

Dzień informacyjny KPK – Tematyka TRANSPORTU LOTNICZEGO
w konkursach programu H2020 na lata 2018-2020

Small Air Transport Challenges

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Warszawa, ILOT, 10 XI 2017

Who am I?



Who am I?

European Small Air Transport (SAT) Projects



Clean Sky 2 Programme Overview

1.8b€ Total Funding
Assumption

Vehicle
IADPs

**Fast
Rotorcraft**
Agusta
Westland
Eurocopter

**Large
Passenger
Aircraft**
Airbus

**Regional
Aircraft**
Alenia
Aermacchi

Large
Systems
ITDs

Eco-Design
Fraunhofer Gesellschaft

Airframe ITD
Dassault – EADS-CASA – Saab

Engines ITD
Safran – Rolls-Royce – MTU

Systems ITD
Thales – Liebherr

Small Air Transport
Evektor – Piaggio

Technology Evaluator (TE)
German Aerospace Center (DLR)

*Building on Clean Sky, going further into integration at full aircraft level
And developing new technology streams for the next generations of aircraft*

European Strategy

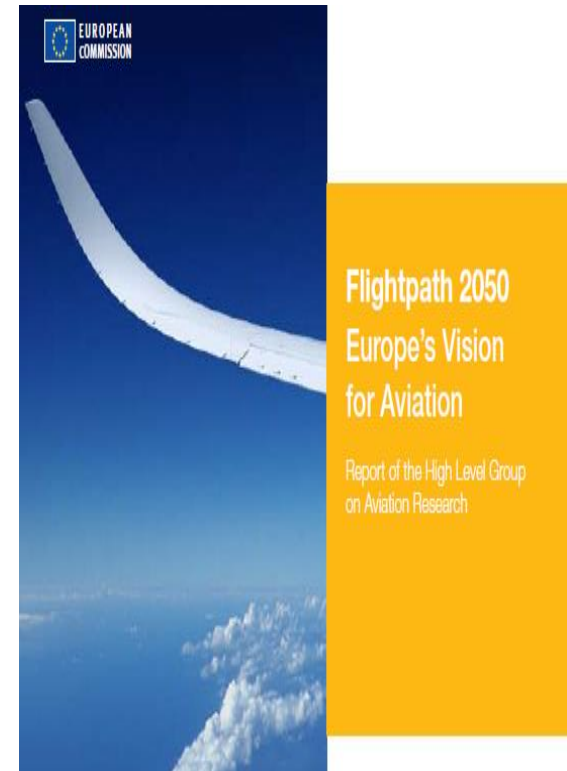
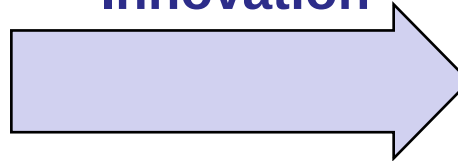
Aeronautical (2000) -> Aviation (2011) -> Personalized Mobility?



Vision 2020

**„More Affordable, Safer,
Cleaner and Quieter”**

**A decade of
Successful
Innovation**



Flightpath 2050

**„Smart, Green and Integrated
Transport”**

Flight Path 2050 Challenges

Meeting Societal and Market Needs

- European citizens are able to make **informed mobility choices**
- 90% of travellers within Europe are able to complete their journey, **door-to-door within 4 hours.**
- Flights arrive **within 1 minute** of the planned arrival time
- Air traffic management system is capable of handling **25 million flights** a year in Europe
- A coherent **ground infrastructure** is developed



