



6th CEARES Workshop
in cooperation with SAT - Roadmap



Small Air Transport - Roadmap

Project Overview

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ONERA
THE FRENCH AEROSPACE LAB



TU Delft
Delft University of Technology



AD CUENTA B.V.
BELEIDS ADVIESBUREAU / CONSULTANTS



- 1. Status** - info about the status creation of a new component in European Transport: the wider use of small aircraft and regional airports, to enable access to more communities in less time.
- 2. Common Vision** – creation of understanding the added value for Europe of integrating Small Aircraft Transport in European Air Transport System.
- 3. STTP, SRA-3, FP-8** – creation of understanding the need to include SATS into European Research Area



Where we are going?

Some studies suggest that
the number of cars in the world
will increase from around

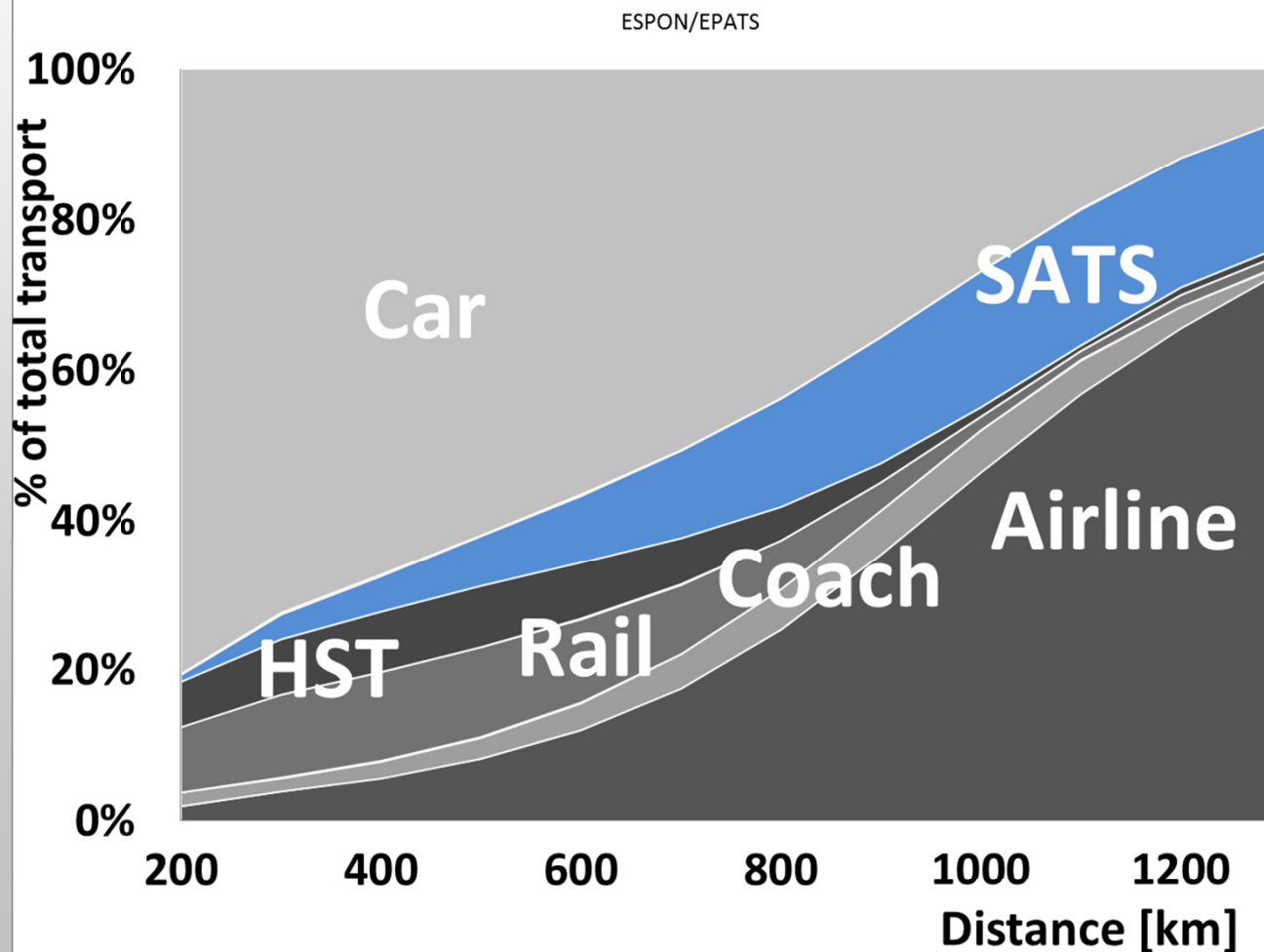
700 milion today to
more than

3 bilion in 2050...

