



SAT-Rdmp Kick-off Meeting Report

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Grant Agreement number: 265603

Project acronym: **SAT-Rdmp**
Project title: **Small Air Transport - Roadmap**

Instrument: Coordination and Support Action - Support Action (CSA-SA)



Deliverable reference number and title:

D5.1 SAT-Rdmp Kick-off meeting Report

Organization name of lead contractor for this deliverable: **Institute of Aviation**

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W. Miksa (IoA)		

Project coordinator name: Krzysztof PIWEK	Start date of project: January 1, 2011
Project coordinator organization name: INSTITUTE of AVIATION	Duration: 18 month

Project funded by the European Commission within the Seventh Framework Programme (2007-2013)		
Dissemination		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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AGENDA

Kick-off Meeting of Small Air Transport – Roadmap – FP7 CSA Project

Date: 12th and 13th January 2011

Location: Room E, Institute of Aviation, Al. Krakowska 110/114, 02-256 Warsaw, Poland

Contact: Krzysztof Piwek, mobile phone +48 501 244 004

12th January 2011 – Wednesday

10:30 Registration, coffee

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 / Stefaan GHIJS (DUT) – 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

13th January 2011 – Thursday

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),

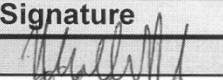
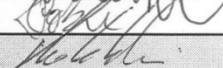
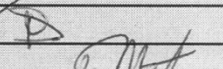
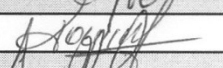
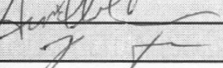
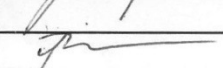

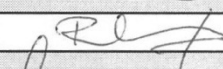
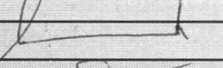
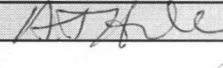
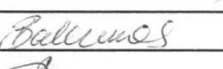
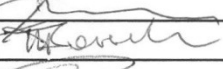

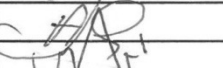
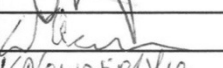
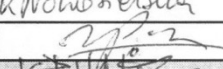
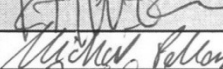
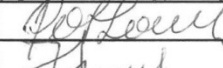
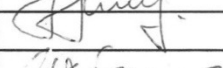
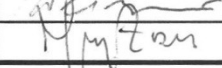






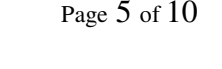

- Krzysztof PIWEK (IoA – project Coordinator)

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)

ATTENDANCE LIST

item	Name	Organisation	Country	Signature
1	AMATO Marcello	CIRA	Italy	
2	DOBRE Claudia	INCAS	Romania	
3	NAE Catalin	INCAS	Romania	
4	van SCHAIK Frans J.	NLR	Netherlands	
5	PIETRUSZKA Janusz	PZL M	Poland	
6	POTAPOWICZ Marek	PZL M	Poland	
7	COZZOLINO Aniello	PIAGGIO	Italy	
8	DUDA Jiri	EVEKTOR	Czech Republic	
9	GREBENICEK Petr	EVEKTOR	Czech Republic	
10	STERBA Petr	EVEKTOR	Czech Republic	
11	le TALLEC Claude	ONERA	France	
12	ROHACS Daniel	BUTE	Hungary	
13	ROHACS Jozsef	BUTE	Hungary	
14	CURRAN Richard	DUT	Netherlands	
15	de GRAAFF Adriaan	AD CUENTA	Netherlands	
16	GHIJS Stefaan	Fly Aeolus/DUT	Netherlands	
17	LAPLACE Isabelle	M3S	France	
18	HENLEY Tony	THL	UK	
19	PEREZ-ILLANA Pablo	EC	EU	
20	BALCZUNAS Anna	ILOT	Poland	
21	BARON Alfred	ILOT	Poland	
22	BOSSAK Maciej	ILOT	Poland	
23	DZIUGIEŁ Bartosz	ILOT	Poland	
24	GNAROWSKI Włodzimierz	ILOT	Poland	
25	IWANIUK Andrzej	ILOT	Poland	
26	JEŻ Marian	ILOT	Poland	
27	MIKSA Wojciech	ILOT	Poland	
28	NOWOSIELSKA Katarzyna	ILOT	Poland	
29	PAŃGOWSKI Tomasz	ILOT	Poland	
30	PIWEK Krzysztof	ILOT	Poland	
31	POKORSKI Michał	ILOT	Poland	
32	POTKAŃSKI Wojciech	ILOT	Poland	
33	TUREK Zbigniew	KPK	Poland	
34	WIŚNIEWSKI Witold	ILOT	Poland	
35	WOŁEJSZA Zbigniew	ILOT	Poland	
36	ŻÓŁTAK Jerzy	ILOT	Poland	

1. **REGISTRATION**

All meeting participants present at the meeting signed attendance list presented on the page above.

Each Project Partner representative received, during registration, set of documents in paper and electronic form on DVD in red suitcase which included:

1. Seventh Framework Programme - GRANT AGREEMENT No 265603; Project Title: Small Air Transport Roadmap(SAT-Rdmp) Coordination and Support Action; Support Actions(including annexes-) dated 17.09.2010.
2. CONSORTIUM AGREEMENT Coordination and Support Actions (Supporting the Seventh Framework Programme of the European Community- dated 21.09.2010

Each Partner signed for receiving the documents. (See letter No 1/BP4/2011 with signed distribution list in attachment No 1)

2. **WELCOME**

Scientific Manager of Institute of Aviation - Ph. D. Eng. **Wojciech Podkański**, welcomed all participants of the meeting on behalf of the Institute of Aviation.

Mr. Piwek welcomed all and presented agenda for the meeting.

Meeting was moderated by **Mr. Krzysztof Piwek**.

3. **MEETING PROCEEDINGS – day one**

- **First Presentation – Project overview** was done by **Mr. Mr. Krzysztof Piwek**. (see attachment No 2)

During the first part of the presentation main results of previous project – EPATS was pointed. The second part concerned main objectives and expected results of EPATS continuation – SAT-Roadmap project. Structure, Workpackages/Tasks, Deliverables and Responsibilities were presented as well.

Discussion:

Mr. Adriaan de Graaff said that there was a need to take action to contribute to High Level Group report which would be presented in March on Aerodays, because including small air transport in it is the key to its further development as part of European air transport system. Mr. Tony Henley said that he is right but timeline is very short. Mr. Zbigniew Turek added that on the occasion of Polish presidency, polish government is preparing to organize the European Innovation Summit in Poland. The summit will include aeronautics and a small air transport community common vision should be prepared for that event. He also said that they must not forget about European Parliament resolution (Feb. 2009) and its execution by the EC, because some deadlines had expired and EP had not received any document or report that would mention it. Mr. Catalin Nae said that there were a new situation resulting from SRA, ACARE vision, EREA vision and High Level Group. It was not too late to try to change a little bit competence of the proposals. Discussion on the topic was resumed the following day. Decided actions are described further.

Further in the meeting, description of the particular Workpackages was proceeded by every Workpackage and Task leaders:

WP1 – Small Air Transport System – Common Vision and Technological Requirements (CIRA)

- **Second Presentation** – WP1 and T1.1, T1.3 was done by Mr. **Marcello Amato (CIRA)**. (see attachment No 3)
- **Third Presentation** – T1.2 was done by Mr. **Stefaan Ghijs (ALS)**. (see attachment No 4)
- **Fourth Presentation** – T1.4 was done by Mr **Jiri Duda (EVEKTOR)**. (see attachment No 5)

According to Mr. Marcelo Amato reservations (He would need a demand results in regulatory framework) Mr Krzysztof Piwek asked Mr. Jiri Duda to be ready with the deliverable D4.1 in September (ninth month)

WP2 – Business case based on business models (DUT)

- **Fifth Presentation** – WP2 and T2.1, T2.2, T2.3 was done by Mr. **Stefaan Ghijs (ALS)**. (see attachment No 6)

WP3 – Roadmap (IoA/AD)

- **Sixth Presentation** – WP3 and T3.1 and T3.4 was done by Mr. **Adriaan de Graaff (AD)** (see attachment No 7)
- **Seventh Presentation** – T3.2 was done by Mr. **Bartosz Dziugiel (IoA)** (see attachment No 8)
- **Eighth Presentation** – T3.3 was done by Ms **Claudia Dobre** in the name of Mr **Catalin Nae (INCAS)**. (see attachment No 9)

It was clarified that the WS to be organized with the stakeholders for agreeing with the recommendations for the EC (T3.3), it will be part of the Roadmap WS in M16.

WP4 – Capabilities (EVEKTOR)

- **Ninth Presentation** – WP4 and T4.1, T4.3 was done by Mr. **Jiri Duda (EVEKTOR)**. (see attachment No 10)
- **Tenth Presentation** – T4.2 was done by Ms **Claudia Dobre** in the name of Mr **Catalin Nae (INCAS)**. (see attachment No 11)

Task 4.2 – Identification of missing capabilities (M6 – M11) – will need as an input, besides the results from T4.1, the results from T3.1 – Development of the RTD roadmap (M9 – M16); it was proposed that T4.2 start in M11 and ends in M16.

It was clarified that the WS (T4.2) to be organized for the European industry and research community network established in T3.4, it will be part of the Roadmap WS in M16.

The merit content of the Project

- **Eleventh Presentation** – Small Air Transport – Roadmap, Contribution by AD Cuenta was done by Mr. **Adriaan de Graaff (AD)** (see attachment No 12)
- **Twelfth Presentation** – Small Air Transport – Roadmap, Proposed Project Assumptions was done by Mr. **Wojciech Miksa (IoA)** (see attachment No 13)

Mr. Adriaan de Graaff noted that environmental issues need some actions, especially noise issues. Everybody agreed.

All partners were asked to send their comments and remarks about project assumptions to project coordinator in order to agree a common vision. Paper version of the assumptions was included in the set of documents in red suitcase that each project partner received at the beginning of the meeting.

At the end of first day of KoM Mr. Krzysztof Piwek invited participants for joint dinner in “Bazyliśzek” restaurant and finished first day of Kick of Meeting.

4. MEETING PROCEEDINGS – day two

Mr. Krzysztof Piwek welcomed all participants and started second day of the meeting.

Environment of Small Air Transport – discussion

- **First Presentation** – PPlane status and links was done by Mr. Claude Le Tallec (see attachment No 14)
- **Second Presentation** – Towards to Future Air transport System; EREA, ARG, ACARE – positions, SRA next was done by Mr. Zbigniew Wołęjsza (see attachment No 15)

Discussion:

Mr. Adriaan de Graaff noted that due to High Level Group composition of only big airplanes and airlines oriented, there is high necessity to contact with HLG and experts and notify them about importance of small aircraft sector and make sure that small aircraft development will be included in their vision. Mr Jozsef Rohacs added that they could also send a letter directly to the Parliament.

Actions to be taken:

1. Stefaan Ghijs: Prepare draft version of Small Air Transport Vision letter to High Level Group and send it to all Partners.
2. Project Partners: send to Mr. Adriaan de Graaff remarks about the letter.
3. Adriaan de Graaff: send final version of the letter to High Level Group
4. All Project Partners: support above action by finding the group of authorities and disseminate the letter to gain support in national government actions.

Project Management and Communication; Project Reporting

- **Third Presentation Project Management and Communication; Project Reporting** was done by project Administrator Mr. Andrzej Iwaniuk (IoA) (see attachment No 16).

5. PROJECT MANAGEMENT COMMITTEE MEETING NO 1

Mr. Krzysztof Piwek opened the Project Management Committee meeting of SAT Roadmap. The meeting was attended by 12 Project Management Committee members. M3S representative Ms. Isabelle Laplace and DUT representative Mr. Richard Curran were absent.

Mr. Ghijs was representing DUT in place of Mr. Curran. The number of meeting participants exceeded two third of PMC member, and therefore the PMC meeting No 1 was valid.

“The SAT-RDMP Project Management Committee (PMC) is the executive body that assists the Project Coordinator for project control and monitoring activities. It is composed by all the partners of the project. The PMC is chaired by the SAT-RDMP Project Coordinator who is the sole contact point between SAT-RDMP and the EC Project Officer. The PMC defines strategic orientations and performs project monitoring activities” (according to SAT-RDMP Consortium Agreement).

All Members the PMC agreed that The Kick-off Meeting has accepted like **First SAT-RDMP PMC Meeting**.

All Members the PMC agreed that all formalities with, and with SAT-RDMP Consortium Agreement are fulfilled properly; in this moment no issues needed PMC action.

List of SAT-Rdmp Project Management Committee (PMC) – See to attachment No 17

Issues discussed during the SAT-Rdmp Project Management Committee (PMC) meeting No 1:

1. The SAT-Rdmp Project Management Plan:
 - agreed upon the communication and data management between the partners, that main form of communication is e-mail, formal documents are to be sent using regular mail.
 - The Project Management Handbook.
contains SAT- Rdmp project-related information that needs to be used and exploited by any project member, including working procedures and templates
 - List of persons responsible for project deliverables (see attachment No 18).
2. Next PMC meeting was agreed to take place in CIRA in June 2011.

6. INSTITUTE OF AVIATION TOUR

Mr. Krzysztof Piwek invited participants for short tour of the Institute of Aviation.

Meeting attendants visited New Technology Center: Aerodynamics department, Landing Gear department and CBMiK.

7. MEETING CONCLUSION

Mr. Krzysztof Piwek asked industry representatives in SAT-Rdmp project about additional opinions on the area of small air transport.

Mr. Aniello Cozzolino (Piaggio Aero) said that the project should focus on the market for aircraft. Cost models and safety issues should be explored and previous project EPATS findings should be consolidated. The most important thing was to show that there was market for SAT aircraft.

Mr. Janusz Pietruszka (PZL Mielec) done presentation (see attachment No 19)

Mr. Krzysztof Piwek thanked everybody for participation and closed the meeting.

Document Change Log:

Version	Author /Organisation	Date of Release	Description of the release	Modifications (sections affected and relevant information)
0	K.Piwek/IoA	31 I 2011	Kick-off Meeting Report	Official document

Document Distribution List:

Number	Company	Company's short name	Company's Country	Name of the Company's Project Manager	Marking
1	Instytut Lotnictwa	IoA	Poland	Krzysztof PIWEK	X
2	Centro Italiano Ricerche Aerospaziali SCPA	CIRA	Italy	Marcello AMATO	X
3	Institul National de Cercetari Aerospatale "Elie Carafoli"	INCAS	Romania	Catalin NAE	X
4	Stichting Nationaal Lucht - en Ruimtevaartlaboratorium	NLR	Netherlands	Frans J. van SCHAIK	X
5	Polskie Zakłady Lotnicze sp. z o.o.	PZL M	Poland	Janusz PIETRUSZKA	X
6	Piaggio Aero Industries SPA	PIAGGIO AERO	Italy	Aniello COZZOLINO	X
7	EVEKTOR, spol. s r.o.	EVEKTOR	Czech Republic	Jiri DUDA	X
8	Office National d'Etudes et de Recherches Aerospaciales	ONERA	France	Antoine JOULIA	X
9	Budapesti Muszaki es Gazdasagtudományi Egyetem	BUTE	Hungary	Daniel ROHACS	X
10	Technische Universiteit Delft	DUT	Netherlands	Richard CURRAN	X
11	AD Cuenta B.V.	AD CUENTA	Netherlands	Adriaan de GRAAFF	X
12	Fly Aeolus B.V.B.A.	FLY AEOLUS	Belgium	Stefaan GHIJS	X
13	M3 SYSTEMS SARL	M3S	France	Isabelle LAPLACE	X
15	Tony Henley Consulting Limited	THL	United Kingdom	Tony HENLEY	X
16	EUROPEAN COMMISSION	EC RD	Europe	Pablo PEREZ-ILLANA	X



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**The Contractors of
Small Air Transport – Roadmap
(SAT-Rdmp)**

CONSORTIUM AGREEMENT

City, date: Warsaw, January 11, 2011
Our ref.: ... /BP4/2011
Subject: **Grant Agreement Number 265603- SAT-Rdmp**

Dear Sir or Madam

In accordance with section 4.5 of the Consortium Agreement please find enclosed Grant Agreement and Consortium Agreement for **Contract nr ACS0-GA-2010-265603– SAT-Rdmp**.

Yours Sincerely,

Project Coordinator

Krzysztof PIWEK

- encl: 1. Seventh Framework Programme – GRANT AGREEMENT No 265603 ; Project Title: Small Air Transport – Roadmap (SAT-Rdmp); Coordination and Support Action; Support Actions (including annexes) – dated 17.09.2010.
2. CONSORTIUM AGREEMENT for Coordination and Support Actions (Supporting) under the Seventh Framework Programme of the European Community – dated 21.09.2010.

Distribution List:

1. **Centro Italiano Ricerche Aerospaziali SCPA (CIRA)**
2. **Institutul National de Cercetari Aerospatiale Elie Carafoli – I.N.CA.S. SA (INCAS)**
3. **Stichting Nationaal Lucht-en Ruimtevaartlaboratorium (NLR)**
4. **Polskie Zakłady Lotnicze Sp. z o.o. (PZL M)**
5. **Piaggio Aero Industries SPA (PIAGGIO AERO)**
6. **EVEKTOR. spol. s.r.o. (EVEKTOR)**
7. **Office National d'Etudes et de Recherches Aerospatiales (ONERA)**
8. **Budapesti Muszaki Es Gazdasagtudományi Egyetem (BUTE)**
9. **Technische Universiteit Delft (DUT)**
10. **Ad Cuenta B.V. (AD CUENTA)**
11. **Fly Aeolus B.V.B.A (FLY AEOLUS)**
12. **M3 SYSTEMS SARL (M3S)**
13. **Tony Henley Consulting Limited (THL)**



SAT-Rdmp Kick-off Meeting

Attachment No 2



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



Agenda 2nd day – 13 January 2011

Attachment No 2



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 – 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?	next proposal for FP7 – according workprogramme 2010 - done

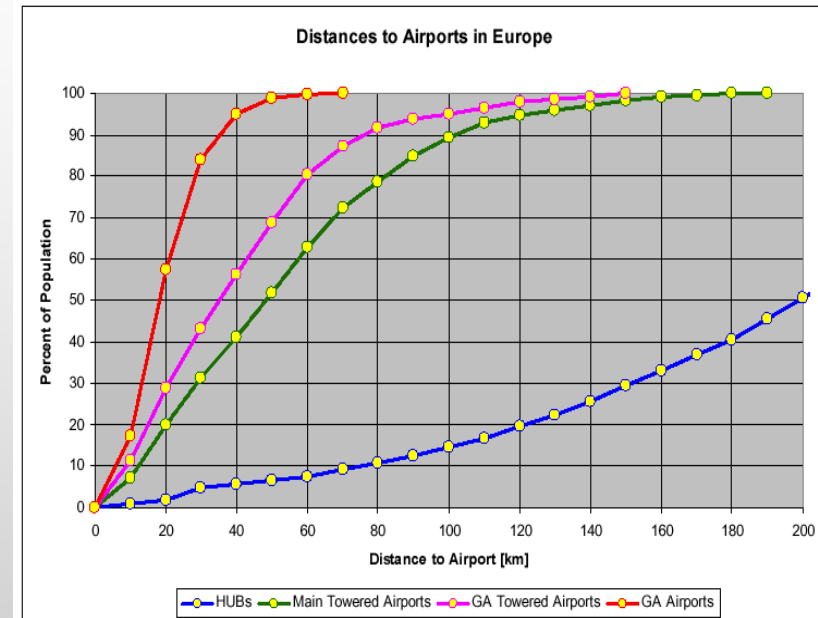
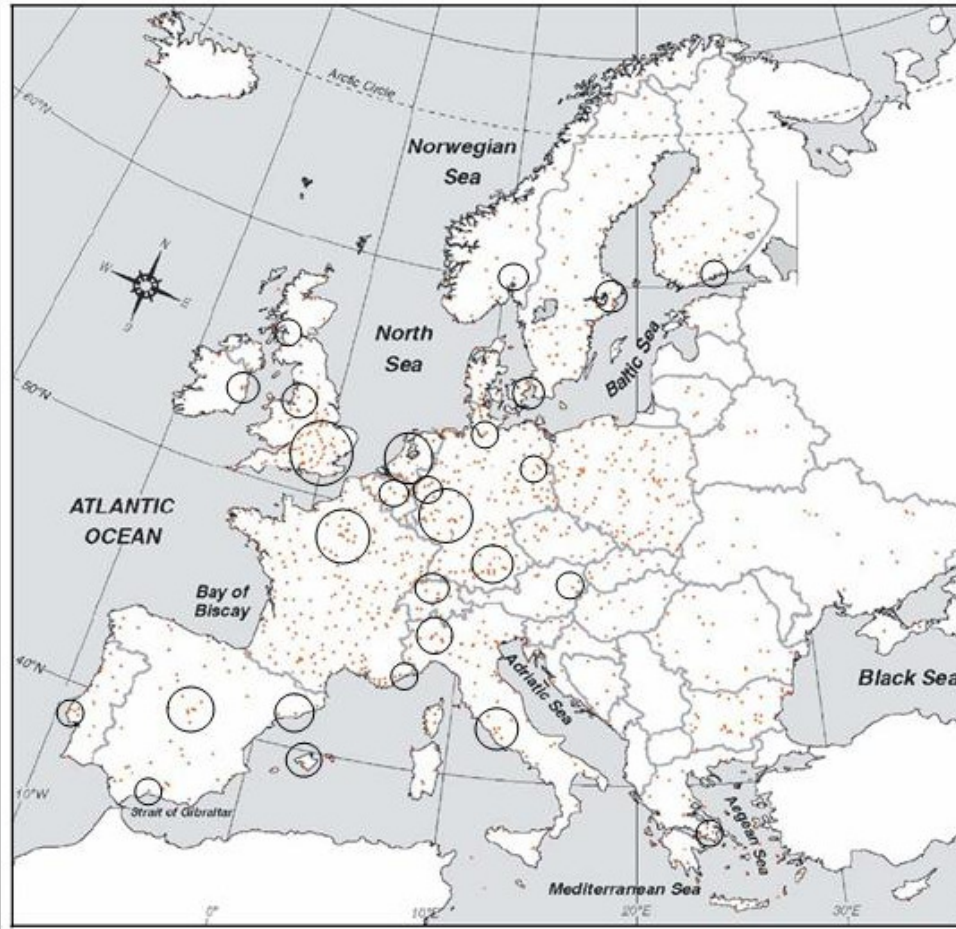
EPATS – STUDY Questions:

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

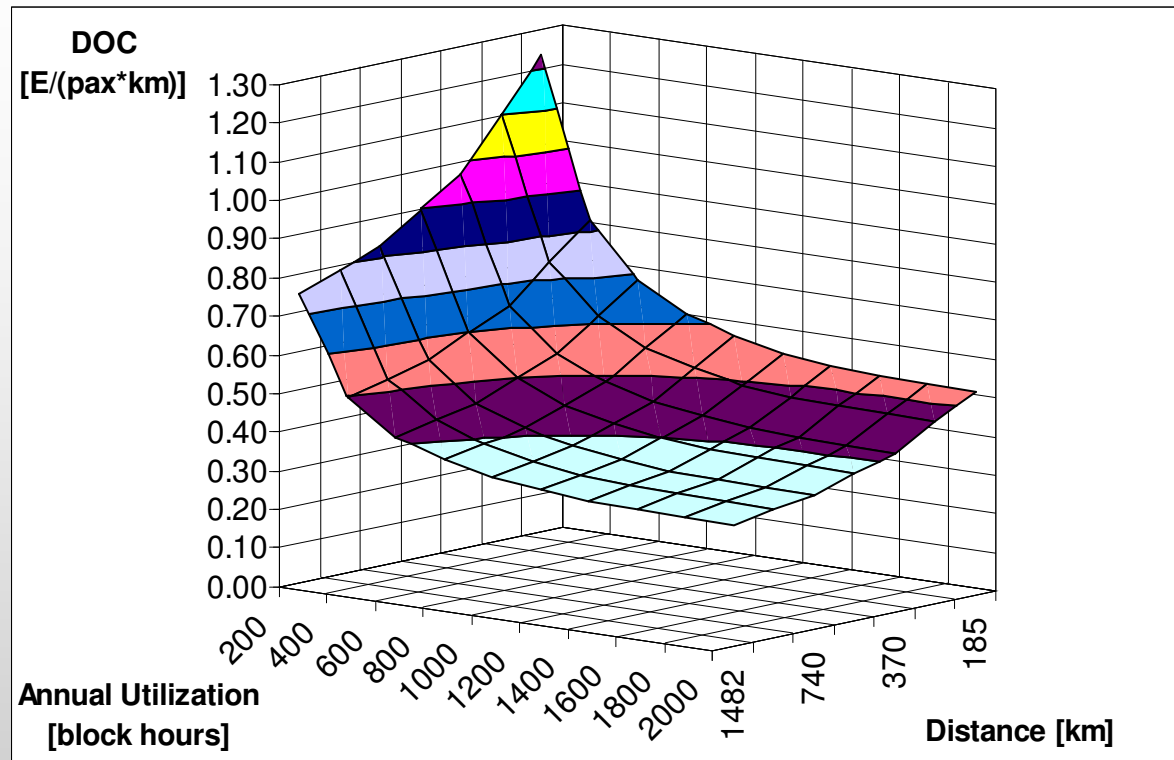


		Aircraft Data Base: 120																	
																			
												Detailed Calculation: 8							
																			
																			
																			
																			
																			
																			
												Simple Calculation: 15							
																			
																			
																			
																			
			Piston-props						Turbo-props						Jets				



Affordable Personal Air Transport

**DOC
Very
Sensitive
to
Utilization
Intensity**

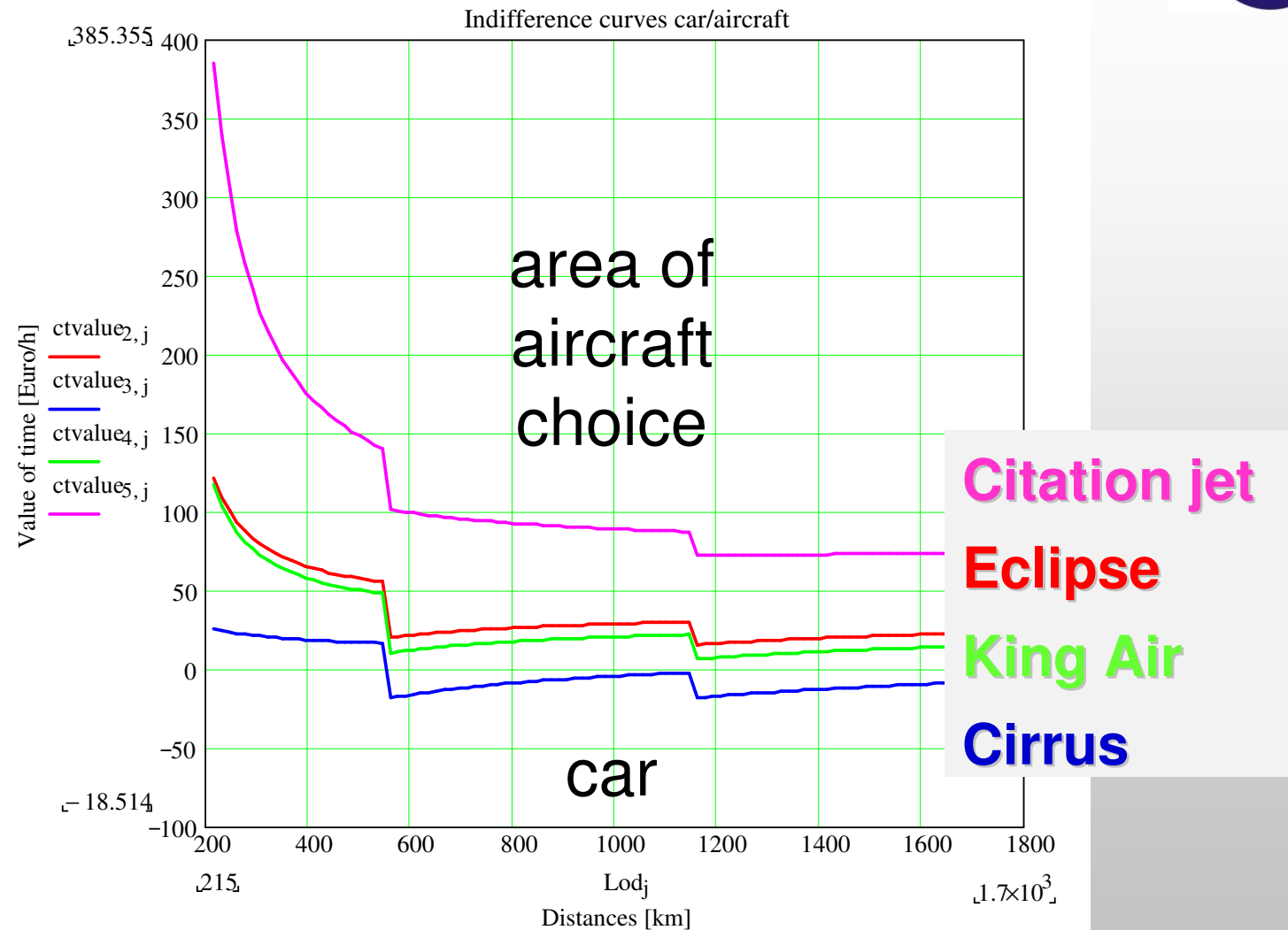


**Distance
Impact**

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)