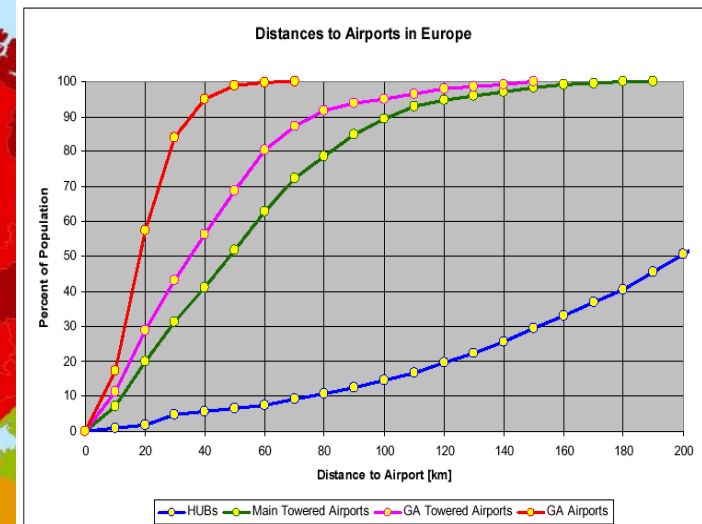
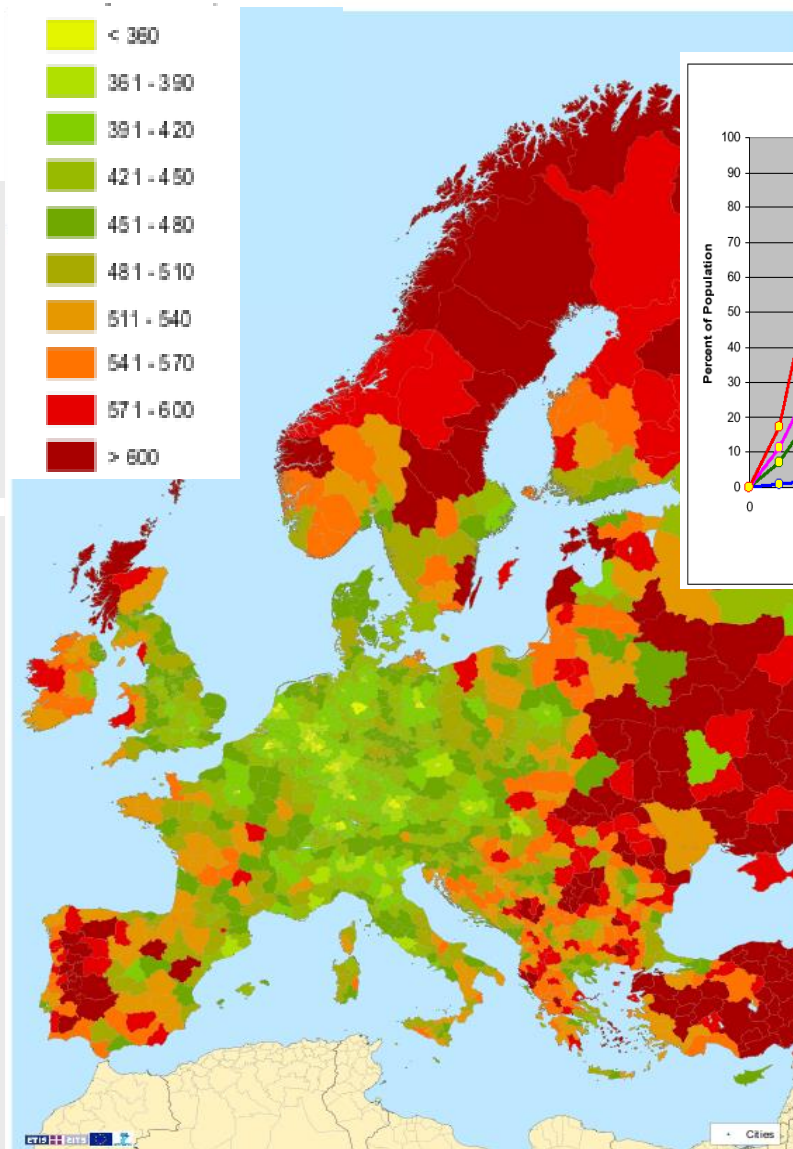
d2d 4h 90%?