Communication from the EC 17 June 2009

This calls
for a modal
shift!

Modal split of trips in Europe. 2020



To shift part
of long
distance
business
trips from
**cars to
small
aircrafts**

What is the Small Aircraft Transport System?

It is a segment of high-speed transport market,
that serves local and regional low traffic connections

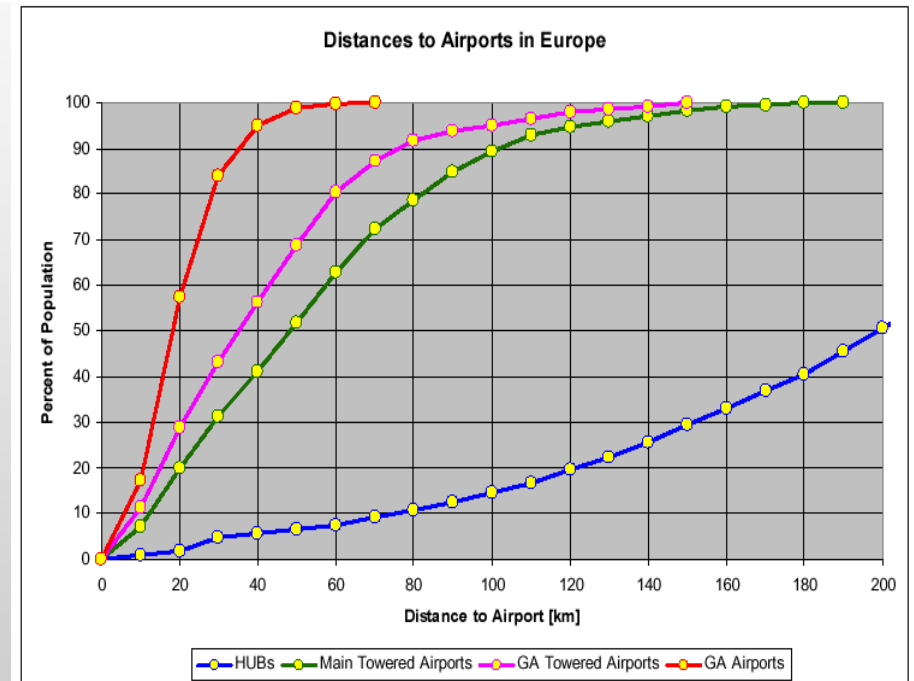
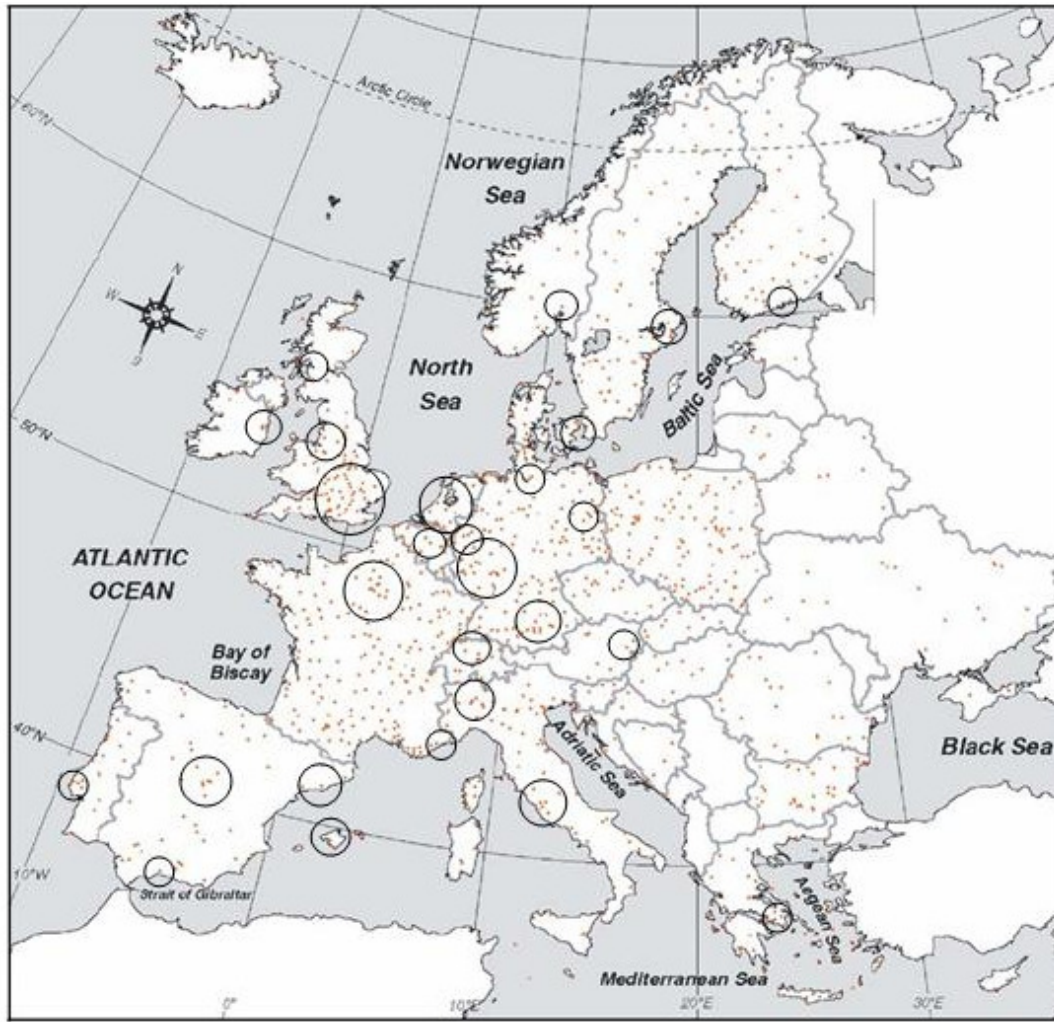
Aircraft - small 4 to 19 seats, that are low DOC, green, safe, and secure