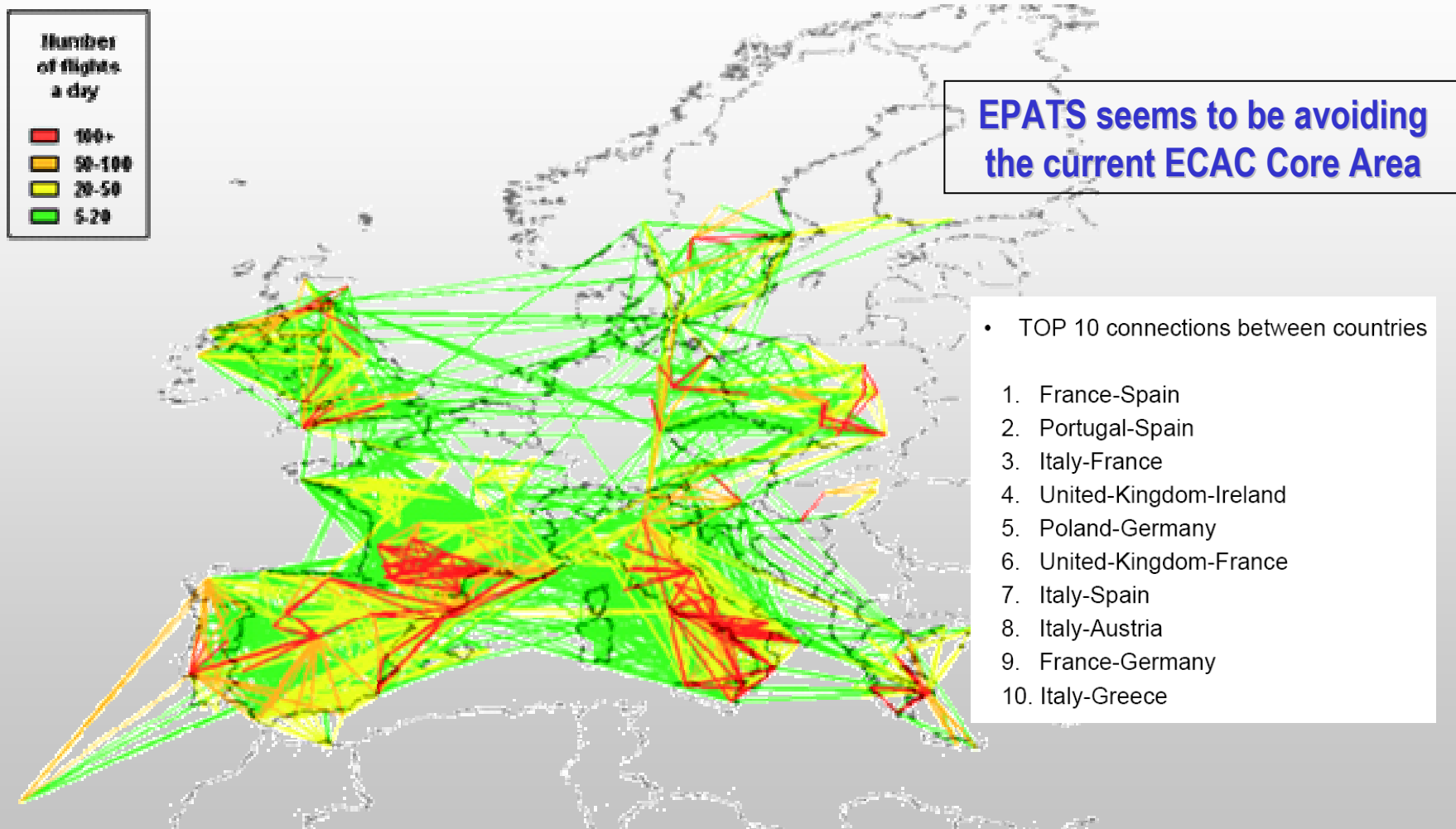
Generalized Cost (for transport mode i) = f° (distance, value of time, accommodation)
With Value of Time = f° (income, trip reason)

MODAL SPLIT VIA DISTANCE AND TIME VALUE

Inverse Cummulati 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

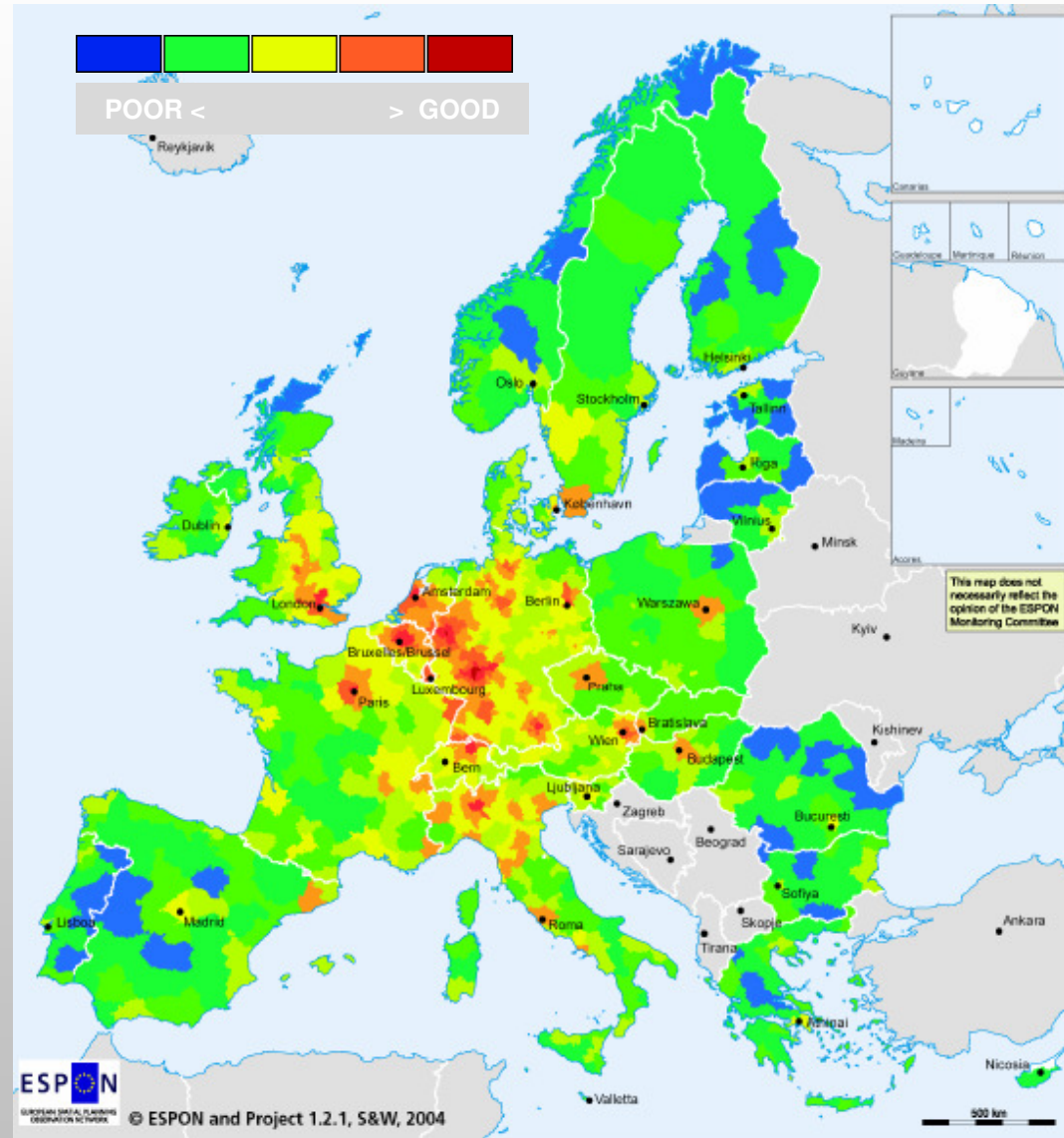
Generalized Cost (for transport mode i) = f° (distance, value of time, accommodation)
 With Value of Time = f° (income, trip reason)



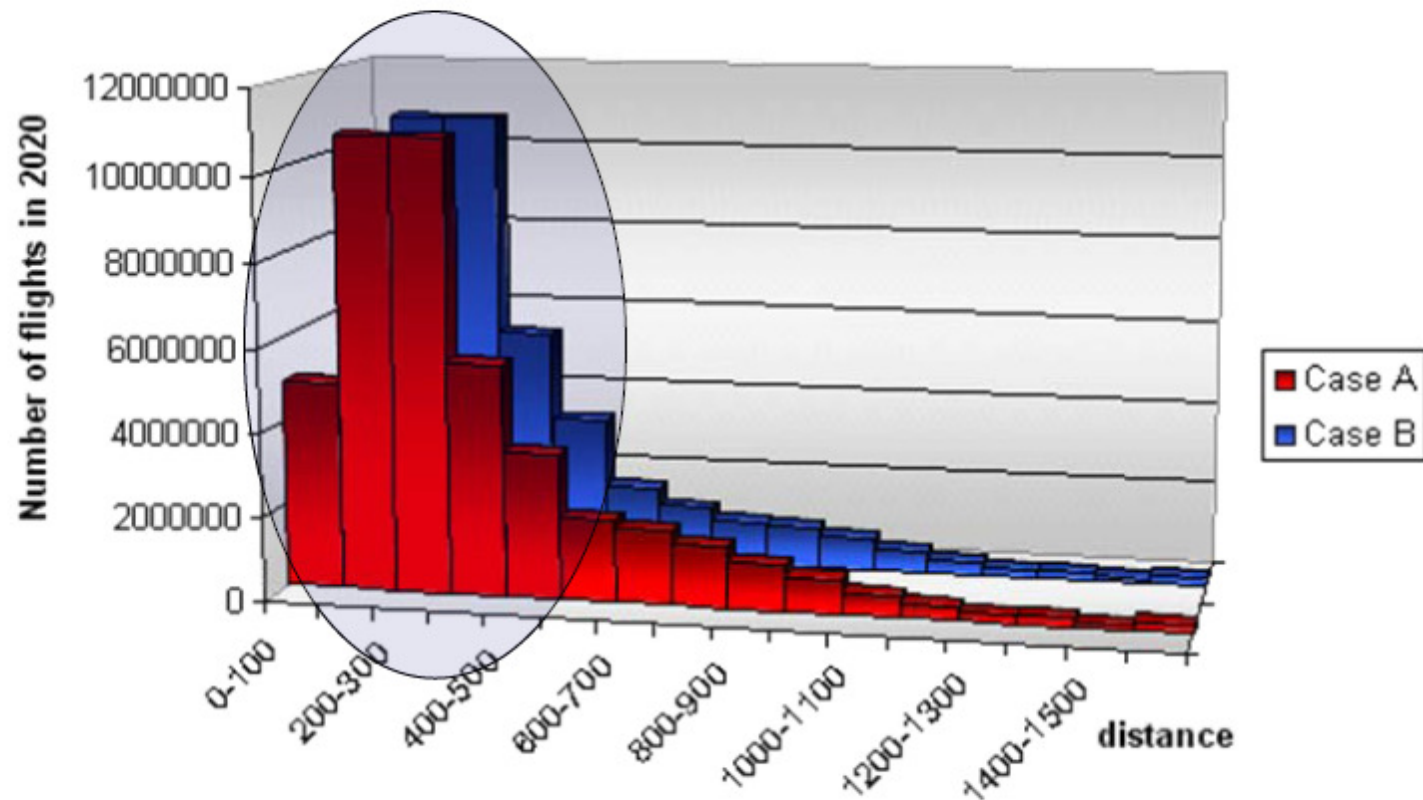
**Multimodal
potential
accessibility**
of EU Regions
measures transport
infrastructure
quality of modes
(car,rail,air)

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

ESPON 2004

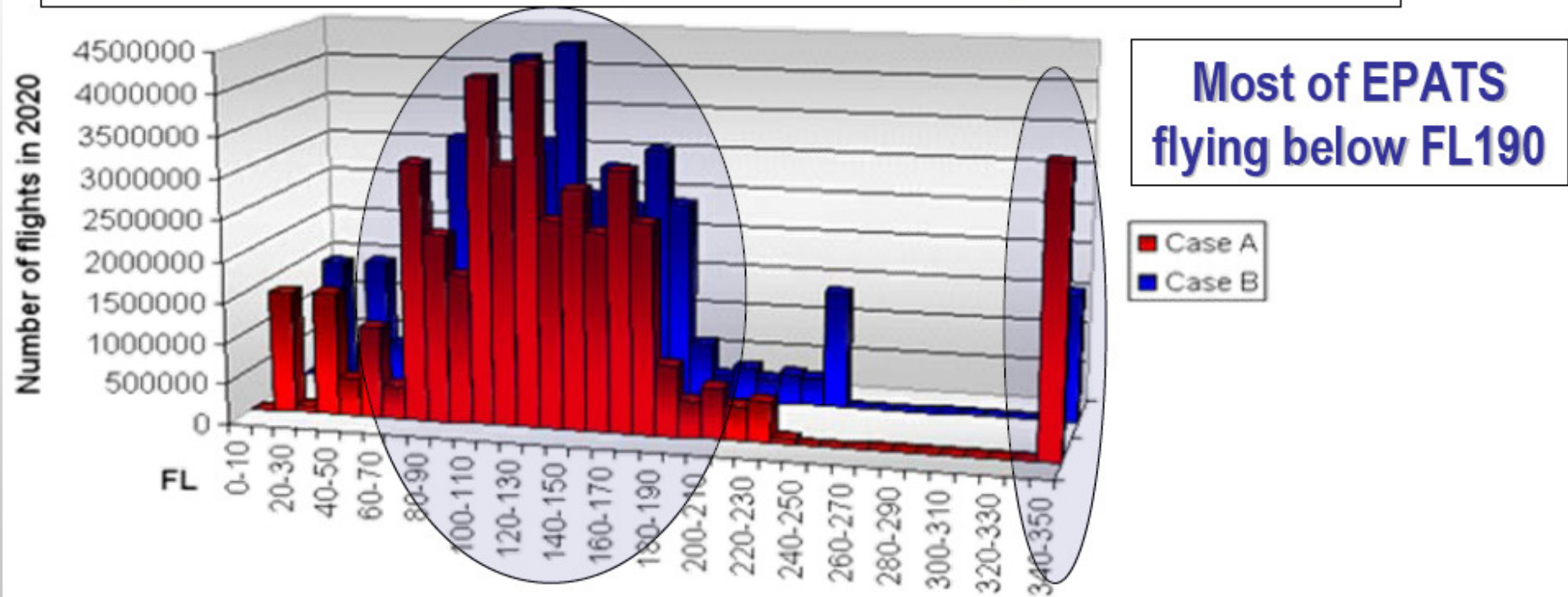


EPATS traffic distance distribution



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

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

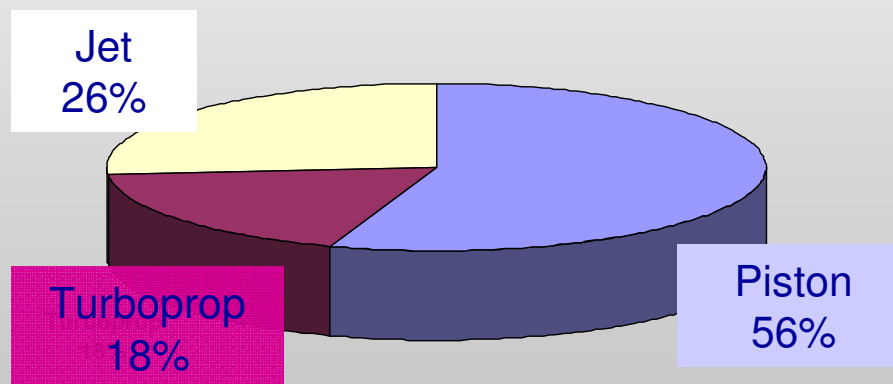


Transferred traffic to personal air transport in 2020:

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

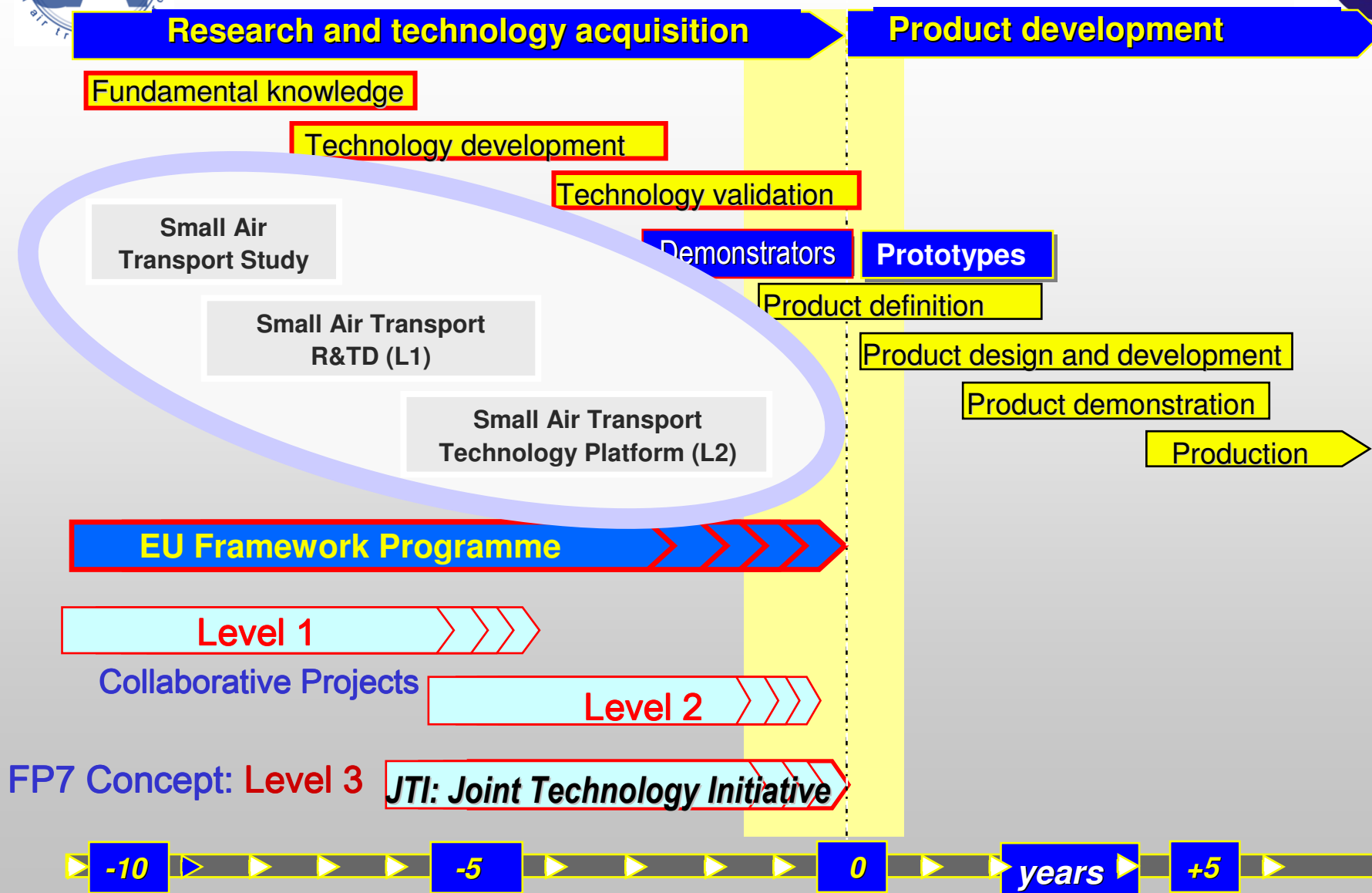
**What kind of Technologies are crucial
for:**

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

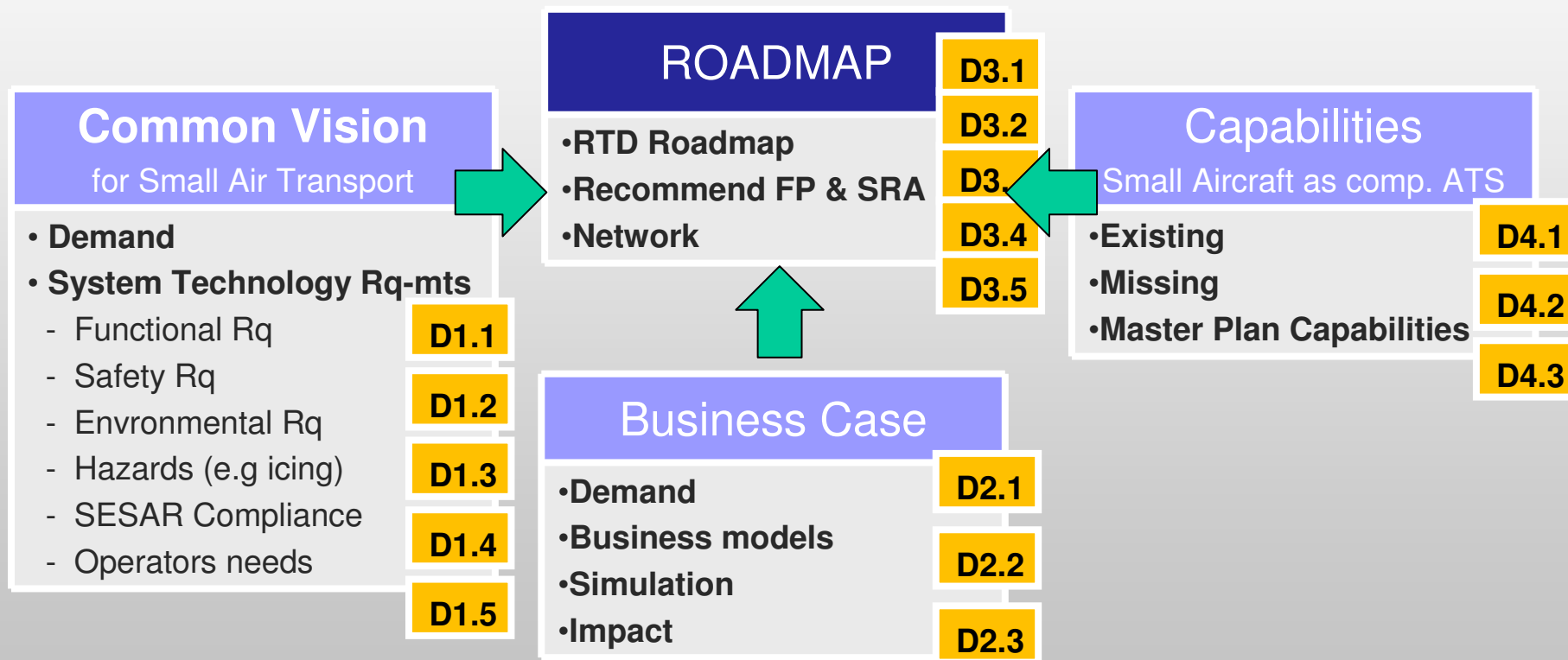
Goals:

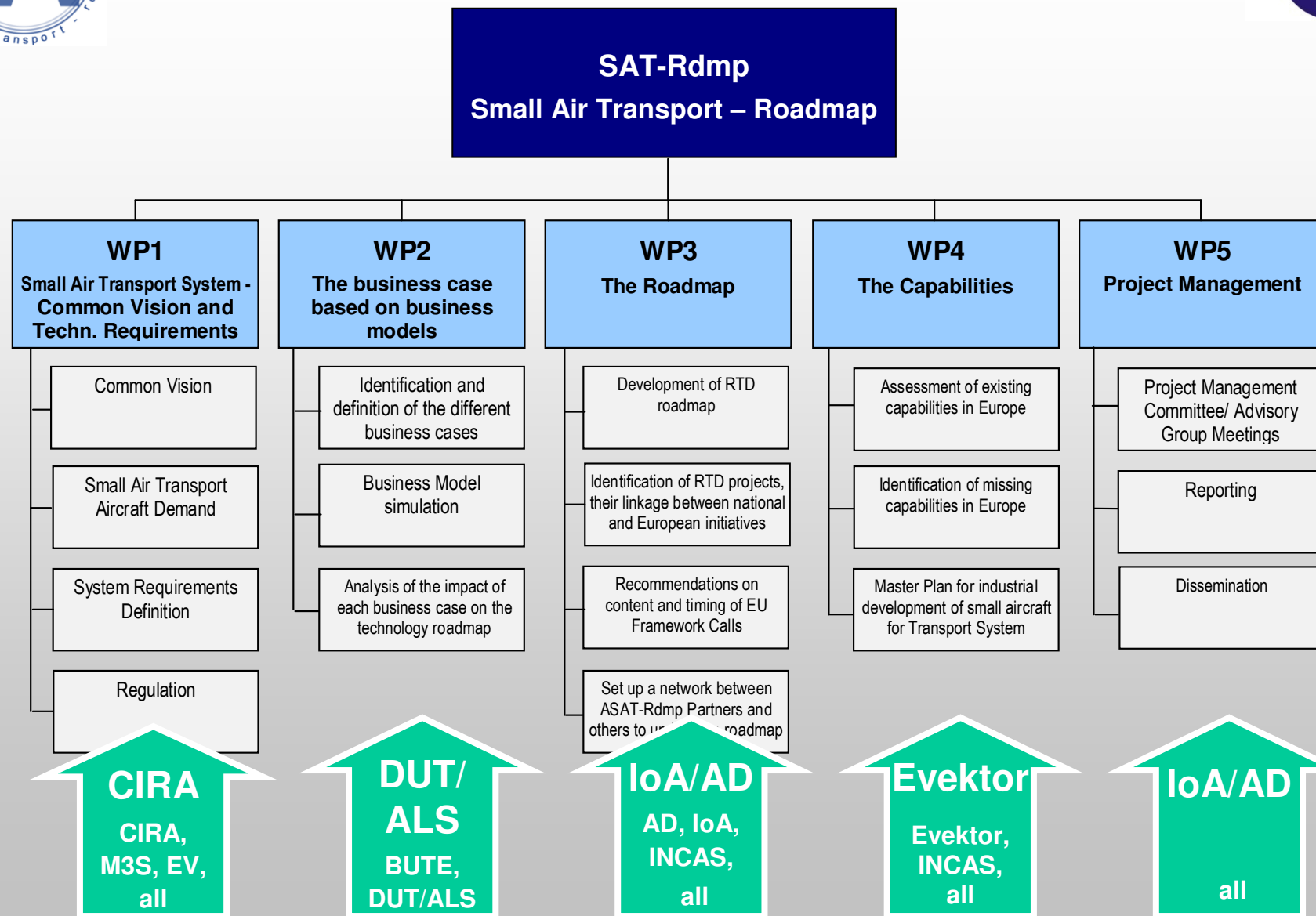
- ➔ **Assessing** and further developing the role of **small-size aircraft** in the **Air Transport System** - and to improve the understanding of the **commercial role** that small-size aircraft operating on **different business models** (scheduled or non scheduled operations) can play as a **component** 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.

