



Aeronautics & Air Transport Research in the 7th EU Framework Programme (FP7)



INTRODUCTION

EUROPEAN COMMISSION
DG Research Aeronautics



Introduction to Cooperation in EU FP7 Aeronautics Research

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- ◆ **FP7** Contributors / Structure / Cooperation / Transport incl. Aeronautics
- ◆ Vision 2020, Technology Platform “ACARE” and its Agenda
- ◆ FP7 Aeronautics: Budget, Activities, Structure and Schemes
- ◆ Public-Private Partnerships:
 - CleanSky
 - SESAR

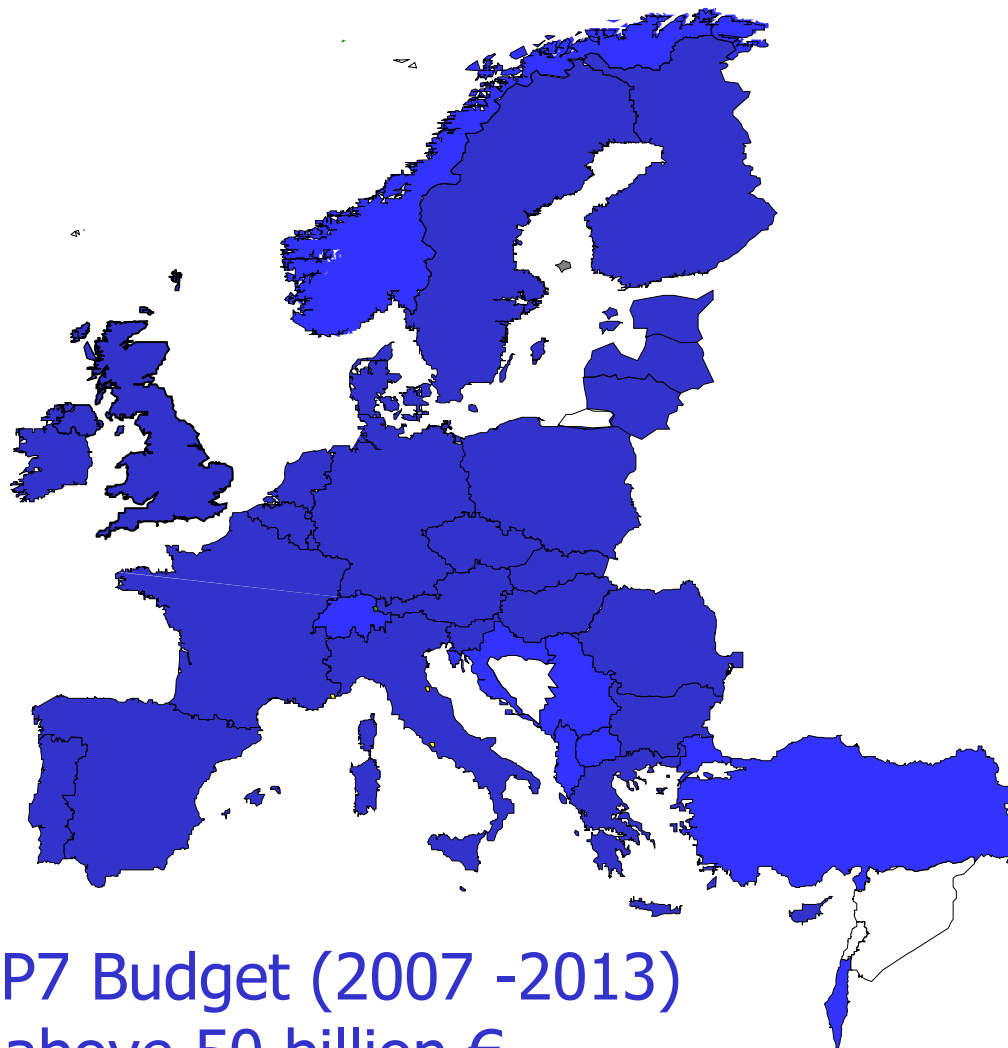
States contributing to FP7

- 7th EU Research Framework Programme -

 27 EU Member States

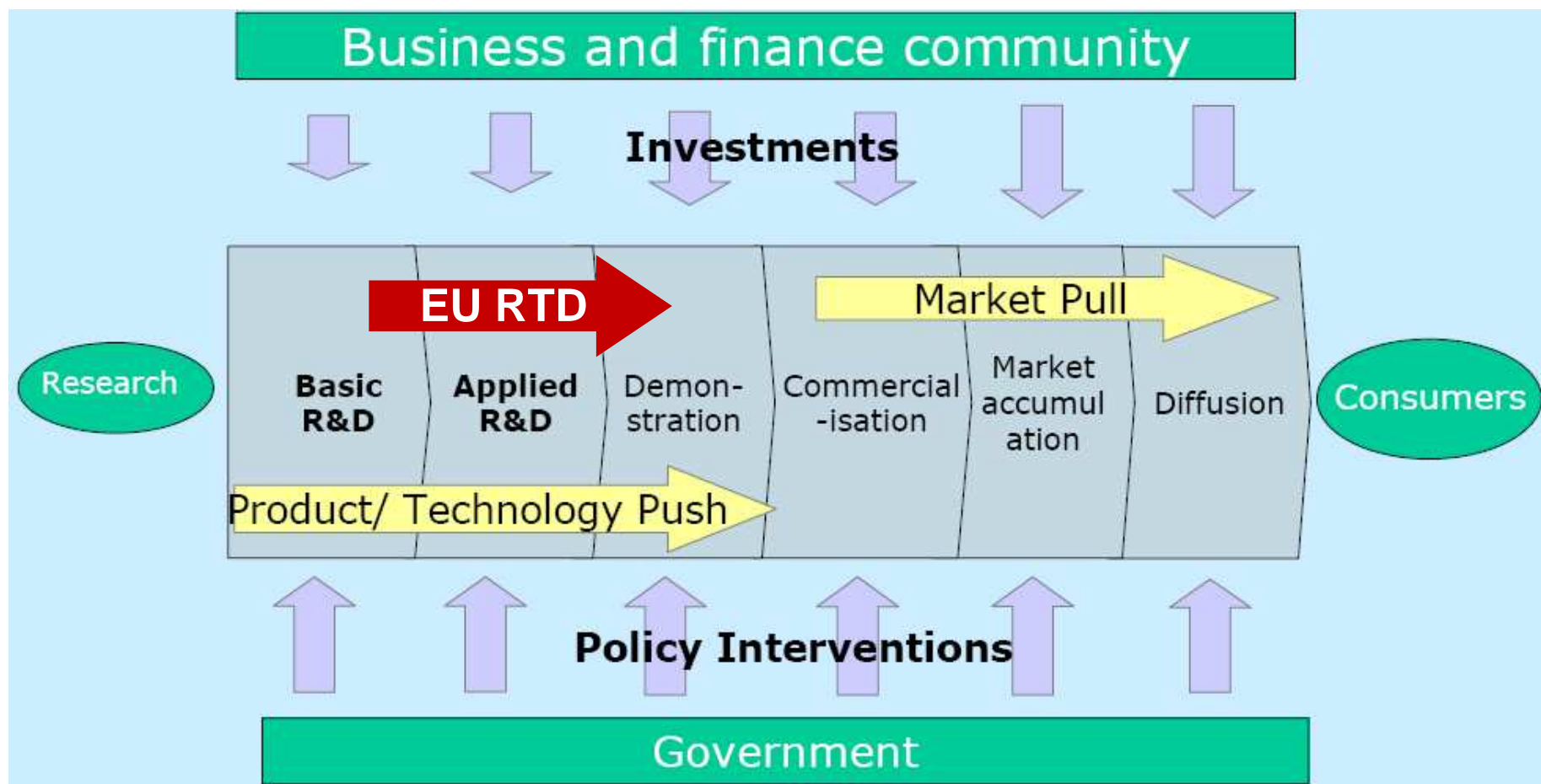
 FP7 Associated States

- Israel
- Norway
- Switzerland
- Turkey
- Iceland
- Croatia
- Serbia
- Albania
- Others TBC



Total FP7 Budget (2007 -2013)
above 50 billion €

FINANCIACIÓN DE LA INVESTIGACIÓN EN LA UNIÓN EUROPEA



7th FRAMEWORK PROGRAMME FP7 (2007-2013) 4 Specific Programmes



Cooperation

32 413 M€

Trans-national cooperation in 10 research themes through consortia



Ideas

7 510 M€

Investigator-driven “**frontier research**”, supported by an autonomous **European Research Council (ERC)**



People

4 750 M€

Training, mobility, career development of researchers, (“**Marie Curie**” actions) - incl. **International grants**