What is average travel time by air transport for regions?

for each NUTS3 region in Europe needed to reach another European region (base year 2010)

from 360 min. (6 h) – yellow
to more than 600 min (10 h) – red

(ETISplus – 2012)

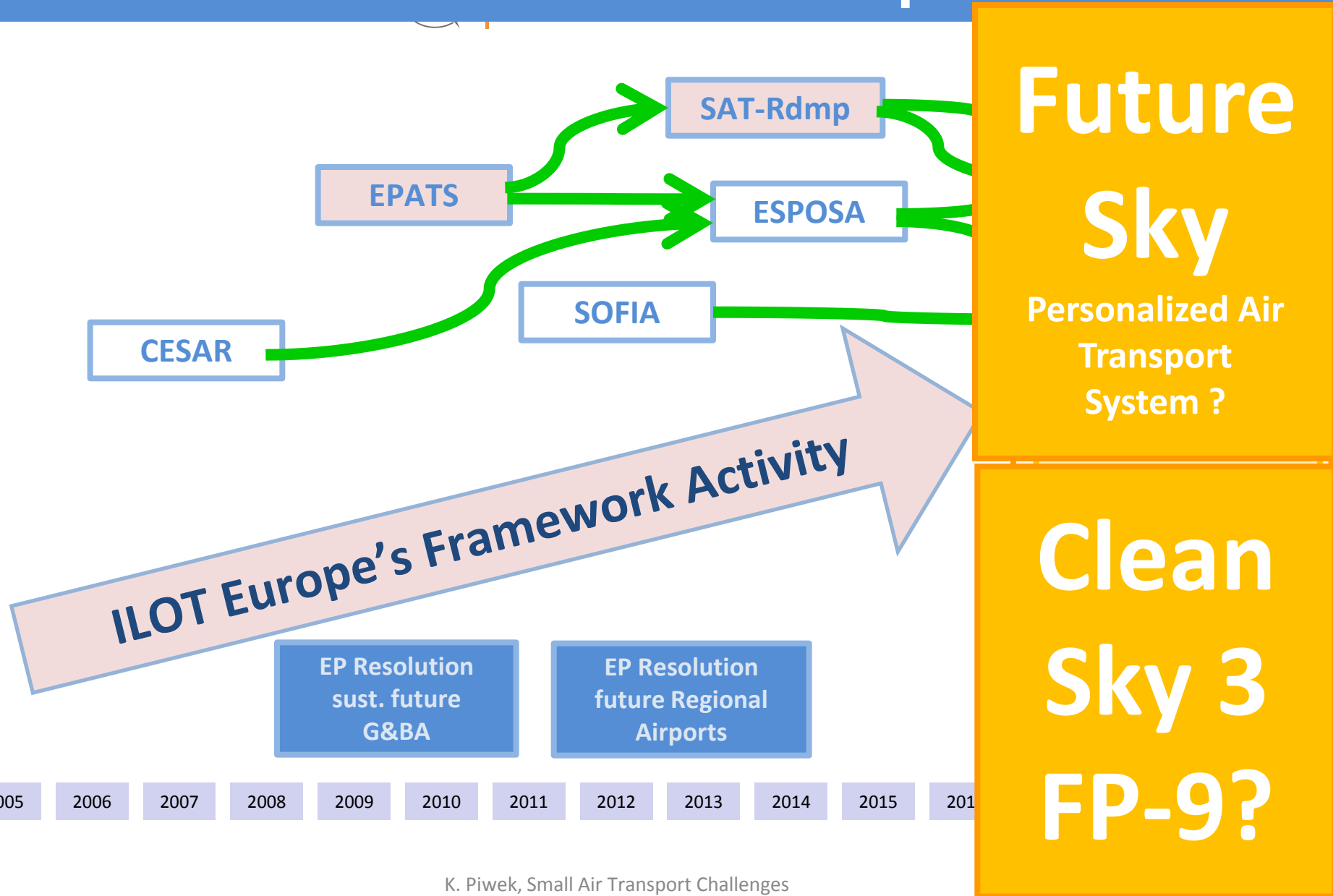


1270 airports and 1300
landing fields

= 2570 airfields

**70% traffic = top
15 airports**

Personalized Air Transport ?



