

EPATS

European Personal Air Transportation System

**Krzysztof Piwek,
Institute of Aviation, Poland**

CHALLENGES:

European Research Area for Transport

- **„Improving the energy efficiency of all modes of transport”**

according „European Energy Strategy for Transport”

- **to give travelers a free choice of transport mode - according to their need, and limited by their time value,**

according EPATS

EPATS VISION

- ➔ **Air Transport System** working not only in giant hubs, but also on local and regional airports
- ➔ **High density network of airports** with near all-weather capabilities
- ➔ **Air Traffic Management** system enabling - both regular passenger and intensive personal air traffic
- ➔ **The innovative technologies** developing new personal aircraft,
- ➔ **Revitalized European General Aviation Industry** by opening European demand for Small Commercial Aircrafts and creating economy reasonable new component of Air Transport System.

Expected Results:

Developing „door to door” mode of transport

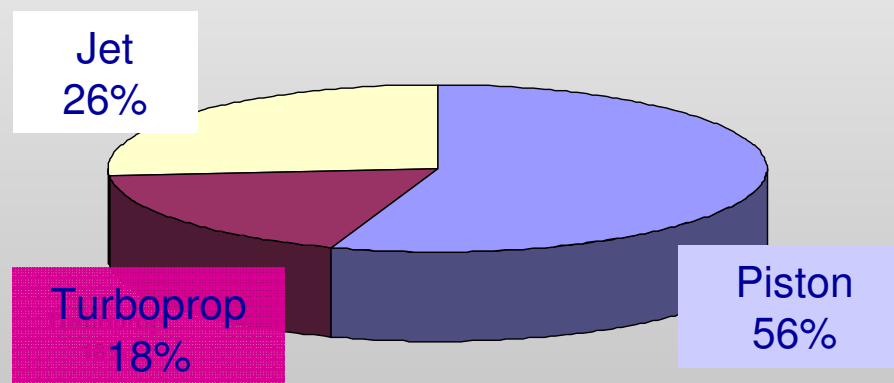
Evoking demand for „d2d”

Revitalizing GA Industry

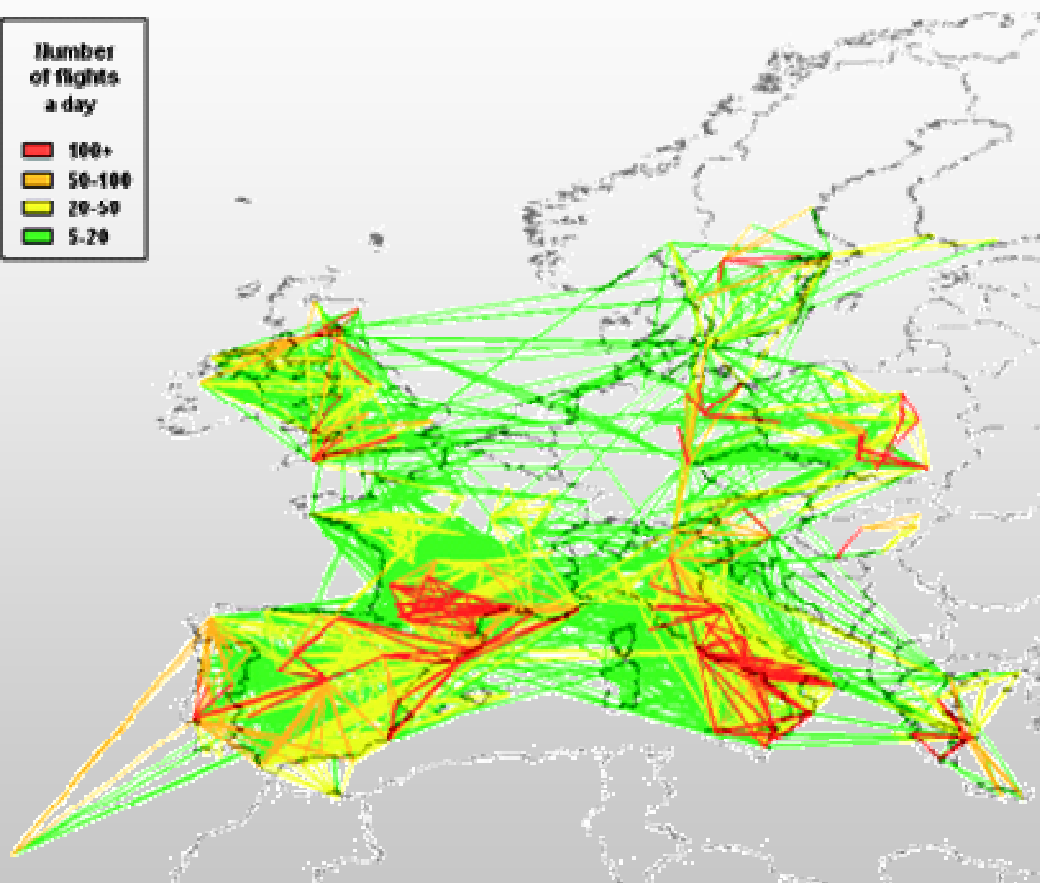
Transferred traffic to personal air transport in 2020:

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 seems to be avoiding the current ECAC Core Area

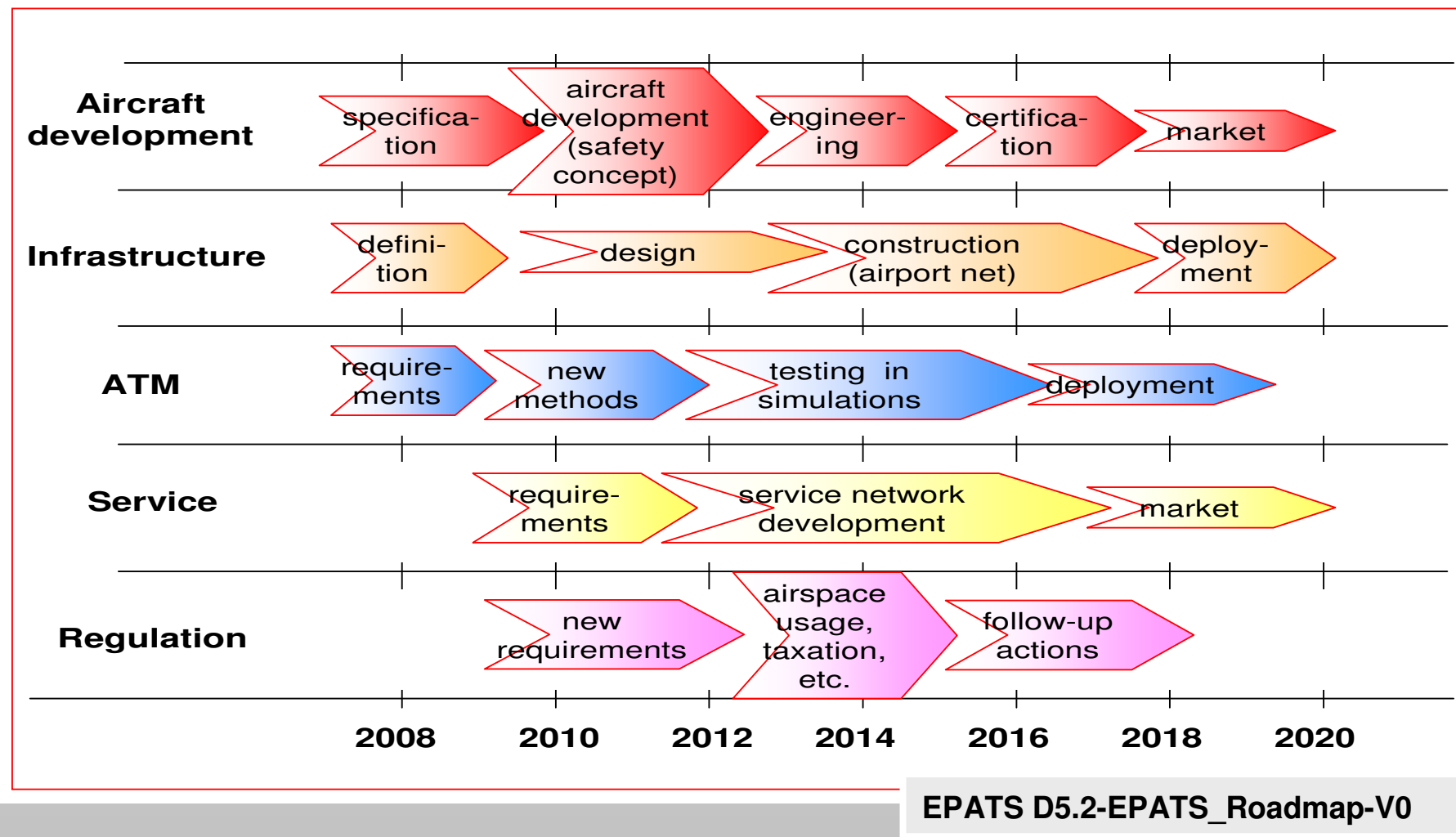
- TOP 10 connections between countries

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