Infrastructure on the ground and in the air - Regional Airports +
ATM/ATC services integrated in SESAR

Net – Centric Management & Acquisition – ICT based logistic
and management system for SATS, integrated within the SESAR's System
Wide Information Management (SWIM)



Excellent Accessibility of Airports

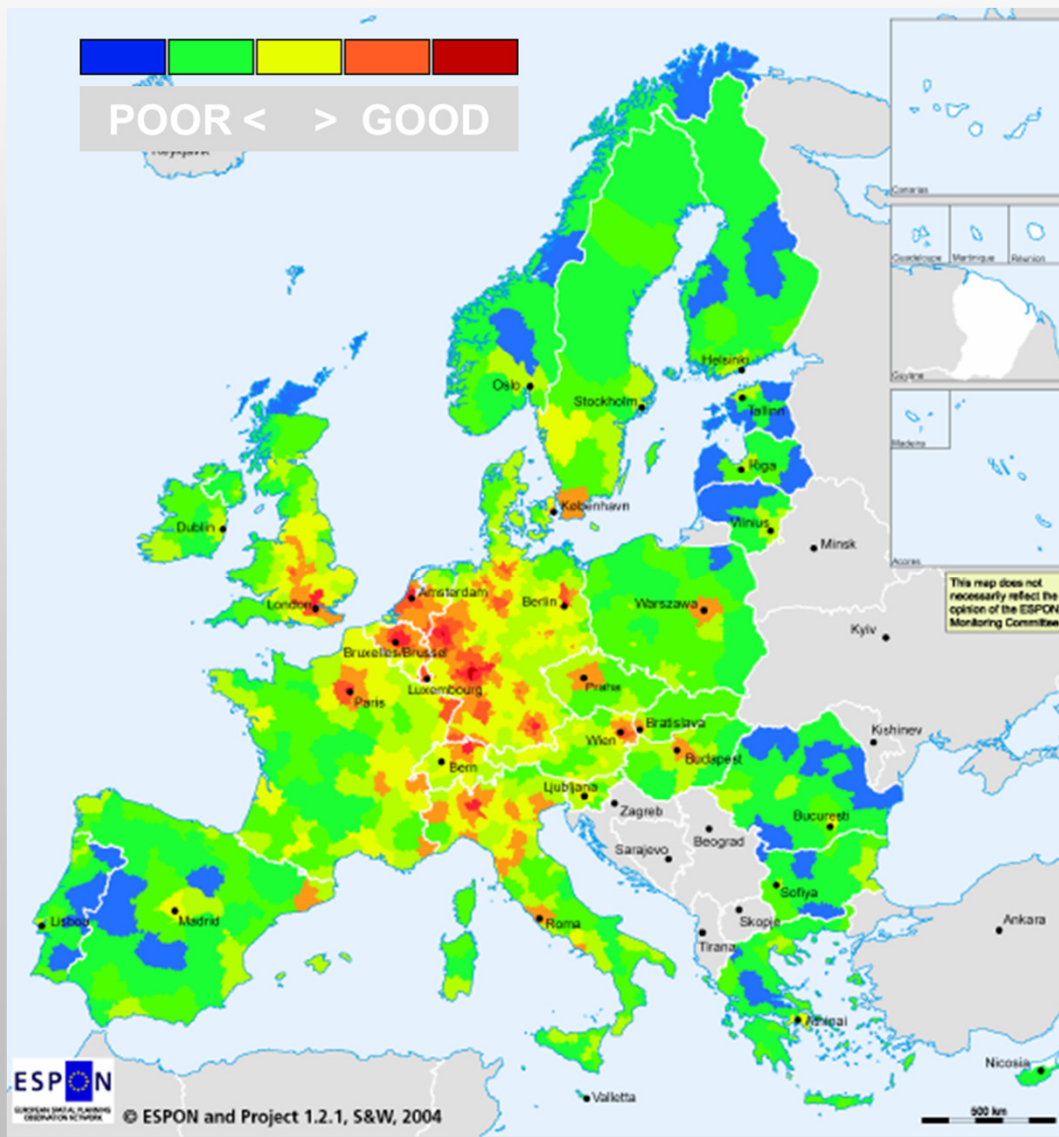


1270 airports and 1300 landing fields

= 2570 airfields

70% traffic = top 15 airports

Multimodal Accessibility to Regions

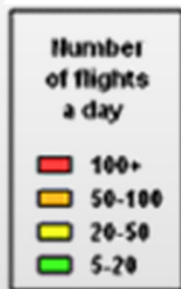


All Transport Infrastructure:

- Car
- Rail
- Air

Potential SATS Accessibility

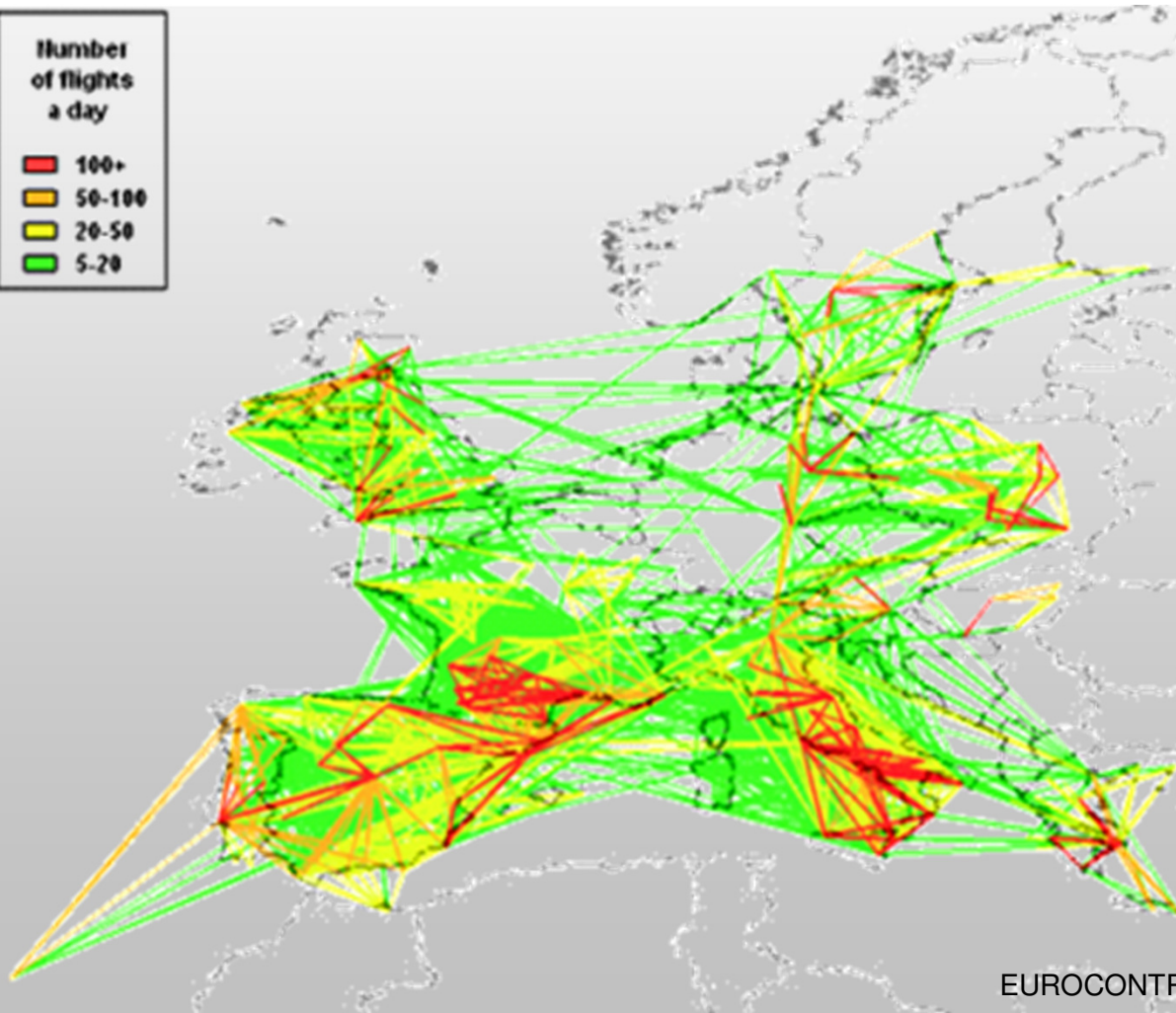
According to EPATS-Study (SSA-FP6)



Small Aircraft Transport System focused on regions that **lack access by airlines or high speed trains**

Supporting the integration and cohesion of the European Union, its neighbors and partners...

FlightPath 2050



Potential Market

Main Formula:

A traveller will choose the transport mode that minimizes the generalized costs (cost of travel + cost time value).