European Small Air Transport (SAT) Projects



What is Small Air Transport (SAT)?

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

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

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

Net – Centric Management & Acquisition – ICT based logistic and management system for SAT, integrated within the SESAR's solutions



<http://sat-rdmp.eu>

SAT-Rdmp Reports

Submitted deliverables

WP n°	Deliverable N°	Title	Version	Lead beneficiary	Person months	Nature	Dissemination level
1	1	General Aviation Community Common Vision for the Small Air Transport system for inter-regional mobil	1.0	CENTRO ITALIANO RICERCHE AEROSPAZIALI SCPA	1.6	Report	PU
1	2	Demand of Small Air Transport aircraft analyses	1.0	M3 SYSTEMS SARL	2.5	Report	PU
1	3	System technology requirements for Small Air Transport aircraft	1.0	CENTRO ITALIANO RICERCHE AEROSPAZIALI SCPA	2.7	Report	PP
1	4	Identification of existing regulation requirements, regulatory difficulties and innovative approach	1.0	EVEKTOR, spol. s.r.o.	1.3	Report	PU
1	5	COMMON VISION Workshop - Summary	1.0	CENTRO ITALIANO RICERCHE AEROSPAZIALI SCPA	0.4	Other	PU
2	1	Business case subscriptions with operational characteristics	1.0	BUDAPESTI MUSZAKI ES GAZDASAGTUDOMANYI EGYETEM	1.5	Report	PU
2	2	Impact parameters & simulation model; simulation of the model for each business case	1.0	TECHNISCHE UNIVERSITEIT DELFT	1.4	Report	PP
2	3	Analysis of the impact of each business case on the technology roadmap	1.0	TECHNISCHE UNIVERSITEIT DELFT	2.67	Report	PU
3	1	The ROADMAP for technology development for future Small Air Transport system and its elements	1.0	AD CUENTA BV	4.0	Report	PU
3	2	Report on ongoing or planned research	1.0	INSTYTUT LOTNICTWA	1.5	Report	RE
3	3	Recommendations on content and timing of EU FP calls for proposals	1.0	INSTITUTUL NATIONAL DE CERCETARI AEROSPATIALE ELIE CARAFOLI - I.N.C.A.S. SA	2.7	Report	PU
3	4	European organization established	1.0	AD CUENTA BV	0.8	Other	PU
3	5	ROADMAP Workshop	1.0	AD CUENTA BV	0.5	Other	PU
3	6	SAT technology roadmap related to Clean Sky 2 extention	1.0	INSTYTUT LOTNICTWA	0.45	Report	PU
4	1	Assessment of existing capabilities in Europe	1.0	EVEKTOR, spol. s.r.o.	1.7	Report	PP
4	2	Identification of missing capabilities in Europe	1.0	INSTITUTUL NATIONAL DE CERCETARI AEROSPATIALE ELIE CARAFOLI - I.N.C.A.S. SA	1.97	Report	PP
4	3	Master Plan for development of aircraft for Small Air Transport	1.0	EVEKTOR, spol. s.r.o.	2.5	Report	PU
5	1	Kick-off meeting	1.0	INSTYTUT LOTNICTWA	0.4	Report	PU
5	2	PMC/AG meeting no 1	1.0	INSTYTUT LOTNICTWA	0.3	Report	PP
5	3	Reports Period I	1.0	INSTYTUT LOTNICTWA	0.7	Report	CO
5	4	PMC/AG meeting no 2	1.0	INSTYTUT LOTNICTWA	0.3	Report	PP
5	5	Reports Period II and final	1.0	INSTYTUT LOTNICTWA	1.0	Report	CO
5	6	SAT-Rdmp Conference ILA 2012	1.0	INSTYTUT LOTNICTWA	0.8	Other	PU