Capacities

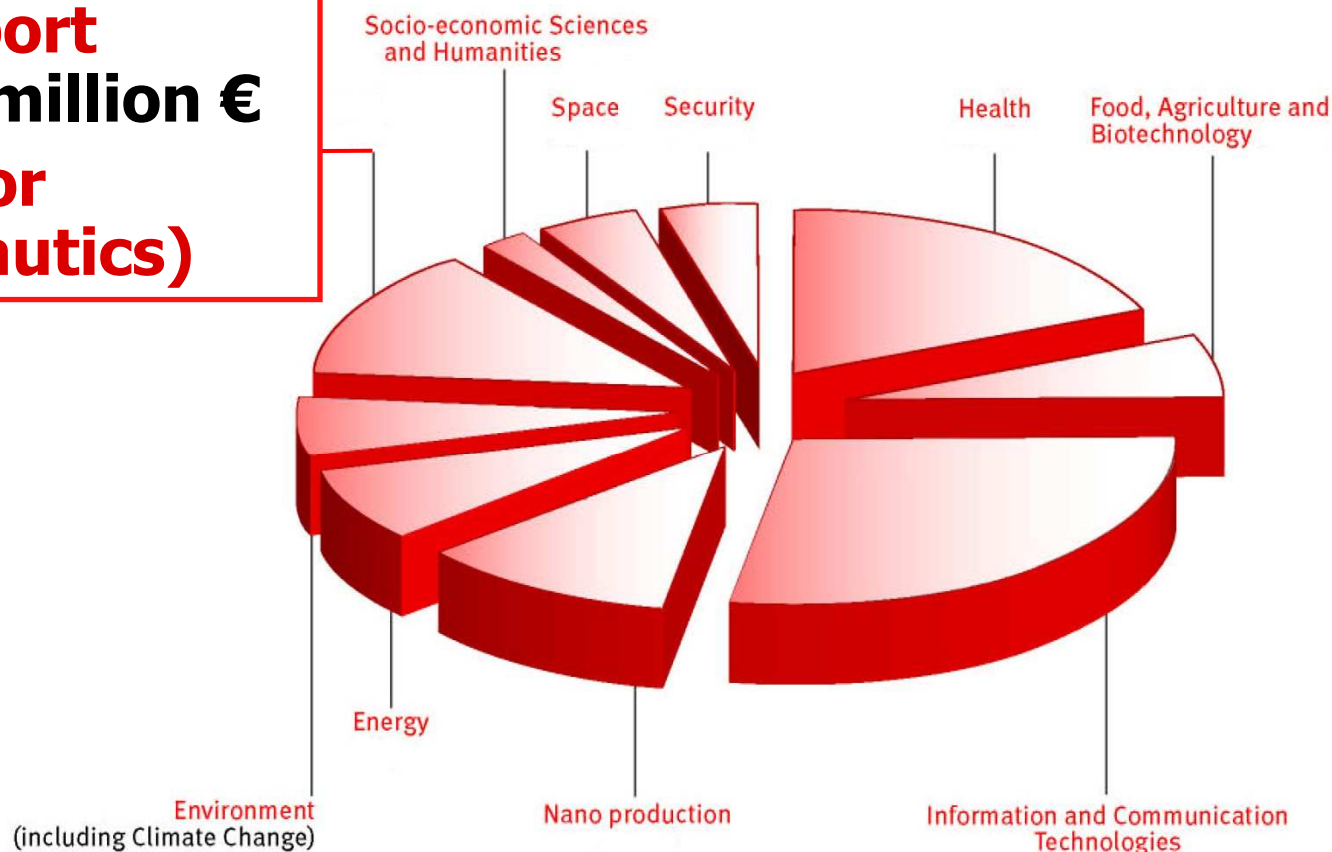
4 097 M€

Research infrastructures; research specific for SMEs; regional research driven clusters

FP7 COOPERATION PROGRAMME

10 Themes

Transport
4 160 million €
(half for
Aeronautics)



Total budget: 32 413 million €

FP7 Cooperation Work Programme **Transport**

Sub-theme 7.1. Aeronautics & Air Transport

Sub-theme 7.2. Sustainable Surface Transport

Sub-theme 7.3. Horizontal Activities
(for the implementation of the Transport Programme)

Sub-theme 7.4. Galileo
(support to the European Global Satellite Navigation System)



FP7 Research Framework Programme / Cooperation / Transport (incl. Aeronautics)

CIVIL ONLY !

Overall Objectives

- ◆ Develop “**safer**”, “**greener**”, “**smarter**” and “**more integrated**” transport systems for:
 - respecting environment and natural resources
 - the benefit of citizens and society
- ◆ Secure and develop the **competitiveness** of European industry in the global market





EUROPEAN
COMMISSION

Community research

WHY TRANSPORT RESEARCH?

■ Transport is one of Europe's strengths

- Air transport: **2.1%** EU GDP, **3.1 million** jobs
- Surface transport: **11%** EU GDP, **16 million** jobs



■ Transport faces major challenges

- **Environment:** climate change (CO₂), pollution (air, water, soil) → public health, biodiversity
- **Energy:** 30% of total energy consumption → 98% depend. oil
- **Enlargement:** increase of 27% population and 34% of land surface
- **Mobility:** people and goods (accessibility, economic development)
- **Transport industries:** ensure technological competitive advantages

■ Transport is important to international agreements & key EU policies

- Kyoto protocol, EU Transport policy, trade, competition, employment, cohesion, energy, security, maritime, internal market





EUROPEAN
COMMISSION

Community research

WORK PROGRAMME 2011

Policy context

- Transport has become **a victim of its own success**, leading to **traffic congestion** and **excessive use of fossil fuels**
- The **grand challenge** for transport is to overcome this paradox and **make growth and sustainability compatible**
 - By **decoupling** environmental impacts from economic growth
 - While ensuring the **competitiveness** of the European transport industry



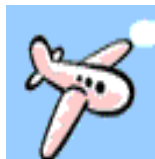
EU TRANSPORT RESEARCH



FP7 Cooperation Transport (incl. Aeronautics)

Budget breakdown (7 years: 2007 - 2013)

Aeronautics & Air Transport (AAT): 2150 M€



Clean Sky JTI (Joint Tech Initiative) - 800 M€

SESAR JU (Single Eu Sky Research) - 350 M€

Collaborative Research & Support

Sustainable Surface Transport (SST):



Road (including urban)



Rail (including urban)



Waterborne (maritime & inland)

1510 M€

SST
integrated
approach

Horizontal actions (TPT) (co-modality synergies, impact,...)

