



SAT-Rdmp Kick-off Meeting

Warsaw, 12-13 January 2011



Small Air Transport - Roadmap

Project Overview

Krzysztof Piwek, Institute of Aviation



- 1. Kick-off of SAT-Rdmp**
- 2. Definig assumptions to the project as a step forward**
(based on eariler projects, connected with small aircraft)
- 3. Confirmation & detailed specification of working plan.**
(Undestanding main idea, objectives, milestones, deliverables , who is predecessor, who successor, who is responsible for what)
- 4. Information on administration & management procedures**
- 5. Identify issues needed to solved next step**

11:00 Welcome and introduction

- **Wojciech POTKAŃSKI (IoA – Scientific Manager)**

11:15 Project overview (Objectives, WorkPackages/Tasks, Deliverables, and Responsibilities)

- **Krzysztof PIWEK (IoA – project Coordinator)**
-

11:45 Coffee break

12:00 WP and Task overview (Main Ideas, Detailed Objectives, Predecessors, Successors, Deliverables, Important notes)

WP Managers, Task Leaders, Contributors (30 minutes for each WP):

- **WP1 - Small Air Transport System - Common Vision and Technological Requirements (CIRA)**
 - **Marcello AMATO (CIRA) – WP1 and T1.1, T1.3**
 - **Isabelle LAPLACE (M3S) / Stefaan GHIJS (ALS) – T1.2**
 - **Jiri DUDA (EVEKTOR) – T1.4**
 - **WP2 - Business case based on business models (DUT)**
 - **Richard CURRAN (DUT) / Stefaan GHIJS (ALS) – WP2**
 - **Daniel ROHACS (BUTE) / Stefaan GHIJS (ALS) – T2.1**
 - **Stefaan GHIJS (ALS) – T2.2, T2.3**
 - **WP3 - Roadmap (IoA/AD)**
 - **Adriaan de GRAAFF (AD) – WP3, T3.1, T3.4**
 - **Bartosz DZIUGIEŁ (IoA) – T3.2**
 - **Catalin NAE (INCAS) – T3.3**
 - **WP4 - Capabilities (EVEKTOR)**
 - **Jiri DUDA (EVEKTOR) – WP4, T4.1, T4.3**
 - **Catalin NAE (INCAS) – T4.2**
 - **The merit content of the project - discussion**
 - **Consortium Partners – moderated by Adriaan de GRAAFF**
-

14:00 Lunch in time above session

16:00 Next steps – **Krzysztof PIWEK (IoA)**

Individual transfers to hotels, orders for taxi on request

18:30 Bus starts from Witkowski hotel via hotels to “Bazyliszek”

19:00 - 21:30 Contractors integration meeting in “Bazyliszek” restaurant in the Warsaw Old Town

9:00 Environment of Small Air Transport – discussion

- Claude Le TALLEC – PPlane status and links
 - Consortium Partners – moderated by Zbigniew WOŁEJSZA – Towards to Future Air Transport System; EREA, ARG, ACARE – positions, SRA next
-

10:30 Coffee break

10:45 Project Management and Communication; Project Reporting

- Andrzej IWANIUK (IoA – project Administrator)

11:15 Project Management Committee – review of issues to be solved (ie. Consortium Agreement, etc.)

- Consortium Partners

11:45 Institute of Aviation Tour

13:00 Lunch

13:45 Conclusions, Remaining Matters (next meeting, etc),

- Krzysztof PIWEK (IoA – project Coordinator)

14:00 End of the kick-off meeting

Until departure of the Guests - discussion on a particular SAT-rdmp subjects – as needed.

Orders for taxi on request (form for taxi will be circulated)

WP or Task N°: EPATS STUDY Project	Reporting WP or Task Leader Consortium EPATS
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 – Vision - 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>

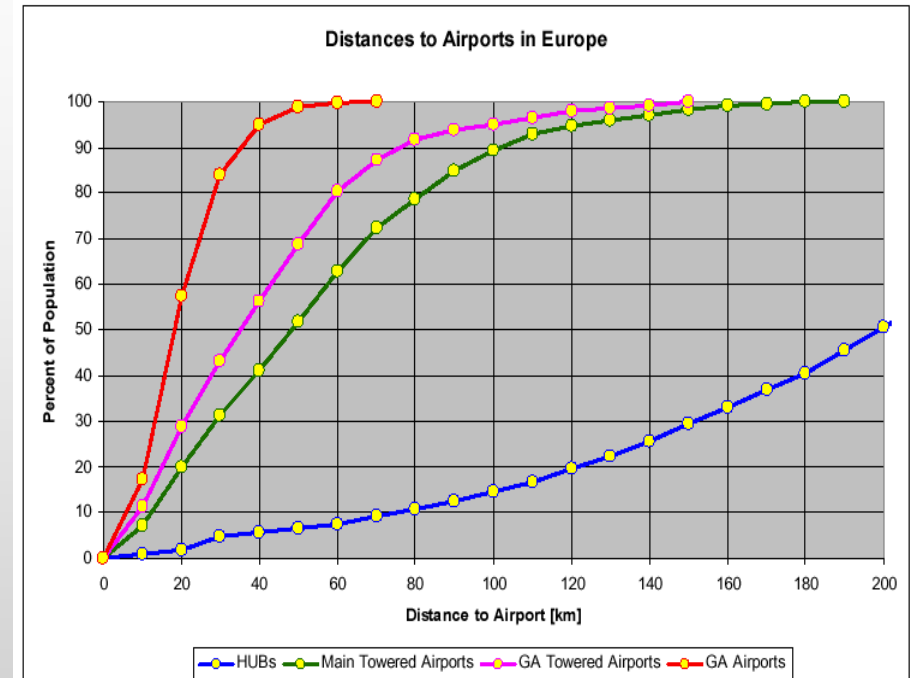
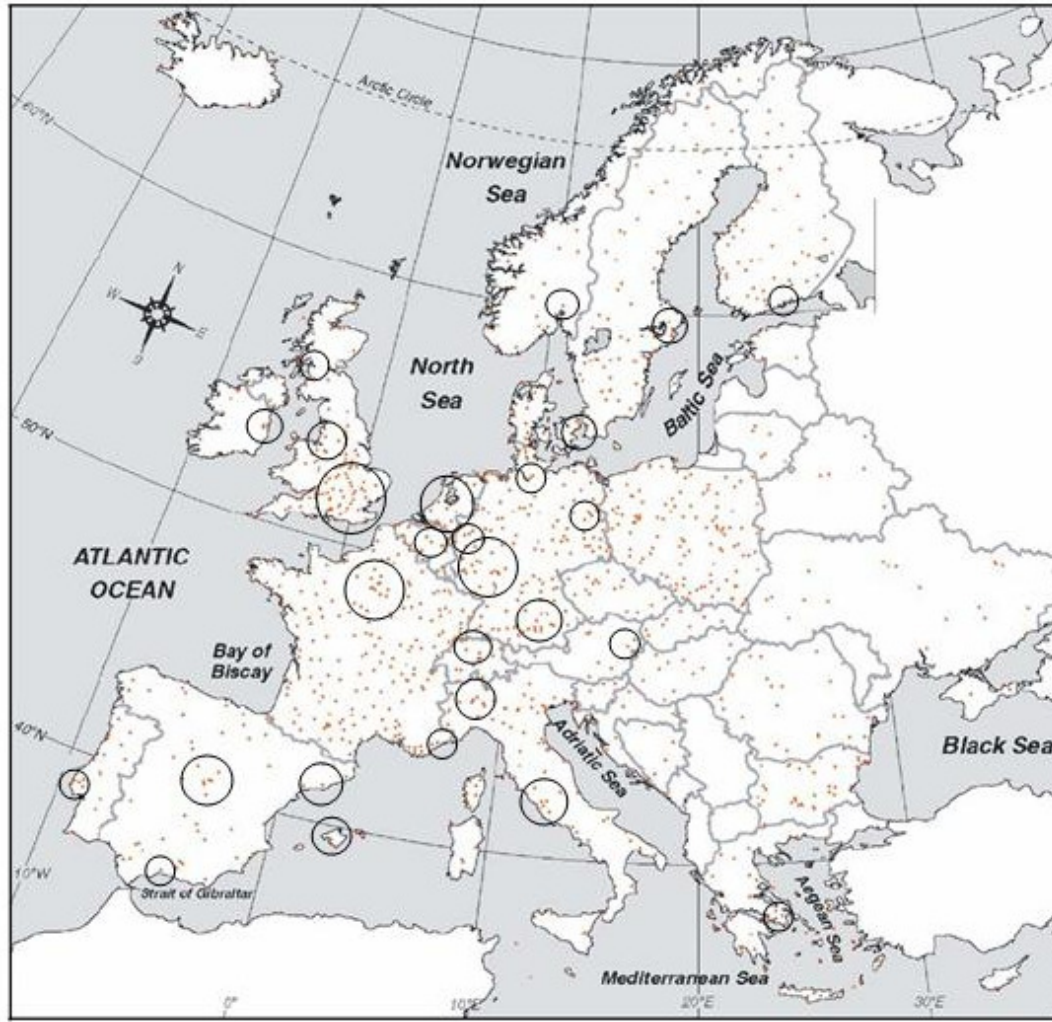
EPATS – STUDY Questions:

1. What is accessibility and suitability of European airports?
2. How big is a Transportation GAP for European regions with poor accessibility?
3. Which could be potential transfer of traffic from Road, Trains, Airlines to the EPATS?
4. How to integrate EPATS traffic with future ATM projected by SESAR?
5. What will be impact on Airports, Environment and Safety?
6. How to define Affordable Personal Air Transport? Missions Requirements for EPATS Aircraft? Innovative Technologies?
7. What will be impact on European GA Industry capabilities?
8. What should be business models to make all those reasonable?
9. What should be Roadmap and recommended R&TD for next Frame Programs and Strategic Research Agendas?

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

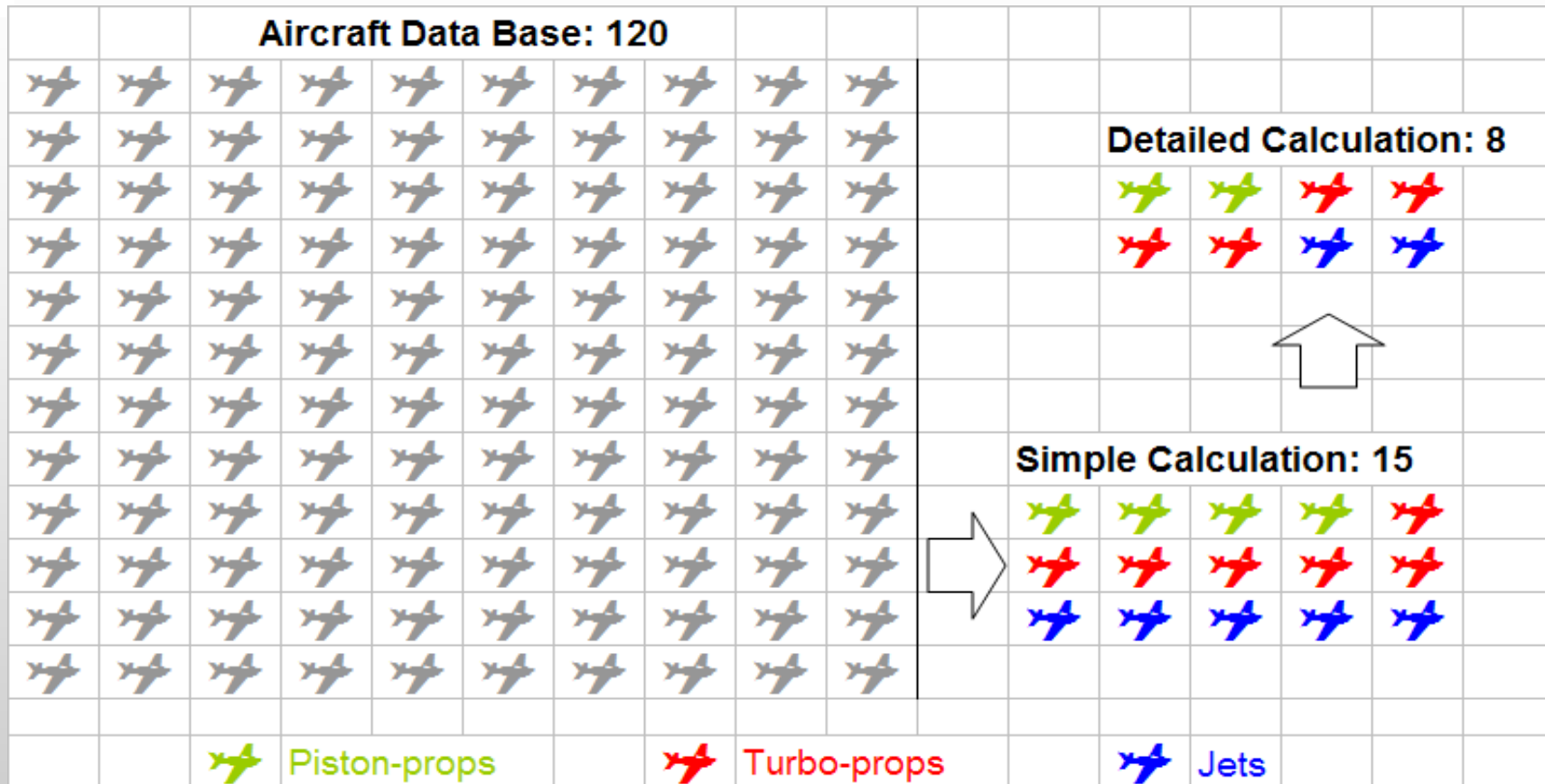
<http://epats.eu>



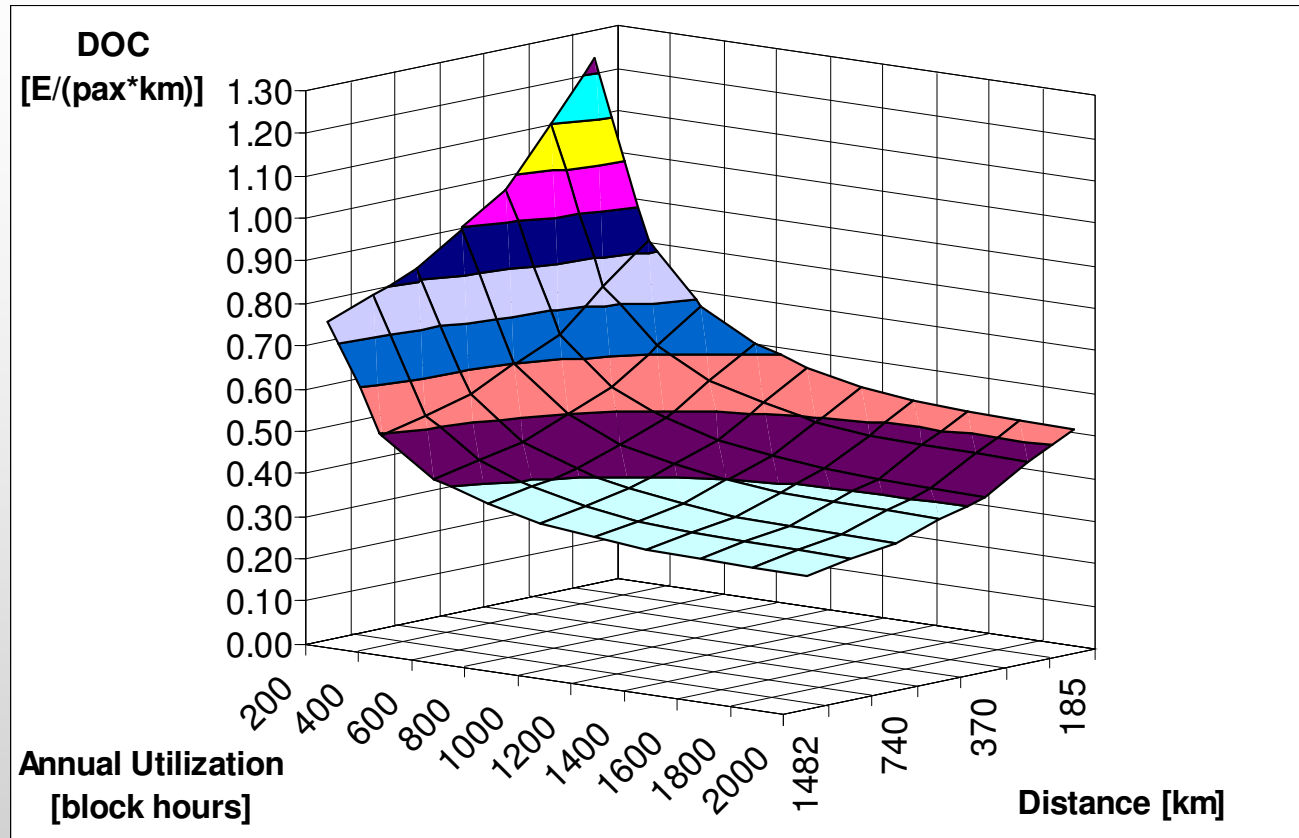
1270 airports and 1300 landing fields

= 2570 airfields

43 hubs = 85% traffic



**DOC
Very
Sensitive
to
Utilization
Intensity**

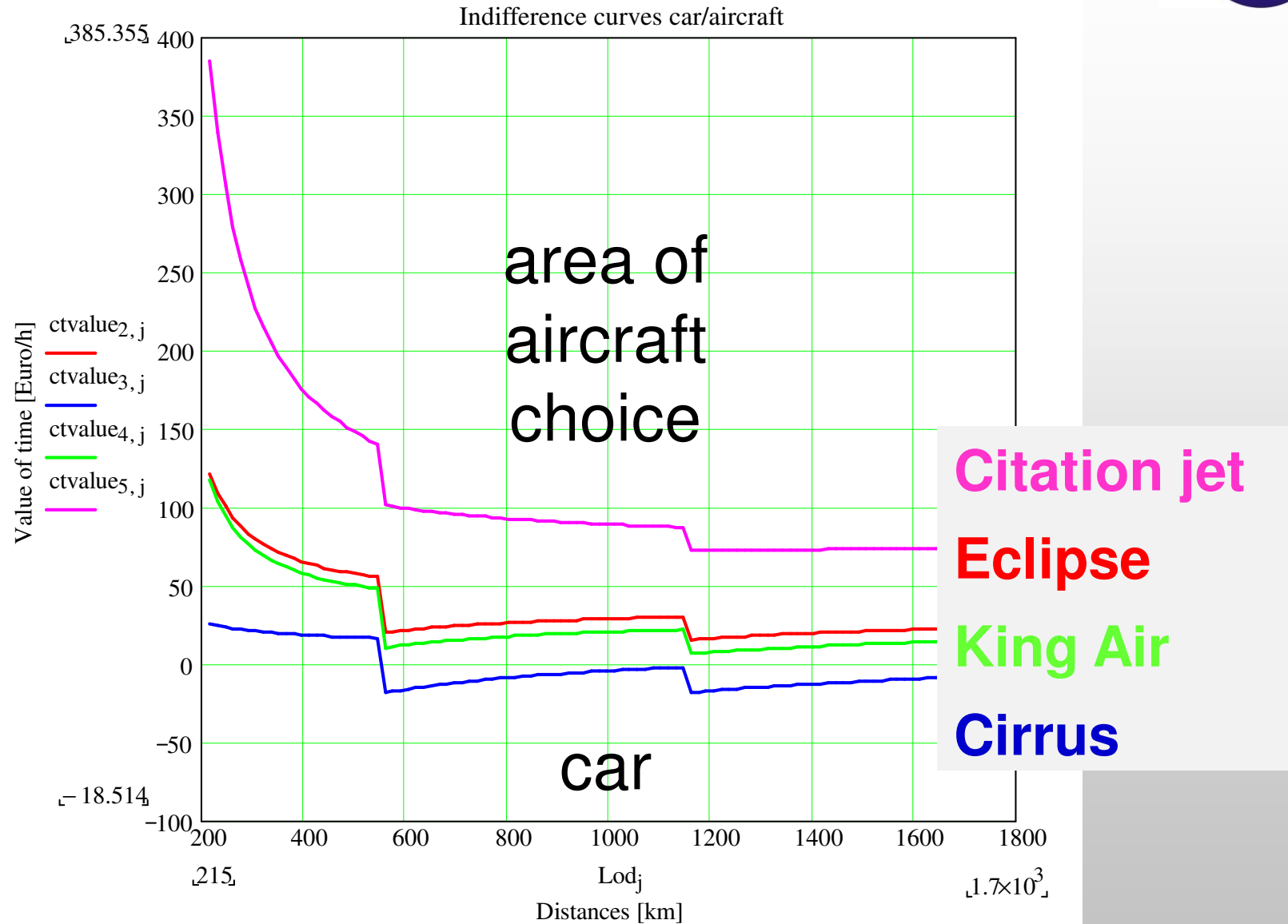


**Distance
Impact**

Business model – „executive” (small annual utilization, small load factor)