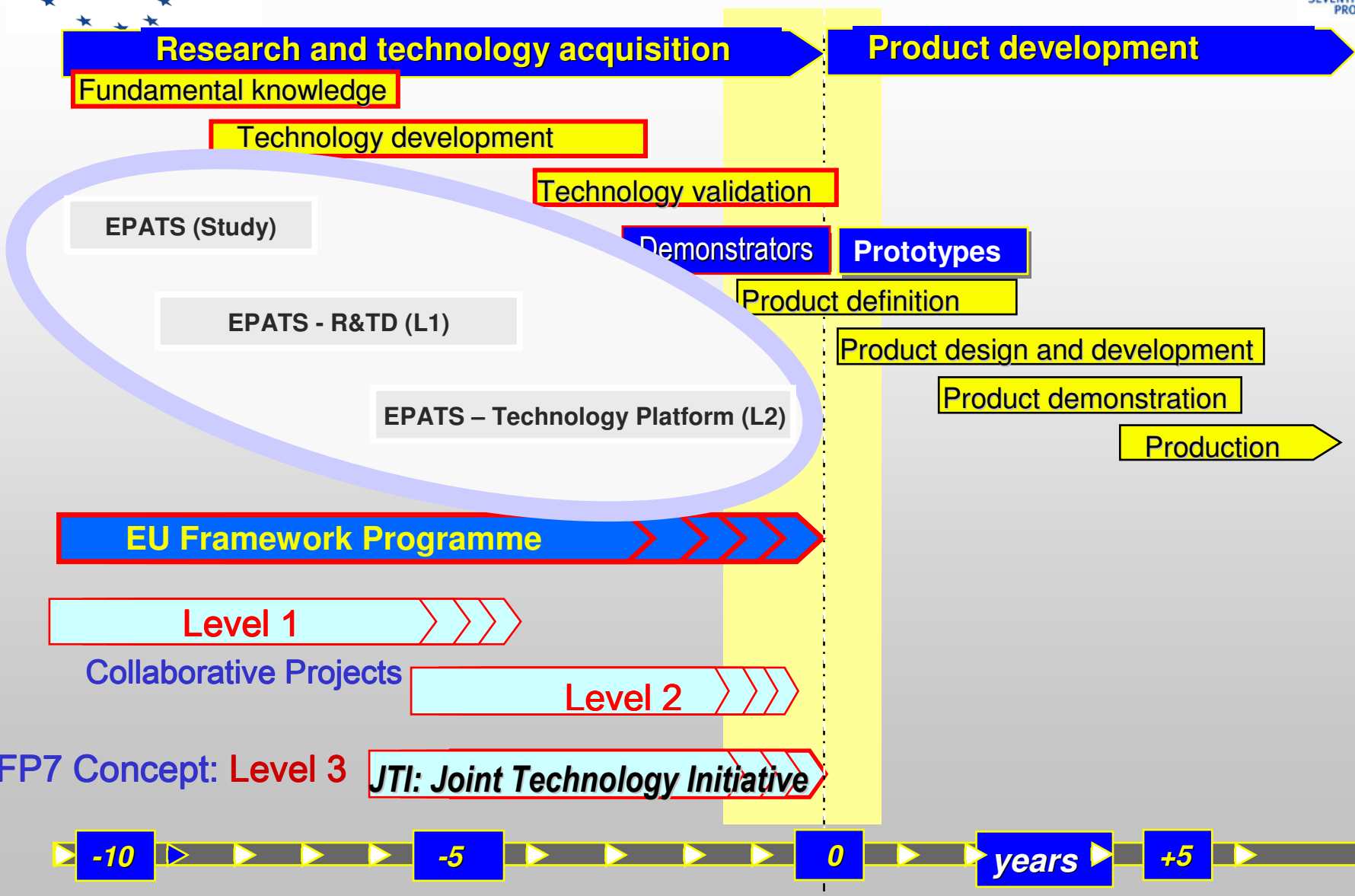
May be creating new dense/congested area and airports (mainly south of Europe but also England)

EPATS – STUDY recommendations:

- 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.