Support to EU Navigation Satellite System (EGNOS & **Galileo**)

DG RESEARCH

DG MOVE

DG ENTR



"European Aeronautics: A Vision for 2020"

<http://europa.eu.int/comm/research/growth/aeronautics2020/en/index.html>

- **Initiated and chaired by Commissioner Philippe Busquin**

- **Prepared by a group of 14 high-level personalities (GOP)**



- **Focused on Research / Technology / Development**

- **Takes a pan-European perspective with a 2020 horizon**

***Society's
needs***

**two Top level
objectives**

***Global
leadership***

European Aeronautics: A Vision for 2020

The Goals for 2020

- **50%** cut in **CO₂** emissions per pass-Km
- **80%** cut in **NO_x** emissions per pass-Km
- **Halving** perceived aircraft **noise**
- **Five-fold** reduction in **accidents**
- Air traffic system **capable of handling 16 million** flights a year
- **99%** of all flights within **15 min of timetable**

ACARE Structure



ACARE PLENARY COUNCIL

***Co-Chairmanship: . Technical
. Institutional***

ACARE Plenary Council

- 27 Member States
- European Commission
- Manufacturing Industry (ASD)
- Airlines (IATA, AEA)
- Airports (ACI Europe)
- Aeronautical Research Establishments (EREA)
- Universities (EASN)
- Regulators (EASA, EUROCONTROL)

Over 40 Members

Integration Team

Strategy

Implementation

Communication

**MEMBERS
STATES**

**HR &
Research
Providers
infrastructure**

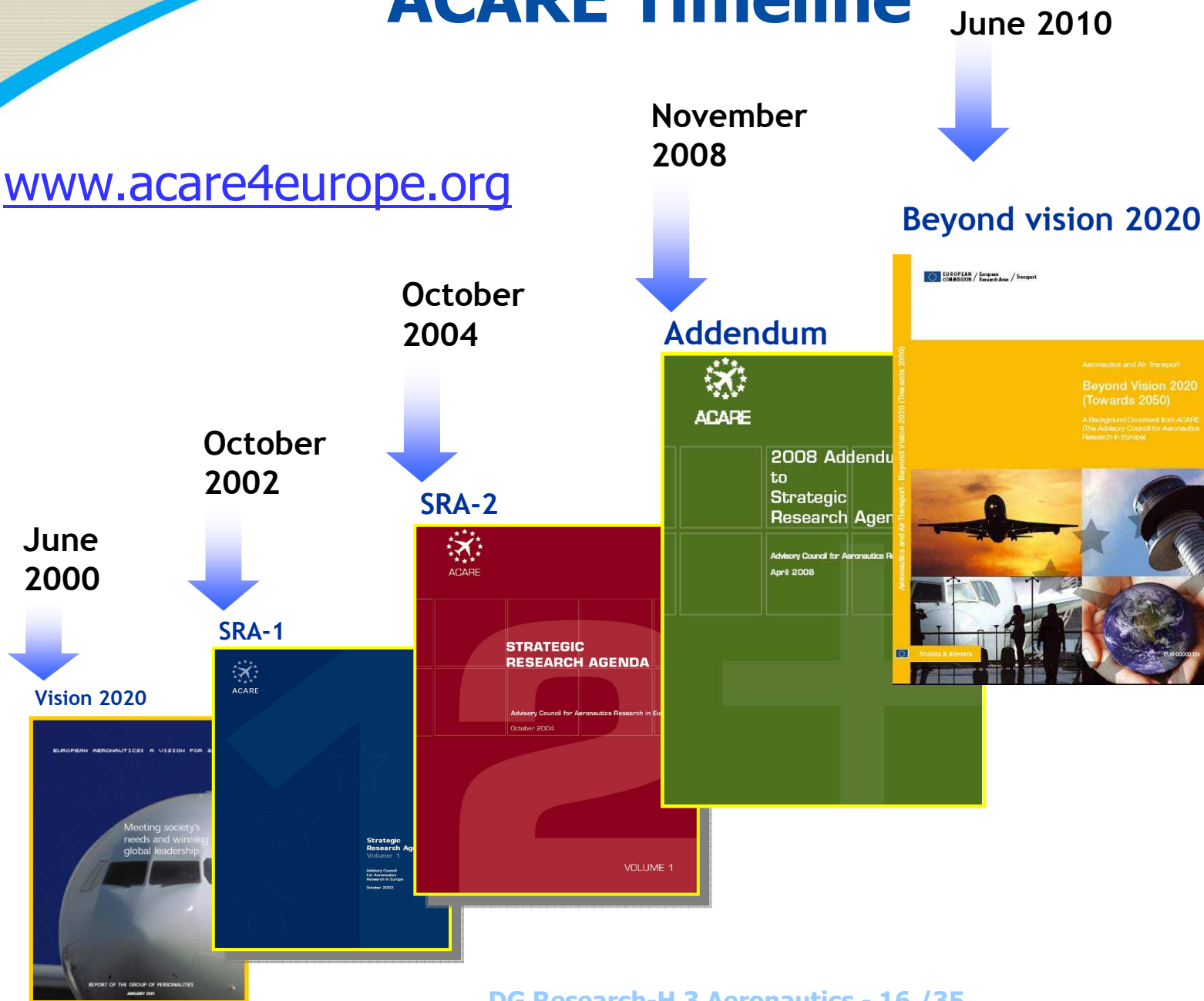
Stakeholders of the European Air Transport System