Business model – „commercial”

- **Air taxi** (annual utilization > 500h, load factor medium)
- **EPATS** (annual utilization > 1000h, load factor high)



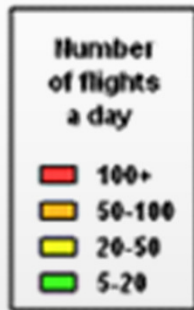
Generalized Cost (for transport mode i) = f° (distance, value of time, accommodation)
With Value of Time = f° (income, trip reason)

MODAL SPLIT VIA DISTANCE AND TIME VALUE

Inverse Cumulati Frequency %	Time value [Euro/h]	One way travel Great Circle Distance [km]							
		200	300	500	700	900	1100	1300	1500
80	3	Car	Car	Car	Car	Car	Car	Car	Car
60	5	Car	Car	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1
40	8	Car	ACP-1	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1
20	13	Car	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1	ACJ-1
10	18	Car	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1	ACJ-1
5	22	Car	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1	ACJ-1
1	33	Car	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1	ACJ-1
0,1	64	ACP-1	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1	ACJ-1
0,01	80	ACP-1	ACP-1	ACP-1	ACP-1	ACJ-1	ACJ-1	ACJ-1	ACJ-1

Car	Car, Average travel speed = 80 km/h, Operating Costs = 0,5 E/km
ACP-1	4 seat Piston Aircraft, Vcr = 320 km/h, Operating Costs = 350 E/h
ACJ-1	5 seats Jet Aircraft, Vcr = 700 km/h, Operating Costs = 1050 E/h

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



EPATS seems to be avoiding the current ECAC Core Area

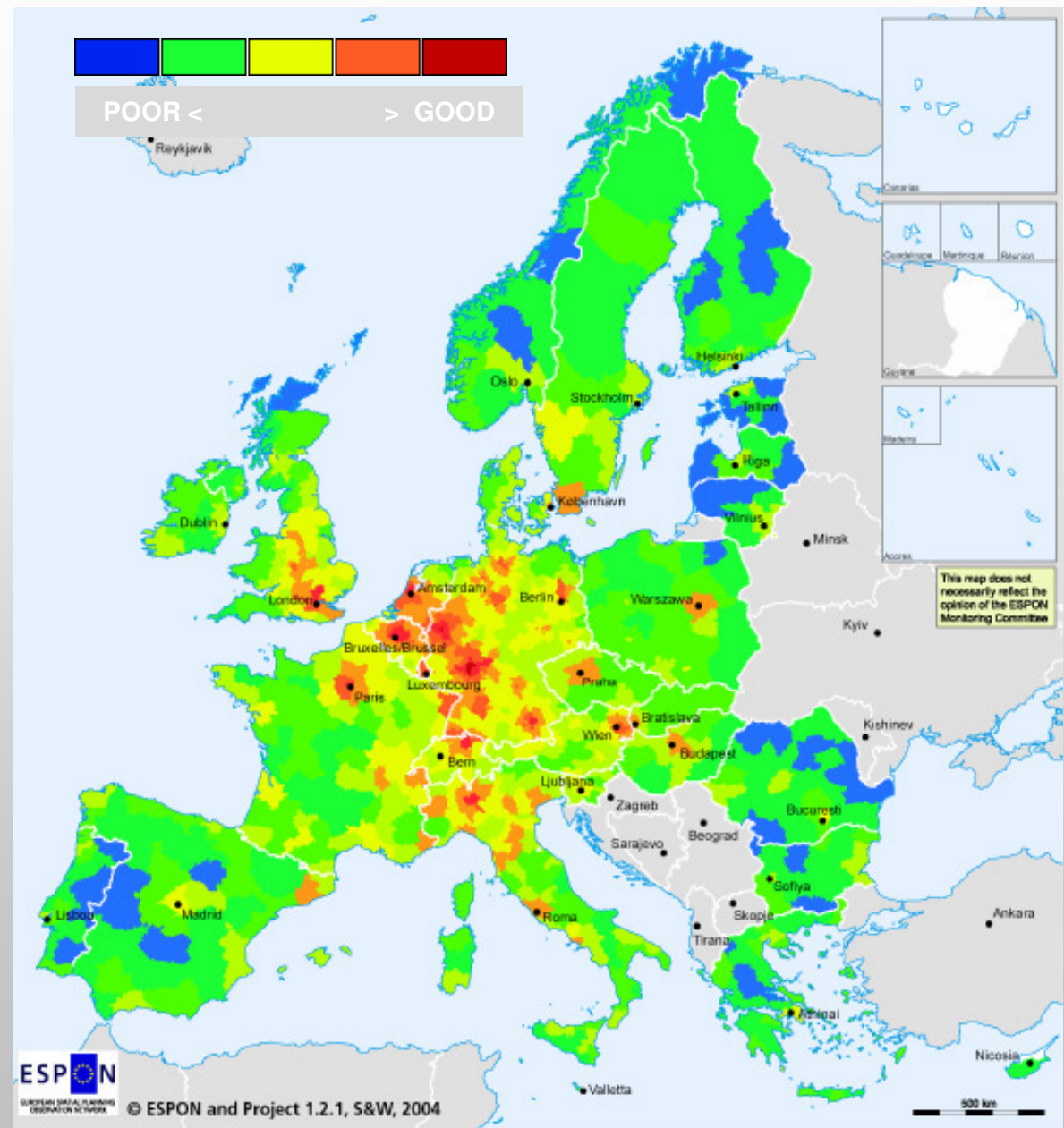
• TOP 10 connections between countries

1. France-Spain
2. Portugal-Spain
3. Italy-France
4. United-Kingdom-Ireland
5. Poland-Germany
6. United-Kingdom-France
7. Italy-Spain
8. Italy-Austria
9. France-Germany
10. Italy-Greece