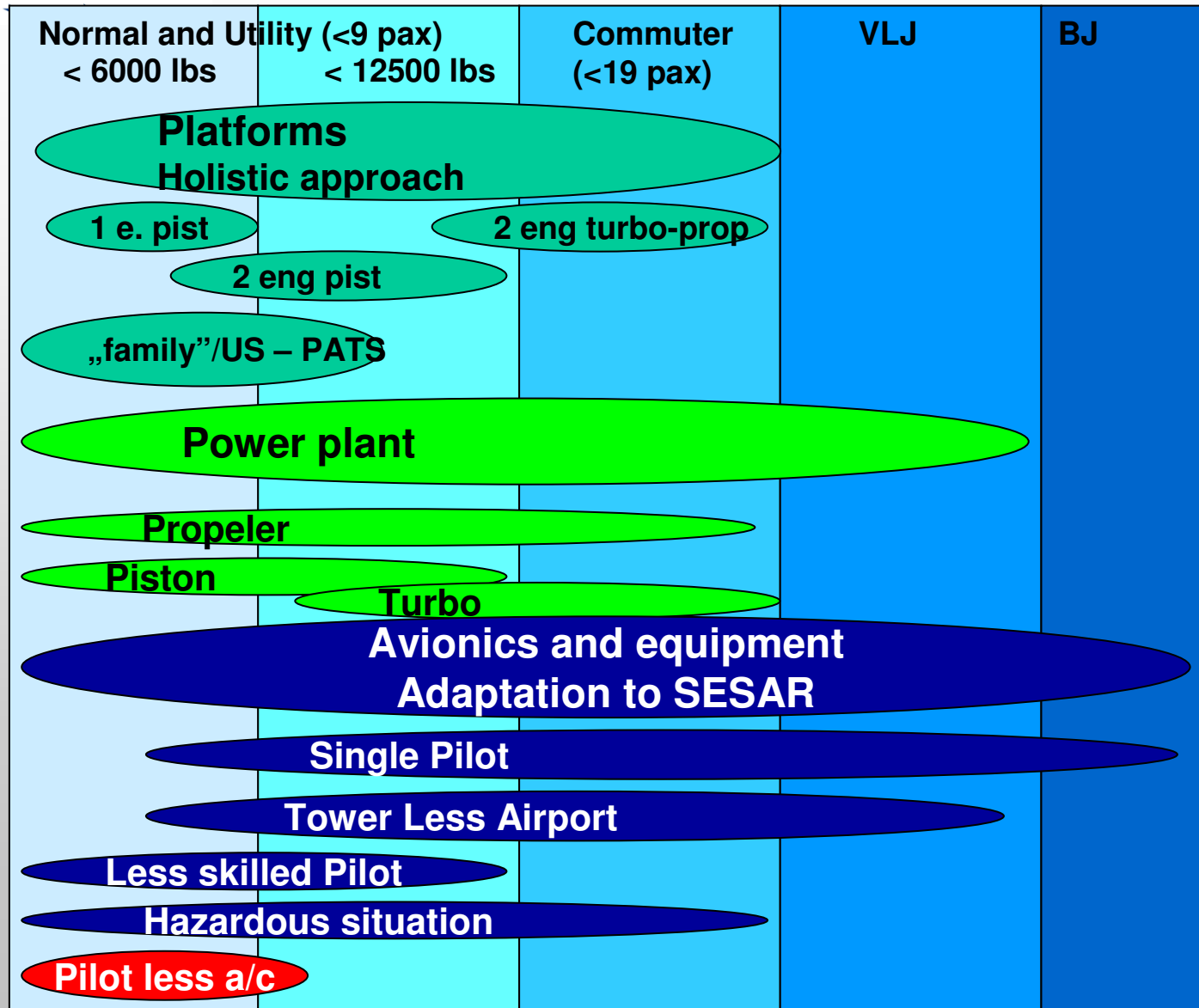


Where we want to go?