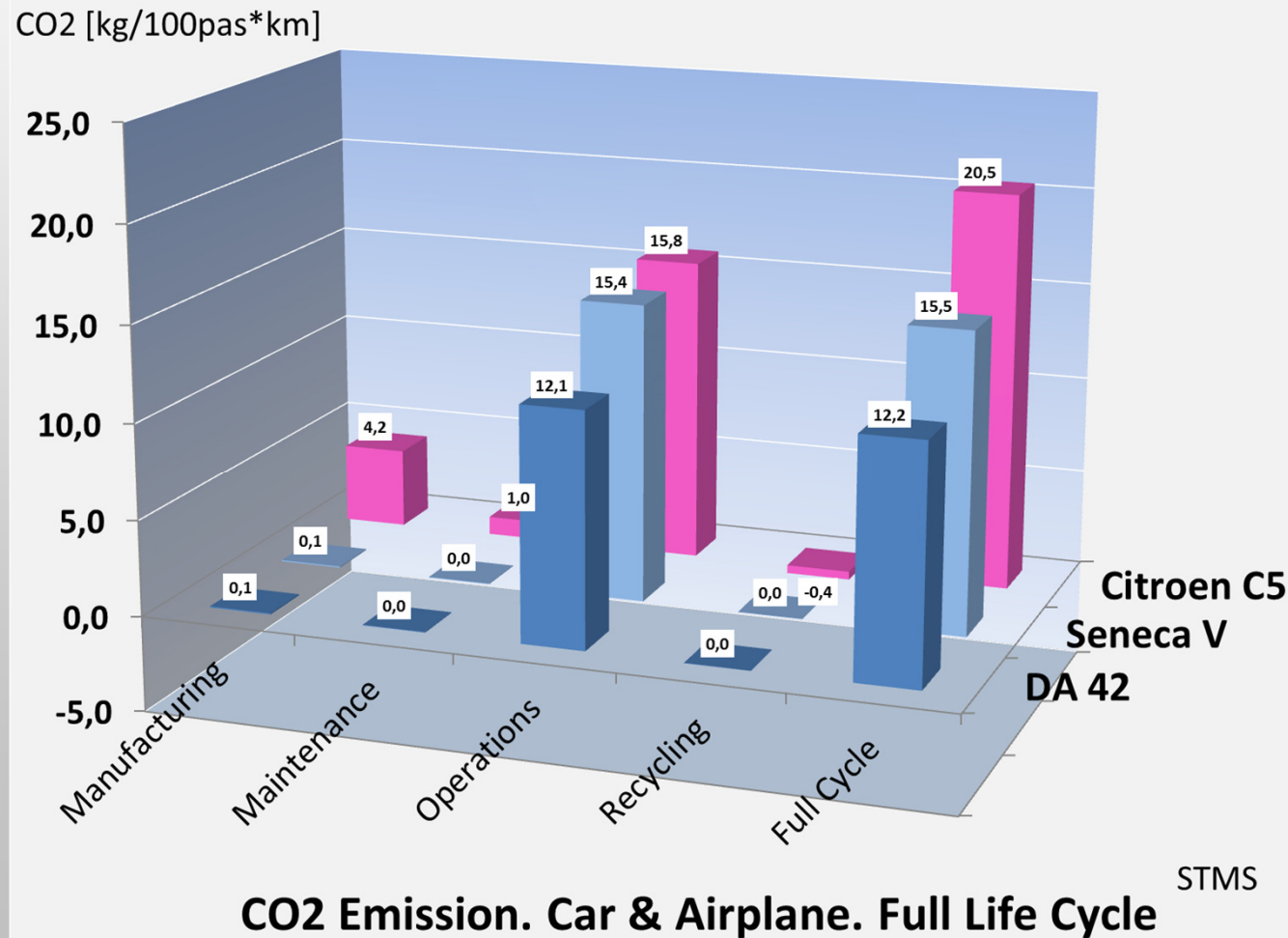
According EPATS-Study (SSA FP6):

Transferred traffic to personal air transport in 2020 could reach **3%** of the total European traffic, what it means fleet **89 000** personal aircraft.

In SAT-Rdmp project (CSA FP7) we have refined this forecasts, making next loop of calculation by international team (M3S, Aelous, BUTE, DUT). Status will be presented by Ms Isabelle Laplace in the next part of this workshop.



Impact on Environment



Crucial challenges:
New aircraft should be **silent, clean and secure!**

Objective	<ul style="list-style-type: none"> •State of art European Personal Aviation, •Market potential of PA, assumption to Impact, Missions, Roadmap •Start to create EPATS Community
Major Results	<ul style="list-style-type: none"> •Important workshops: <ul style="list-style-type: none"> • EPATS Expert in EUROCONTROL Bretigny; •CESAR/EPATS meeting •SESAR/EPATS meeting •ILA 2008 Berlin – EPATS Conference •EPATS Data Base - defined •EPATS EPATS Demand 2020 – defined •EPATS Impacts – defined •EPATS Missions Requirements for EPATS aircraft - defined •EPATS Roadmap – Vison - done
Delivered items	<p>Deliverable Reports – 21 done</p> <p>Technical Reports – 13 done</p> <p>EPATS SSA – total 45 man months – 280 KEuro</p>
Next actions?	<p>next proposal for FP7 – according workprogramme 2010 - done</p>

EPATS – STUDY Reports:

- D1.1 Report on European Business& Personal Aviation Data Base
- D2.1 Potential transfer of passenger demand to personal aviation by 2020
- D3.1 EPATS ATM General requirements & related issues to be solved
- D3.2 EPATS airports General requirements, safety and environmental aspects
- D4.1 EPATS aircraft missions specification
- D4.2 Operating Costs Analysis Report
- D4.3 Fuel consumption and transportation energy effectiveness Analysis Report
- D5.1 EPATS Research and Development Program
- D5.2 EPATS Roadmap