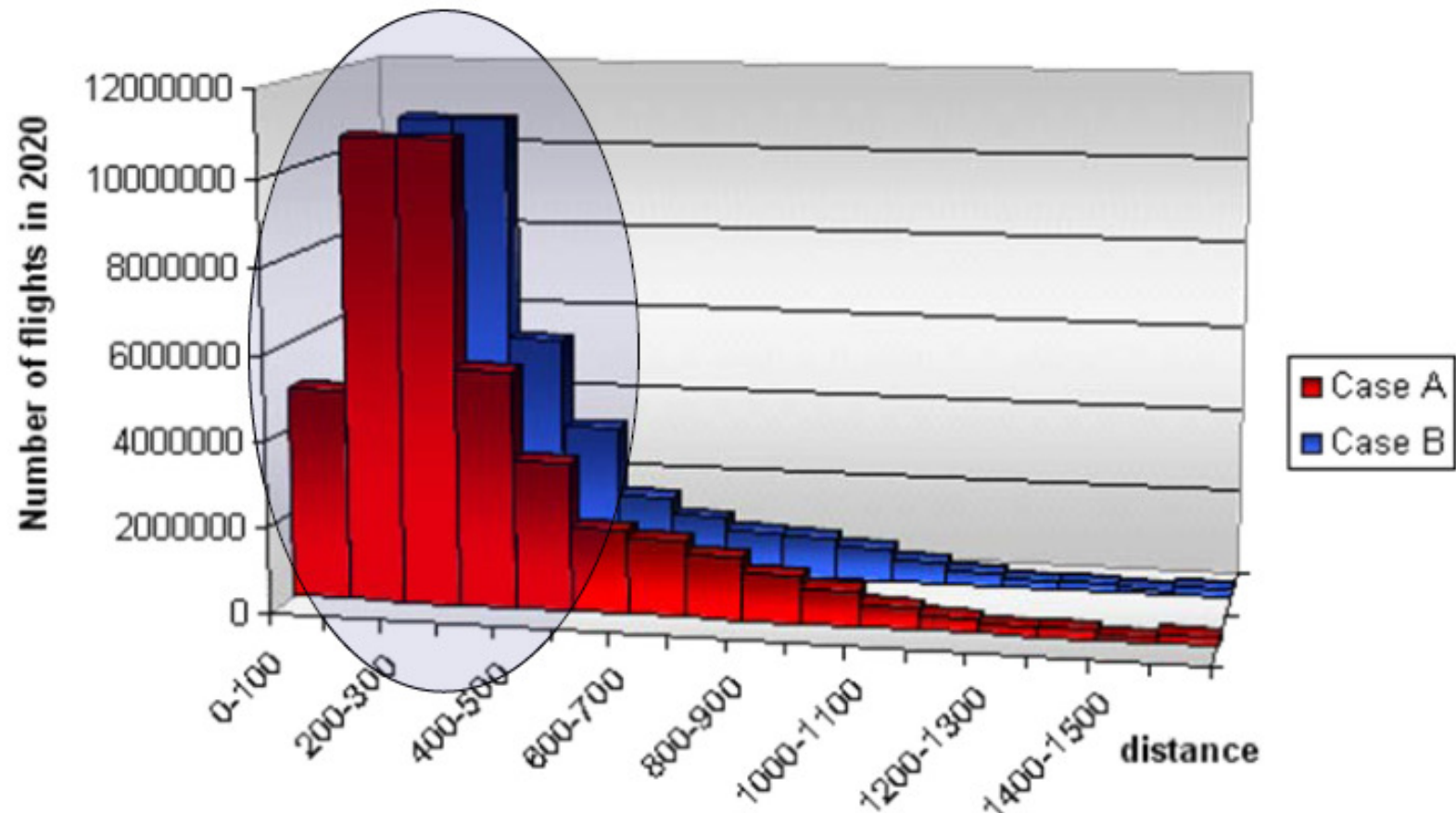
**Multimodal
potential
accessibility**
of EU Regions
measures transport
infrastructure
quality of modes
(car,rail,air)

NATS 2 - 268
(0,8 – 3 Mio inhabitants)

ESPON 2004

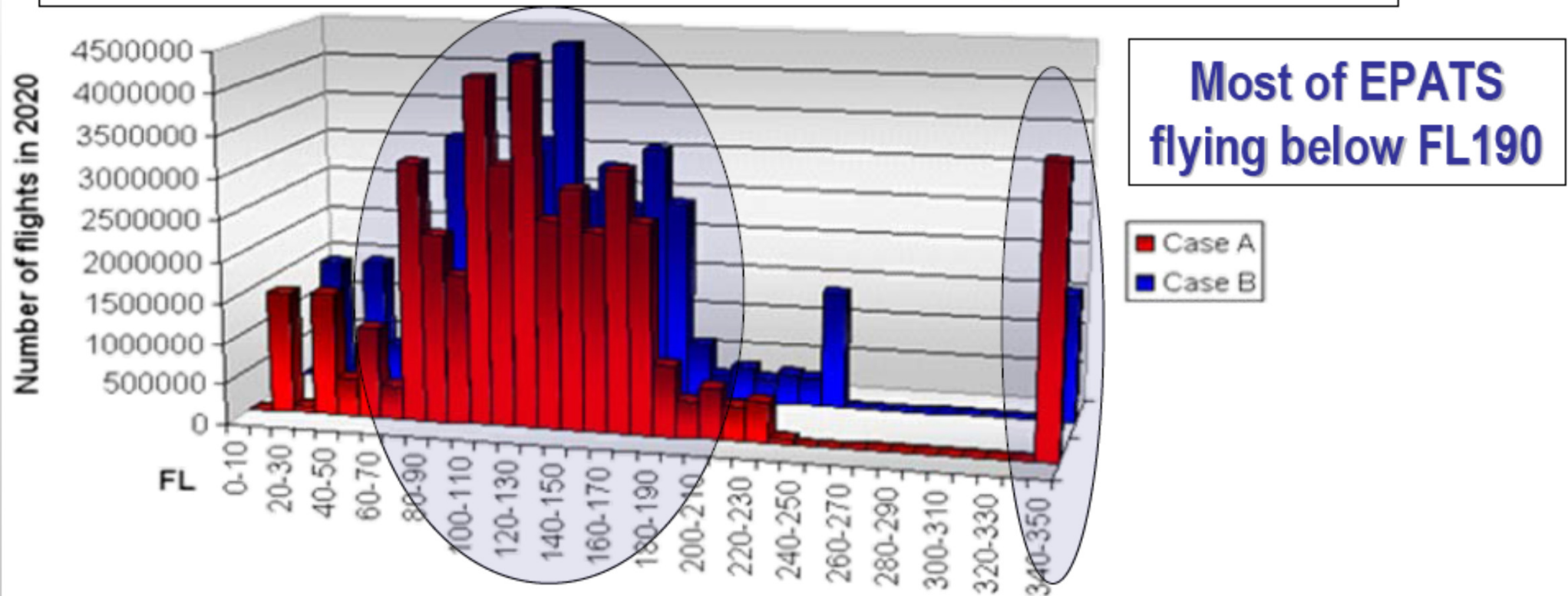


EPATS traffic distance distribution



Most of EPATS seems to be flying not longer than 500 Kms

EPATS cruising Flight Level distribution (standard distribution, not integrating ATM constraints)

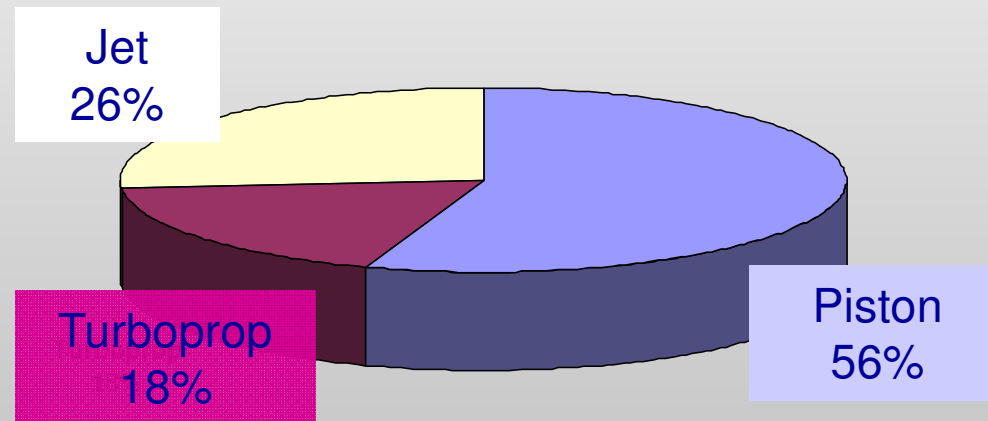


Transferred traffic to personal air transport in 2020:

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.)

