Horizon 2020 starts, launch of first calls
Horizon 2020 and partnering

Public Private Partnerships:
- Through Joint Technology Initiatives or other formal structures (Art. 187)
- Through contractual agreements, which provide inputs for work programmes
- Only when criteria met, e.g. clear commitments from private partners

Public Public Partnerships:
- Through « ERA-Nets » for topping up individual calls/actions (replacing current ERA-Net, ERA-Net Plus, Inco-Net, Inno-net)
- Through participation in joint programmes between Member States (Art. 185)
- Supporting agendas of Joint Programming Initiatives when in line with Horizon 2020
- Only when criteria met, e.g. financial commitments of participating countries

European Innovation Partnerships:
- Not funding instruments, but for coordination with broader policies and programmes
Clean Sky

"...to develop breakthrough technologies to significantly increase the environmental performances of airplanes and air transport, resulting in less noisy and more fuel efficient aircraft..."

Public Private Partnership:

- 12 ITD Leaders
- 74 Associates
- Over 300 Partners

=> ca. 400 participants from Industry, Academia, and Research Establishments

www.cleansky.eu
Aeronautics ERA-Net AirTN

"...as one of the key enablers for the prosperous development of Aeronautics in Europe."

**Public Public Partnership:**

- Austria (BMVIT & FFG)
- Belgium (Netherlands)
- Croatia (Poland)
- Czech Rep. (Portugal)
- France (Romania)
- Germany (Slovakia)
- Greece (Spain)
- Hungary (Sweden)
- Ireland (Switzerland)
- Italy (United Kingdom)

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**Total costs:** 1.900.000 €

**EU contribution:** 1.900.000 €

**Call:** FP7-ERA-2008-RTD

**Starting date:** 01.01.2010

**Ending date:** 31.12.2012

**Duration:** 36 months
International cooperation

- International cooperation is crucial to address many Horizon 2020 objectives.

- Principle of general openness: the programme will remain to be the **most open funding programme** in the world.

- Horizon 2020 shall be open to the association of: acceding countries, candidate countries and potential candidates and selected third countries that **fulfil the relevant criteria** (capacity, track record, close economic and geographical links to the Union, etc.).

- Targeted actions to be implemented taking a **strategic approach** to international cooperation (dedicated measures in the 'Inclusive, innovative and secure societies' challenge).
International cooperation in research and innovation is not an end in itself. It is a means for the Union to achieve its higher level objectives, in particular by:

- strengthening the **Union’s excellence and attractiveness in research and innovation** and its economic and industrial competitiveness;
- tackling **global societal challenges**, such as food and energy security and climate change;
- supporting the Union’s external policies.

www.ec.europa.eu/research/iscp
International Cooperation in FP 7

Support Actions:

- CANNAPE
- COOPAIR-LA
- COOPERATEUS
- AERO-Ukraine
- AEROCHINA 1 & 2
- AEROAFRICA-EU
- GRAIN
- IFARs
- ...
Thank you for your attention!

Find out more:

http://ec.europa.eu/research