



Sixth European Aeronautics Days

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Innovation for a Sustainable Aviation in a Global Environment

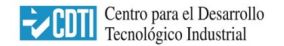
30th March - 1st April 2011

Madrid (Spain), Palacio Municipal de Congresos

<http://www.aerodays2011.org/>



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European Personal Air Transportation System - Status

Krzysztof Piwek,
Institute of Aviation, Poland





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Content:

- 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



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EUROPEAN COMMISSION
European Research Area



CDTI Centro para el Desarrollo
Tecnológico Industrial



Where we are
going?

Studies suggest that the number of **cars** in the world will increase with GDP growth, from around

700 million today
to more than

3 billion in 2050...

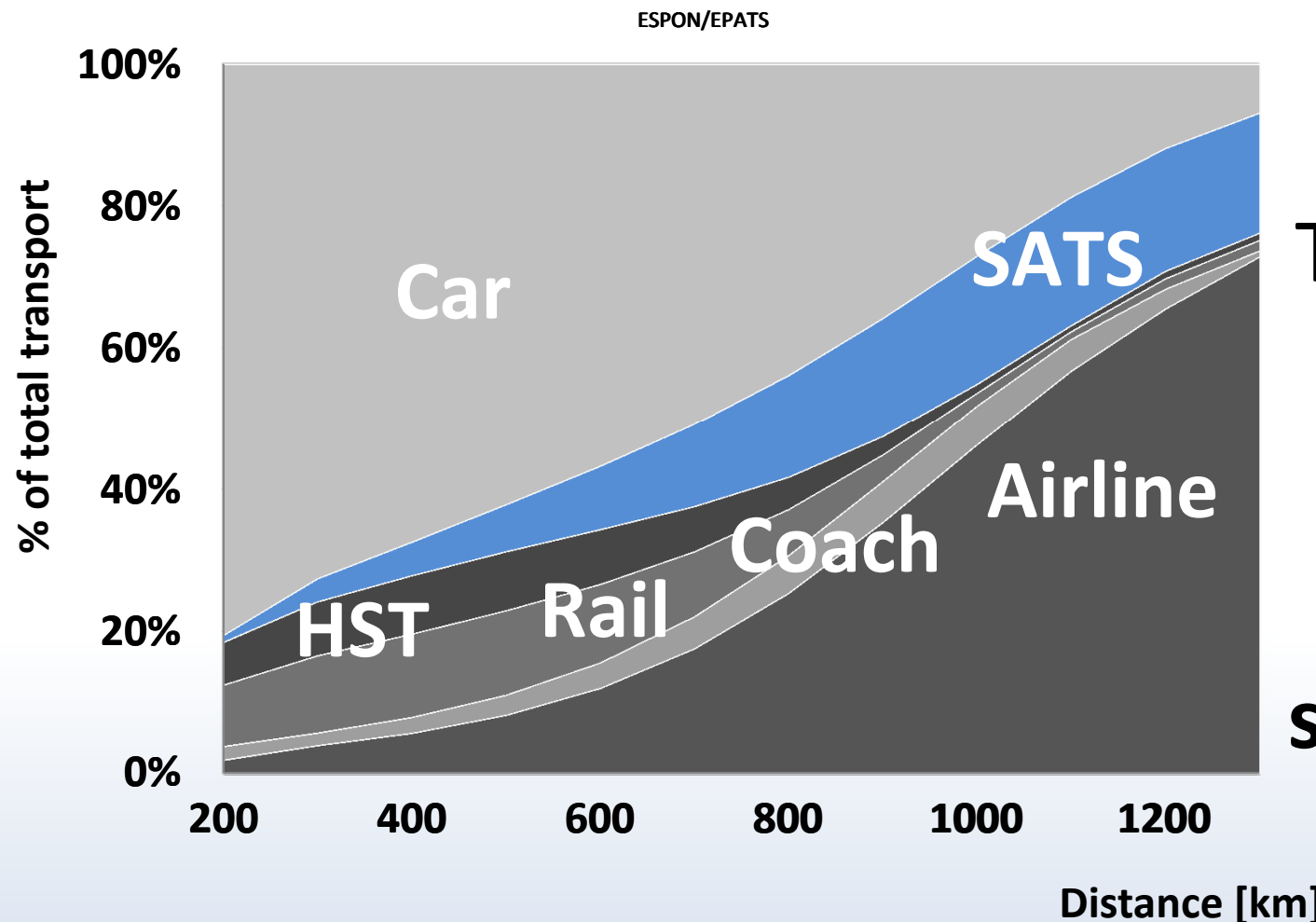
Communication from the EC „A sustainable future
for transport” 17 June 2009

**This calls for
a modal shift!**



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Modal split of trips in Europe. 2020



Idea:

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



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What is the Small Aircraft Transport System?