What does ACARE do?

- Launch, carry forward and update a **Strategic Research Agenda, influencing all European stakeholders in the planning** of research programmes, particularly **national** and **EU programmes**
- Make **strategic & operational recommendations** as well as commission **studies for implementing** the SRA
- **Evaluate** the overall **results** & benefits of the SRA for **Member States**, the **Commission** and **stakeholders groups**;
- Recommend measures for optimising the use of existing **research infrastructures** and achieving cost-effective investments;
- Recommend measures for improving **educational policies** to attract the scientists, engineers and other skills that the sector needs;
- **Promote awareness** of the SRA (within the stakeholders community as well as to larger public audiences)
- **Disseminate** info on **stakeholders' research programmes**

ACARE Timeline

www.acare4europe.org



Future vision 2050 & future SRA



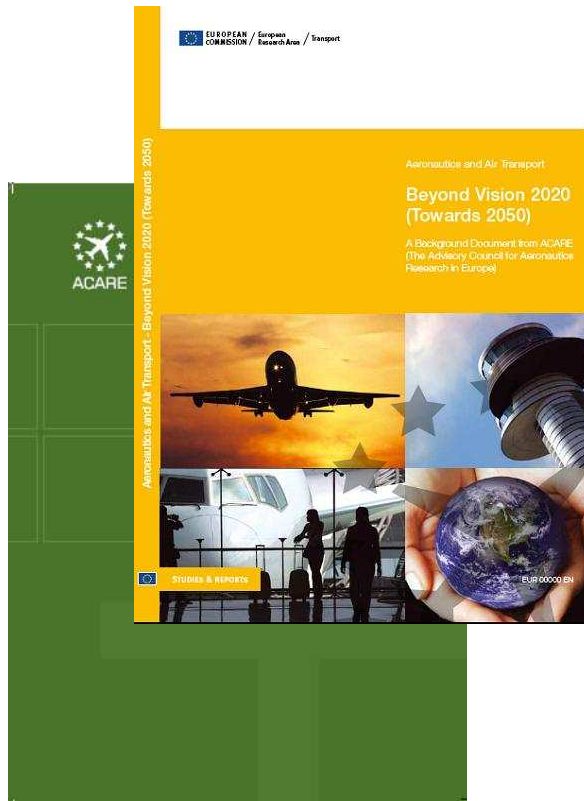
To start soon!