Phase	Level	done, pending	To be submitted
EPATS STUDY	CSA	EPATS Study (SSA)	EPATS Study Plus (CSA)
EPATS – R&TD (Research & Technology Development)	L1	PPlane, SOFIA	GA Avionics, Aerovan, GA Engines, Smart Technologies, Hazardous States, Comfort
EPATS – TP (Technology Platform)	L2	CESAR (IP)	EPATS – TP AEROVAN ENGINES } tbd

Key features of EPATS Technology Platform - L2 Project



Impact on climat

Breakthrough / EASN

Potential:

Aircraft security

Remote Airport (security)

Net-centric Management System

TRACKING Proposal GA - 3rdCallFP7

List of Proposal (to be confirmed by Leaders/Focal Points)

Pre-proposals defined in July GA ATS workshop			Tracking of preparation				
No	Title	Pre-scope	Acronym	Founding tool	Proposal title	Leader	Focal Point
1	Roadmap for engaging small aircraft in European ATS (Air Transport System)	Roadmap, operational concept, involve industry,	EPATS+	CSA-S	European Personal Air Transport System - Study Plus	IoA	Krzysztof PIWEK khp@ilot.edu.pl
2	GA Avionics	Single Pilot Operations and SESAR as a start point	SASHA	L1	Small Aircraft Avionics Solutions for Hazard Alleviation	ISDEFE	Jorge BUENO GOMEZ jbueno@isdefe.es
3	Novel Concepts - AEROVAN	set of novel technologies oriented for "novel concepts" (6.2-1, 6.3-3) + safety + low noise & low emission	AEROVAN - tbc	L1	Low Noise AeroVan Concept	WUT	Zdobysław GORAJ goraj@meil.pw.edu.pl
4	GA ENGINES	oriented for low noise & low emission, biofuel, coupled areas	GA_ENG	L1	Advanced turboprop and turbofan engines for GA	Ivchenko	Sergiy DMYTRIYEV 03535@ivchenko-progress.com
5	GA Smart Technologies	transfer/synergy with advanced aerospace achievements	GA SmarT	L1	Smart Technologies	AIT	Ernst SEMERAD ernst.semerad@arcs.ac.at
6	GA Hazardous States	crashworthiness, spin, lightning, thermal shock	SESRA	L1	Single Engine Spin Resistant Airplane	Evektor	Pavel RUZICKA pruzicka@evektor.cz
			ACRA	L1	Cabin Crashworthiness Prediction	Evektor	Ladislav CHYBIK lchybik@evektor.cz
7	GA Comfort	Cabin climat, noise & vibration, pressure, bugs, toxic fire emissions	SACC	L1	Small Airplane Cabin Climate	Evektor	Martin SVETLIK msvetlik@evektor.cz

Workshop GA ATS 1 – Proposal Tracking Process

Acronym	Founding tool	Proposal title	Leader	Focal Point
EPATS+	CSA-S	European Personal Air Transport System - Study Plus	IoA	Krzysztof PIWEK khp@ilot.edu.pl
SASHA	L1	Small Aircraft Avionics Solutions for Hazard Alleviation	ISDEFE	Jorge BUENO GOMEZ jbueno@isdefe.es
AEROVAN - tbc	L1	Low Noise Aerovan Concept	WUT	Zdobysław GORAJ goraj@meil.pw.edu.pl
GA_ENG	L1	Advanced turboprop and turbofan engines for GA	Ivchenko	Sergiy DMYTRIYEV 03535@ivchenko-progress.com
GA SmarT	L1	Smart Technologies	AIT	Ernst SEMERAD ernst.semerad@arcs.ac.at
SESRA	L1	Single Engine Spin Resistant Airplane	Evektor	Pavel RUZICKA pruzicka@evektor.cz
ACRA	L1	Cabin Crashworthiness Prediction	Evektor	Ladislav CHYBIK lchybik@evektor.cz
SACC	L1	Small Airplane Cabin Climate	Evektor	Martin SVETLIK msvetlik@evektor.cz

Conclusions:

- **3rd Call FP7:**
CSA - EPATS+,
L1 - SASHA (GA Avionics), + other branches (Novel Solutions, Powerplant, Smart Technologies, Safety and Hazardous States, Comfort,)
- **4th Call FP7:**
L2 – EPATS is not mature enough? (EPATS+ results will be needed)
- **Next Calls:**
L2 – EPATS Technology Platform

EPATS should be considered as demand accelerator for GA Technologies

Suggestions?

Krzysztof Piwek

khp@ilot.edu.pl

Institute of Aviation