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

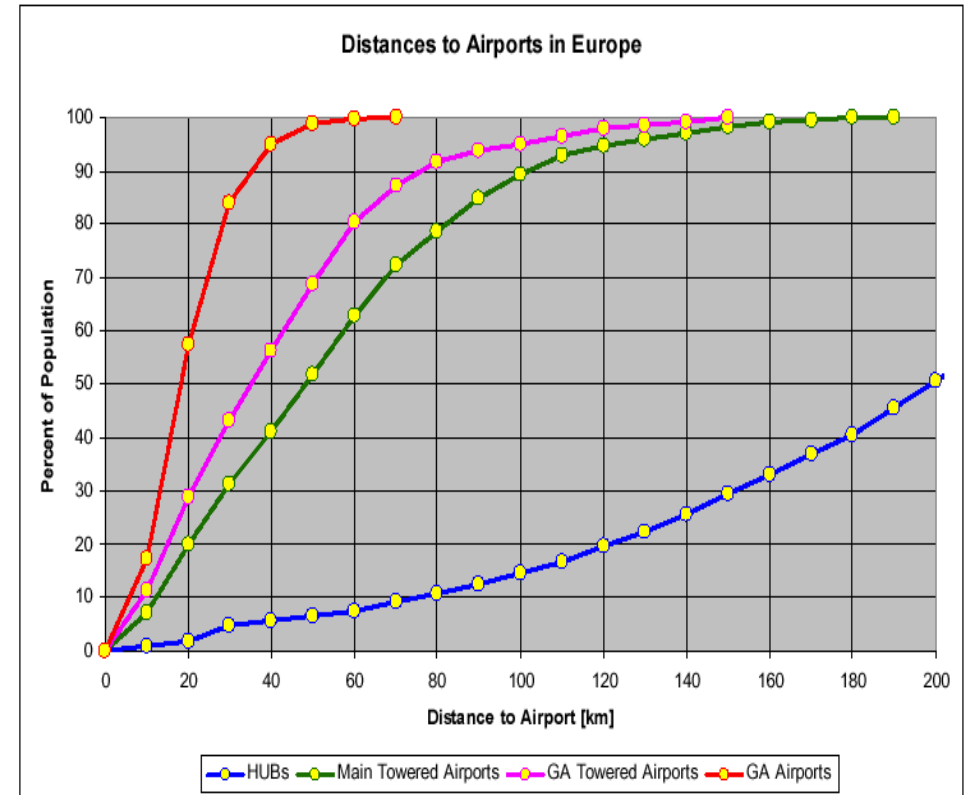
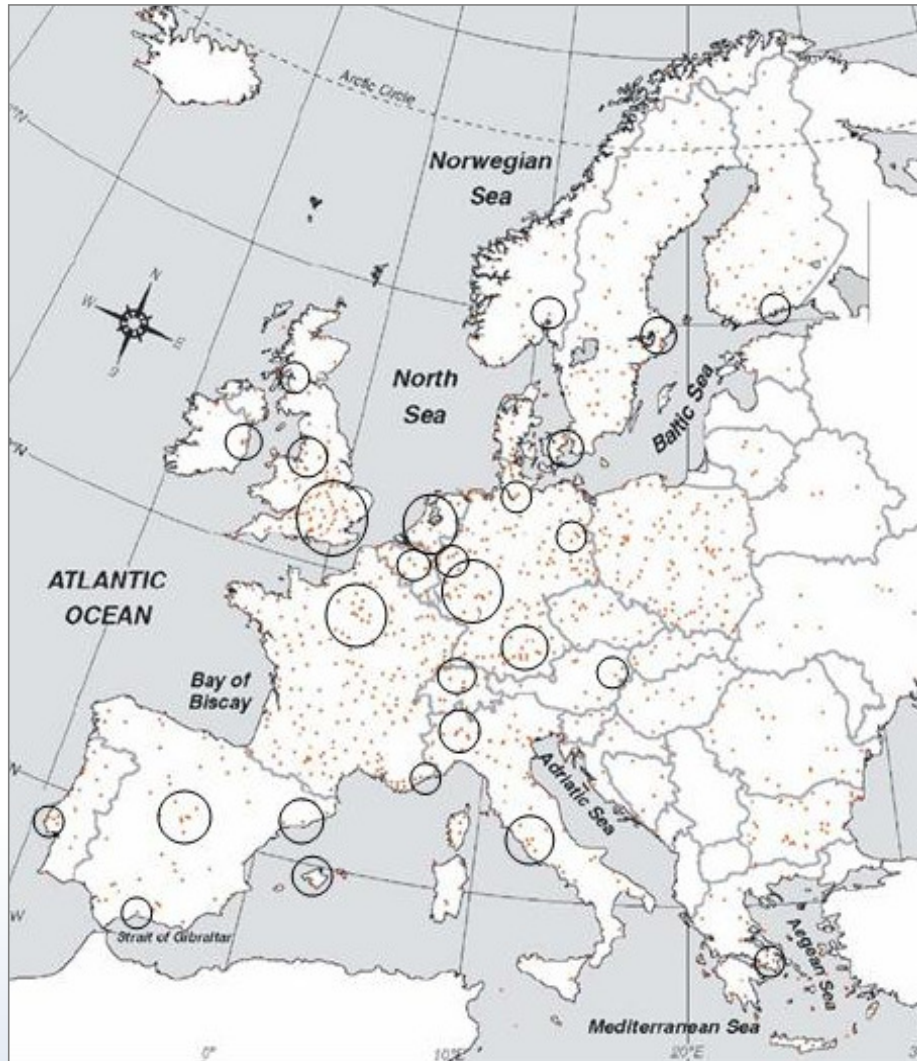
- **Aircraft** - small 4 to 19 seater aircraft, that are low DOC, green, safe, and secure
- **Infrastructure** on the ground and in the air
 - Regional Airports + ATM/ATC services integrated in SESAR
- **Net – Centric Management & Acquisition**
 - ICT based logistic and management system for SATS, integrated within the SESAR's System Wide Information Management (SWIM)