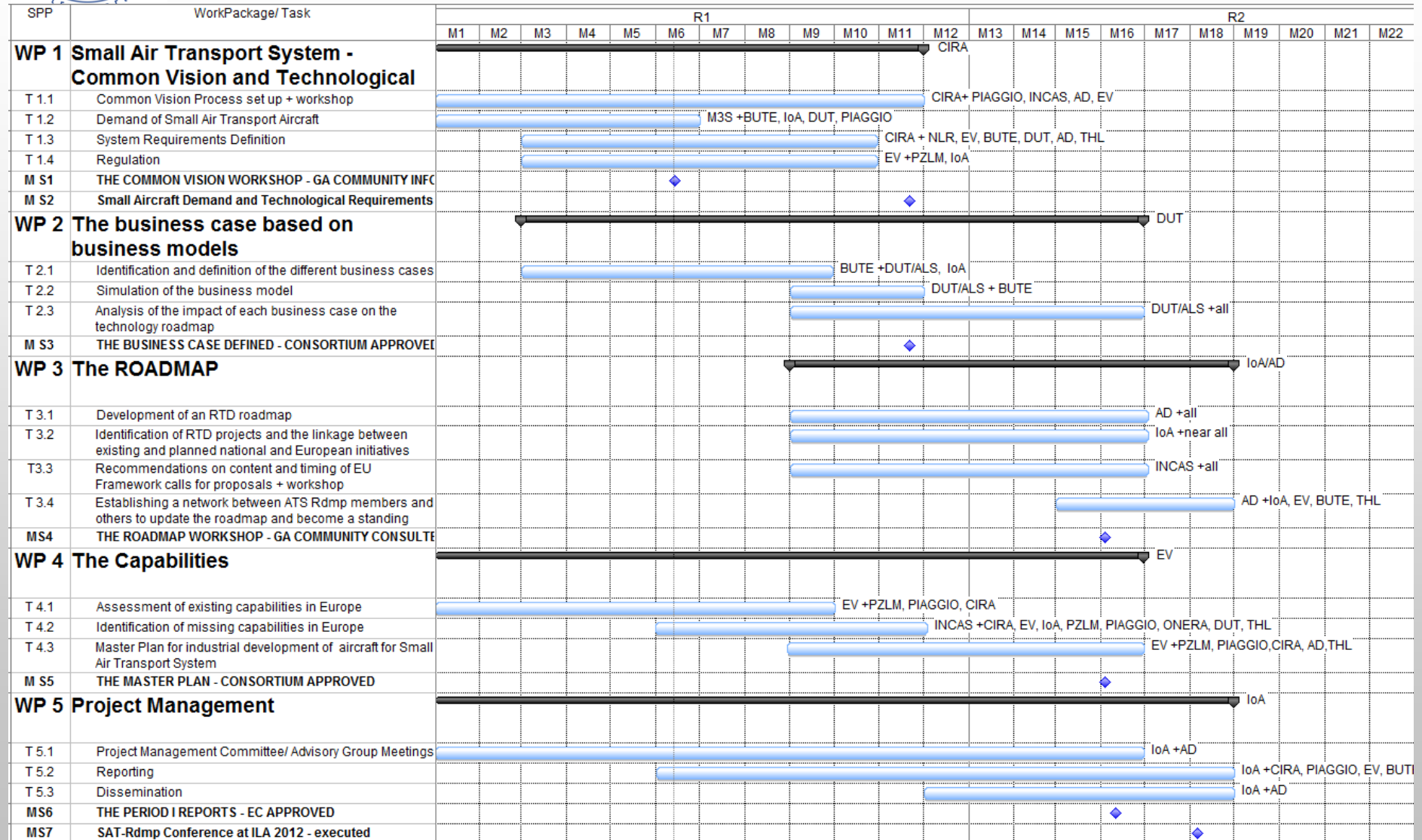
Main Issues:

- **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"> European Mobility, Demand, and Business Models System Requirements 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"> The Capabilities Master Plan for development of Small Air Transport Aircraft The Roadmap of RTD 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"> 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"> SAT presentations Conferences 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

Krzysztof PIWEK
khp@ilot.edu.pl

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



SAT-Rdmp Kickoff meeting,
Warsaw, January 12-13, 2011



Attachment No 3

WP-1 Common Vision and Technological Requirements for Small Aircraft Transport System

Marcello Amato

Business Development Unit

CIRA Scpa

Via Maiorise, Capua (CE)

81043, Italy

Tel. +39 0823-623310

Mob. +39 3480187324



WP1 Common Vision and Tech. Requirements



Attachment No 3

WP Leader: CIRA / Marcello Amato

WP Objectives (full project duration):

- 1. Definition of a common vision for the small aircraft transport system for inter-regional mobility**
- 2. Definition of Small Aircraft Transport Demand**
- 3. Identification of the system requirements.**
- 4. Define regulatory framework and possible regulatory difficulties connected with foreseen SAT system.**

WP Structure:

- Task 1.1 - Common Vision on Small Air Transport - process set-up + workshop (CIRA)**
- Task 1.2 - Small Aircraft Transport Demand (M3S)**
- Task 1.3 - System Requirements Definition (CIRA)**
- Task 1.4 - Regulation (EV)**



OVERVIEW Task 1.1 – Common Vision

Attachment No 3



Task Leader: CIRA / Marcello Amato

Participants: IoA+ PIAGGIO + INCAS+AD+EV

Objectives in first year	Definition of a Vision for an Aircraft Transport System including Small Aircraft for inter-regional mobility
Expected Results in first year	<ul style="list-style-type: none">• Collection and analysis of results from previous projects/activities;• Identification and involvement of the relevant stakeholders;• Workshop with relevant GA players: <i>aircraft designers, technology providers, airfield operators, EASA (regulation), EUROCONTROL (ATM integration), potential customers, etc;</i>• Analysis of the workshops results and consolidation in a report;
WP Milestones in first year	Common Vision Workshop (M6)
Outlook Objectives for Year 2	Output from WP1 to “WP3 – Technology Roadmap”
Deliverables in first year	Synthesis of Common Vision Workshop Results (M11)



OVERVIEW Task 1.3 – System Requirements

Attachment No 3



Task Leader: CIRA / Marcello Amato

Participants: IoA +NLR +EV +BUTE +DUT+AD +BAE

Objectives in first year	Definition of a Vision for an Aircraft Transport System including Small Aircraft for inter-regional mobility
Expected Results in first year	<p>Starting from the demand model (task 1.2 outcome) the system requirements will be defined; these will be detailed in terms of:</p> <ul style="list-style-type: none">o functional requirements (all involved partners)o dependability and safety requirements definition (CIRA+NLR)o environment (CIRA+ DUT) and hazards (e.g. Icing) (CIRA + NLR)o ATM/ATC ATC (NLR+CIRA+BUTE+DUT)o Integration in the Airport System (airports – aircraft) (CIRA+NLR+DUT) <p>Allocation of the system requirements to the proper subsystems</p>
WP Milestones in first year	<p>Input from Common Vision Workshop (M7)</p> <p>Input from Demand Model task 1.2 (M7)</p>
Outlook Objectives for Year 2	<p>Output from WP1 to “WP3 – Technology Roadmap”: the identified specific requirements will be adopted as a starting point to define the needed technologies.</p>
Deliverables in first year	<p>Synthesis of Technology Requirements (M11)</p>



WP1 – Common Vision and Tech. Requirements



Attachment No 3

Issues to be solved during the session or at next WP/T meetings:

Task 1.1: Location, costs, organization of the Common Vision Workshop

Task 1.2:

Task 1.3: Detailed workplan for Requirements Definition

Task 1.4

General:



OVERVIEW Task 1.2 – Small Air Transport Aircraft Demand



Attachment No 4

Task Leader: M3 Systems Partners: BUTE+IoA+DUT+PIAGGIO	
Objectives in first year	Assessment of the demand for the use of Small Aircraft in the Air Transport System ⇒ Refinement of the assessment of potential transfer of traffic from existing transport modes to personal air transport in 2020
EPATS method	Generalised Cost method including: The direct cost borne by the traveller The travel time and its associated cost value ⇒ <u>A traveller will choose the transport mode that minimizes his/her generalised cost</u>

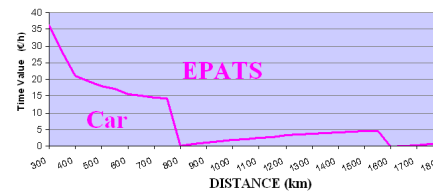
Task Leader: M3 Systems Partners: BUTE+IoA+DUT+PIAGGIO

EPATS method

Data and Assumptions

Indifference curves between 2 modes

Time value vs. distance



Journeys distribution vs. distance and value of time

Pkm Distribution		DISTANCE cat.		
TIME VALUE €/h		D1	D2	D3
	TV 1
	TV2
	TV3

Modal Split

		DISTANCE cat.		
TIME VALUE €/h		D1	D2	D3
	TV 1
	TV2
	TV3

Car
Epats

Results : Potential Transfer of passenger-km to EPATS



OVERVIEW Task 1.2 – Small Air Transport Aircraft Demand



Attachment No 4

Task Leader: M3 Systems

Partners: BUTE+IoA+DUT+PIAGGIO

EPATS method

- Identification of 15223 potential connections for Personal air transport (=24% of the total connections)

- EPATS generalised cost for traveller compared with the corresponding generalised costs of

- Car
- Traditional air transport
- High speed rail

- High-speed rail not kept since always preferred to EPATS

Conclusion:

↗ demand in personalized transport services

↗ needs in high-speed transport in remote areas



Transferred traffic to personal air transport in 2020: **3% of the total European traffic**

90 000 personal aircraft

25 500 personal aircraft if their operating cost increases by 30% (fuel cost, taxes, SESAR requirements, etc.)



OVERVIEW Task 1.2 – Small Air Transport Aircraft Demand



Attachment No 4

Task Leader: M3 Systems Partners: BUTE+IoA+DUT+PIAGGIO	
Expected Results of task 1.2 in first year	Demand estimation in chosen considered scenario: <ul style="list-style-type: none"> – Identification of the available inputs for the demand model; (ALL) – State-of-art of applicable demand models; (BUTE+DUT+M3S) – Refinement of the demand model made in the EPATS project with socio-economic factors; (M3S+BUTE+DUT) – Running of the new demand formula through a Monte-Carlo simulation in order to get the probability of the occurrence of the demand estimation results; (BUTE+DUT) Sensitivity analysis in order to analyze the impact of each input parameter on the model's outcome
WP/Task 1.2 Meetings & Milestones in first year	End of task at T0+6
Deliverables in first year	D1.2 Demand of Small Air Transport aircraft analyses



SAT-Rdmp Kickoff meeting,
Warsaw, January 12-13, 2011

Attachment No 5  *evektor*

WP 1 Small Air Transport System – Common Vision and Technological Requirements

Jiri DUDA, EVEKTOR



OVERVIEW Task 1.4 – Regulation



Attachment No 5 **evektor**

Task Leader: EVEKTOR / Jiri DUDA

Objectives in first year	Define regulatory framework and possible regulatory difficulties connected with foreseen Small Air Transport system.
Expected Results in first year	Identification of existing regulation requirements, Weaknesses, shortcomings and obstacles in EU, Suggestion of new and innovative approaches in the regulation area.
WP/Task Meetings & Milestones in first year	Month 11 – deliverable D 1.4
Outlook Objectives for Year 2?	N/A
Deliverables in first year	D 1.4 Identification of existing regulation requirements, regulatory difficulties and innovative approach



WP 1 Common Vision and Tech. Requirements



Attachment No 5 **evektor**

Issues to be solved during the session or at next WP/T meetings:

Task 1.1:

Task 1.2:

Task 1.3:

Task 1.4: Identification of regulatory requirements, evaluation of selected requirements.

General:

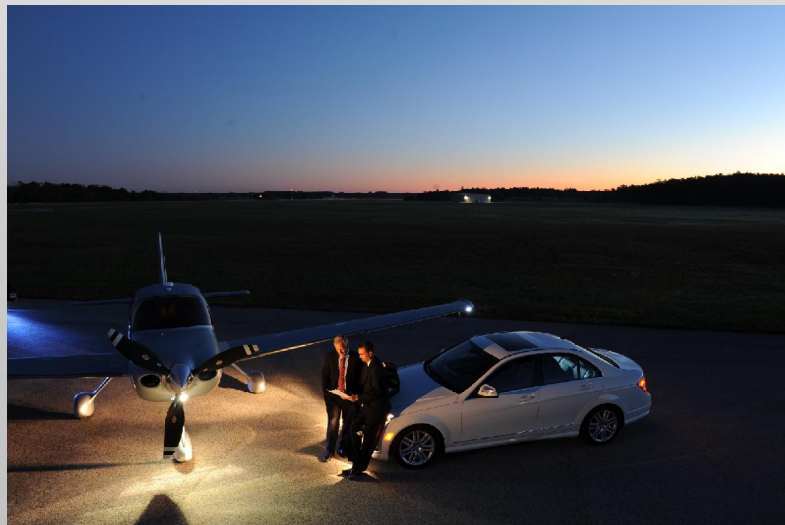


SAT-Rdmp Kickoff meeting, Warsaw, January 12-13, 2011



Attachment No 6

WP 2: The business case based on business models



Stefaan Ghijs, Fly Aeolus BVBA
www.flyaeolus.com



WP2 – The business case



Fly Aeolus

Attachment No 6

WP Leader: Delft University of Technology

WP Objectives (full project duration):

For each business model:

- **Define the most profitable business case for commercial SAT operations**
- **Define the economic, environmental and safety impact**
- **Define the major influential variables on the impact parameters**

WP Structure:

Task 2.1 - Identification and definition of the different business cases, BUTe

Task 2.2 - Simulation of the business model, DUT/ALS

Task 2.3 - Analysis of the impact of each business case on the technology roadmap, DUT/ALS

Task Leader: *BUDAPESTI MUSZAKI ES GAZDASAGTUDOMANYI EGYETEM*

Objectives in first year	<ul style="list-style-type: none"> - Define the relevant business cases/model - Define the model variables - Validate the previously defined business cases/models
Expected Results in first year	- Identification and definition of the different business cases relevant to the Small Air Transport segment
WP/Task Meetings & Milestones in first year	<ul style="list-style-type: none"> - 3 monthly update meeting and 3 weekly conference call - Validation meeting
Outlook Objectives for Year 2?	Follow-up the progress of other WPs, update the models if necessary
Deliverables in first year	Business case subscriptions with operational Characteristics



OVERVIEW Task 2.2– Simulation



Attachment No 6

Task Leader: Delft University of Technology

Objectives in first year	<ul style="list-style-type: none">- Link demand (WP 1.3) with business models- Determination and set-up impact factors- Simulation business model through probabilistic methodology
Expected Results in first year	Translation of the business models to simulation models by defining the impact parameters in: <ul style="list-style-type: none">- Operation variables- Non-influential environmental variables
WP/Task Meetings & Milestones in first year	3 monthly update meeting and 3 weekly conference call
Outlook Objectives for Year 2?	Impact parameters & simulation model; simulation of the model for each business case
Deliverables in first year	Simulation ready business models

Task Leader: Delft University of Technology

Objectives in first year	<ul style="list-style-type: none"> - Sensitivity analysis - Determination of the operational effect on the impact parameters - Validation
Expected Results in first year	Determination sensitivity methodology and determination impact factor influential parameters
WP/Task Meetings & Milestones in first year	3 monthly update meeting and 3 weekly conference call
Outlook Objectives for Year 2?	<ul style="list-style-type: none"> - Determination of the sensitivity and operational effect of the variables on the impact parameters - Analysis of the impact of each business case and probability of occurrence on the technology Roadmap
Deliverables in first year	Operational effect on the impact parameters per business case



WP2 – The business case



Fly Aeolus

Attachment No 6

Issues to be solved during the session or at next WP/T meetings:

Task 2.1: Change of taskleader from BUTE to ALS

General:

- Low amount of money versus withholding part of the budget for safety reasons. Solution: payment of interest? (Ref. DUT)

ATOS 2011

- 2nd International Air Transport and Operations Symposium, Delft, the Netherlands
- Call for papers dead-line by means of abstracts

Abstract deadline extended to 21-01-2011

- Special session on personal air travel

WWW.LR.TUDELFT.NL/ATOS



Courses on Airline Management and Operations

14 - 17 February 2010

- Four Day Interactive Course on Airline Management
- Management and operations
- EU-OPS airline regulation
- different airline strategies and business models

18 -21 April 2011

- Four Day Interactive Course on Advanced Airline Management
- In cooperation with Cranfield University and IATA
- Understand competitive market dynamics
- Improve problem solving and decision-making skills



SAT-Rdmp Kickoff meeting, Warsaw, January 12-13, 2011

Your Logo
Air Transport - Roadmap

Attachment No 7

WP3 Roadmap

Ad de Graaff, AD Cuenta



WP3 – Roadmap

Your Logo
Air Transport - Roadmap

Attachment No 7

WP Leader: AD Cuenta/ Ad de Graaff

WP Objectives (full project duration):

- 1. Establish a RTD roadmap for aircraft technologies, ATM, Airports, Network centric information and training**
- 2. Recommend actions towards the EU**
- 3. Expose results at ILA and facilitate a network of stakeholders**

WP Structure:

Task 3.1 – Roadmap, AD Cuenta

Task 3.2 – Identify RTD projects, IoA

Task 3.3 – Recommendations towards the EU, Incas

Task 3.4 – Establish a stakeholder network and disseminate at ILA (see also T 5.3) , Ad Cuenta



OVERVIEW WP3

Your Logo

Air Transport - Roadmap

Attachment No 7

Task Leader: Roadmap/ Ad Cuenta

Objectives in first year	Start at month 9
Expected Results in first year	Progress report
WP/Task Meetings & Milestones in first year	At least one meeting to discuss the roadmap and establish sub groups
Outlook Objectives for Year 2?	Finalize, perhaps another meeting on the roadmap
Deliverables in first year	Progress report

Attachment No 7

Issues to be solved during the session or at next WP/T meetings:

Task 3.1: Extremely little money available. Need good inputs from WP1 and 2

Task 3.2: Via Air TN and EU publications as well as in company research. IPR issue

Task 3.3: Small task following task 1 and 2

Task 3.4: Major effort. Combine with Task 5.3 for ILA presentation

General: very little money available to do a good job. Ask the contributors to be realistic and deliver without unnecessary cost



SAT-Rdmp Kickoff meeting, Warsaw, January 12-13, 2011



Attachment No 8

WP3 – The Roadmap

T3.2 – Identification of RTD project and the linkage between existing and planned national and European initiatives

Bartosz Dziugiel – Institute of Aviation



T3.2 – Identification of the RTD projects...



Attachment No 8

Contents:

- 1. General information about the task***
- 2. Main objectives and desired results***
- 3. Location in project structure and timetable***



T3.2 – Identification of the RTD projects...



Attachment No 8

General information about the task:

- 1. Lead participant: Institute of Aviation***
- 2. Other participants: ILOT, CIRA, INCAS, Piaggio AERO, Evektor, ONERA, BUTE, AD Cuenta and THL***
- 3. Results of T3.2 included in Deliverable D3.2 – Report on ongoing or planned research***



T3.2 – Identification of the RTD projects...



Attachment No 8

Main objectives and desired results

Task 3.2 consists of two major steps

1. *Creation of the map of current and expected to run research and technology development programmes and projects executed in European, national and industrial RTD.*
 - *Review of each type projects and initiatives (FP7, Baltic Sea Region, European Regional Development Fund)*
 - *concerning all issues of General Aviation/Small Aircraft Transport development process (greening, cost, safety, aerostructures, systems, propulsion etc).*



T3.2 – Identification of the RTD projects...



Attachment No 8

Main objectives and desired results

*e.g. **CleanSky**, **PPlane** – Personal Plane, **CESAR** – Cost Effective Small Aircraft, **SAFAR** – Small Aircraft Future Avionic Architecture, **EPATS** – European Personal Air Transportation System, **FUSTERA** – Future Seaplane Traffic, **CREATE** – Creating Innovative Air Transport Technologies for Europe, **SAT-Rdmp** – Small Air Transport – Roadmap and others*

This map will be basis for elaboration of new strategy of future project management. In other words the map will show us „gaps” in future GA development and thus create „place” and justification for new projects (including L2)



T3.2 – Identification of the RTD projects...



Attachment No 8

Main objectives and desired results:

2. *Contacts will be established with different stakeholders in the aviation sector to identify their plans concerning future RTD.*

The plans will be focused on the time period till 2020 but plans are expected to be more precise in the near future (till 2015)



T3.2 – Identification of the RTD projects...

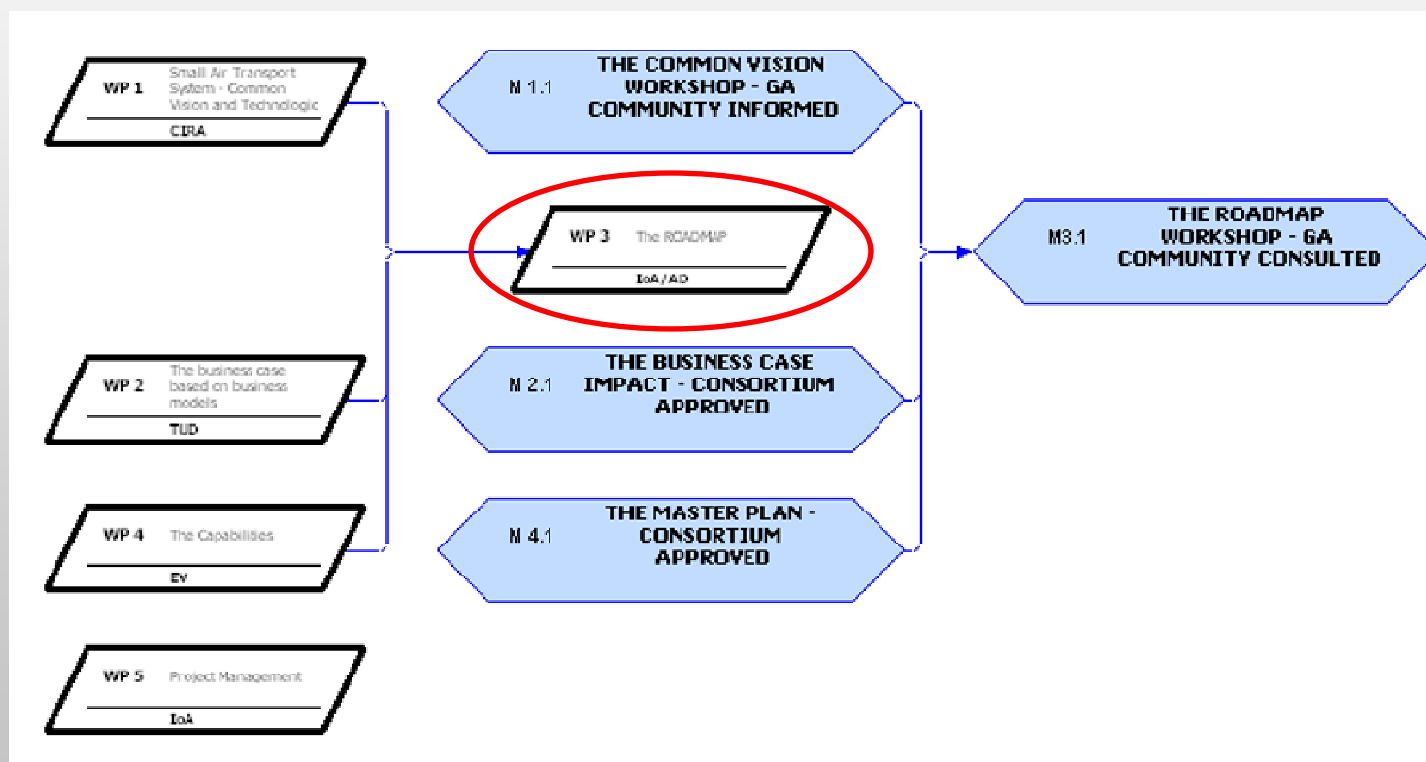


Attachment No 8

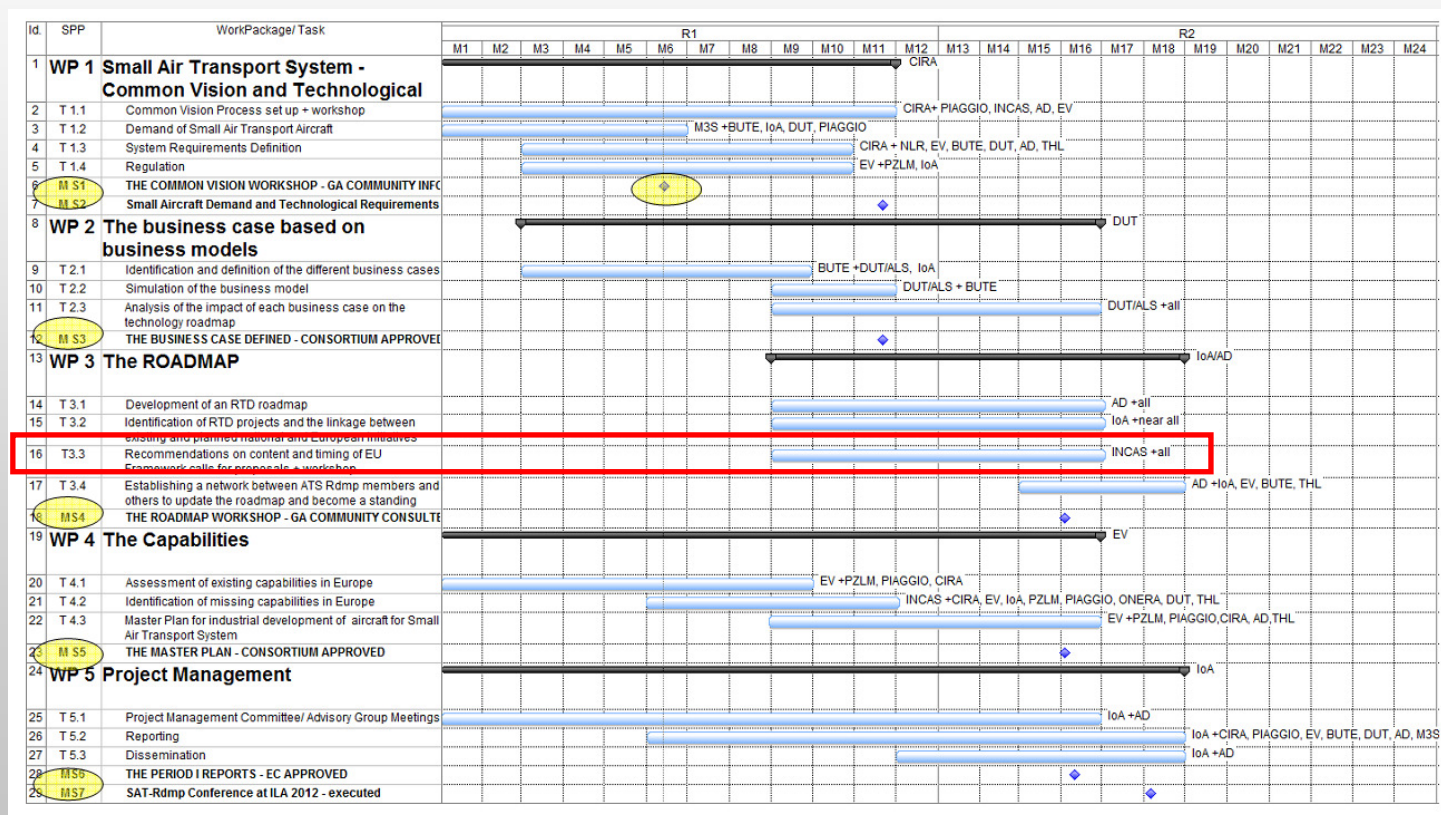
Main objectives and desired results:

- *Task 3.2 will identify areas where new RTD initiatives are needed based on complementarity and subsidiarity. (E.g. Eurocontrol, Very Light Jet integration platform)*
- *A tight linkage with the FP7 PPlane project will be set up.*
- *IoA will execute this task, with contributions other project participants. **The results will be refined by relevant European GA stakeholders.***

Location in project structure and timetable



Location in project structure and timetable





T3.2 – Identification of the RTD projects...



Attachment No 8

Task 3.2 Thank you very much for your attention



SAT-Rdmp Kickoff meeting,
Warsaw, January 12-13, 2011



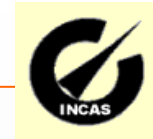
Attachment No 9

WP 3 – The Roadmap
Task 3.3 – Recommendations on content and timing
of EU Framework calls for proposals

Dr. Catalin NAE, Ing. Claudia DOBRE,
INCAS – National Institute for Aerospace Research



WP3 – The Roadmap



Attachment No 9

WP Leader: IoA/AD / name of the WP leader

WP Objectives (full project duration):

1. Definition of a roadmap to fill the technology/regulatory/operative gaps in order to fulfil the requirements considering the current capabilities.
2. Identification of dissemination actions.
3. Establishment of a network of stakeholders.

WP Structure: (M9 – M18)

Task 3.1 – Development of an RTD roadmap, Task leader – AD (M9 – M16)

Task 3.2 – Identification of RTD projects and the linkage between existing and planned national and European initiatives , Task leader – IoA (M9 – M16)

Task 3.3 – Recommendations on content and timing of EU Framework calls for proposals , Task leader – INCAS (M9 – M16)

Task 3.4 – Establishing a network between SAT-Rdmp members and others to update the roadmap and become a standing network, Task leader – AD (M15 – M18)



OVERVIEW Task 3.3 – Recommendations on content and timing of EU Framework calls for proposals



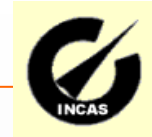
Attachment No 9

Task Leader: INCAS / Dr. Catalin NAE

Objectives in first year	A set of recommendations will be made to the Commission on the potential level 1, level 2 and possibly level 3 projects needed to develop a world leading air taxi operations system using advanced small aircraft and operations. These recommendations will be based on the roadmap developed in Task 3.1 also on the mapping of the current and planned RTD programmes and projects executed in European, national and industrial RTD, developed in Task 3.2. A workshop will be organized with the stakeholders to agree on the recommendations.
Expected Results in first year	Set of recommendations for the Commission
WP/Task Meetings & Milestones in first year	Project Meeting no1 (M 11) – Activity + Management WS with the stakeholders
Outlook Objectives for Year 2?	Workshop, location ? and date (M16) ? WS organized (by INCAS?) with the stakeholders to agree on the recommendations.
Deliverables in first year	D3.3. A report containing the set of recommendations on content and timing of EU FP calls for proposals. (M16)



WP3 – The Roadmap



Attachment No 9

Issues to be solved during the session or at next WP/T meetings:

Task 3.1:

Task 3.2:

Task 3.3: Location and date for the Workshop (M16 – April 2012?); organized by INCAS?