SRA Addendum & Beyond Vision 2020

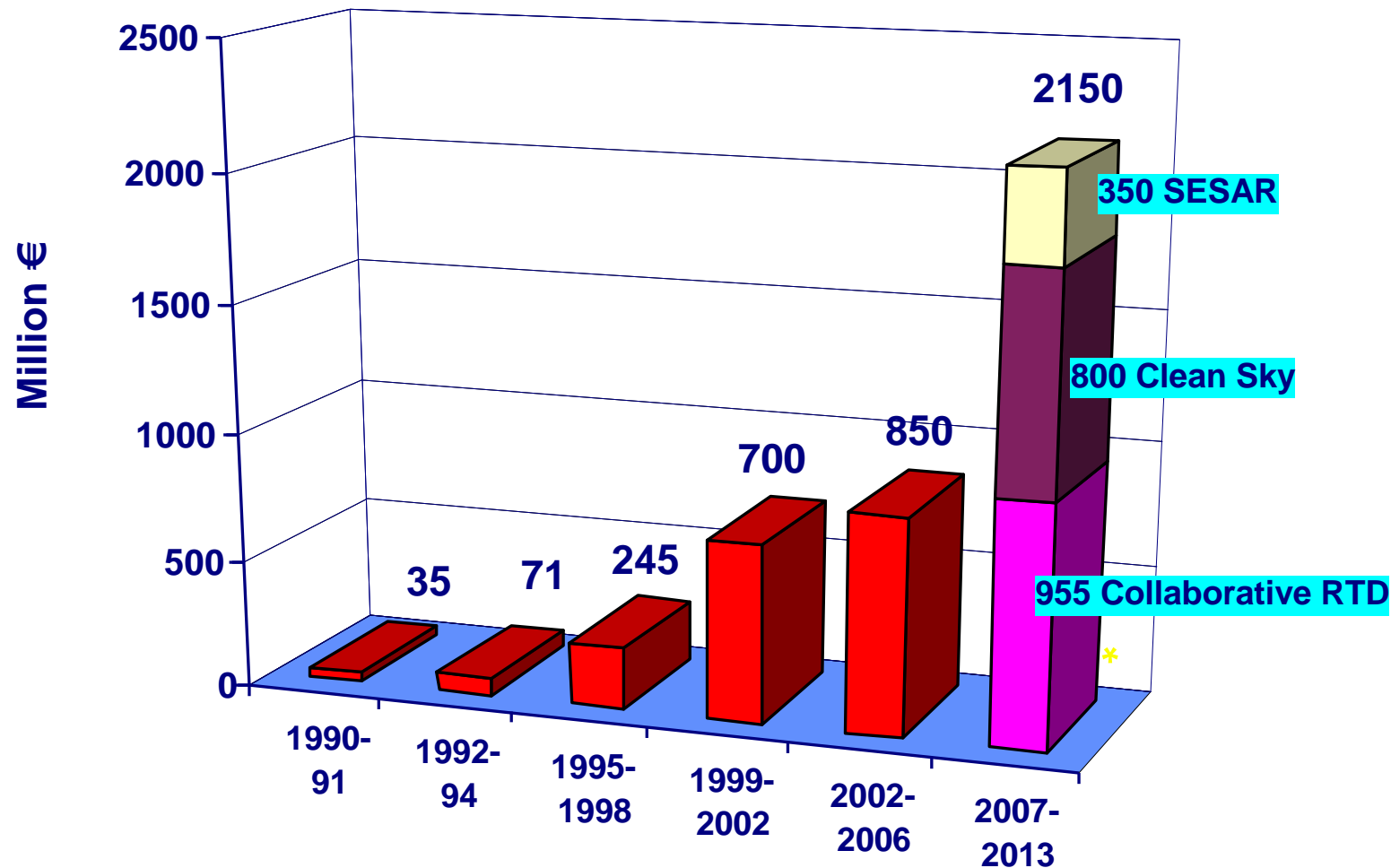
www.acare4europe.org

Some changes of emphasis

- Greater intensity of work on **environment**
- Develop “**well to wake**” analysis for **alternative fuels** in aviation, focusing on **drop-in** fuels for 2020 timescale
- **Hassle-free** security operation
- Demographics: more long range
- **Financial pressure:** Crisis, Oil price
- **Competitiveness:** Innovation & Breakthrough needed at EU vs. North America & emerging economies;
- In **International Collaboration**, emphasise strategic collaborations and establish European positions