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Excellent Accessibility of Airports



1270 airports and 1300 landing fields

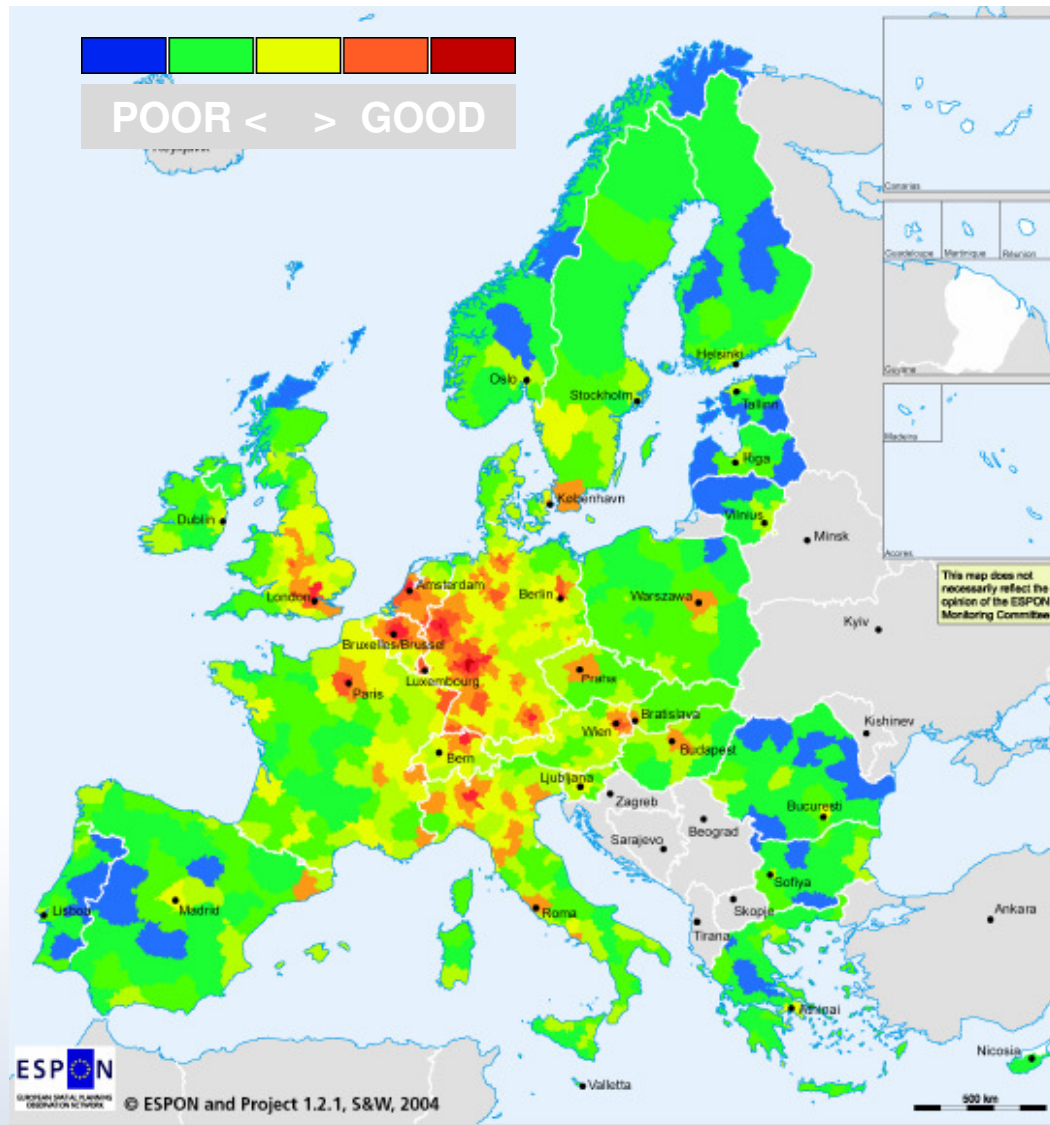
= 2570 airfields

70 % traffic = top 15 airports



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Multimodal Accessibility to Regions



All Transport
infrastructure:

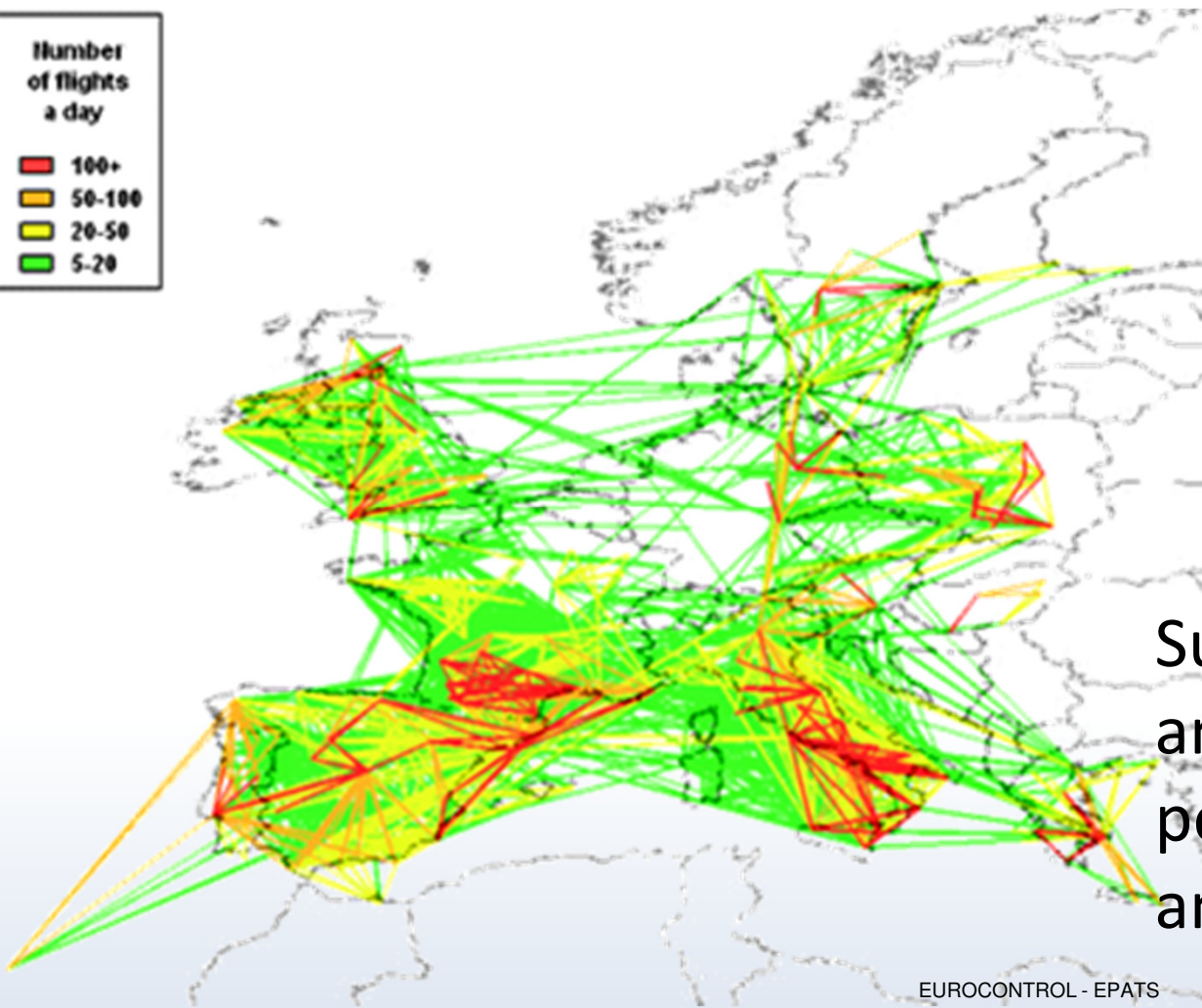
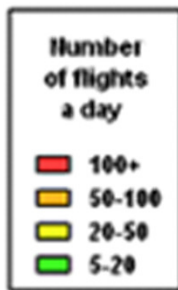
- **Car**
- **Rail**
- **Air**



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Potential SATS Accessibility

According to European Personal Air Transportation System 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 Euro-
pean Union, its neighbors
and partners...