Task 3.4:

General:



SAT-Rdmp Kickoff meeting, Warsaw, January 12-13, 2011



Attachment No 10

WP 4 Capabilities

Jiri DUDA, EVEKTOR



WP 4 Capabilities



Attachment No 10

WP Leader: EVEKTOR / Jiri DUDA

WP Objectives (full project duration):

- 1. Assessment of industrial capabilities of Small Air Transport in the Member States of EU**
- 2. Master Plan for development of aircraft for Small Air Transport**

WP Structure:

- Task 4.1 - Assessment of existing capabilities in Europe, EVEKTOR**
- Task 4.2 - Identification of missing capabilities in Europe, INCAS**
- Task 4.3 - Master Plan for industrial development of aircraft for Small Air Transport System, EVEKTOR**



OVERVIEW Task 4.1 – Assessment of Europe capabilities



Attachment No 10

Task Leader: EVEKTOR / Jiri DUDA

Objectives in first year	Inventory of existing capabilities in Europe
Expected Results in first year	<ul style="list-style-type: none">• inventory of existing capabilities in Europe.• all industrial sectors will be including (airframe, engine, avionics, ATM and systems manufacturers as well as research capabilities)• national industry associations will be contacted,• first assessment will be made on the capabilities in the relevant nations to enable the actions foreseen in the Roadmap.
WP/Task Meetings & Milestones in first year	Month 9 – deliverable D 4.1
Outlook Objectives for Year 2?	N/A
Deliverables in first year	D4.1 Assessment of existing capabilities in Europe



OVERVIEW Task 4.3 – Master Plan



Attachment No 10

Task Leader: EVEKTOR / Jiri DUDA

Objectives in first year	Master Plan for development of aircraft for Small Air Transport
Expected Results in first year	<ul style="list-style-type: none">• wrap up the results from WP 1, WP 2 and WP 3.• Inputs from assessment of existing capabilities and identification of missing capabilities
WP/Task Meetings & Milestones in first year	Month 9 – deliverable D 4.1 Month 11 – deliverable D 4.2
Outlook Objectives for Year 2?	Finalization of Master plan on the basis of wrap up inputs from assessment of existing capabilities and identification of missing capabilities and results from WP 1, WP 2 and WP 3.
Deliverables in first year	D4.1 Assessment of existing capabilities in Europe D4.2 Identification of missing capabilities in Europe



WP 4 Capabilities



Attachment No 10

Issues to be solved during the session or at next WP/T meetings:

Task 4.1: List of existing capacities categorized by sectors

Task 4.2:

Task 4.3: Master Plan structure, wrap up of inputs from WP 1, WP 2, WP 3, D4.1 and D4.2

General:



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Warsaw, January 12-13, 2011



Attachment No 11

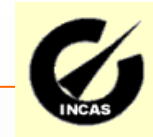
WP 4 – The Capabilities

Task 4.2 – Identification of missing capabilities in Europe

Dr. Catalin NAE, Ing. Claudia DOBRE,
INCAS – National Institute for Aerospace Research



WP 4 – The Capabilities



Attachment No 11

WP Leader: EVEKTOR / name of the WP leader

WP Objectives (full project duration):

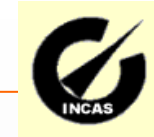
- 1. Assessment of current capabilities versus the ATS demand**
- 2. Collection of previous results and involvement of the stakeholders in Europe among all actors (manufacturers, research establishment, EASA, airspace users, infrastructure providers, airport managers, small aircraft service providers).**
- 3. Text (Objective)**

WP Structure: (M1 – M16)

- Task 4.1 – Assessment of existing capabilities in Europe, Task leader – EV (M1 – M9)**
- Task 4.2 – Identification of missing capabilities in Europe , Task leader – INCAS (M6 – M11)**
- Task 4.3 – Master Plan for industrial development of aircraft for Small Air Transport , Task leader – EV (M9 – M16)**



OVERVIEW Task 4.2 – Identification of missing capabilities in Europe



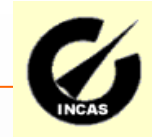
Attachment No 11

Task Leader: INCAS / Dr. Catalin NAE

Objectives in first year	Using the technology actions identified in the roadmap in WP3 and the inventory of capabilities made in T4.1, this task will identify the capabilities that are missing in Europe in order to realize that technology actions in the roadmap. An WS will be organized in Brussels for the European industry and research community network established in T3.4. The scope of this WS is the validation of the assessment of the existing and the missing capabilities in Europe.
Expected Results in first year	List of missing capabilities; Recommendations to remedy the lacking capabilities.
WP/Task Meetings & Milestones in first year	Project Meeting no1 (M 11) – Activity + Management Organization of WS with the network established in T3.4
Outlook Objectives for Year 2?	The findings of the first 2 tasks of this WP and of the previous WP 1,2 and 3 will contribute to the Master Plan developed in Task 4.3.
Deliverables in first year	D4.2: A report containing the list of missing capabilities (M11)



WP 4 – The Capabilities



Attachment No 11

Issues to be solved during the session or at next WP/T meetings:

Task 4.1:

Task 4.2: Date for the Workshop (M11 – November 2011?), location: Brussels, organized by?

Task 4.3:

General

SAT -Rdmp

Contribution by AD Cuenta

12/13 January 2011

Workpackages

- WP 1: Vision and demand
- WP 2: Business case: the supply side
- **WP 3: The roadmap**
 - RTD roadmap
 - Existing RTD projects
 - Recommendation on new RTD projects
 - Establish network
- WP 4: Capabilities analysis
- WP 5: Project management
 - Dissemination, related to WP 3.4

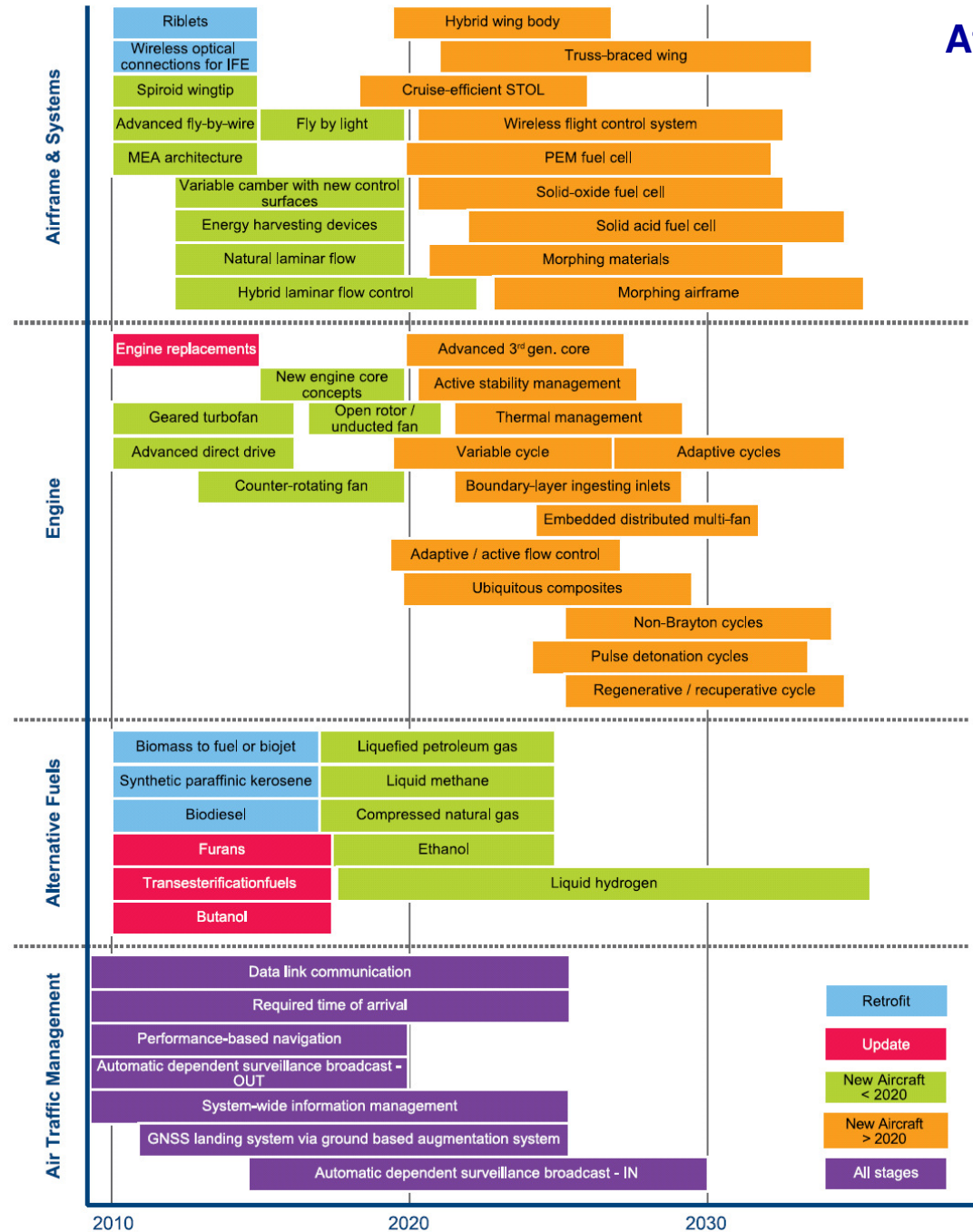
To make a Roadmap Task 3.1

- A roadmap can be based on known technology developments and the TRL levels: example IATA. Let us call it bottom up.
- A roadmap can also be based on market demand and the required supply of products and services that can satisfy this demand: example the British NATS roadmaps. Let us call this top down.

Many examples of technology roadmaps exist: IATA's bottom up approach

Currently available technologies
(source IATA)

Airframe		Engine	ATM
<ul style="list-style-type: none"> ▪ Active load alleviation ▪ Aircraft graphic films ▪ Advanced alloys ▪ Blended winglet ▪ CentrAI ▪ Composite primary structures ▪ Composite secondary structures ▪ Drag reduction coatings ▪ Fluoropolymers ▪ Friction stir welding ▪ Glare ▪ High strength glass microspheres 	<ul style="list-style-type: none"> ▪ High power Lights-Emitting Diode (LED) for cabin lighting ▪ Landing gear drive ▪ Laser beam welding ▪ Lithium batteries for secondary power ▪ More efficient gas turbine Auxiliary Power Unit (APU) ▪ Raked wingtip ▪ Variable camber with existing control surfaces ▪ Wingtip fence ▪ Zonal dryer 	<ul style="list-style-type: none"> ▪ Advanced combustor ▪ Engine retrofits: <ul style="list-style-type: none"> > advanced heat-resistant materials > better blade design > more efficient energy management ▪ Variable geometry chevron ▪ Variable fan nozzle 	<ul style="list-style-type: none"> ▪ Data Link Communications (VHF-ACARS and VDL Mode 2, SATCOM and HF) ▪ Performance Based Navigation (PBN) ▪ Automatic Dependent Surveillance Broadcast (ADS-B) OUT ▪ Automatic Dependent Surveillance Contract (ADS-C) ▪ Multilateration ▪ Auto-loading FMS with data link instructions ▪ FMS Required Time of Arrival (RTA)



Attachment No 12

: Technologies available for retrofit

Technologies		Fuel burn reduction	TRL	Availability Timeframe	Estimated Retrofit Costs (US\$ million)
Airframe Technologies					
	Composite secondary structures	~ 1%	9	Current	0.1 to 1
	Wingtip fence	1 to 3%	9	Current	1 to 10
	Raked wingtip	3 to 6%	9	Current	1 to 10
	Blended winglet	3 to 6%	9	Current	1 to 10
	More efficient gas turbine APU	1 to 3%	7	Current	1 to 10
	Lithium batteries for secondary power	< 1%	5	Current	< 0.01
	Variable camber with existing control surfaces	1 to 2%	8	Current	1 to 10
	High strength glass microspheres	~ 1%	6	Current	1 to 10
	Aircraft graphic films	~ 1%	9	Current	0.01 to 0.1
	Zonal dryer	~ 1%	9	Current	0.01 to 0.1
	Riblets	1 to 2%	7	2010+	1 to 10
	Drag reduction coatings	< 1%	9	Current	< 0.01
	Landing gear drive	< 1%	7	Current	0.1 to 1
	Wireless optical connections for in flight entertainment	< 1%	5	2010+	0.1 to 1
	High power LEDs for cabin lighting	< 1%	9	Current	0.01 to 0.1
	Fluoropolymers	< 1%	6	Current	1 to 10
Engine Technologies					
	Engine retrofits ^(c)	1 to 2%	8	Current	1 to 10
Alternative Fuels ^(d)					
	Biomass to Fuel (BTF) or biojet	60 to 90%	6	2010+	< 0.01
	Hydrogenated oil/fat	negative to 70%	7	2010+	< 0.01
	Gas to Fuel (GTF) or Gas to Liquid (GTL)	negative to 10%	8	Current	< 0.01
	Transesterification fuels	negative to 70%	7	2010+	0.1 to 1

Attachment No 12

Technologies and concepts applicable to new aircraft designs after 2020 (Source IATA)

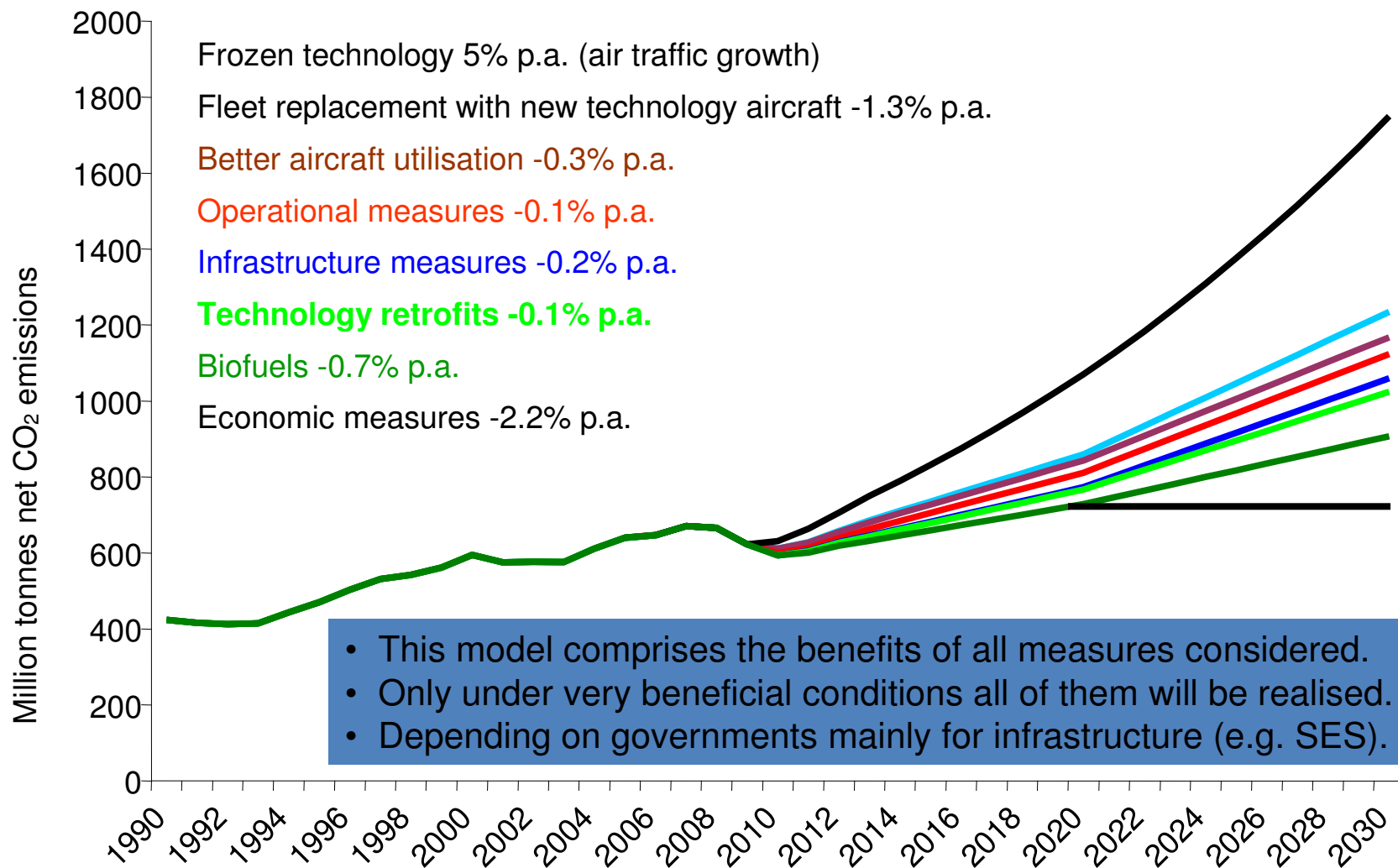
Airframe Technologies		Fuel burn reduction	TRL	Availability Timeframe
Airframe Technologies				
	Truss-braced wing	10 to 15%	2	2020+
	Morphing airframe	5 to 10%	3	2020+
	Hybrid-wing-body	10 to 25%	4	2020+
	Morphing material	1 to 5%	3	2020+
	Proton Exchange Membrane Fuel Cell (PEMFC)	1 to 5%	6	2020+
	Solid Oxide Fuel Cell (SOFC)	1 to 5%	5	2020+
	Cruise-efficient Short Takeoff and Landing (STOL)	< 1%	3	2020+
	Wireless Flight Control System (WFCS)	1 to 3%	5	2020+
	Solid Acids Fuel Cell (SAFC)	1 to 2%	1	2020+
Engine Technologies ⁽ⁱ⁾				
	Advanced core (3 rd GEN)	15 to 25%	2	2030+
	Adaptive/active flow control	10 to 20%	2	2020+
	Variable cycle (2 nd GEN)	10 to 20%	4	2020+
	Ubiquitous composites (2 nd GEN)	10 to 15%	3	2020+
	Active stability management	10 to 15%	3	2020+
	Adaptive cycles	5 to 15%	2	2020+
	Pulse detonation	5 to 15%	2	2020+
	Regenerative/recuperative	5 to 10%	2	2020+
	Non-Brayton cycles	5 to 10%	2	2020+
	Thermal management (2 nd GEN)	5 to 10%	5	2020+
	Boundary Layer Ingesting (BLI) inlet	1 to 3%	3	2020+
	Embedded Distributed Multi-Fan (2 nd GEN System)	< 1%	2	2020+
Alternative Fuels ⁽ⁱ⁾				
	Liquid Hydrogen	negative to 100%	7	2020+

IATA technology roadmap

- The IATA technology roadmap was used to calculate the potential CO₂ reduction in aviation versus the effects of increased demand for air traffic.
- It showed that current technology improvements will not be sufficient to offset the CO₂ increase due to the increase in demand. This may lead to additional governmental interventions (economic measures, like ETS).
- The AGAPE study also illustrated that the ACARE goals for 2020 will not be met, based on current technology developments and that breakthrough technology is needed.

IATA conclusions on CO₂ emissions from commercial airlines global fuel burn (economic model)

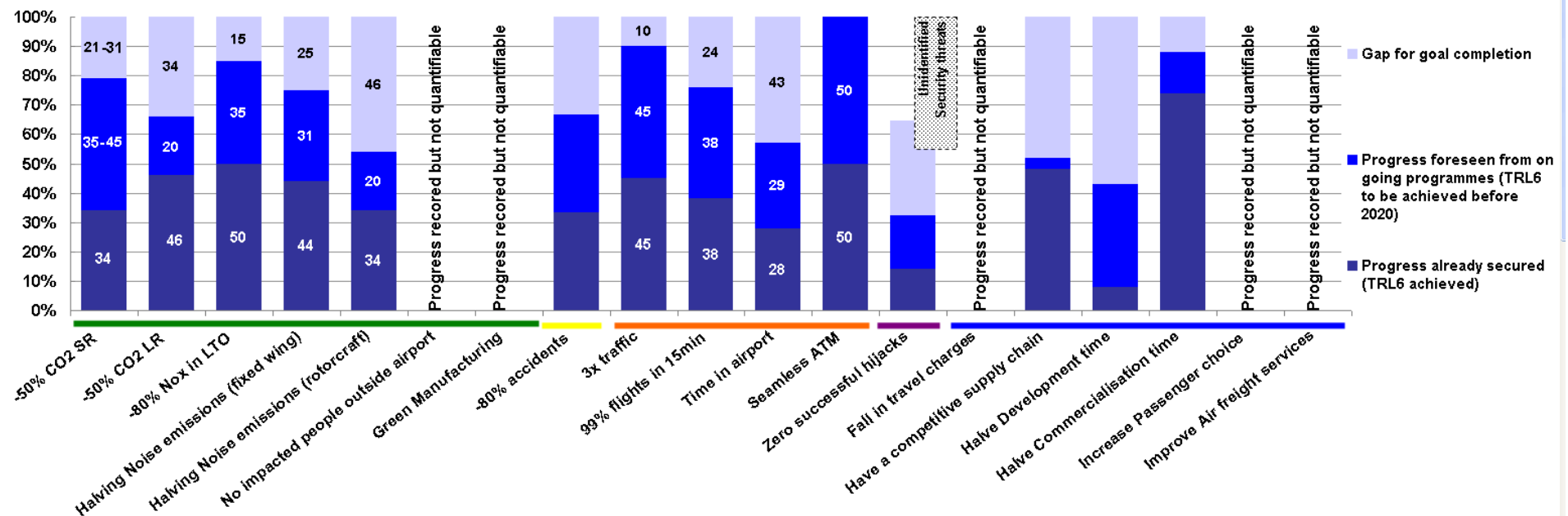
Attachment No 12



AGAPE results

Level of completion ACARE Goals

ACARE confidential **NOT CLEARED FOR EXTERNAL COMMUNICATION**



What Ad Cuenta proposes

- Do not follow a bottom up approach: it may block novel thinking for small aircraft.



What AD Cuenta proposes

- Follow the methodology used in the UK industry (NATS) to make top down roadmaps for the future:
- 0. Identify small aircraft sectors where Europe wants to excel (WP1)
- 1. Identify future products and business models (WP2)
- 2. Identify the technologies needed for these products (WP3)
- 3. Identify timing of products (WP3 based on 1&2)
- 4. Derive a technology roadmap from that

Attachment No 12



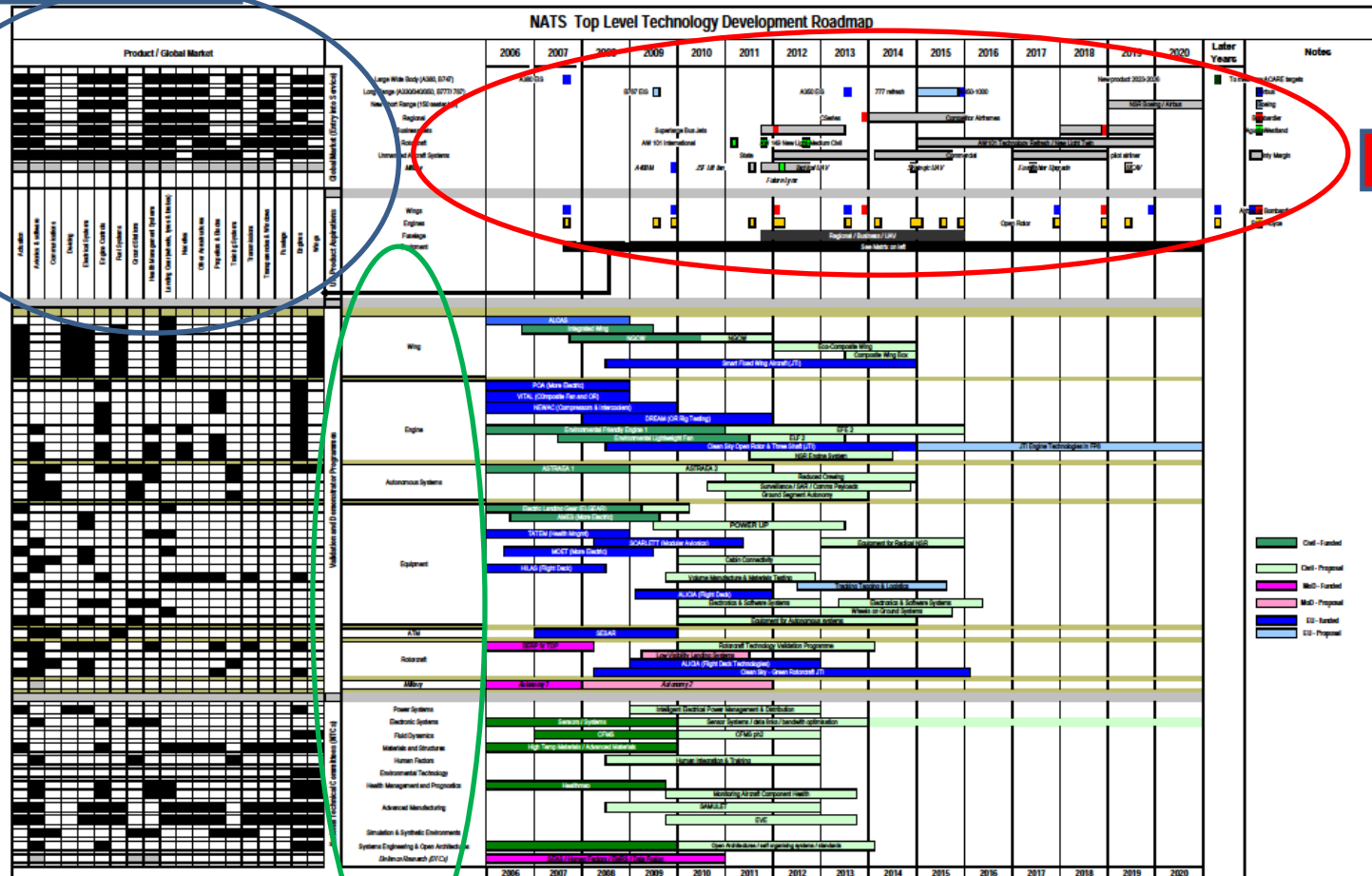
Market-driving aircraft and in service dates identified by NATS



Attachment No 12

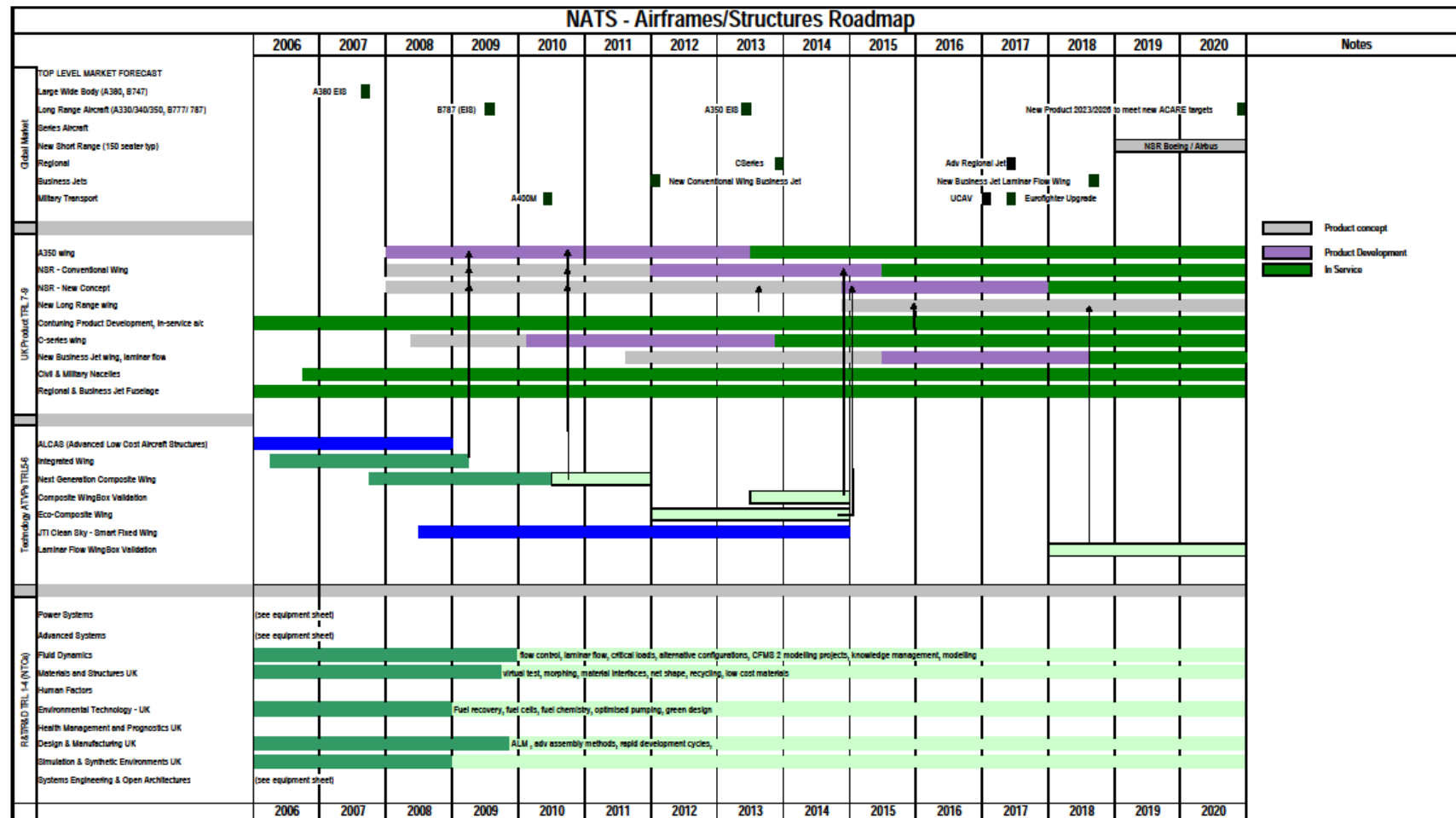
Technology

Products



Systems

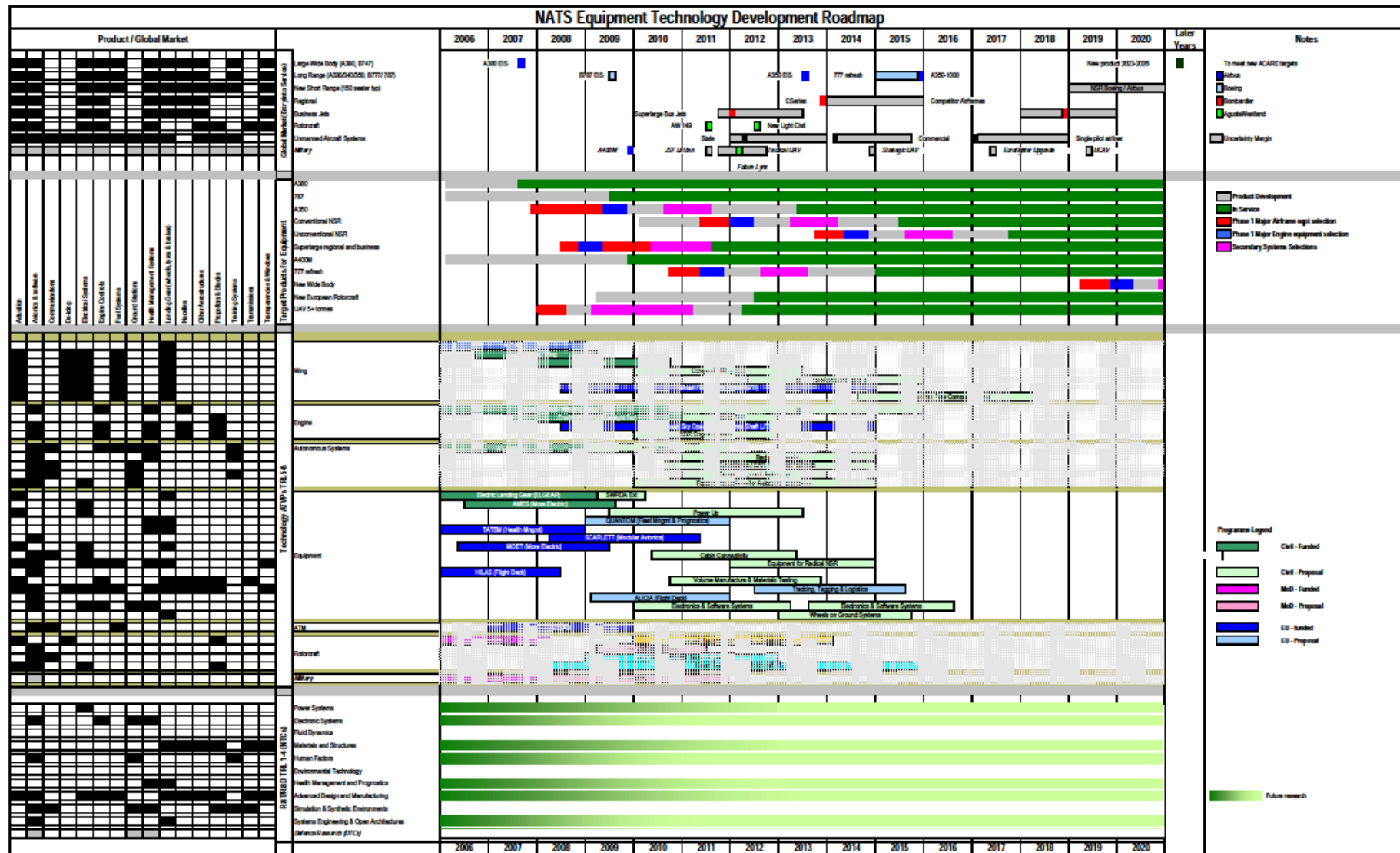
Underlying analysis







Attachment No 12



SAT Roadmap (DOW) WP 3.1 (AD)

- Identify new aircraft, their characteristics, systems and their technologies: when needed in the market and take development and certification time into consideration
- Identify the technology requirements for network centric advanced booking systems
- Identify the technologies needs to adapt airports
- Identify the need for special ATM provisions.
- Identify special issues related to crew training

WP 3.1

- 4 different subgroups will be formed to master the roadmap issues (**TBD**):
 - Overall coordination AD
 - 1. Aircraft group: lead IOA (CIRA, INCAS, PZL, Piaggio, Evektor, Onera ,THL,AD) ; 2,4 mm
 - 2. Airport and ATM group : lead NLR (DUT, Bute, THL, AD); 0,6 mm
 - 3. Network centric booking: lead DUT (Bute, ONERA, ALS, AD) ;0,7mm
 - 4. Training group: lead AD (NLR, IOA));0,5 mm

Note: Only 4.2 MM are allocated to this task in total: can we borrow some mm from WP 3.3???