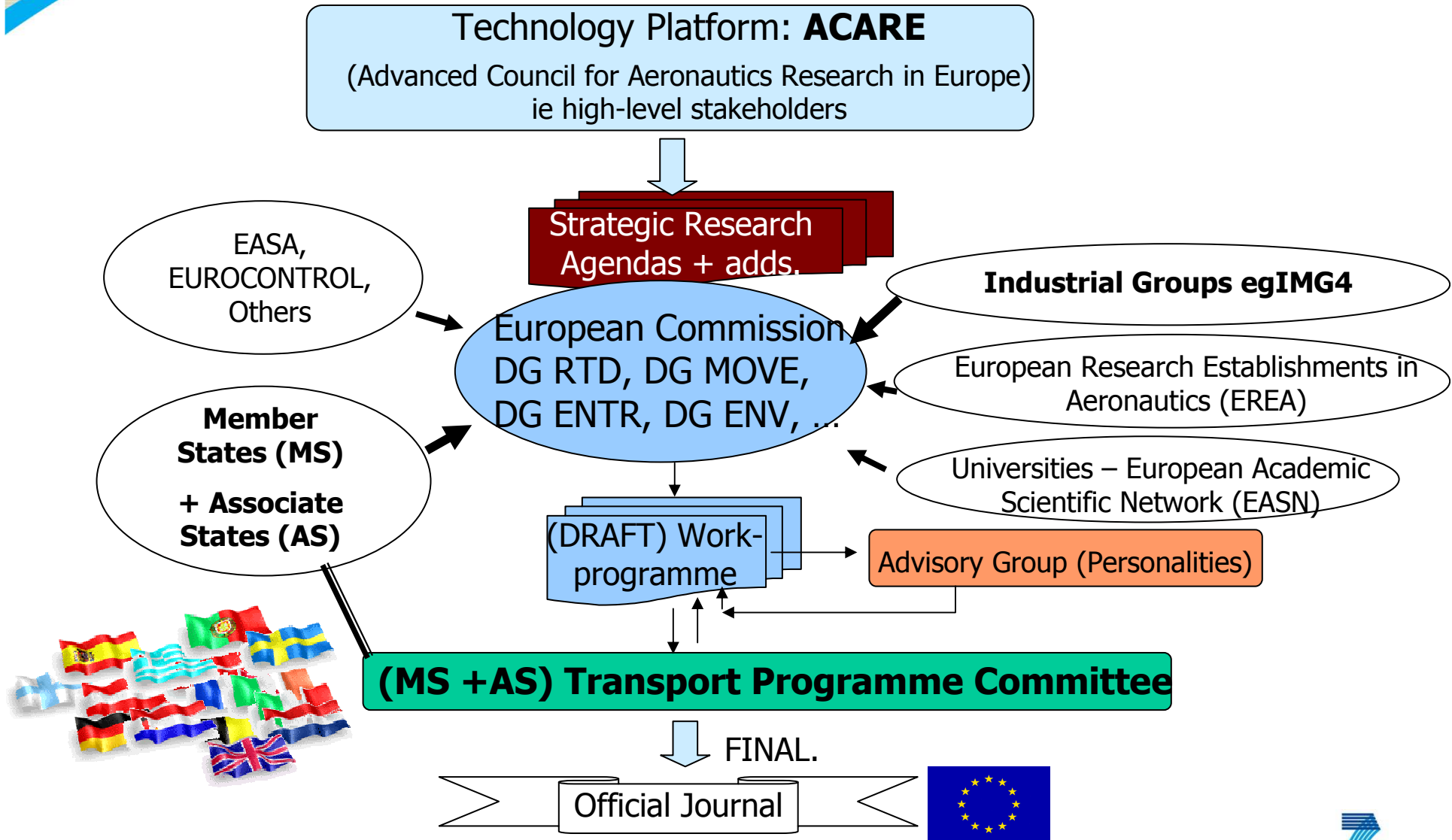


R&TD Funding for Aeronautics Research at EU Level



*) Budget 2007 - 2013: Aeronautics & Air Transport
 Collaborative Research, Clean Sky JTI (800 M€) and SESAR (350 M€)

Aeronautics & Air Transport Research Work-programme Preparation (DG RTD)