<http://epats.eu>

European Aviation Research

- Vision for 2020 - by GoP 2001
- SRA – by ACARE
- An Agenda for Sustainable Future
in General and Business Aviation
- by EuroParliament Resolution 2009
- National and FP projects connected to SATS
- Flightpath 2050 – by High Level Group 2011

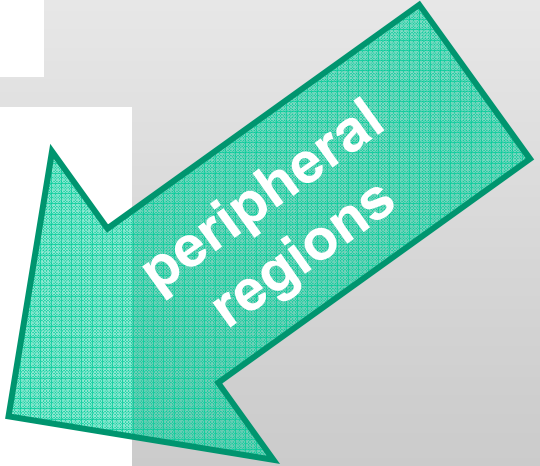
Flightpath 2050 Europe's Vision for Aviation

Report of the High Level Group
on Aviation Research

Maintaining Global Leadership &
Serving Society's Needs

Aviation – an invaluable asset for Europe

Aviation is a vital facilitator of European integration and cohesion by providing essential transport links. It is an important enabler of prosperity and wealth creation for the Member States and their peripheral regions by stimulating development, opening new markets, boosting international trade and encouraging companies to invest.



peripheral
regions

European air transport in 2050

Integrated
logistical
transport chain

In 2050, the European air transport system is integrated in a complete logistical transport chain and part of a fully interconnected, global aviation system that is based on a multilateral regime rather than on a series of bilateral agreements. Interoperability between Europe and the other regional components of the global network is complete. Commercial air transport services are

European air transport in 2050

**Flexible &
point-to-point**

Air transport is the principal way of conveniently satisfying the growing demand for diffused, flexible point-to-point connections. The number and quality of aviation market services has increased significantly mainly because of passengers demand to plan and predict their journeys in real time whilst at the same time staying connected to work, relatives and friends.

The Technology Roadmap

What kind of technologies are crucial for:

- Small Size Aircraft?
- Small Air Transport System?

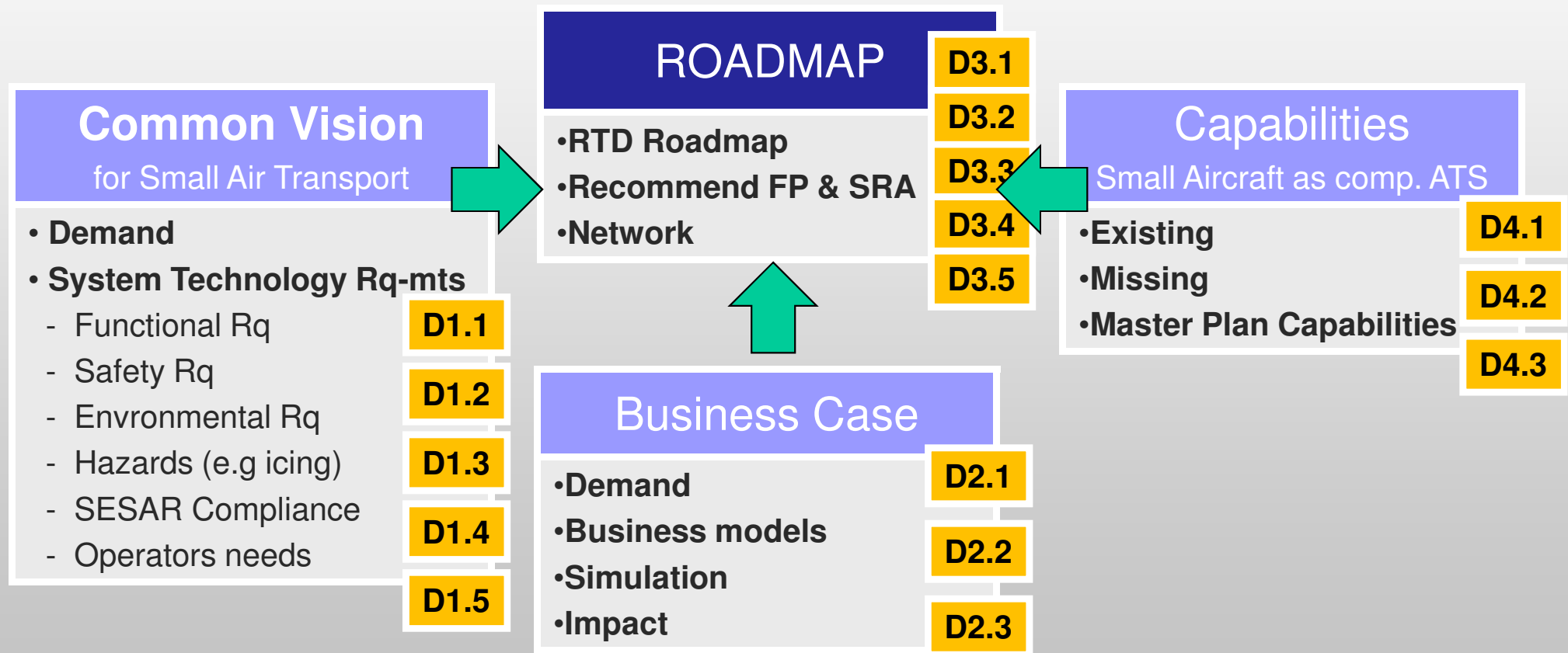
What kind of technologies are mature?