SAT Roadmap WP 2.2 (IOA)

- Identify possible national/ European initiatives up to 2020
- Receive information on the PPlane project
- Identify cost involved: make a cost model related to the SAT technologies roadmap

Note: 1,5 mm allocated to the task in total

SAT Roadmap WP 3.3 (INCAS)

- Identify the need for support in the Framework program (level 0, 1,2,3)
- Prepare an initial report
- Organize a workshop with stakeholders
- Finalize the report

2,6 mm allocated to this task in total

SAT Roadmap WP 3.4 (AD)

- Establish a network of organisations involved in small aircraft commercial operations. (Related to WP 5: Dissemination)
- Combine the interests of EGAMA with those involved in RTD and operations (ACI, AOA, AOPA, SESAR etc.) to establish a standing network organisation in the frame of ACARE (or ASD).
- Improve the exchange of information with ASD. (Manufacturing only)
- Organize a workshop aimed at establishing a network. (location, funding, balanced participation): Possible combination with Task T5.3 (0,8mm allocated)
- Possibly establish a new IMG if Commission money is likely to be available.

1,5 mm allocated to this task in total

NOTE for immediate action

- Due to the different set up in Brussels we need not only to convince DG RTD but especially **DG Move** of the added value of small aircraft transportation.
- Keep a close loop with the writing of the new GOP report by the **High Level Group** and SRA3 (NEARS).
- To this end contact the **High Level Group** and the **Expert Group** asap. Make a presentation in the ACARE IT.

Note: the people in the High Level Group are not acquainted to air taxi operations (except Lufthansa!): their focus is on Airbus

- Request a slot during the **Aerodays** to highlight the importance of small aircraft operations.



SAT-Rdmp Kick-off Meeting

Warsaw, 12-13 January 2011



Attachment No 13

Small Air Transport - Roadmap

Proposed Project Assumptions

Institute of Aviation



- 1. To assess and further develop the role of small-size aircraft in the Air Transport System**
- 2. To improve understanding of commercial role that small aircraft can play**
- 3. To show real opportunity to shift a substantial part of long distance passenger trips by car to Small Air Transportation System (SATS).**

- 1. Identification of glossary for SATS on the basis of Eurocontrol Glossary for Flight Statistic Forecast.**
- 2. Environmental issues already researched in EPATS and STMS
No further analyses needed.**
- 3. Analysis of SATS connections network will be done using computer simulation.
Existing simulators for Aero-Taxi network may be used.**

4.

- **Demand for SATS aircraft estimated on basis of choice of the most beneficial mean of transport,**
- **Personal car is comparison basis**
- **Generalised travel cost minimisation is choice criterion.**
- **Car traffic generated by a region computed on the basis of statistical data,**
- **Distribution of traffic in interregional connections using gravity method.**
- **In future, the traffic will be evaluated on the basis of research on mobility using mobile phones tracking method.**

5. Four main SATS operator types are assumed:

- a. Public
- b. Corporate
- c. Private
- d. Fractional

Two main business models:

- ✓ Private and public-private carriers operating under agreement with local government in the framework of centralised IT system;
- ✓ Private air-taxi carriers operating independently, but in the framework of centralised IT and dispatch system.

6. Travel cost for each mean of transport for calculations of demand for aircraft determined assuming public operators.

7. Without support from government and EC, European industry is can't compete with the americans

R+D topics for new SATS aircraft shall be proposed in 7th and 8th FP.

8. Work on central IT system for Intelligent Small Aircraft System system should be done in 7th and 8th FP.

9. Development of SATS is constrained by:

- achieving reliable knowledge on demand
- gaining recognition of decision makers.

The following research should also be included in 7th and 8th FP:

- **Interregional people mobility research based on mobile phone tracking.**
- **Elaborating travel cost model in public SATS, software, data base and connection to centralised IT system.**
- **Elaborating models and software, customer decision support system for transport service operation.**

Attachment No 13

Text of GENERAL ASSUMPTIONS Draft can be found in paper form and on attached CDs that were distributed to you.

- **The Assumptions need to be agreed. They should be a basis for SAT COMMON VISION.**
- **We are expecting feedback from all of you. Please send your remarks to Project Coordinator.**

**Thank you
for your attention**

**Wojciech MIKSA
miksa@ilot.edu.pl**

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02 - 256 Warsaw, Poland
tel: +48 22 846 00 11 int.713



THE PERSONAL PLANE PROJECT

Overview of the European PPlane project

Claude Le Tallec

Onera - France

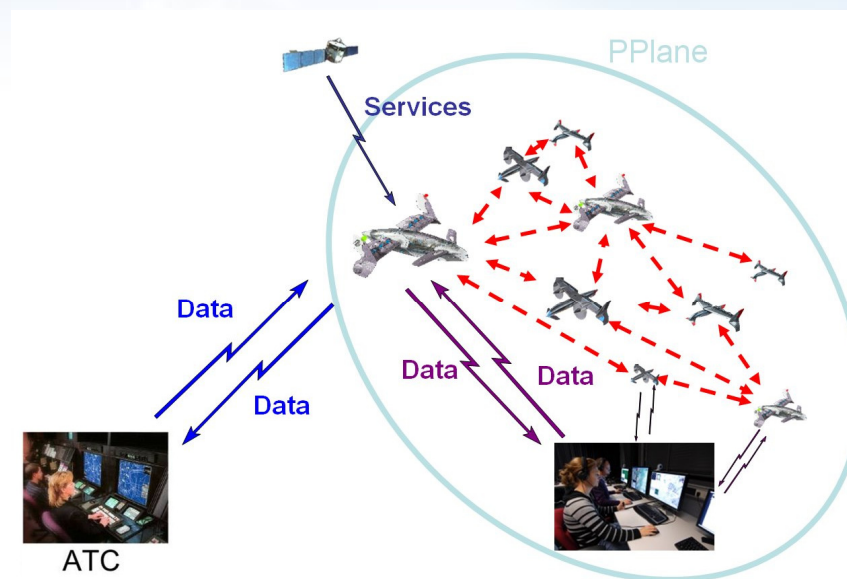
SAT-Rdmp Kick-Off meeting, January 12 & 13, 2011

Institute of Aviation, Warsaw



OUTLINE

- PPlane Project information
- Methodology of the project
- PPlane systems
- Concepts of operation
- What type of ATM for PPlane?



**It is not for us to forecast the future,
but to shape it.**

Antoine de Saint-Exupery

PPlane (The Personal Plane Project)



Attachment No 14

Acronym: PPlane

- 7th Framework Programme, second call
- Type of funding scheme:
 - **Collaborative Projects**
 - **Small or medium-scale focused research**
- Work programme topics addressed:
 - **Activity: 7.1.6 Pioneering the air transport of the future**
 - ***AREA: 7.1.6.3 Promising Pioneering Ideas in Air Transport***
 - **AAT.2008.6.3.3. Personal air transport systems**
- Budget: 4.4 M€ (3.3 M€ from the European Commission)
- Duration: 30 months
- Start date: 1st of October, 2009

Project specific objectives

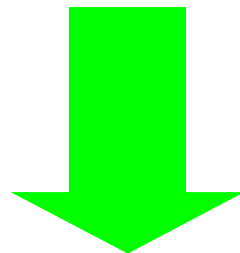


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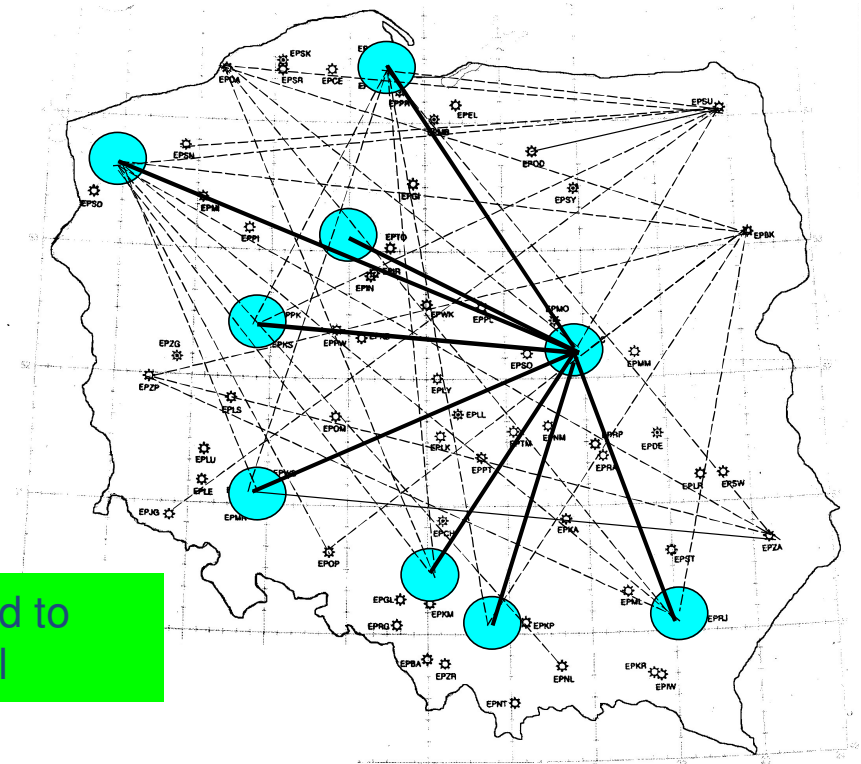
Aims at developing system ideas to enable individual air transport

- To avoid the ever increasing congestion on European roads
- To offer an alternative for the current transport system in new European Member States

Estimated foreseen demand of personal transport from the European Personal Air Transportation System (EPATS) Specific Support Action (6th Framework program)



389,000 personal aircraft needed to substitute long distance car travel



Personal Plane ??



Attachment No 14

Preliminary thoughts:

- Automatism developed to allow a “regular Joe” to use his own aircraft without any prior expertise
 - In various weather conditions
 - Easy command and control
 - “Push button” navigation including the integration into the airspace (other sky users, class of airspace, Special Use Airspace)
- Aircraft safe in a large flight envelope
- Aircraft is part of a “system” enabling the “user” and the “pilot” to manage the flight
 - asks for a destination
 - monitors the flight until reaching that destination
 - gets help and information from the ground when, and if, needed

Project Approach



Attachment No 14

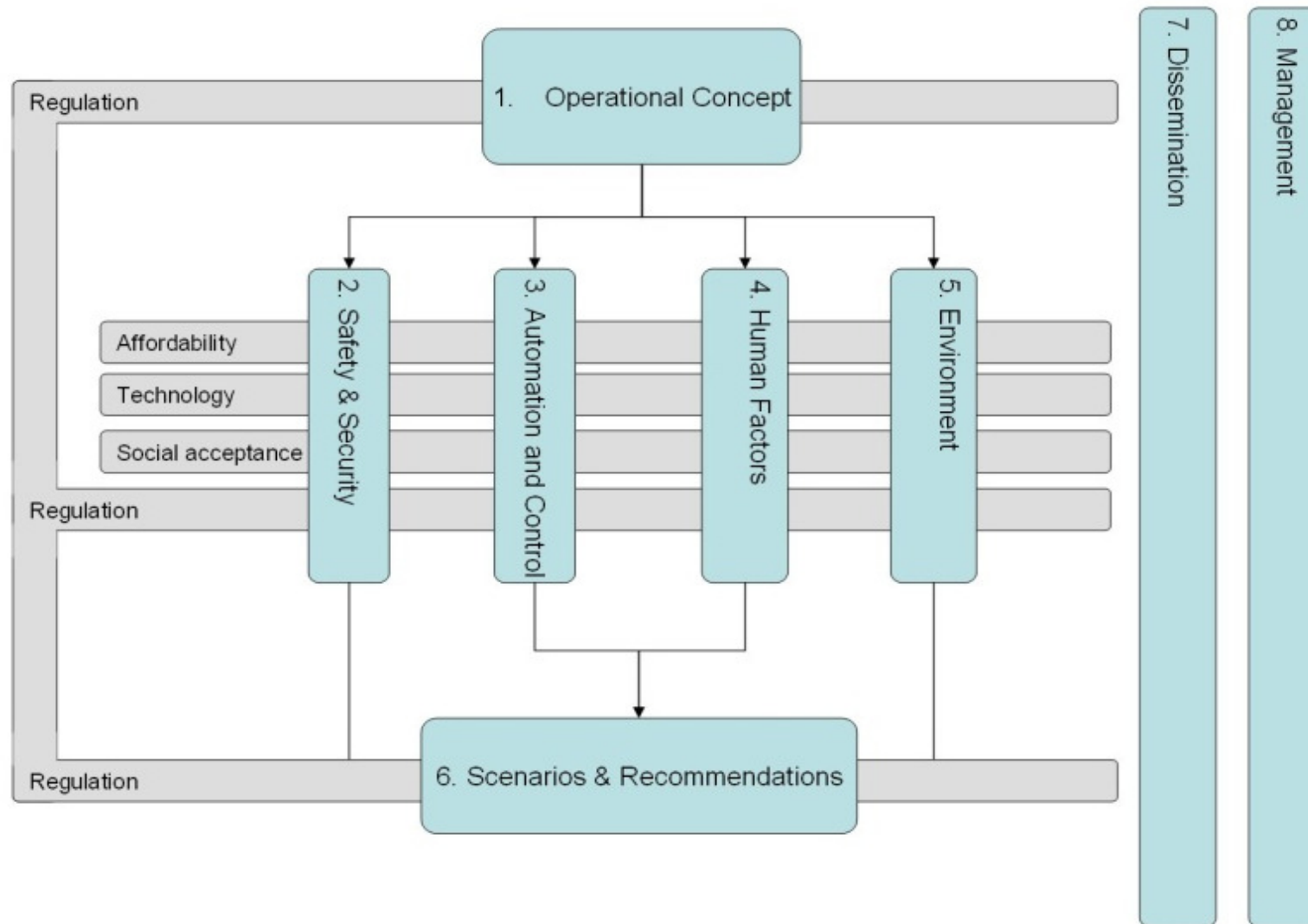
- Implements a systematic approach to propose radical and novel ideas for Personal Air Transport System (PATs):
 - Definition of several operational concepts for the personal air transport system of the future
 - Implementation of an optimisation model including several selection criteria to suggest and analyse these concepts:
 - “Security and safety” (Including Regulatory issues)
 - “Automation and Control”
 - “Environment” (Environmental impact, energy)
 - “Human Factors” (Role of the human in ATM – including pilots, HMI)
 - Consideration of horizontal areas such as technologies, **regulation** and affordability in each of the above criteria
- Resulting concepts are analysed and compared
- Recommendations for implementation across Europe will be provided

PPlane Partners



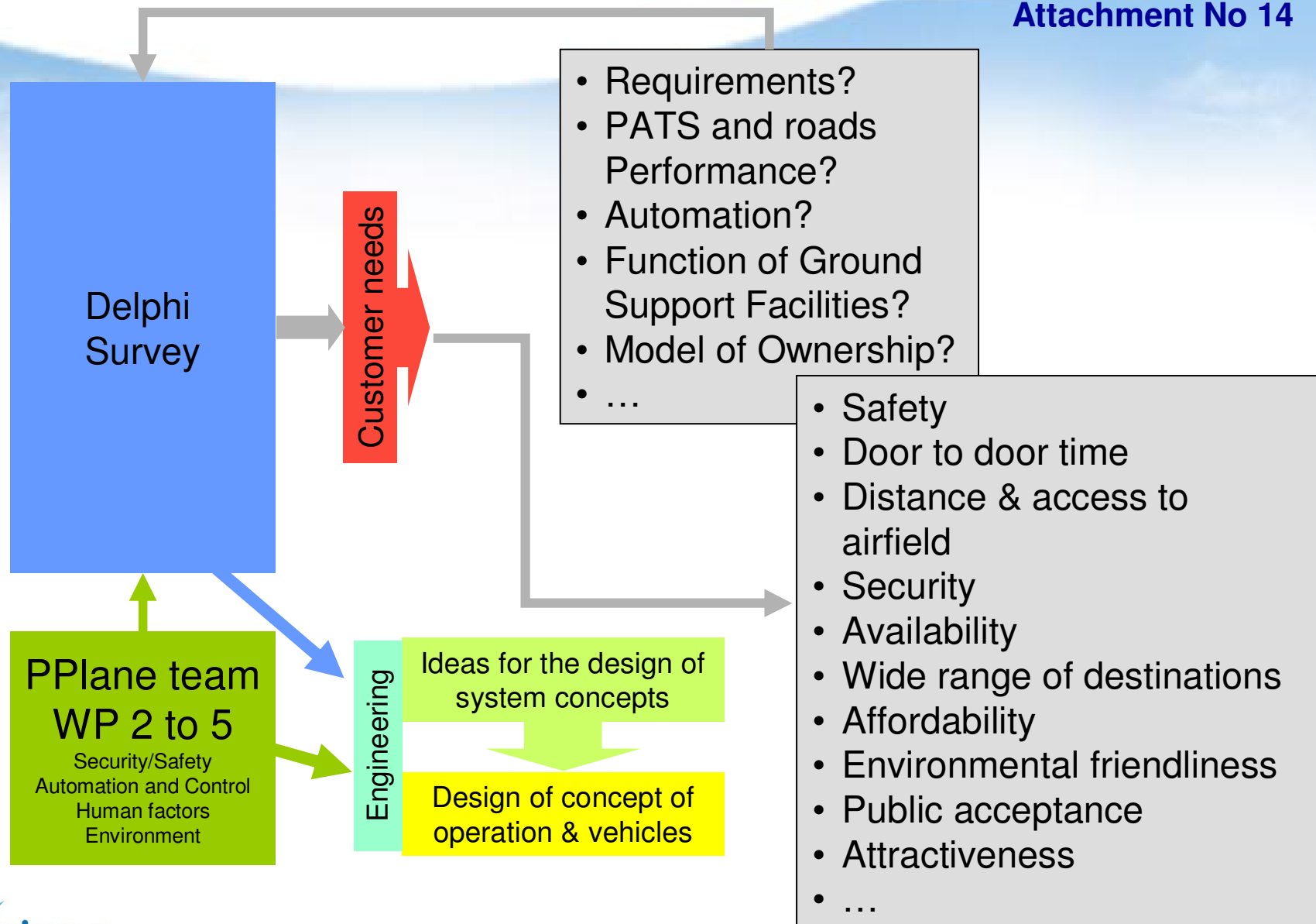
Attachment No 14

1. French Aerospace Lab	ONERA	France
2. Israel Aerospace Industries	IAI	Israel
3. Airnet	AIR	Slovenia
4. Bologna University	UNIBO	Italy
5. Brno University	BUT	Czech Rep.
6. CIRA	CIRA	Italy
7. Intergam Communications Ltd.	ITG	Israel
8. Warsaw University of Technology	WUT	Poland
9. AT-One, German Aerospace Center	DLR	Germany
10. Instituto Nacional de Técnica Aeroespacial	INTA	Spain
11. AT-One, National Aerospace Laboratory	NLR	Netherlands
12. University of Patras	PAT	Greece
13. REA-TECH Engineering and Architect Ltd.	REA	Hungary



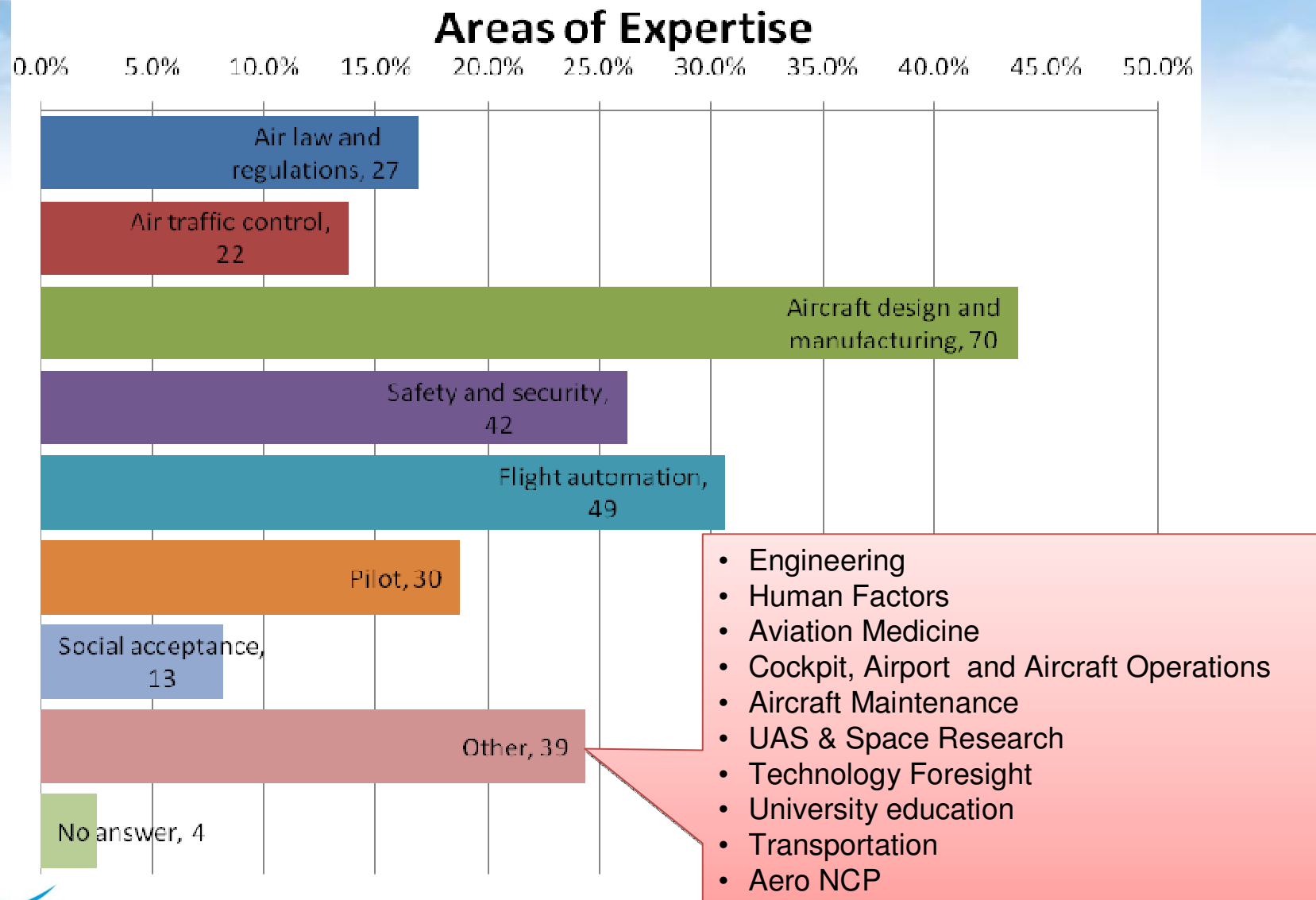
Project methodology – Delphi survey

Attachment No 14



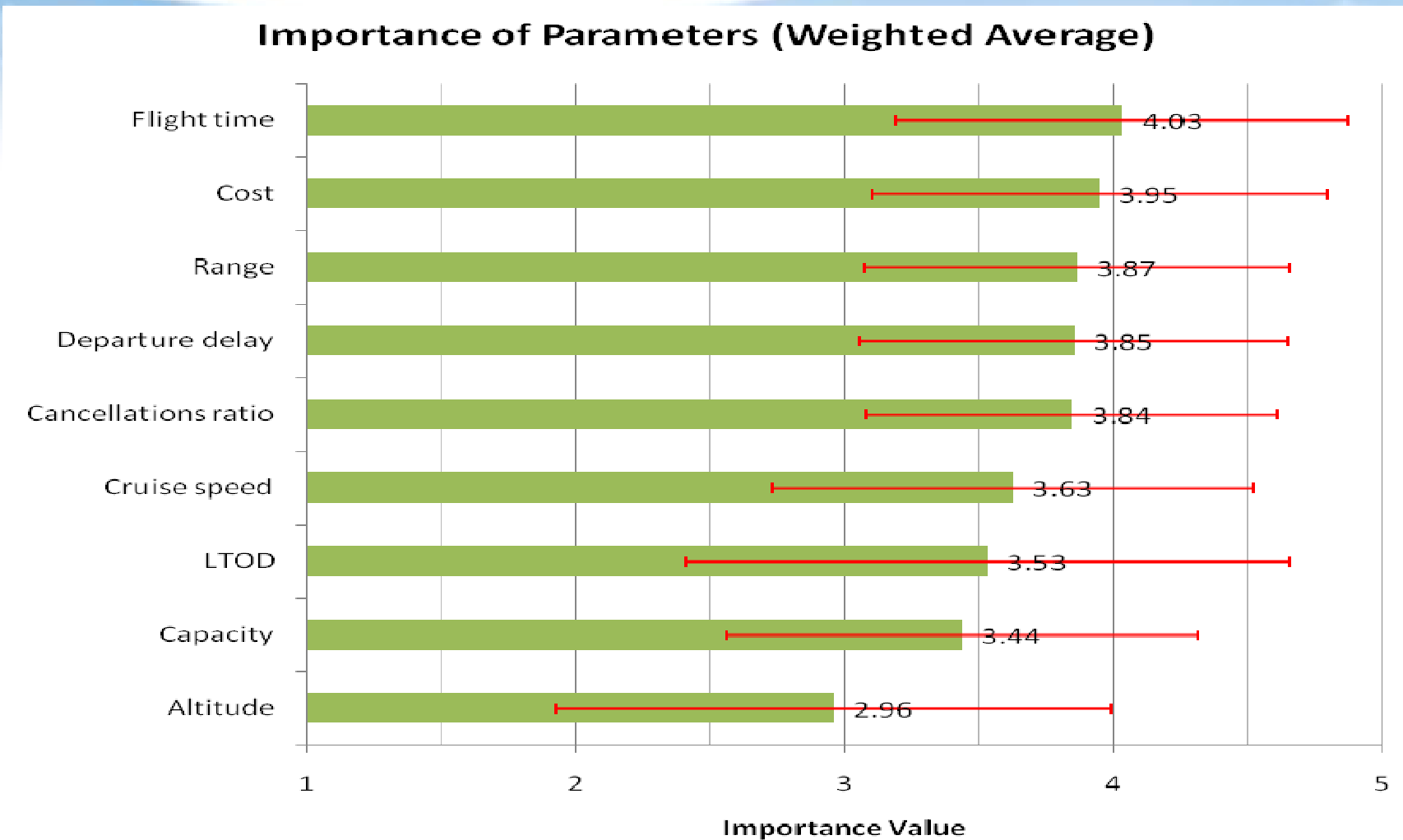
Delphi survey: Experts' Areas of Expertise