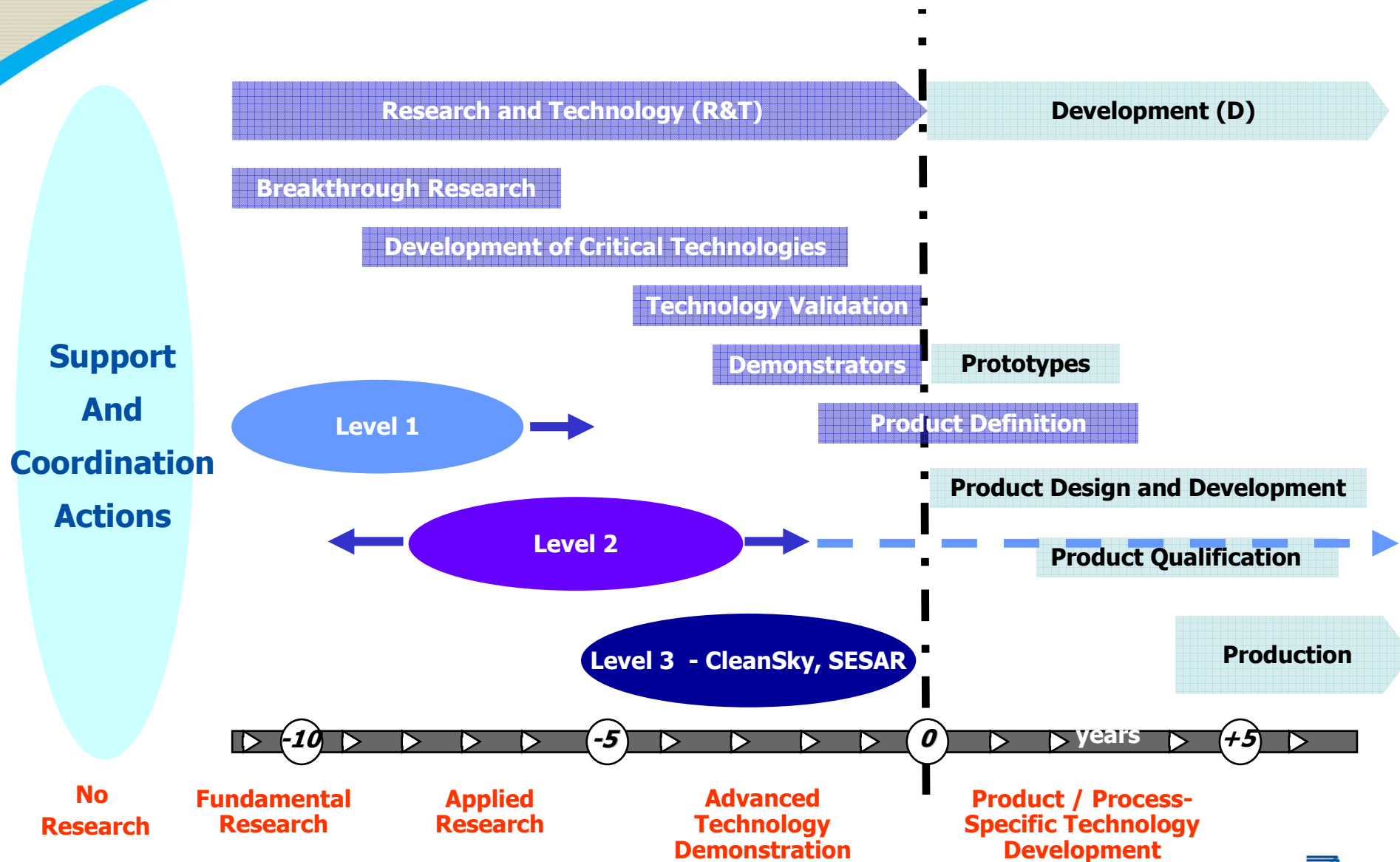


FP7 Aeronautics & Air Transport Research

Activities

1. The **Greening** of air transport
2. Increasing **Time** efficiency
3. Ensuring **Customer** satisfaction and **Safety**
4. Improving **Cost** efficiency
5. **Protection** of the aircraft and passengers
6. **Pioneering** the air transport of the future

FP7 AERONAUTICS R&T





FP7 COOPERATION AERONAUTICS R&T Structure and Schemes

◆◆◆ **Level 3: Combination**, final **proof** in fully **integrated** system of systems. Public-Private-Partnerships:

- SESAR (ATM), **CLEANSKY** (800 M€ EC + 800 M€ Ind.)



◆◆ **Level 2: Downstream R&TD**,
Multidisciplinary **integration & validation**

- Collaborative Projects < 40 M€ EC fund

◆ **Level 1: Upstream R&TD**

Breakthrough up to validation at component level

- Collaborative Projects < 4M€ EC funding

Coordination Actions « CSA-CA » (no R&TD)

Support Actions « CSA-SA » (no R&TD) < 300 k€

R&TD up to 50/75% EC co-funding, others up to 100%.

Min. **3**
legal
entities
from
different
Member or
Associate
States

FP7 Aeronautics Joint Technology Initiative « Clean Sky » www.cleansky.eu



Objectives

- ◆ Provide a step forward in the technology capability of ATS **environmentally-friendly systems**:
 - integration of advanced technologies
 - full scale demonstrators
- ◆ Improve on the overall ATS impact on environment:
 - **noise** and **emission** reduction
 - fuel **consumption**
- ◆ **Consolidate the European industry** around a project of common European interest
(**P**ublic **P**rivate **P**artnership: 800 M€ + 800 M€)

FP7 Aeronautics JTI « Clean Sky »



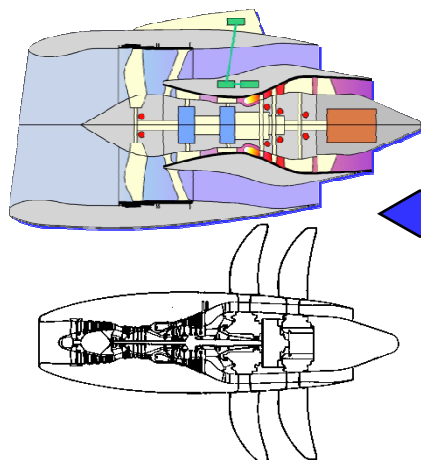
SMART Wing Aircraft



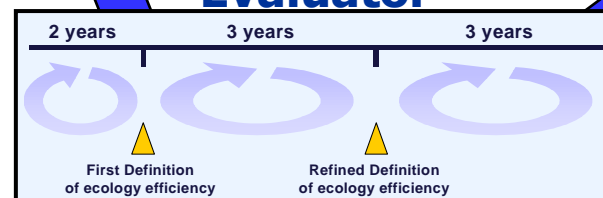
Systems for Green Operation



Green Engines

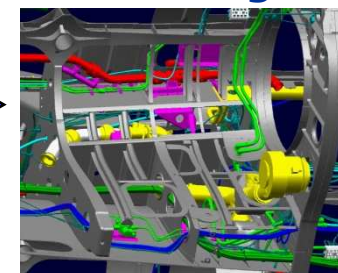


Evaluator



Simulator Platform AC, ATM, AP (flight segment)

Eco-Design



Green Rotorcraft



Regional Air Transport

SESAR www.sesar.eu (Single European Sky ATM Research)

The goals of SESAR

Enabling EU skies to handle 3
times more traffic

Improving safety by a factor of
10

Reducing the environmental
impact per flight by 10%

Cutting ATM
costs by 50%

Joint Undertaking

EUROPEAN
COMMISSION
(FP7 Research
+ TEN -T
TransEuropean
Network)

EUROCONTROL

INDUSTRY
=
Public – Private
Partnership

700M€

700M€

700M€

2 Funding members

3rd funding member