EPATS – STUDY conclusions:

- To create an **Interactive Transportation System** on the base of System Wide Information Management SWIM project (SESAR).
- To use the already existing **local and regional airports network** (more than 2000), especially located on the periphery of European main transportation infrastructure, in the areas with low level of accessibility indicator
- To use a potential enabled by the opening of **Single European Sky** and research in the area of management and air traffic control by e.g. SESAR
- To use **new technologies** concerning aerodynamics, materials, propulsion, communication, navigation and control based on satellite systems.
- To adjust **aircraft fleet (optimization)**, operational structures and transportation management to local demand and interregional passengers flow.
- To increase economic efficiency of personal air transport by creating **EPATS Transportation Management Centre** (TMC) and a network of small carriers cooperating together.
- To create **friendly legal and economic conditions**, promoting unification, standardization and integration of maintenance networks.

Integrated Projects:

CESAR

SOFIA

SAFAR

PPlane

Coordination Support Actions:

EPATS

FUSTERA

CREATE

SAT-Rdmp

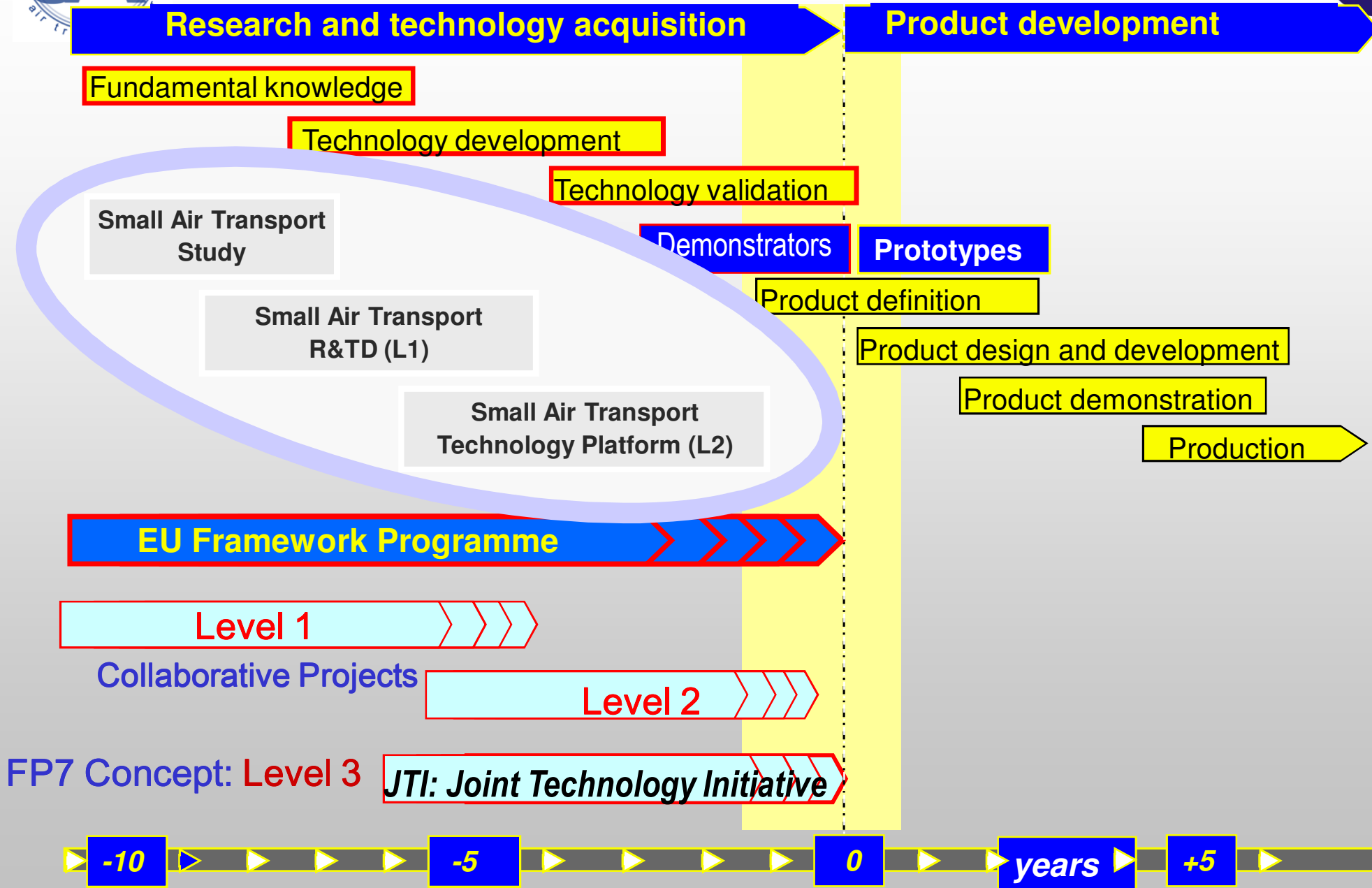
**What kind of Technologies are crucial
for:**

Small Size Aircraft?

Small Air Transport?

What kind of Technologies should be developed?

- 1. More Informatized Aircraft**
- 2. Safety (also as willing EASA)**
- 3. Hazardous states**
- 4. Comfort**
- 5. „1000 flight hours per year”**



Topics from WorkProgramme 2010:

AAT.2010.7-12. Assessing and further developing the role of small aircraft in the air transport system

Expected impact: Proposals should demonstrate contributing to an improved understanding of the role that small-size aircraft operating on scheduled or non-scheduled flights can play as a component of the air transport system to satisfy the needs of transportation in regions where transport networks are underdeveloped.

Scope: Study to develop a **road map** and supporting **business case** to address the benefits of the use of **small aircraft** as a **component of the air transport systems**. The task will identify **the technologies** necessary to **meet the safety, environmental, operational and economic requirements**, including integration into the European ATM environment, ensuring **complementarity with SESAR**. The implications of the **safety regulation process** as it applies to small aircraft will also be considered. The **existing capabilities** in the Member States and Associated Countries regarding this sector should be assessed.