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Affordability

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

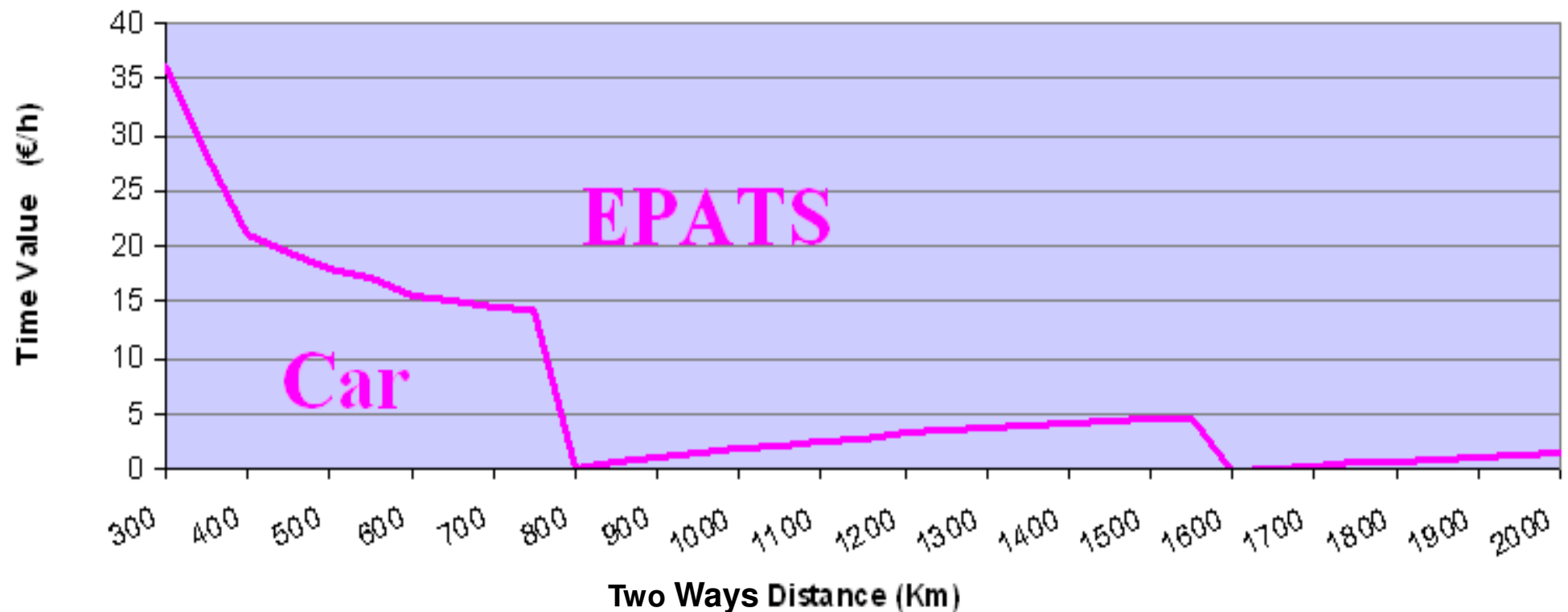


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Affordability

Indifference curve between **car** and **small aircraft**

Example



Generalized Cost (for transport mode i) = f^o (distance, value of time, accommodation)
With Value of Time = f^o (income, trip reason)



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Potential Market

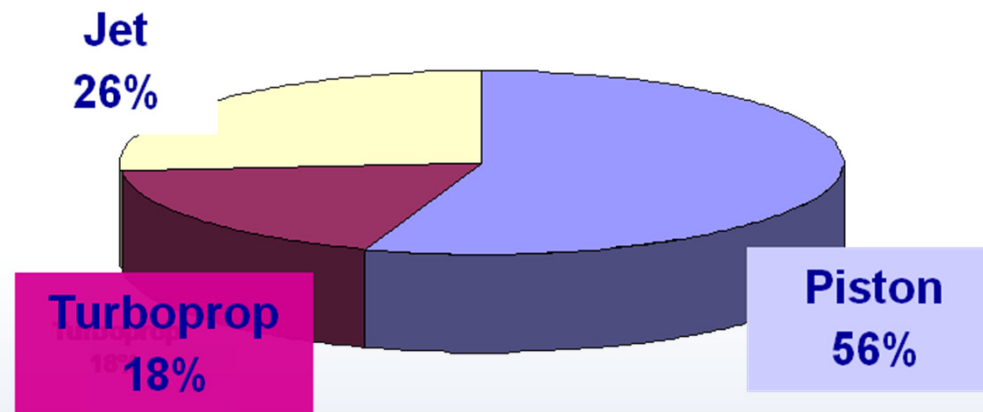
According to European Personal Air Transportation System EPATS-Study (SSA –FP6)

Transferred traffic to personal air transport in 2020:

3% of the total European traffic

89 000 personal aircraft

43 000 000 flights per year



25 500 personal aircraft

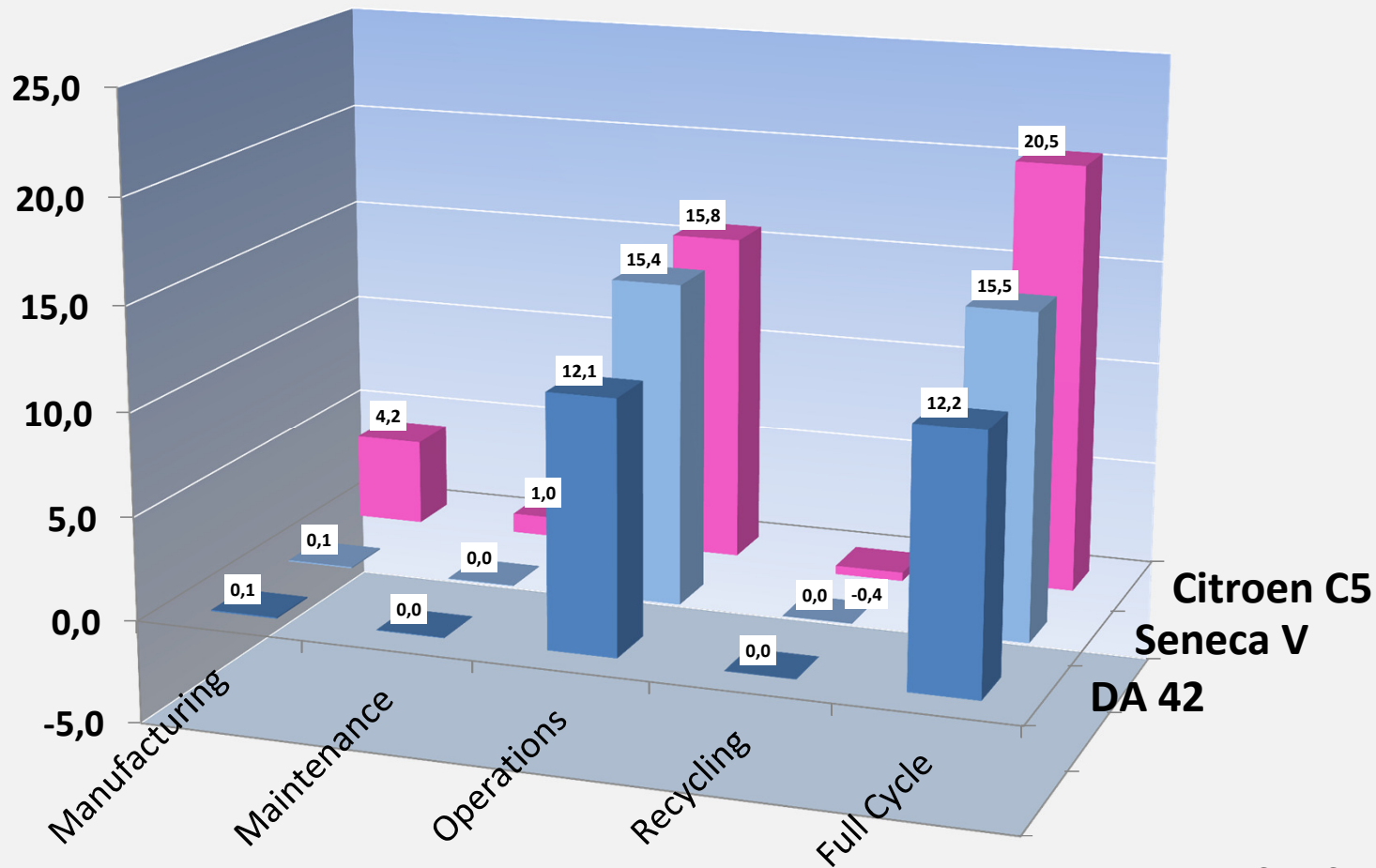
if their operating cost increases by 30% (fuel cost, taxes, SESAR requirements, etc.)



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Impact on Environment

CO2 [kg/100pas*km]



CO2 Emission. Car & Airplane. Full Life Cycle

STMS

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



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The Technology Roadmap

What kind of technologies are crucial for:

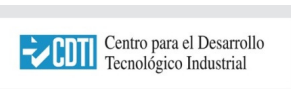
- Small Size Aircraft?
- Small Air Transport System?

What kind of technologies are mature?

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



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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



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Common Vision - Assets

- 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 on AR



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Common Vision & SAT - 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 Models2. System Requirements3. Common Vision on Small Air Transport	RTD Community, Airlines, Airtaxi Community EC, ACA	Sept 2011
Common Vision Workshop	<ol style="list-style-type: none">1. The Capabilities2. Master Plan for development of small aircraft3. The Roadmap of small aircraft4. 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



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Thank You for Attention

Krzysztof PIWEK
khp@ilot.edu.pl



Institute of Aviation
Al. Krakowska 110/114
02 - 256 Warsaw, Poland
tel: +48 22 868 56 81