Attachment No 14



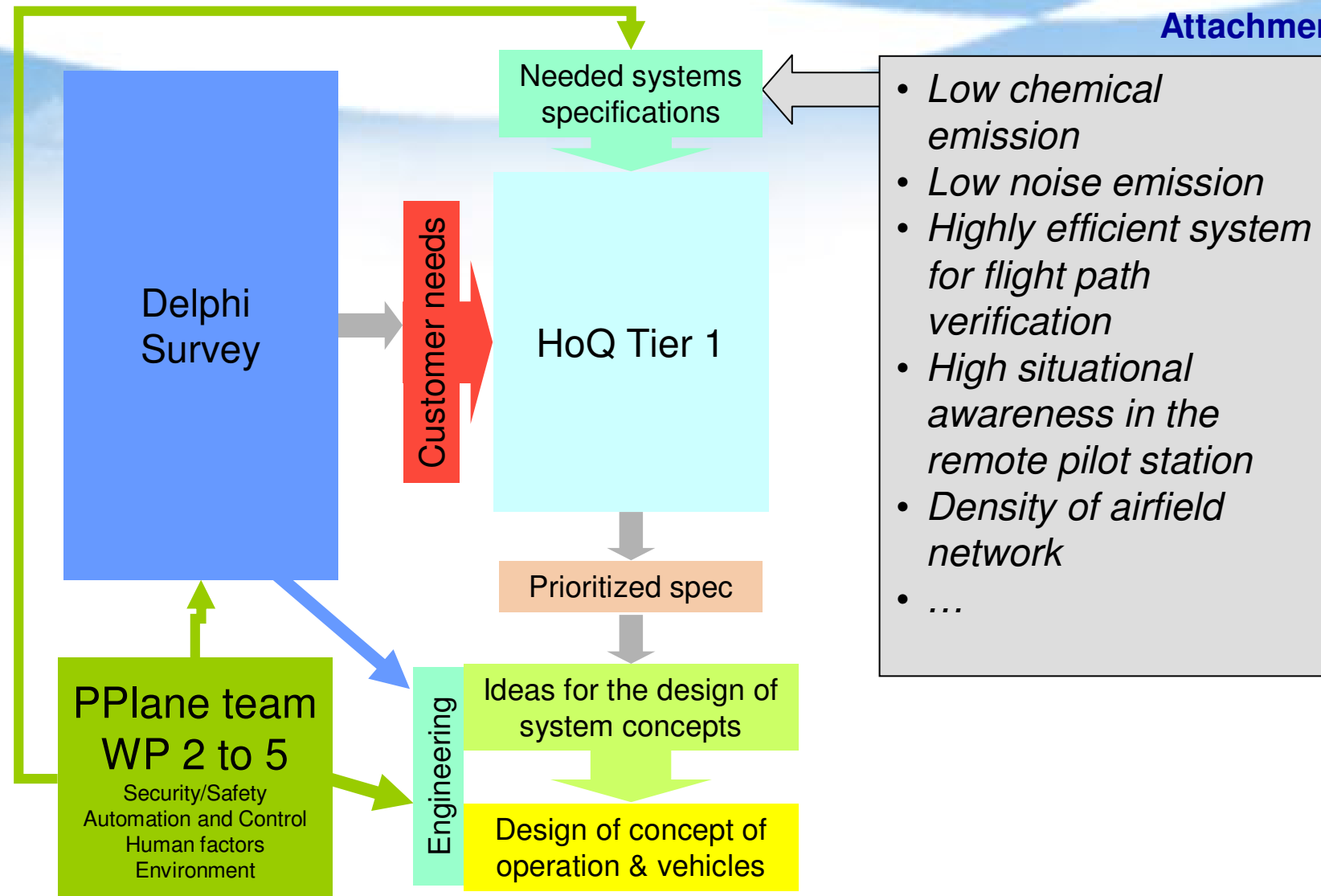
Delphi output: Performance - importance

Attachment No 14



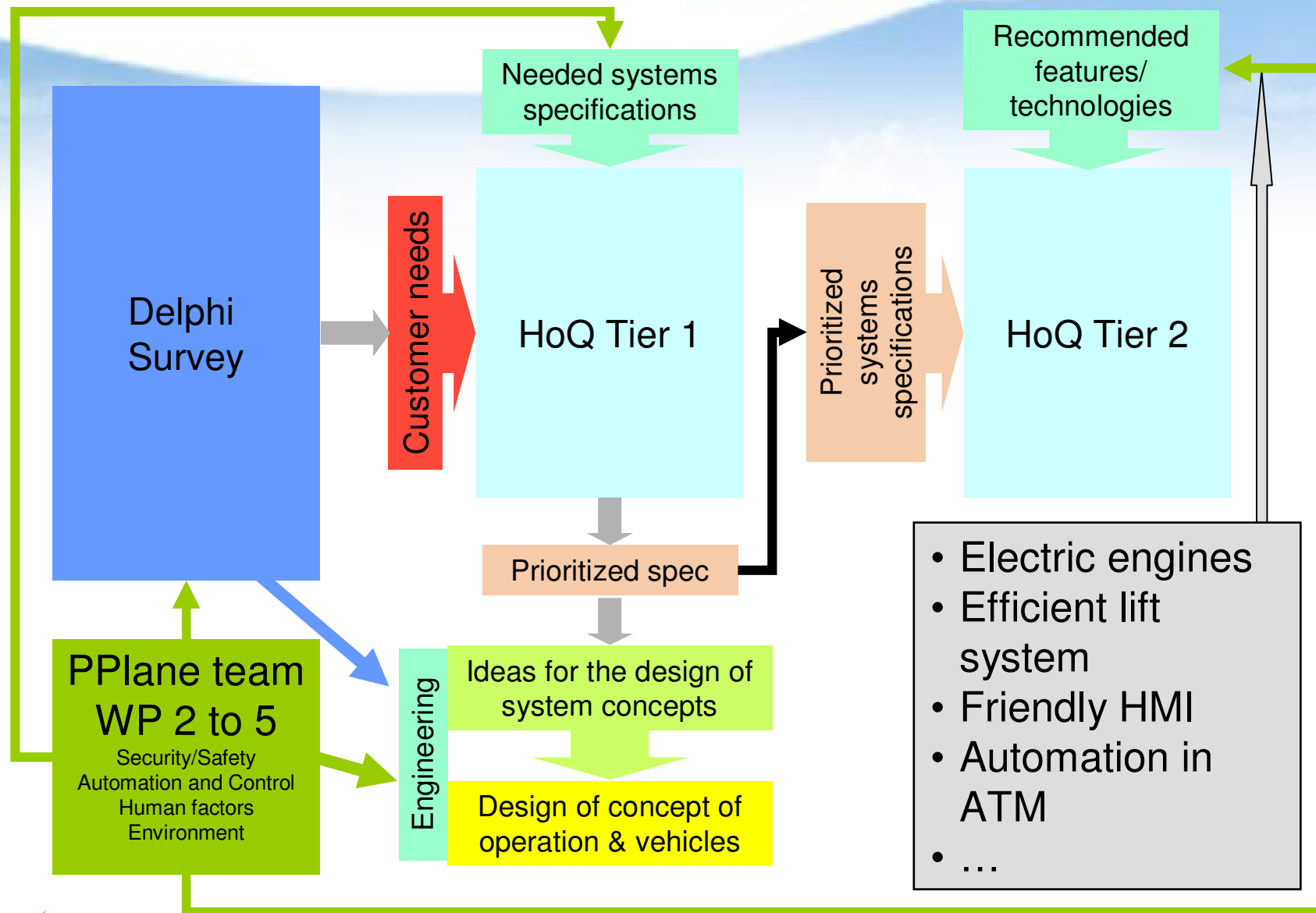
Project methodology – House of Quality Tier 1

Attachment No 14



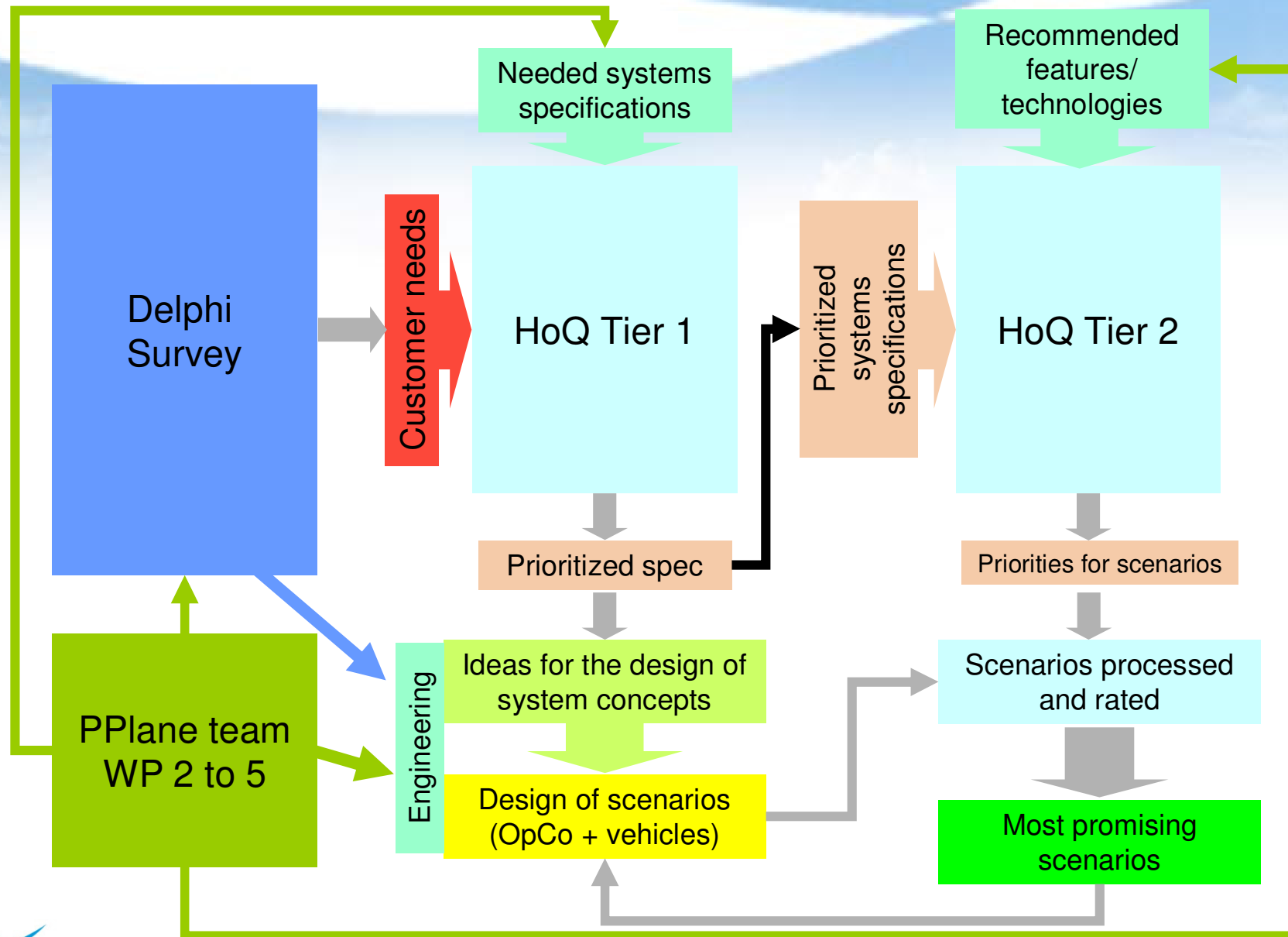
Project methodology – House of Quality Tier 2

Attachment No 14



Project methodology – Ranking scenarios

Attachment No 14

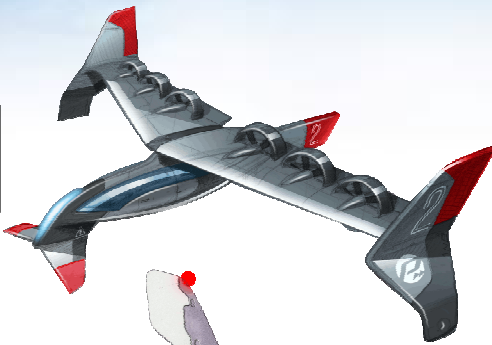


Potential concepts of PPlane vehicles

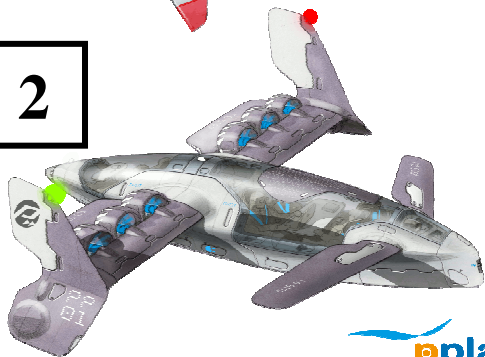
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Preliminary ideas

1



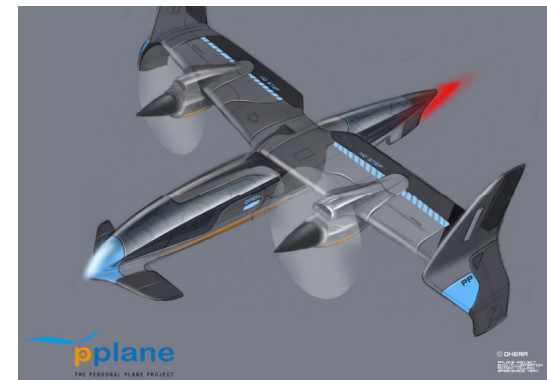
2



4



3

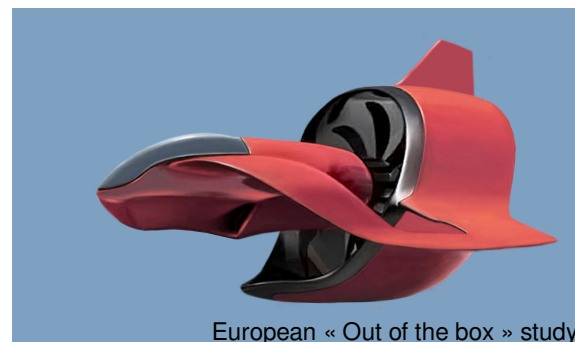


5

6



7



European « Out of the box » study

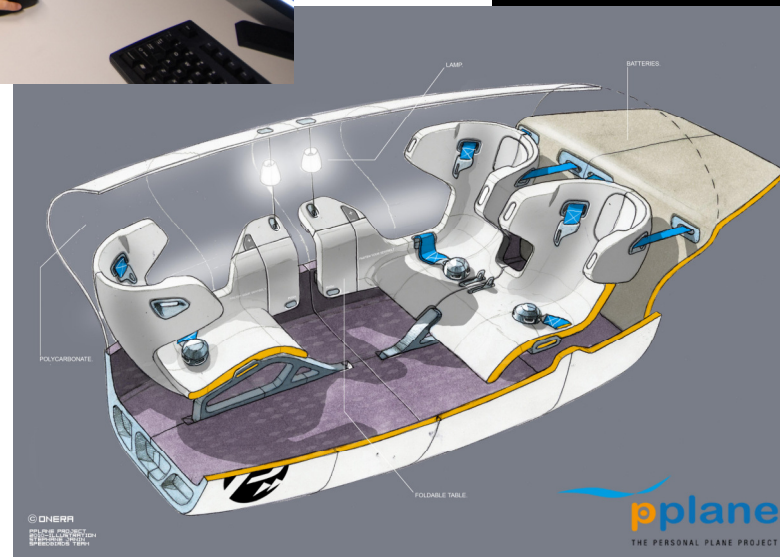
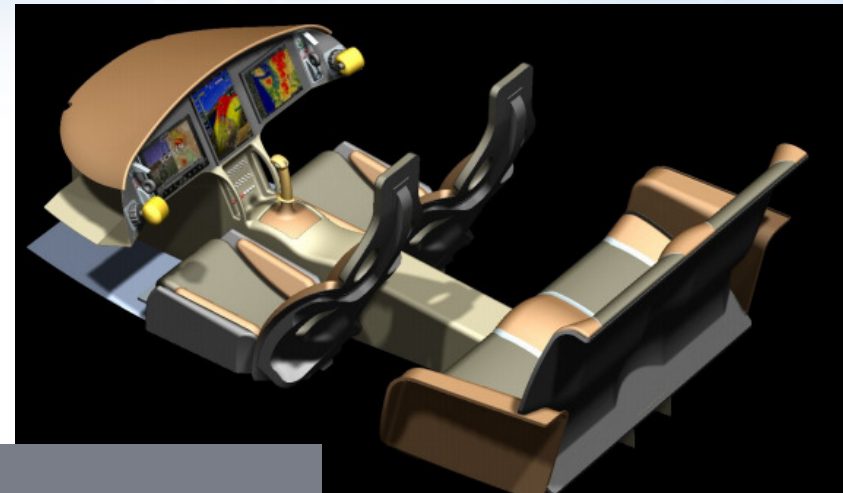
PPlane ground segment

PPlane air vehicle cabin/cockpit layout

Attachment No 14



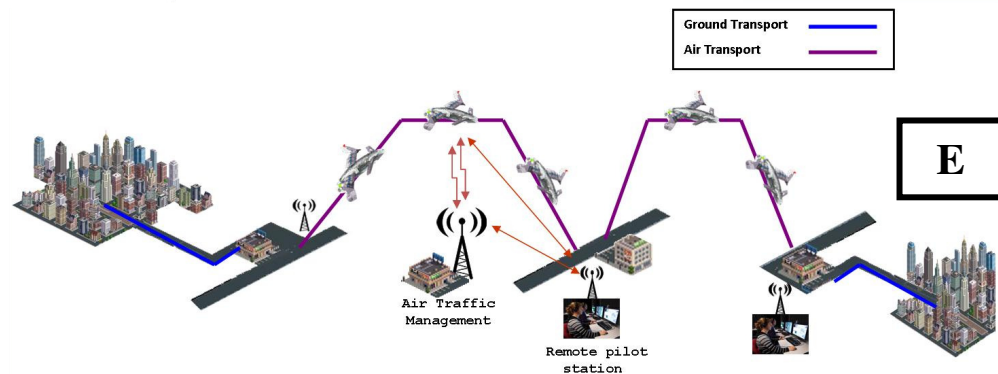
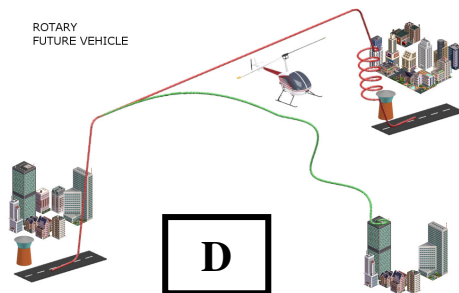
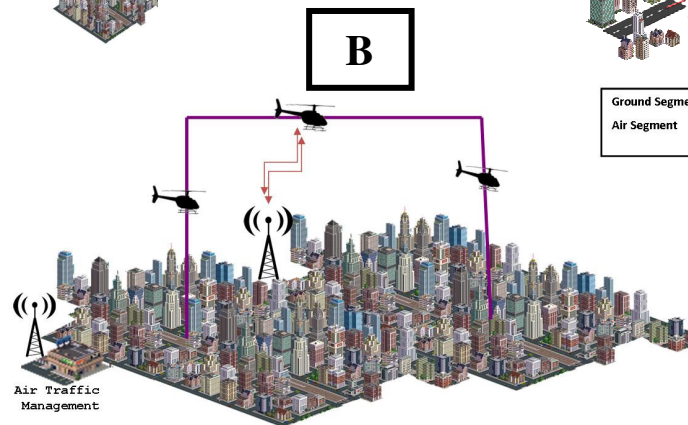
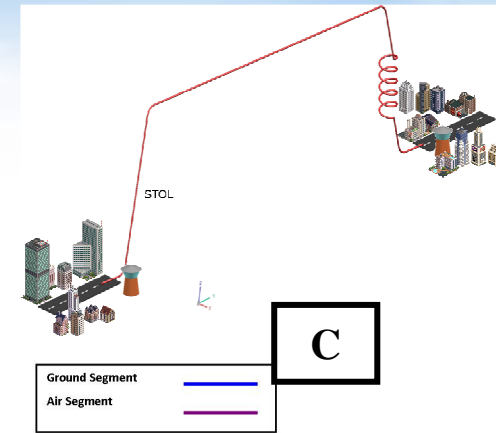
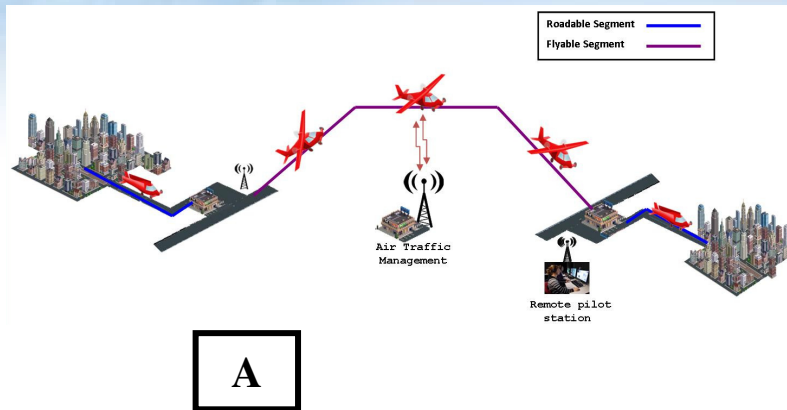
Preliminary ideas



PPlane concepts of operation and scenarios

Attachment No 14

Preliminary ideas



What type of ATM for PPlane?

- Conventional voice messages between ATCos and pilots are not an option
- 4D trajectory based, preplanned, ATM is needed
- ATC monitoring of aircraft compliance to planned 4D trajectory remains a problem for safety and efficiency
 - Conflict management
 - Uncertainty in aircraft future positioning
 - Latency in aircraft reaction to ATC instructions



Need for a 4D contract based ATM

What type of ATM for PPlane?

The 4D trajectory concept

Attachment No 14



- Being at a given geographical position at a given time
- Already exists and has been widely studied
- Main drawbacks:
 - compliance of the actually flown 4D trajectory with the planned one has to be constantly monitored by the Air Traffic Control (ATC)
 - aircraft 4D trajectory may vary due to e.g. weather conditions
 - regardless if a pilot or a controller is in charge of trying to keep the aircraft on the planned 4D trajectory, this is a challenging task
 - difficulty to regulate the traffic (limitation of flights for a given schedule)

What type of ATM for PPlane? Any solution?

Attachment No 14



- Aircraft automation with a 4D FMS (Flight Management System) partly solves this problem
- Question that still remains is: who will be in charge of maintaining separation between aircraft?
- Predicting the real 4D trajectory from the ground is not an easy job

The 4D contract concept has been designed to solve the trajectory prediction problem

What type of ATM for PPlane? The 4D contract concept

Attachment No 14



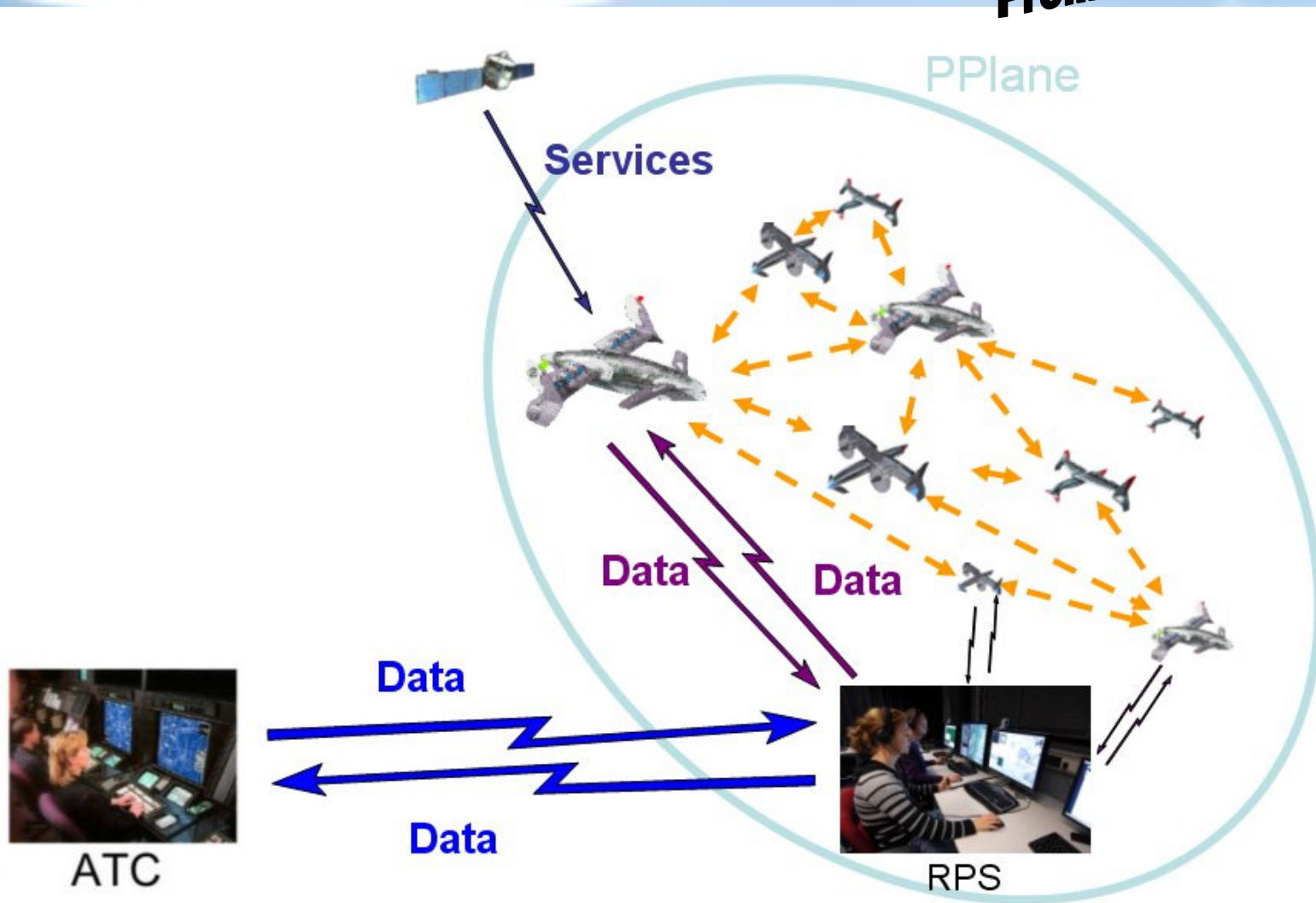
- The ground segment of the system is in charge of generating conflict-free 4D trajectories according to the demand and to the airspace and **airport capacity**
- Aircraft are assigned the resulting 4D contracts
 - The aircraft are in charge of monitoring their own compliance with their own contract
 - They have to stay inside their assigned 4D moving volume, or to ask for a new contract if they cannot
 - Doing so, the aircraft are guaranteed to fly conflict-free trajectories
 - There is no need to predict trajectories on the ground: trajectories will be executed as initially planned, unless a modification is required by the aircraft or by ATC to re-plan