Funding scheme: Coordination and Support Actions aiming at supporting research Activities

Title:

SAT - Roadmap

(Small Air Transport – Roadmap)

Tool:

Coordination and Support Action

Time Table:

1 January 2011 – 30 June 2012

Consortium:

Participant	Country	Participant	Country
IoA	Poland	ONERA	France
CIRA	Italy	BUTE	Hungary
INCAS	Romania	TU DELFT	Netherlands
NLR	Netherlands	Ad Cuenta	Netherlands
PZL M	Poland	Aelous	Netherlands
PIAGGIO	Italy	M3 S	France
EVEKTOR	Czech Rep	THL	England

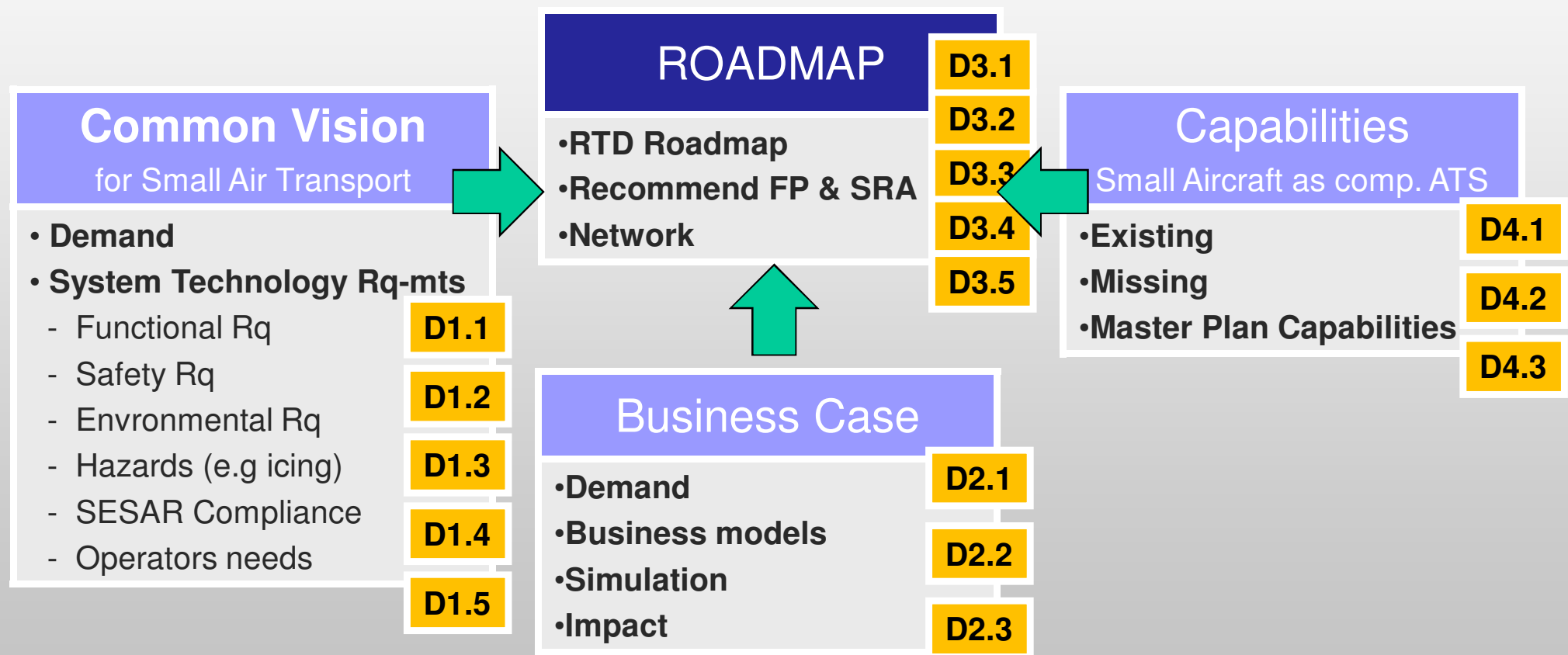
Goals:

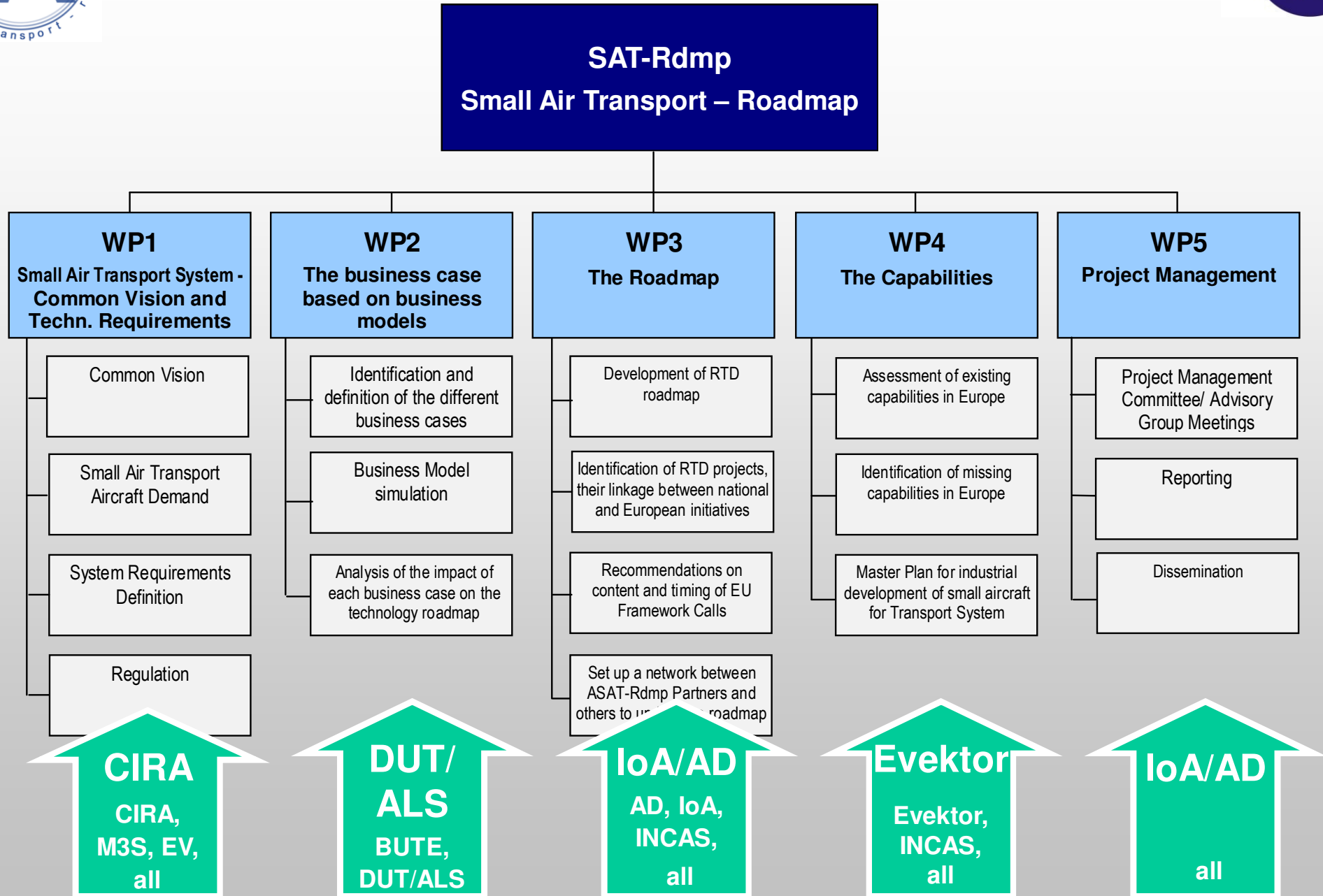
- ➔ **Assessing** and further developing the role of **small-size aircraft** in the **Air Transport System** - and to improve the understanding of the **commercial role** that small-size aircraft operating on **different business models** (scheduled or non scheduled operations) can play as a **component** of the **Air Transport System**, to satisfy the needs of transportation in regions where transport **networks are underdeveloped**;
- ➔ To show the **real opportunity to shift** a substantial part of long distance passenger trips **by car to Small Air Transportation System**;
- ➔ The **SAT-Rdmp** project will be **important tool to support the European Commission** in defining appropriate actions to **implement the Agenda for Sustainable Future in Business and General Aviation** that was recommended by the EU Parliament Resolution on 3rd February 2009.