- IP: CESAR, SOFIA, SAFAR, PPlane, ESPOSA?
- CSA: EPATS, FUSTERA, CREATE, SAT-Rdmp?
- National Projects: STMS (PL), Take-off (AT), LuFo (DE), others?

SAT – Roadmap (CSA)

- **Definition of a common vision** of the small aircraft transport system for inter-regional mobility through the identification of the corresponding requirements. The requirements will identify the technology needs and regulatory issues to be addressed.
- **Definition of a business** case compliant with the identified requirements which describes the relations among all the system's components.
- **Assessment of current capabilities** versus the ATS demand, collection of previous results and involvement of the stakeholders in Europe among all actors (manufacturers, research establishment, EASA, airspace users, infrastructure providers, airport managers, small aircraft service providers).
- **Definition of a roadmap to fill the technology/regulatory/operative gaps** in order to fulfil the requirements considering the current capabilities. Identification of dissemination actions and establishment of a network of stakeholders.
- **Assessment of risks and benefits** of the identified new system's concept

THE ROLE SMALL AIRCRAFT AS A COMPONENT AIR TRANSPORT SYSTEM



The Technology Roadmap - Topics

- High Level System Requirements
- The Business Model
- Advanced Information and Communication Technologies
- Resistance to weather hazards
- Single-pilot operations
- Efficient Systems and Eco-Propulsion
- Small Size Aircraft configurations
- Friendly Legal Environment
- Comfort and others

Common Vision & Roadmap

What	What (topics)	To	When
COMMON VISION Workshop, Joint meeting with GA Projects	<ol style="list-style-type: none"> 1. European Mobility, Demand, and Business Models 2. System Requirements 3. Common Vision on Small Air Transport 	RTD Community, Airlines, Airtaxi Community EC, ACARE	Sept 2011
ROADMAP Workshop	<ol style="list-style-type: none"> 1. The Capabilities 2. Master Plan for development of Small Air Transport Aircraft 3. The Roadmap of RTD 4. Recommendations on content and timing of EU Framework calls 	Manufacturers Community EC, EGAMA, IMG	April 2012
SAT-RDMP Conference	<ol style="list-style-type: none"> 1. Synthesis of Small Air Transport Roadmap 	General Aviation Community, Public	ILA Airshow 2012

- Small Aircraft Transport System should be shown as a **component** of European Transport System (Peripheral regions, Integrated logistical transport chain, Flexible & point-to-point)
- SATS could be useful as a **research platform** (in relatively small scale) of ETS integration testing.
- We need build critical mass to deploy SATS and include it into ETS – so important is **maturing** of Common Vision and then ROADMAP execution.

Thank You for atention

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