PPlane system elements

Attachment No 14

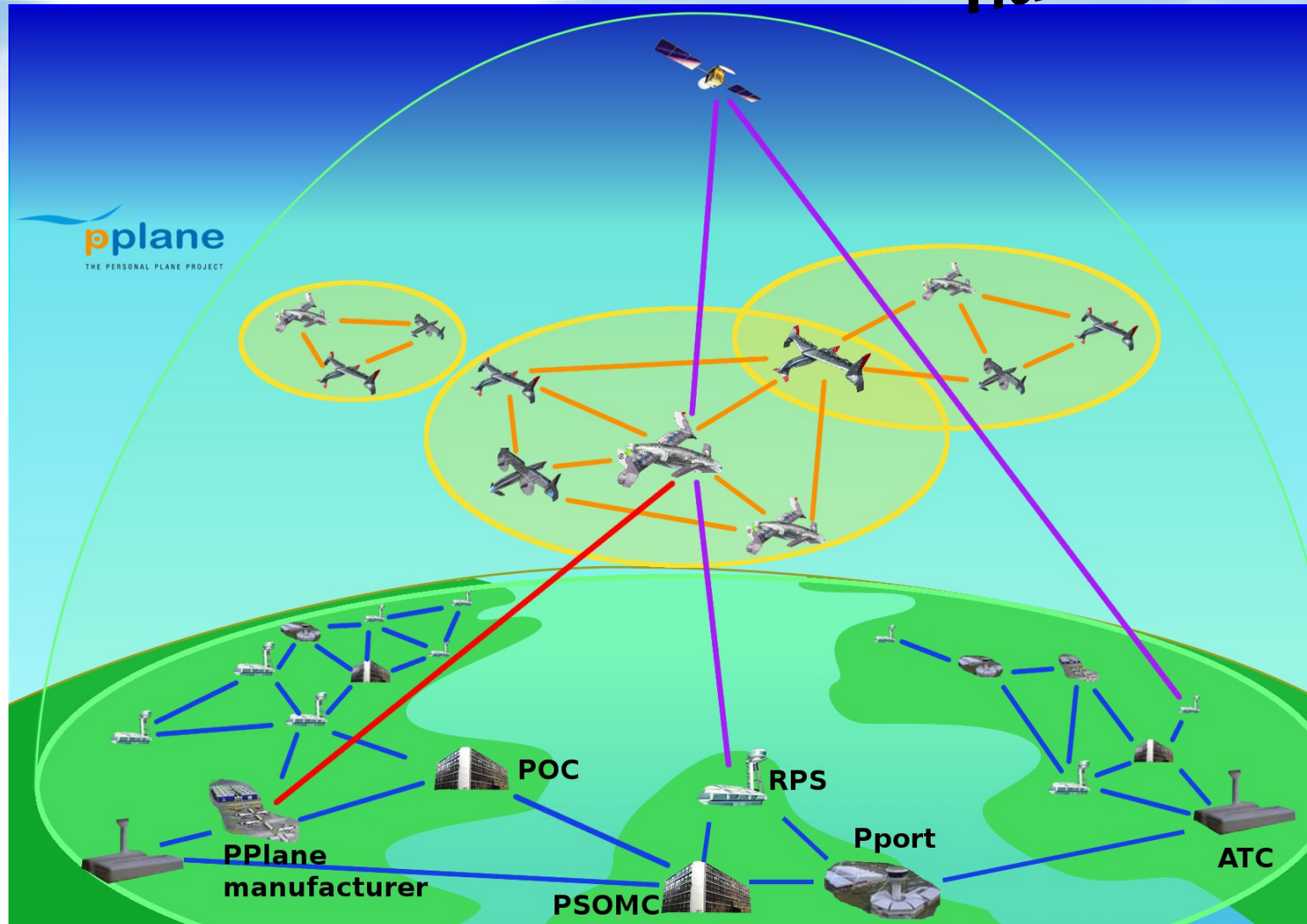


Preliminary ideas



PPlane Network Centric Architecture

Preliminary ideas



Preliminary ideas

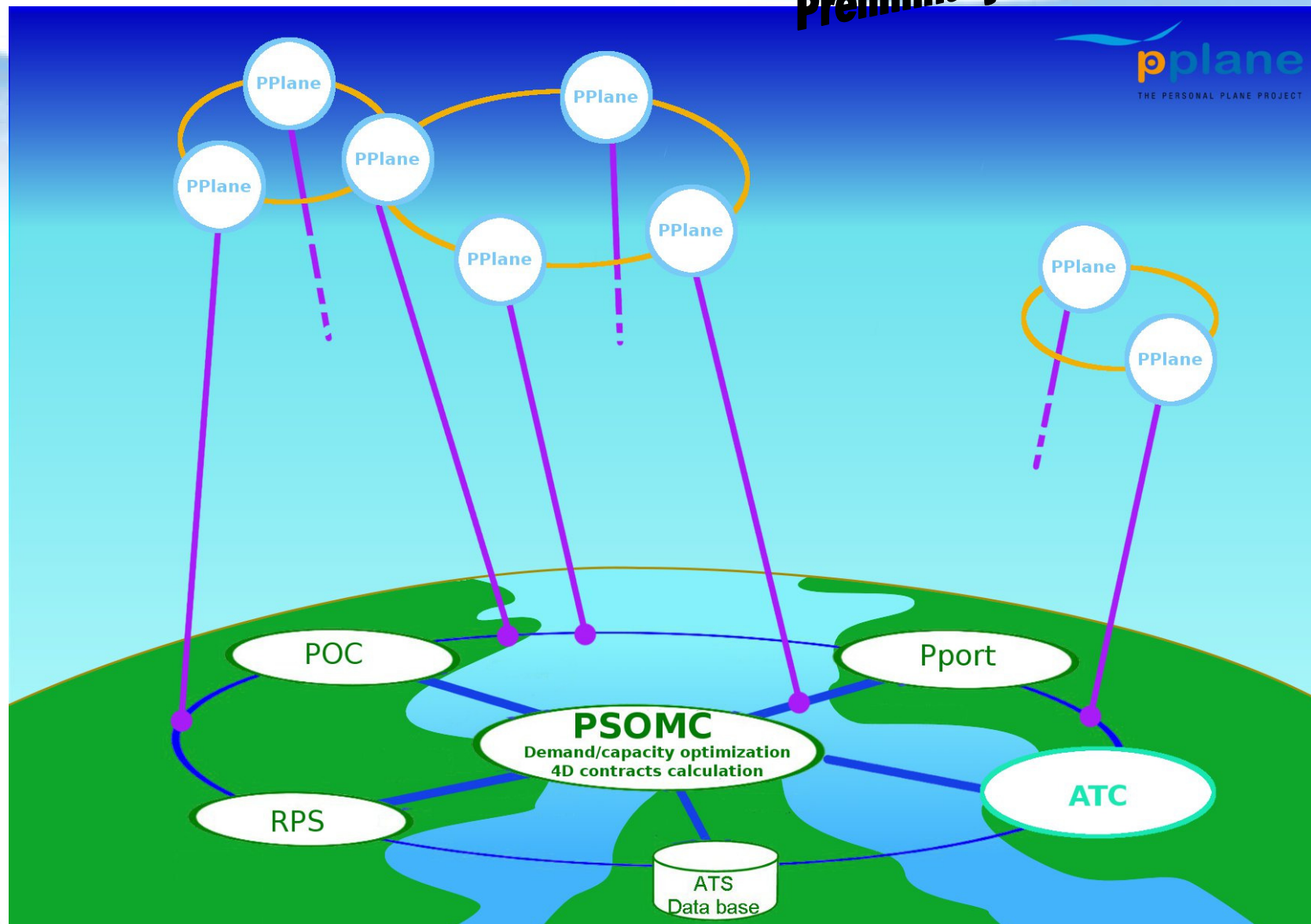
-
- The diagram illustrates the PSOMC (Demand/capacity optimization, 4D contracts calculation) as a central hub. It interacts with several external entities:
- POC** (Port of Call): Exchanges "4D contracts requests" and "4D contracts offers" with PSOMC.
 - Pport** (Port): Exchanges "4D contracts information" and "Constraints/capacity" with PSOMC.
 - RPS** (Route Planning System): Exchanges "4D contracts information" and "Constraints/capacity" with PSOMC.
 - ATC** (Air Traffic Control): Exchanges "Aeronautical information" with PSOMC.
 - ATS Data base**: A database that provides "Aeronautical information" to PSOMC.
- The entire system is part of the **STRATEGIC PLANNING** phase, as indicated by the label at the bottom right. The **pplane** logo (THE PERSONAL PLANE PROJECT) is located at the bottom left.

- 

Tactical operation

Attachment No 14

Preliminary ideas



Concept overview

- **4D contracts generation**

- At a planetary scale, taking into account PPlane operators wishes and PPort capacity
- Generation of conflict free flight paths → 4D contracts

- **Departure**

- 4D contract updated just before the flight (during passenger boarding)
- Slot assignment when the PPlane is ready
- Automatic taxiing and direct take off (assisted landing on specific strips ?)

- **En route**

- PPlane follow 4D contracts, or ask for a new one

- **Arrival**

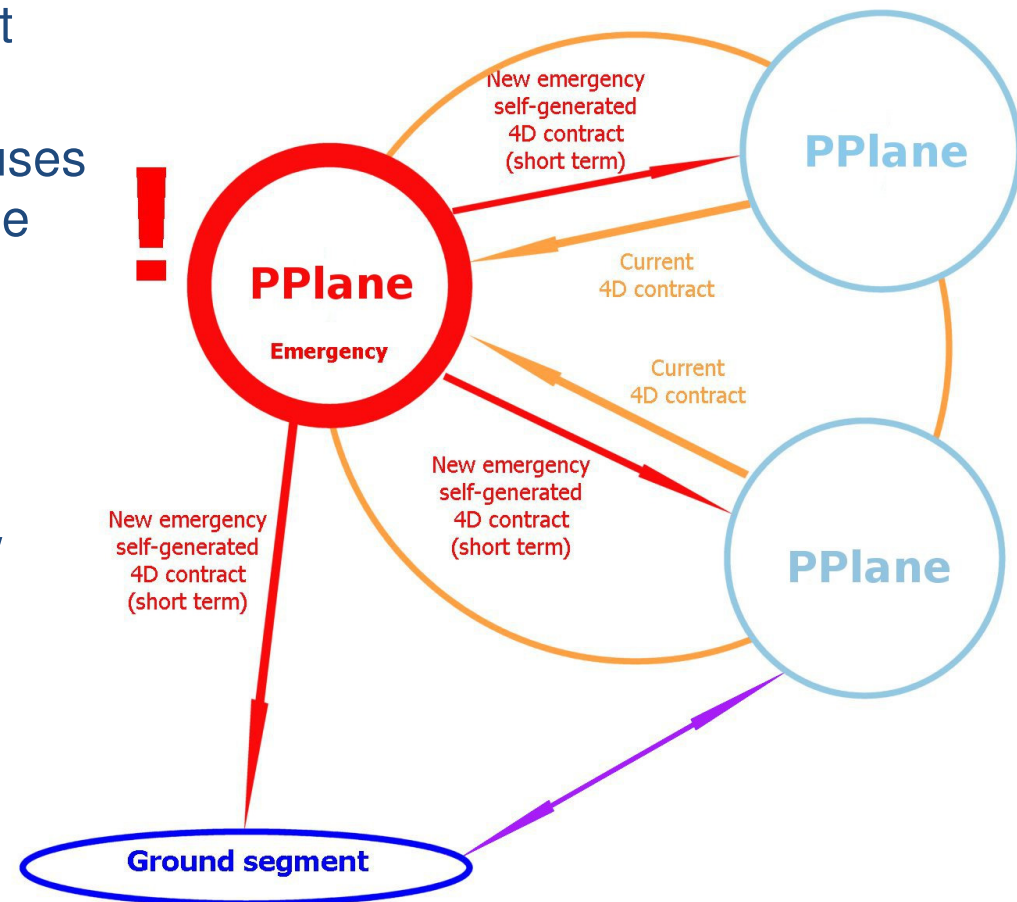
- Automatic landing (assisted landing on specific strips ?)

4D contracts

- Each PPlane requires a 4D (x, y, z + time) contract before its flight
- 4D contracts are generated by PSOMC in connection with ATC
 - At a strategic level (well before the flight)
 - Updated just before the flight (accurate weather, etc.)
- 4D contracts ensure a conflict free traffic
- The PPlane has the responsibility to respect its 4D contract
 - If possible, all along the flight
 - If not: the PPlane asks the PSOMC for a new one
- 4D contracts are given with reasonable margins allowing ground speed variation due to weather

Preliminary ideas

- Emergency management
 - There is no time for contract renegotiation
 - The PPlane in emergency uses its own information about the local traffic
 - It generates a short term conflict free flight path
 - If not possible, it asks neighboring aircraft to allow such a contract



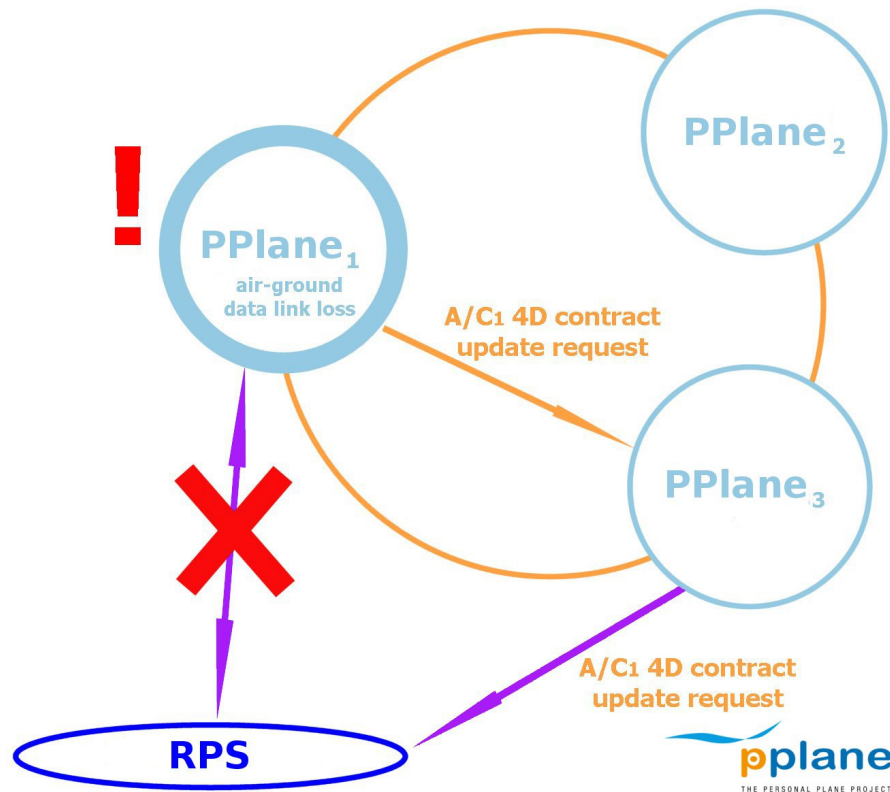
Tactical operation

Attachment No 14

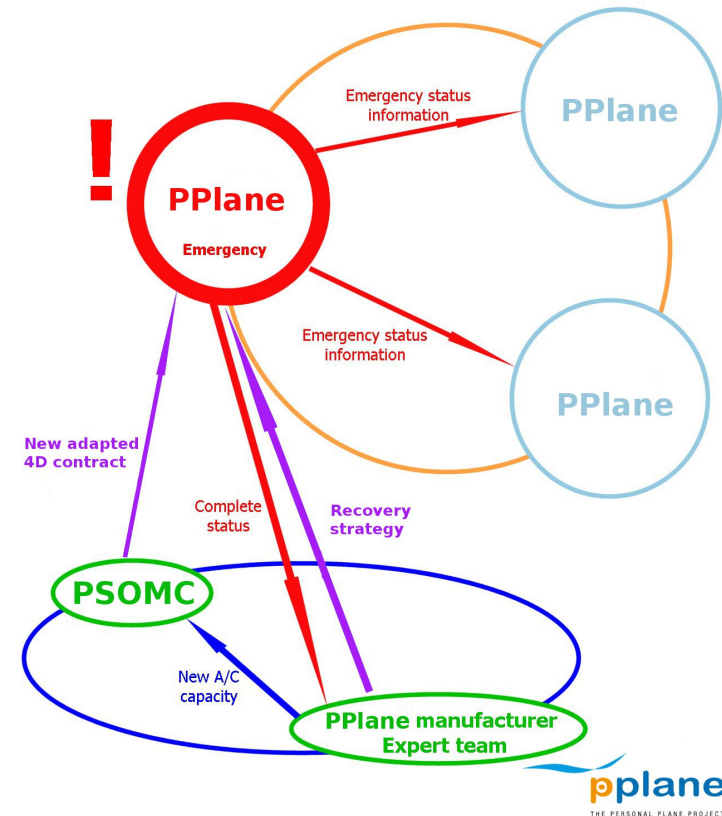


Preliminary ideas

- Failure/emergency management illustrations



Expected failure: preplanned strategy is automatically applied



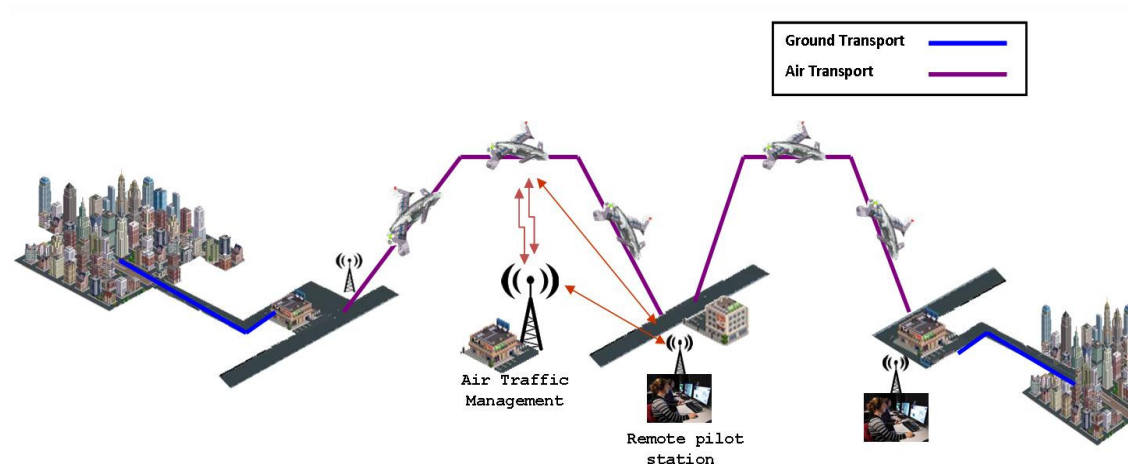
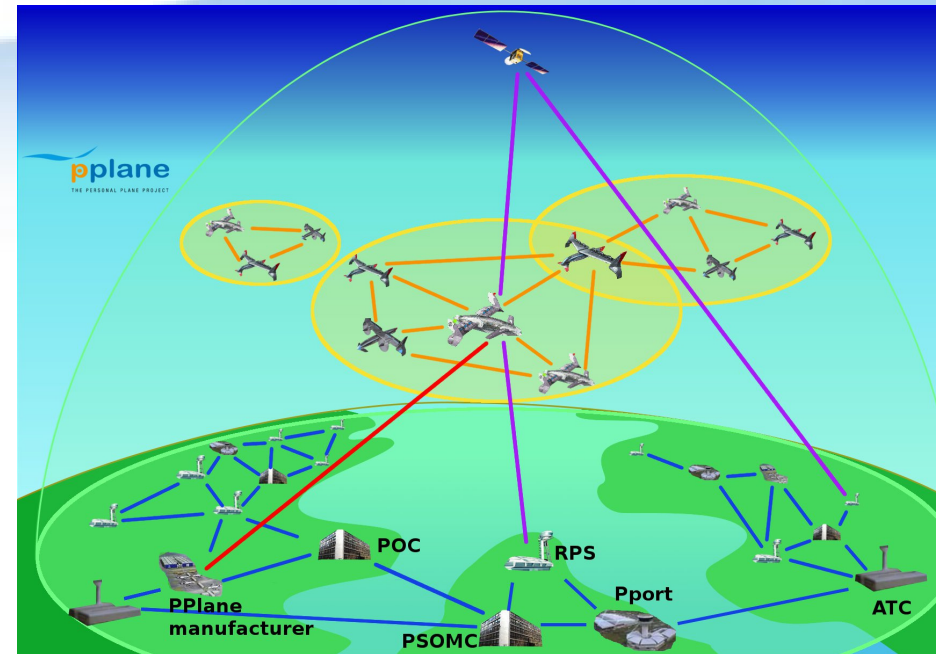
Unexpected failure: ground experts consultation

PPlane project

Attachment No 14
Preliminary ideas



Thank you
Any questions?





SAT-Rdmp Kick-off Meeting

Warsaw, 12-13 January 2011



Towards the Future Air Transport System

EREA, ARG, ACARE – positions, SRA next

Zbigniew Wolejsza, Institute of Aviation

This presentation is elaborated basing on

„EREA vision for the future – Towards the future generation of Air Transport System” - EREA



EREA

The Association of European Research Establishments in Aeronautics created in 1994 with the objectives of ;

- **Intensifying the co-operation between its members**
- **Increasing integration activities in the field of civil, military and space relating aeronautics**
- **Improving co-operation with third parties in the field of aeronautics**
- **Facilitating an integrated management of joint activities**



Full Members :

CIRA	C entro I taliano R icerche A erospaziali	Italy
DLR	D eutsches Zentrum für L uft- und R aumfahrt	Germany
FOI	Totalförsvarets F örsknings I nstitut	Sweden
ILOT	Instytut L OTnictwa	Poland
INCAS	Institutul N ational de C ercetari A erospatale " Elie Carafoli"	Romania
INTA	Instituto N acional de T écnica A eroespacial	Spain
NLR	N ationaal L ucht- en R uimtevaartlaboratorium	The Netherlands
ONERA	O ffice N ational d' É tudes et de R echerches A éropatiales	France
VZLU	V ýzkumný a Z kušební L etecký Ú stav, a.s.	Czech Republic



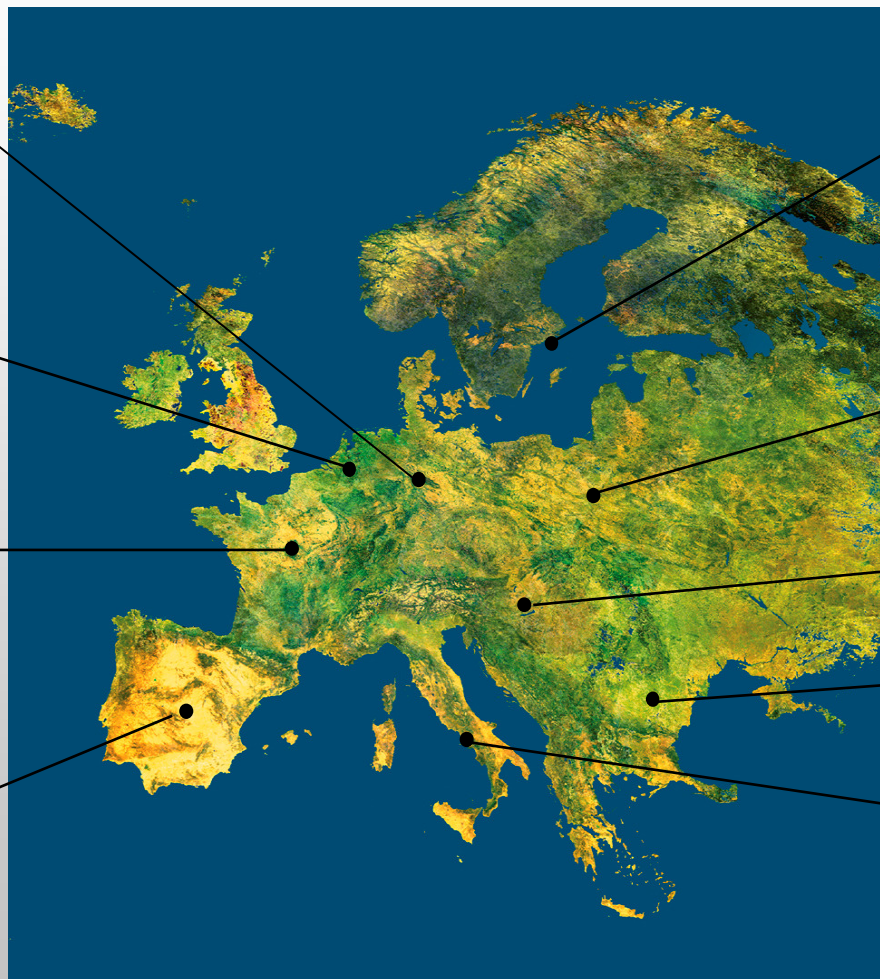
Associate Members

AIT	A ustrian I nstitut of T echnology
VKI	V on K arman I nstitute
VTT	Technical research center

Austria

Belgium

Finland



INCAS





Towards the Future Air Transport System

THE MAIN QUESTIONS:

How will ATS look till 2050 ?

What kind of challenges should we expect in next decades ?

What research is needed to pave the way of ATS till 2050 ?

Four 2050 AVIATION SCENARIOS

have been investigated

- 1. „Unlimited Skies” (ULS)**
- 2. „Regulatory Push & Pull” (RPP)**
- 3. „Down to Earth” (DTE)**
- 4. „Fractured World” (FW)**

The first scenario: „Unlimited Skies” (ULS)

**World will be not fundamentally constrained
by energy availability**

***Aviation undergoes explosive growth, with the development
of many different types of aircrafts***

Outlook of Air Transport System till 2050

„Unlimited Skies” (ULS)



The second scenario: „Regulatory Push & Pull” (RPP)

World will be constrained by energy availability

(cost and availability of fossil fuels becomes a deterrent)

Constraints are primarily in terms of energy and the environment

World will be dominated by electricity produced by nuclear plants, wind and solar power and any other technologies using natural resources

Outlook of Air Transport System till 2050

„Regulatory Push & Pull” (RPP)



The third scenario: „Down to Earth” (DTE)

**There will be a political commitment
to eliminate fossil fuels usage.**

***These fuels are not necessarily depleted , but society has decided to stop
tapping nature and freezing remaining reserves as they are.***

Outlook of Air Transport System till 2050



„Down to Earth” (DTE)



The fourth scenario: „Fractured World” (FW)

The World will be divided into very distinct blocs following major political and economic crises.

Caused by inequality in relation to the consequences of „global warming” and access to the energy .

All scenarios should be considered (depends of blocs/areas)

Outlook of Air Transport System till 2050

„Fractured World” (FW)



How&Where should we drift ?

1. **Achiving full automation and 4D (3D + time), contract, as the only way to prevent the saturation of growing air traffic**
 - Each aircraft linked by a 4D contract with the control authority or in free flight is cotrolled by automated system
 - People will not be out of the loop
 - Enabling managing the unforeseen situations
 - No longer pilots in commercial airplanes (onboard only responsible person)
 - PAT – full automation type management (occupants choose a destination)
 - Aircraft designed without cocpit

Advantages:

- Increasing in safety within traffic expansion (traffic more predictable)
- Reducing fuel consumption
- Make air transport more cost-effective
- For PAT – helps shift some traffic from jammed roads to individual aerial vehicles

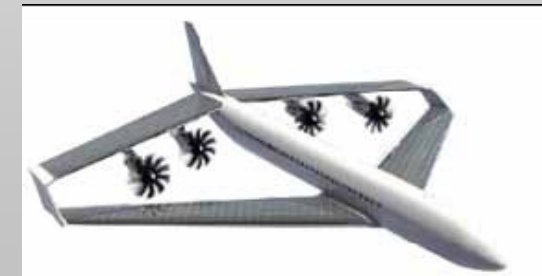
How&Where should we drift ?

2. Developing new radical and revolutionary configurations

- Blended Wing Body, ultra-fast rotorcraft, tiltrotors
- Airplanes with rhombohedral wings, trisurface or infinite aspect ratio wings
- Morphing structures (adopting structure geom. during different flight phases)
- Application of smart and elastic, aging-tolerant materials
- Application of MEMS (eg. active airflow control devices)
- Application of micro-intelligent sensors
- Application of nano-technologies

Advantages:

- Better aerodynamic properties
- Reducing consumption of fuel
- Better mix of passengers and freight
- Decreasing of weight of the aircraft's structure
- Decreasing noise emission



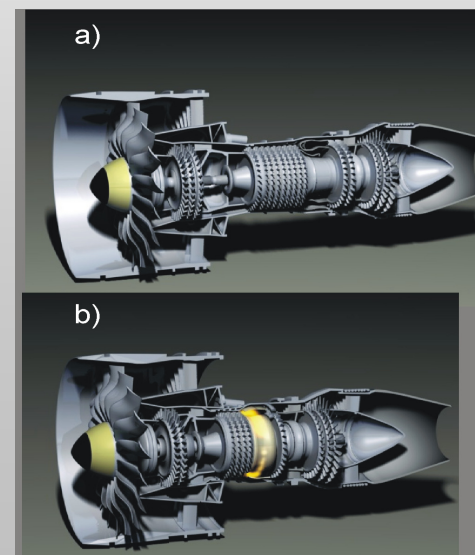
How&Where should we drift ?

3. Developing new revolutionary propulsion systems

- Applying source that does not release CO₂ and NO_x
- Developing technologies enabling the use hydrogen-based fuel
- Developing technology for production hydrogen and easy capturable
- RDC engines
- High-efficiency electric motors (super conductors needed)
- Propeller-based propulsion (contra-rotating layouts)
- Fuel cells

Advantages:

- Reducing CO₂ and NO_x emission
- Reducing consumption of fuel
- Reducing of noise emission
- Reducing non regulated HnCm (hydro-carbons)
- Reducing contrails



How&Where should we drift ?

4. Developing new airports infrastructure

- Point to Point or Hub & Spokeor Mixed System
- Emission neutral, especially for CO2
- Construction without using „dirty” techniques and materials
- Airports within a multimodal transport network including roads and railways
- Local energy production for the entire platform
- Location away from city centers but well connected with them
- Airplanes should avoid taxing to reach the runway (eg. automated tractors)
- Take-off assistance systems
- Boarding via integral passenger modules
- More efficient distribution of payloads between passengers and freight

Advantages:

- Emission friendly airports
- Reducing consumption of fuel
- Increasing time efficiency
- Ensuring passenger satisfaction and safety

How&Where should we drift ?