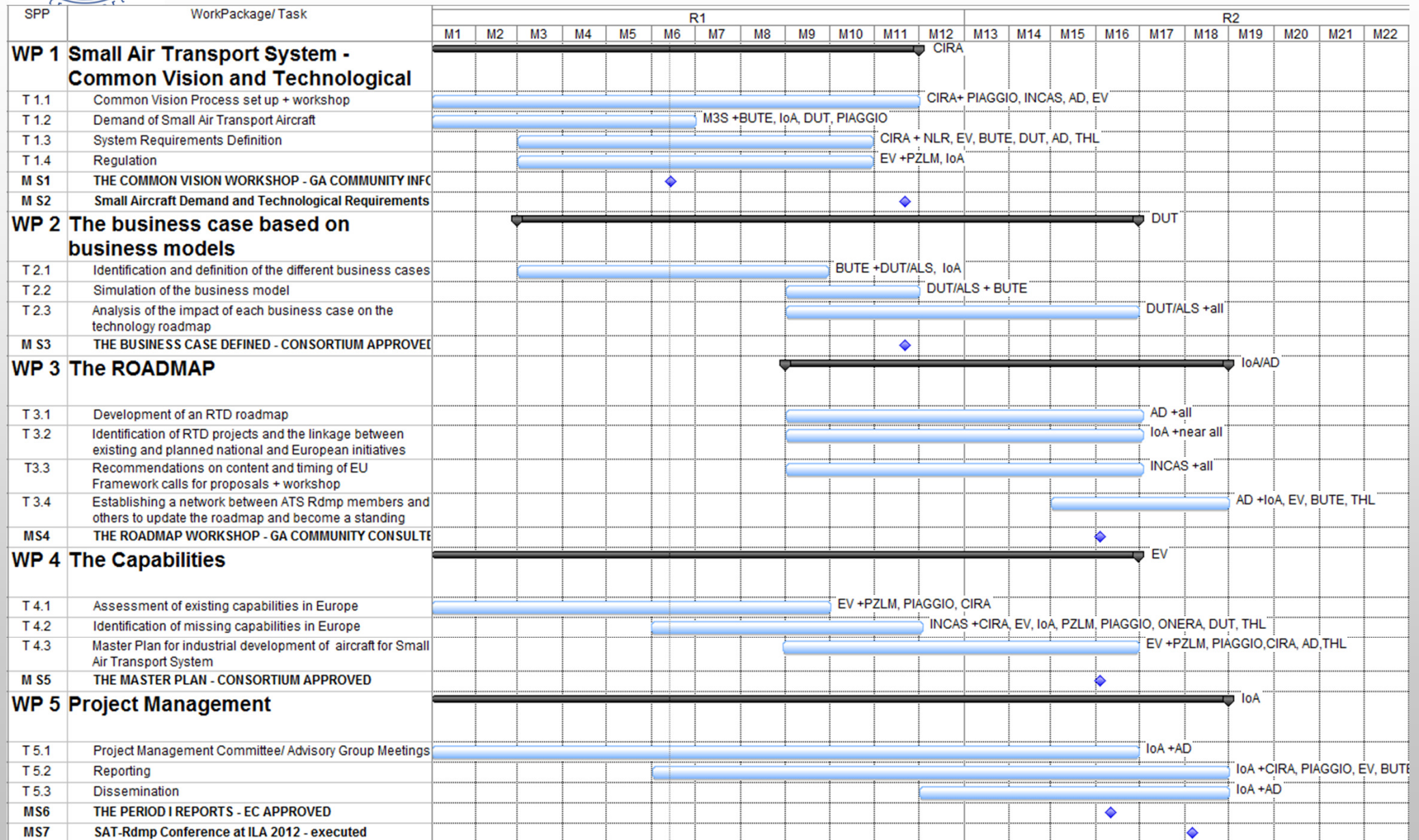
Main Issues:

- **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







Milestones:

Nr	Milestone Description	Responsible	Delivery	Means of verification
MS1	COMMON VISION Workshop – prepared	CIRA	6	GA Community informed
MS2	Small Aircraft Demand and Technological Requirements – defined	CIRA	11	Consortium approved
MS3	Business case impact – defined	DUT/ALS	11	Consortium approved
MS4	ROADMAP Workshop – executed	AD	16	GA Community consulted
MS5	Master Plan for development of Small Air Transport Aircraft – defined	Evektor	16	Consortium approved
MS6	Period 1 Reports – approved	IoA	16	EC approved
MS7	SAT-Rdmp Conference at ILA 2012 - executed	IoA/AD	18	Aviation Community informed

Dissemination:

What (topics)	Who	How	To	When
<ol style="list-style-type: none"> 1. European Mobility, Demand, and Business Models 2. System Requirements 3. Common Vision on Small Air Transport 	CIRA /DUT/ / M3S/ IoA, All Participants	COMMON VISION Workshop, Joint meeting with GA Projects	RTD Community, Airlines, Airtaxi Community EC, ACARE	6 th -and 11 th month
<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 	Evektor / Piaggio / PZL M /IoA /Ad Cuenta All Participants	ROADMAP Workshop	Manufacturers Community EC, EGAMA, IMG	Sixteenth month
<ol style="list-style-type: none"> 1. Synthesis of Small Air Transport Roadmap 	IoA /Ad Cuenta, All Participants	SAT-RDMP Conference	General Aviation Community, Public	ILA Airshow 2012
<ol style="list-style-type: none"> 1. SAT presentations 2. Conferences 3. Publications 	All Participants	Aeronautic Days, Conferences, Publications Website	General Aviation Community, Public	Successively

Conclusions:

- 3rd Call FP7:
CSA – SAT-Rdmp, - founded
L1 - **SASHA (GA Avionics)**, + other branches (Novel Solutions, Powerplant, Smart Technologies, Safety and Hazardous States, Comfort,) - **not founded**
- 4th Call FP7:
L2 – **ESPOSA** – Submitted Dec 2010
- Next Calls:
L2 – Small Air Transport Technology Platform (?)

SAT should be considered as demand accelerator for GA Technologies

Fruitful days in Institute of Aviation

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