5. Personel Air Transport System

- Integration with Commercial Air Transport and other Transportation Systems
- Very short or vertical take-off and landing
- Free flights cotrolled by automated system
- Shifting passengeres from cars to PAT
- 4D contracted flights
- No pilot required
- No cocpit
- New configurations of structures
- New technologies / materials / acquisition systems
- Electric / hydrogen / other / propulsion systems
- Counter rotating open rotors

Advantages:

- improvement efficiency of ATS
- improvement of users satisfaction



Areas in which research works are needed:

- 1. The electric aircraft*
- 2. Innovative aircraft configurations*
- 3. Towards environmentally friendly propulsion systems*
- 4. Towards carbon-neutral and emission friendly airports*
- 5. The complete automation of Air Traffic*
- 6. Net-centric acquisition system*



Zbigniew Wołjsza
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Institute of Aviation



SAT-Rdmp Kickoff meeting,
Warsaw, January 12-13, 2011

Attachment No 16



Project Management and Communication; Project Reporting

Andrzej IWANIUK
(Institute of Aviation - Project Administrator)

The official documents:

1. **Seventh Framework Programme – GRANT AGREEMENT No 265603** ; Project Title: Small Air Transport – Roadmap (SAT-Rdmp); Coordination and Support Action; Support Actions (including annexes) – dated 17.09.2010.
2. **CONSORTIUM AGREEMENT** for Coordination and Support Actions (Supporting) under the Seventh Framework Programme of the European Community – dated 21.09.2010.

1. The duration of the project shall be **18 months** from **1st January 2011** (start date).
2. The project is divided into reporting periods of the following duration:
 - **P1**: from month 1 to month 12;
 - **P2**: from month 13 to the last month of the project.
3. **The maximum financial contribution** of the Union to the project shall be EUR **369 377.00**;

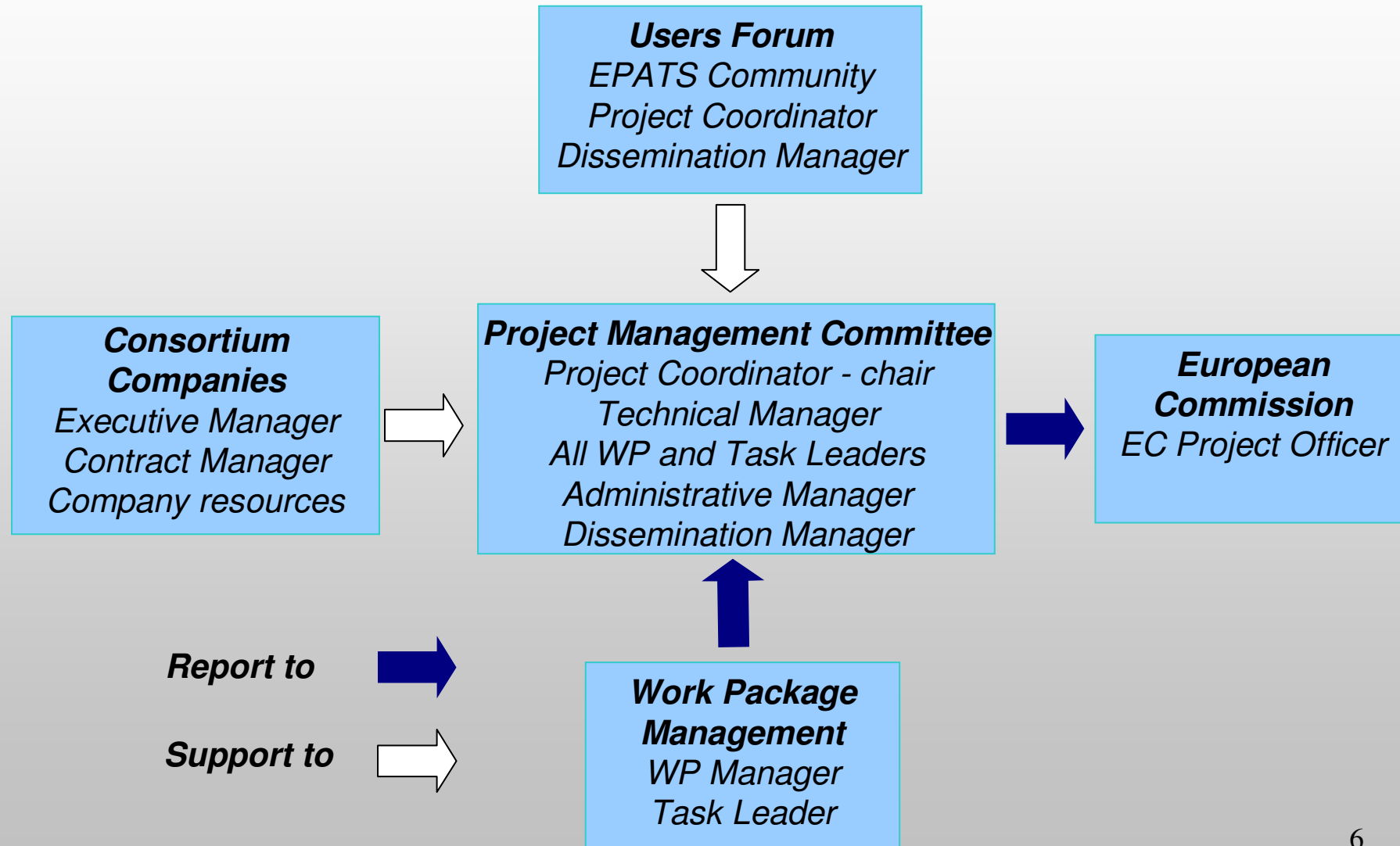
1. A pre-financing is equal EUR 295 502.00 (80% of the maximum financial contribution) minus amount of EUR 18 468.85 (5% of the maximum financial contribution – Guarantee Fund).
Net amount transferred to Coordinator - EUR **277 033.15** .
2. **75%** of advance payment from the Commission shall be directly transferred to the Contractors in separate instalments without undue delay. The remaining 25% will be transferred after Commission's approval of periodic Reports and Deliverables (Consortium Agreement, Article 6, p.6.3.2.)
3. **To transfer money to the Contractors, please provide information on bank accounts in the form *FINANCIAL IDENTIFICATION* shown on the website**
http://ec.europa.eu/budget/info_contract/ftiers_en.htm?submenuheader=0

1. The following annexes form an integral part of Grant Agreement.
 - **Annex I** – Description of Work;
 - **Annex II** – General conditions;
 - **Annex IV** - Form A – Accession of beneficiaries to the grant agreement (attached to Grant Agreement);
 - Annex V - Form B – Request for accession of a new beneficiary to the grant agreement;
 - Annex VI - Form C – Financial statement per funding scheme;
 - Annex VII - Form D – Terms of reference for the certificate on the financial statements and Form E - Terms of reference for the certificate on the methodology.(Annexes II – VII are available on the web http://cordis.europa.eu/fp7/calls-grant-agreement_en.html#standard_ga)



SAT-Rdmp management organization

Attachment No 16





CONSORTIUM AGREEMENT – Project Management Bodies



Attachment No 16

The management activities of the SAT-Rdmp project are ensured by following bodies: *(CA Article 5, section 5.2)*

- **The Project Management Committee** (further referred to as the “PMC”). PMC consists of: Project Coordinator (chair); Technical Manager; all WP Managers and Task Leaders; Administrative Manager; Dissemination Manager; Contact Persons designated by Contractors.
- **EC Project Officer.**
- **The Users Forum** consists of: SAT Community; Project Coordinator; Dissemination Manager.
- **Work Package Management** consists of: WP Manager; Task Leader.

- **PMC** consists of: (CA Article 5, p. 5.2.1)
 - Project Coordinator (chair);
 - Technical Manager;
 - All WP Managers and Task Leaders;
 - Administrative Manager;
 - Dissemination Manager;
 - Contact Persons designated by Contractors.
- The PMC defines **strategic orientations and performs project monitoring activities.**
- PMC will meet **twice a year.**
- Decisions in the PMC are taken **by a majority of 2/3 of the votes** of Contractors present or represented, or have expressed their votes in a written form.
- **Each Contractor** have **one vote.**

■ **Project Coordinator** (*CA Article 5, p. 5.2.4.2*)

- responsible for the overall coordination of the SAT-Rdmp project
- performs the daily management of the project and is the contact point of the European Commission.

The Project Coordinator's responsibilities include:

- **The daily coordination of SAT-Rdmp activities with respect to the agreed workplan**
- **Monitor contents and timely delivery of deliverables and milestones**
- **Assessment of major project deliverables (together with the Technical Manager)**
- **External liaison and co-ordination with relevant activities of other EC projects**
- **Chairing meetings of Project Management Committee**
- **Production of the contractually required reports**
- **Solving of disputes on technical matters on the operational level**
- **Support of the dissemination of SAT-Rdmp major findings.**

■ **Technical Manager** (*CA Article 5, p. 5.2.4.3*)

- coordinate issues relating to technical matters
- identify work for future research and technology development work based on SAT-Rdmp results.

The Technical Manager's responsibilities include:

- Solving airworthiness issues,
- Assessment of major project deliverables (together with the Project Coordinator),
- Managing the issues relating to technical matters,
- Recording exploitation opportunities, managing the exploitation of technologies and preparation of an Exploitation Plan,
- Organizing of technical meetings.

■ **Administrative Manager** (*CA Article 5, p. 5.2.4.4*)

- assists the Project Coordinator for all activities dealing with administrative and financial duties, in order for him/her to focus on technical co-ordination and on marketing issues.

■ **WP Managers** (*CA Article 5, p. 5.2.4.5*)

- are responsible for the daily operation of their workpackage.

The WP Manager's responsibilities include:

- Technical leadership of their workpackage including technical and financial planning.
- Monitoring of timely workpackage deliverables and milestones.
- Risk assessment and control by adequate tools and with support of Task Leaders.
- Liaising with other Task Leaders where necessary.
- Responsibility of all contractually required reporting (i.e. half year reporting).
- Call for non-scheduled meetings when required.
- Provision of short monthly status reports to the Project Coordinator.

■ **Task Leaders** (*CA Article 5, p. 5.2.4.6*)

- their role is to perform standard progress monitoring activities at task level and to report task progress to their WP Manager.



CONSORTIUM AGREEMENT – Role of key management person



Attachment No 16

- **Dissemination Manager** (*CA Article 5, p. 5.2.4.7*)
 - is in charge of
 - ✓ coordinating dissemination and exploitation activities performed by the various partners,
 - ✓ organising specific dissemination activities (Web site, workshops and conferences);
 - coordinate issues dealing with exploitation and Intellectual property rights.



CONSORTIUM AGREEMENT – Management tools

Attachment No 16



■ **Communication and electronic data management** (*CA Article 5, p. 5.3.1*)

- **SAT-Rdmp Web site** - enables all SAT-Rdmp project members to share and to contribute to the following information sharing such as management and technical reports, deliverables, library of SAT-Rdmp requirements, concepts and strategy.

- **Project mailing lists** - created and maintained up-to-date to avoid unnecessary overload of mail processing.

■ **SAT- Rdmp handbook** (*CA Article 5, p. 5.3.2*)

- All SAT- Rdmp project-related information that needs to be used and exploited by any project member:

- ✓ accessible from the web site,
- ✓ include the working procedures and templates.

■ **SAT-Rdmp Project Management Plan (SAT-Rdmp PMP)**

(CA Article 5, section 5.4)

- **SAT-Rdmp PMP** - includes all the SAT-Rdmp managerial processes especially:
 - ✓ monitoring the progress of the project in relation to the timetable and achievement milestones;
 - ✓ coordination between partners that collectively work on the project and between the project, the external bodies and end user companies;
 - ✓ risk management - identifies risks and mitigation actions;
 - ✓ quality management - quality objectives, working method, review processes.
- **SAT- Rdmp PMP will be prepared by the project coordinator with the collaboration of the WP managers.**

■ During the course of the project

To be submitted:

1. **The deliverables identified in Annex I** to the Grant Agreement, according to the timetable specified in the Deliverables list.
2. **A periodic report** within 60 days of the end of each reporting period. The periodic report comprises:
 - ✓ An **overview, including a publishable summary of the progress of work** towards the objectives of the project, including achievements and attainment of any milestones and deliverables identified in Annex I.
 - ✓ An explanation of the **use of the resources**.
 - ✓ **A Financial Statement** (Form C – Annex VI to the Grant Agreement) from each beneficiary⁴ and each third party, if applicable, together with a **summary financial report**.

■ At the end of the project

To be submitted:

1. **A periodic report for the last period** of the project.
2. In addition to the periodic report for the last period of the project, **a final report** has to be submitted **within 60 days after the end of the project**. This final report shall comprise:
 - ✓ **A final publishable summary report** which includes: an executive summary, a summary description of project context and objectives,, the potential impact (including the socio-economic impact of the project) and the main dissemination activities and exploitation of results/foregrounds.
 - ✓ **A plan for the use and dissemination of foreground**, to spread awareness.
 - ✓ **A report** covering the wider societal implications of the project, in the form of a questionnaire, including gender equality actions, ethical issues, efforts to involve other actors.



GRANT AGREEMENT – REPORTING REQUIREMENTS



Attachment No 16

- **After having received the final payment from the EC**

A report on the distribution of the European Union financial contribution between beneficiaries (see Article II.4.3 of the Grant Agreement) must be submitted 30 days after receipt of the final payment (not required for intermediate payments).

■ Continuously (during and after the project)

During and after the project, the coordinator shall provide references of **all scientific publications** relating to foreground at the latest two months following publication (see Article II.30. of the Grant Agreement).

As part of the final project report, the coordinator will be required to submit a full list of publications relating to foreground of the project. All publications shall include the following statement to indicate that said foreground was generated with the assistance of financial support from the European Union :

‘The research leading to these results has received funding from the European Union's Seventh Framework Programme [FP7/2007-2013] under grant agreement n° 265603 (see Article II.30. of the Grant Agreement).’

- **The Participant Portal** is the main entry point for users involved in projects under FP7. It also provides the access point for the FP7 Project Reporting Tool.
- **All deliverables and reports (scientific and financial parts)** have to be submitted via the Participant Portal:
<http://ec.europa.eu/research/participants/portal/appmanager/participants/portal>

Using a small workflow system, you may already "upload" deliverables before finally "submitting" them later on. Uploaded deliverables appear in the "Deliverables in progress," list, while submitted ones in the "Submitted deliverables" list. **Once submitted, the deliverable is considered officially sent to the EC for approval and it is automatically registered as received.** The user may not perform any changes to it afterwards. The list of submitted deliverables is assembled automatically by the tool for presentation in the Periodic Report.

■ Registering publications, patents etc.

The lists of

- (i) publications,
 - (ii) applications for patents and
 - (iii) exploitable foreground
- are part of the Final Report.

You are advised though to introduce the information already at the time it becomes available during the project to make the compilation easier when submitting the Final Report.

Once a publication introduced, the Coordinator may update or delete it and eventually change their order. That order will be kept when the list will be consolidated in the Final Report.

The Project Management Committee

List of members with right to vote according to Consortium Agreement

no	Contact Person designed by Contractors			Partner /short name	Legal Name	Country
	Name	e mail	phone			
1	Krzysztof PIWEK <i>Project Coordinator (chair)</i>	khp@ilot.edu.pl	+48 501 244 004 +48 22 868 56 81	IoA	Instytut Lotnictwa	Poland
2	Marcello AMATO	m.amato@cira.it	(+39) 34 80 18 73 24	CIRA	Centro Italiano Ricerche Aerospaziali SCPA	Italy
3	Catalin NAE	cnae@incas.ro	(+40) 745 780 140 (+40) 21 434 00 83	INCAS	Institut National de Cercetari Aerospatiale "Elie Carafoli"	Romania
4	Frans J. van SCHAIK	schaik@nlr.nl	(+31) 649 988 832 (+31) 20 51 13 208	NLR	Stichting Nationaal Lucht - en Ruimtevaartlaboratorium	Netherlands
5	Janusz PIETRUSZKA	j_pietruszka@pzmielec.com.pl	(+48) 17 7887572	PZL M	Polskie Zakłady Lotnicze sp. z o.o. w Mielcu	Poland
6	Aniello COZZOLINO	acozzolino@piaggioaero.it	(+39) 3 334 251 901 (+39) 0 818 676 111	PIAGGIO	Piaggio Aero Industries SPA	Italy
7	Jiri DUDA	jduda@evektor.cz	(+42) 057 25 37 428	EVE	EVEKTOR, spol. s.r.o.	Czech Republic
8	Antoine JOULIA	antoine.joulia@onera.fr	(+33) 5 62 25 25 91	ONERA	Office National d'Etudes et de Recherches Aerospatiales	France
9	Daniel ROHACS	d_rohacs@hotmail.com	(+36) 209333800 (+36) 1 463 1922	BUTE	Budapesti Muszaki és Gazdaságtudományi Egyetem	Hungary
10	Richard CURRAN	r.curran@tudelft.nl	+31 15 27 88288 +31 15 27 81513	DUT	Technische Universiteit Delft	Netherlands
11	Adriaan de GRAAFF	adgraaff@hetnet.nl	(+31) 630 403 745	AD	AD Cuenta B.V.	Netherlands
12	Stefaan GHIJS	ssaghijs@flyaeolus.com	(+31) 148 200 999 (+31) 624 797 016	ALS	Fly Aeolus B.V.B.A.	Netherlands
13	Isabelle LAPLACE	laplace@m3systems.net	(+33) 677 065 141 (+33) 562 231 080	M3S	M3 SYSTEMS SARL	France
14	Tony HENLEY	tony.henley1@btinternet.com	(+44) 7970 442 819	THL	Tony Henley Consulting Limited	UK

Deliverable Number	Deliverable Title	Lead participant	Persons responsible	Nature	Dissemination level	Delivery date	Estimated indicative person-months	1	2	3	4	5	6	7	8	9	10	11	12	13	15
								IoA	CIRA	INCAS	NLR	PZL M	PIAGGIO	EVEKTOR	ONERA	BUTE	DUT	Ad Cuentas	ALS	M3S	THL
WP1	Small Air Transport System – Common Vision and Technological Requirements	CIRA	Marcello AMATO			30-11-2011	8,50	0,80	2,00	0,20	0,80	0,50	0,40	0,90	0,00	0,70	0,40	0,30	0,00	1,40	0,10
D1.1	General Aviation Community Common Vision for the Small Air Transport system for inter-regional mobility in Europe	CIRA	Marcello AMATO	R	PU	30-11-2011	1,60	0,20	0,60	0,20			0,20	0,20			0,20				
D1.2	Demand of Small Air Transport aircraft analyses	M3S	Isabelle LAPLACE	R	PU	30-06-2011	2,50	0,20					0,20			0,50	0,20			1,40	
D1.3	System technology requirements for Small Air Transport Aircraft	CIRA	Marcello AMATO	R	PP	30-11-2011	2,70	0,10	1,00		0,80			0,20		0,20	0,20	0,10			0,10
D1.4	Identification of existing regulation requirements, regulatory difficulties and innovative approach in the regulation area	EVEKTOR	Jiri DUDA	R	PU	30-11-2011	1,30	0,30				0,50		0,50							
D1.5	COMMON VISION Workshop - Summary	CIRA	Marcello AMATO	O	PU	30-11-2011	0,40		0,40												
WP2	The business case based on business models	DUT	Richard CURRAN			30-04-2012	5,57	0,50	0,50	0,10	0,10	0,10	0,30	0,10	0,17	1,50	1,70	0,10	0,30	0,10	0,00
D2.1	Business case subscriptions with operational characteristics	BUTE	Jozsef ROHACS	R	PU	30-09-2011	1,50	0,20								0,80	0,40		0,10		
D2.2	Impact parameters & simulation model; simulation of the model for each business case	DUT	Richard CURRAN	R	PP	30-11-2011	1,40									0,40	0,90		0,10		
D2.3	Analysis of the impact of each business case on the technology roadmap	DUT	Richard CURRAN	R	PU	31-03-2011	2,67	0,30	0,50	0,10	0,10	0,10	0,30	0,10	0,17	0,30	0,40	0,10	0,10	0,10	
WP3	The Roadmap	IoA	Krzysztof PIWEK			30-06-2012	9,95	2,10	1,00	1,00	0,30	0,50	0,50	1,00	0,35	0,50	0,30	1,80	0,20	0,20	0,20
D3.1	The ROADMAP for technology development for future Small Air Transport system and its elements	AD	Adriaan de GRAAFF	R	PU	30-04-2012	4,25	1,00	0,50	0,20	0,20	0,20	0,20	0,15	0,10	0,20	1,00	0,10	0,10	0,10	
D3.2	Report on ongoing or planned research	IoA	Krzysztof PIWEK	R	RE	30-04-2012	1,50	0,50	0,30	0,10		0,10	0,10	0,10	0,10	0,10		0,10			
D3.3	Recommendations on content and timing of EU FP calls for proposals	INCAS	Catalin NAE	R	PU	30-04-2012	2,70	0,30	0,20	0,70	0,10	0,20	0,20	0,20	0,10	0,10	0,10	0,20	0,10	0,10	0,10
D3.4	European organization established	AD	Adriaan de GRAAFF	O	PU	30-04-2012	1,00	0,20						0,40		0,10		0,30			
D3.5	ROADMAP Workshop	AD	Adriaan de GRAAFF	O	PU	30-04-2012	0,50	0,10						0,10		0,10		0,20			
WP4	The Capabilities	EVEKTOR	Jiri DUDA			30-04-2012	6,17	0,00	1,00	0,70	0,00	1,20	1,20	1,50	0,17	0,00	0,10	0,10	0,00	0,00	0,20
D4.1	Assessment of existing capabilities in Europe	EVEKTOR	Jiri DUDA	R	PP	30-09-2011	1,70		0,50			0,50	0,20	0,50							
D4.2	Identification of missing capabilities in Europe	INCAS	Catalin NAE	R	PP	30-11-2011	1,97		0,30	0,70		0,20	0,20	0,20	0,17		0,10				0,10
D4.3	Master Plan for development of aircraft for Small Air Transport	EVEKTOR	Jiri DUDA	R	PU	30-04-2012	2,50		0,20			0,50	0,80	0,80				0,10			0,10
WP5	Project Management	IoA	Krzysztof PIWEK			30-06-2012	3,50	1,90	0,50	0,00	0,00	0,00	0,10	0,20	0,00	0,10	0,10	0,50	0,00	0,10	0,00
D5.1	Kick-off meeting	IoA	Krzysztof PIWEK	R	PU	31-01-2011	0,40	0,30										0,10			
D5.2	PMC/AG meeting no 1	IoA	Krzysztof PIWEK	R	PP	30-11-2011	0,30		0,30												
D5.3	Reports Period I	IoA	Andrzej IWANIUK	R	CO	29-02-2012	0,70	0,25	0,10				0,05	0,10		0,05	0,05	0,05		0,05	
D5.4	PMC/AG meeting no 2	IoA	Krzysztof PIWEK	R	PP	30-04-2012	0,30	0,30													
D5.5	Reports Period II and final	IoA	Andrzej IWANIUK	R	CO	30-06-2012	1,00	0,55	0,10				0,05	0,10		0,05	0,05	0,05		0,05	
D5.6	SAT-Rdmp Conference ILA 2012	IoA	Krzysztof PIWEK	O	PU	30-06-2012	0,80	0,50										0,30			
							33,69	5,30	5,00	2,00	1,20	2,30	2,50	3,70	0,69	2,80	2,60	2,80	0,50	1,80	0,50

SOME NOTES ON EUROPEAN GA MANUFACTURERS

Janusz Pietruszka

Polskie Zakłady Lotnicze Sp. z o.o. in Mielec, Poland

Sat-rdmp Kick-off Meeting

Institute of Aviation, Warszawa, 12-13 January, 2011



Some Notes on European GA Manufacturers

Attachment No 19

GAMA statistics for 2009 (worldwide):

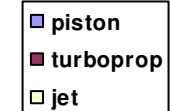
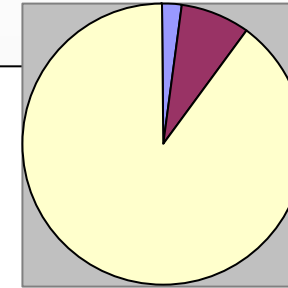
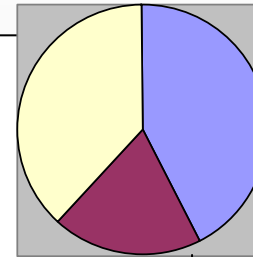
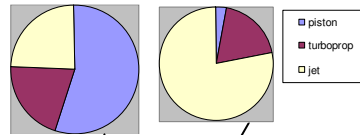
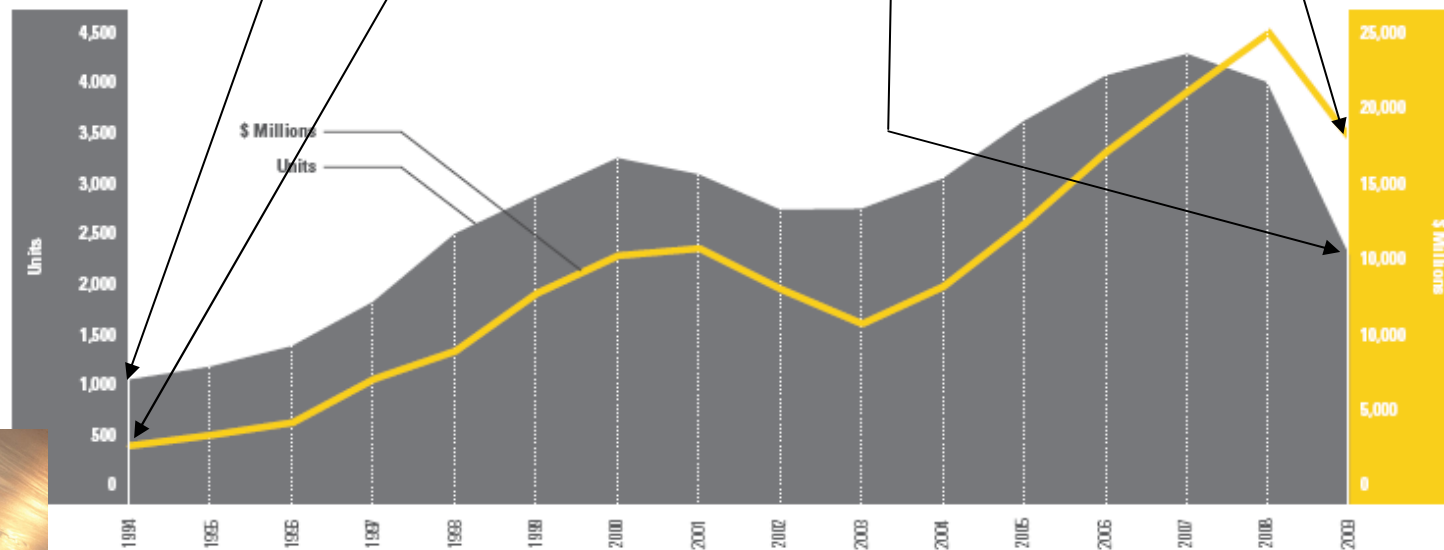


Figure 1.1 General Aviation Airplane Shipments and Billings Worldwide (1994-2009)



2009 GAMA STATISTICAL DATABOOK & INDUSTRY OUTLOOK 15



Some Notes on European GA Manufacturers

Attachment No 19



GA manufacturers in Europe on EASA website

DOA (Small Aeroplanes):

Austria: Diamond	subtotal: 1
Czech Republic: Aero Vodochody, Aircraft Industries, Evektor, Zlin	subtotal: 4
France: Socata	subtotal: 1
Germany: Extra, Grob	subtotal: 2
Italy: Alenia Aermacchi, Construzioni Aeronautiche Tecnam, OMA SUD, Piaggio Aero, Vulcanair	subtotal: 5
Poland: EADS PZL, PZL Mielec	subtotal: 2
Spain: EADS CASA	subtotal: 1
Switzerland: Pilatus	subtotal: 1
United Kingdom: BAE SYSTEMS Regional Aircraft, Britten-Norman, Slingsby	subtotal: 3
Total Europe:	20

POA (A2):

Austria: Diamond	subtotal: 1
Czech Republic: Aero Vodochody, Evektor, Zlin	subtotal: 3
France: Socata	subtotal: 1
Germany: Bitz, Extra, Grob	subtotal: 3
Italy: Alenia Aermacchi, Construzioni Aeronautiche Tecnam, OMA SUD, Piaggio Aero, Vulcanair	subtotal: 5
Poland: PZL Mielec	subtotal: 1
Switzerland: Pilatus	subtotal: 1
United Kingdom: Britten-Norman	subtotal: 1
Total Europe:	16





Some Notes on European GA Manufacturers

Attachment No 19

Some observations:

- *Economic crisis impacts GA Manufacturers condition,*
- *Number of European firms with POA A2 is steady descreasing (global transforming?),*
- *New players: China, Middle East.*



Questions about the future:

- *Is Europe competitive?*
- *Is Europe united?*

Results of the EPATS questionnaire sent to 24 European firms with POA A2 - *answer from 5 firms (3 Czech, 1 Italian, and 1 French):*

Preference in metallic airframe, lower threshold of interest even below 100 a/c per year, upper threshold of interest about 1000 a/c per year.



Some Notes on European GA Manufacturers

Attachment No 19



Thank you for your attention