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<http://sat-rdmp.eu>

The SAT Common Vision

Panel (SAT Common Vision Workshop, Bruss, Sept 2011):

- The **SAT system should be part** of the European Integrated Transport System
- **SAT-Rdmp Project is compliant with Flighthpath 2050** challenges " 90% of travellers in Europe are able to complete their journey, door-to-door within 4 hours".
- **There is a social need** for mobility specifically for some regions and city-pairs
- The **business model** to be adopted **is an essential element** for the success of a SAT System. It has to be affordable and reliable.
- A **pilot phase testing** some different business models should be set up in the short term; this would allow building up a success story, to increase public acceptance.
- There is an agreement that **SAT System might become a small scale platform to demonstrate** the European Integrated Transport functionality.
- **Currently the enabling conditions are in a poor status.** European manufacturer are suffering from this situation.

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Alenia
Aermacchi

Eco-Design
Fraunhofer Gesellschaft

Large
Systems
ITDs

Airframe ITD

Dassault – EADS-CASA – Saab

Engines ITD

Safran – Rolls-Royce – MTU

Systems ITD

Thales – Liebherr

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Small Air Transport (SAT) in CS2

ITD Airframe

WP 1 – Small Air Transport Overall A/C Design & Configuration Management

WP B 1.2 - Optimized Composite Structures

WP B 2.2 – High Lift Wing (SAT)

WP B 3.4 – More affordable small a/c manufacturing

ITD Engines

WP7 – Light weight and efficient Jet-fuel reciprocating engine

WP 8 - Reliable and more efficient operation of small turbine engines (19 seats)

ITD Systems

WP 7.1 - Efficient operation of small aircraft with affordable health monitoring systems

WP7.2 - More electric/electronic technologies for small a/c

WP 7.3 - Fly by wire for small aircraft

WP 7.4 - Affordable SESAR operation modern cockpit and avionic solutions for small a-ft

WP 7.5 – Comfortable and safe cabin for small aircraft

OPTICOMP

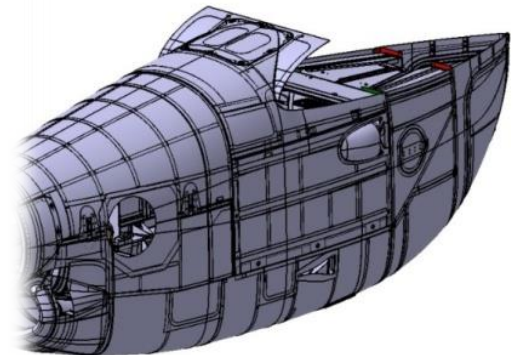
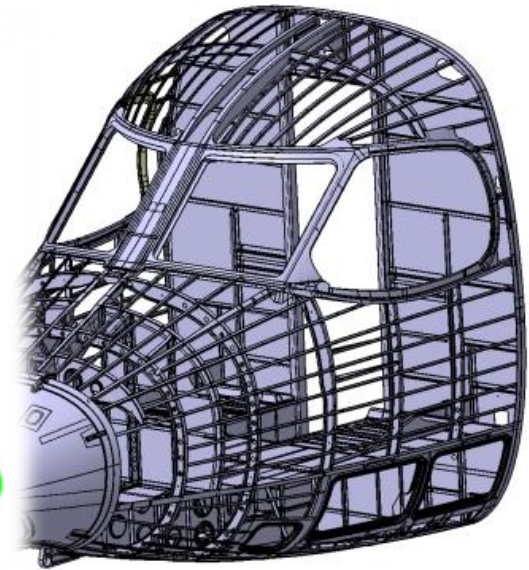
SAT-AM

MAESTRO

COAST

2016. CS-GB-Written Procedure 2016-09 Amended WP & Budget 2016-2017

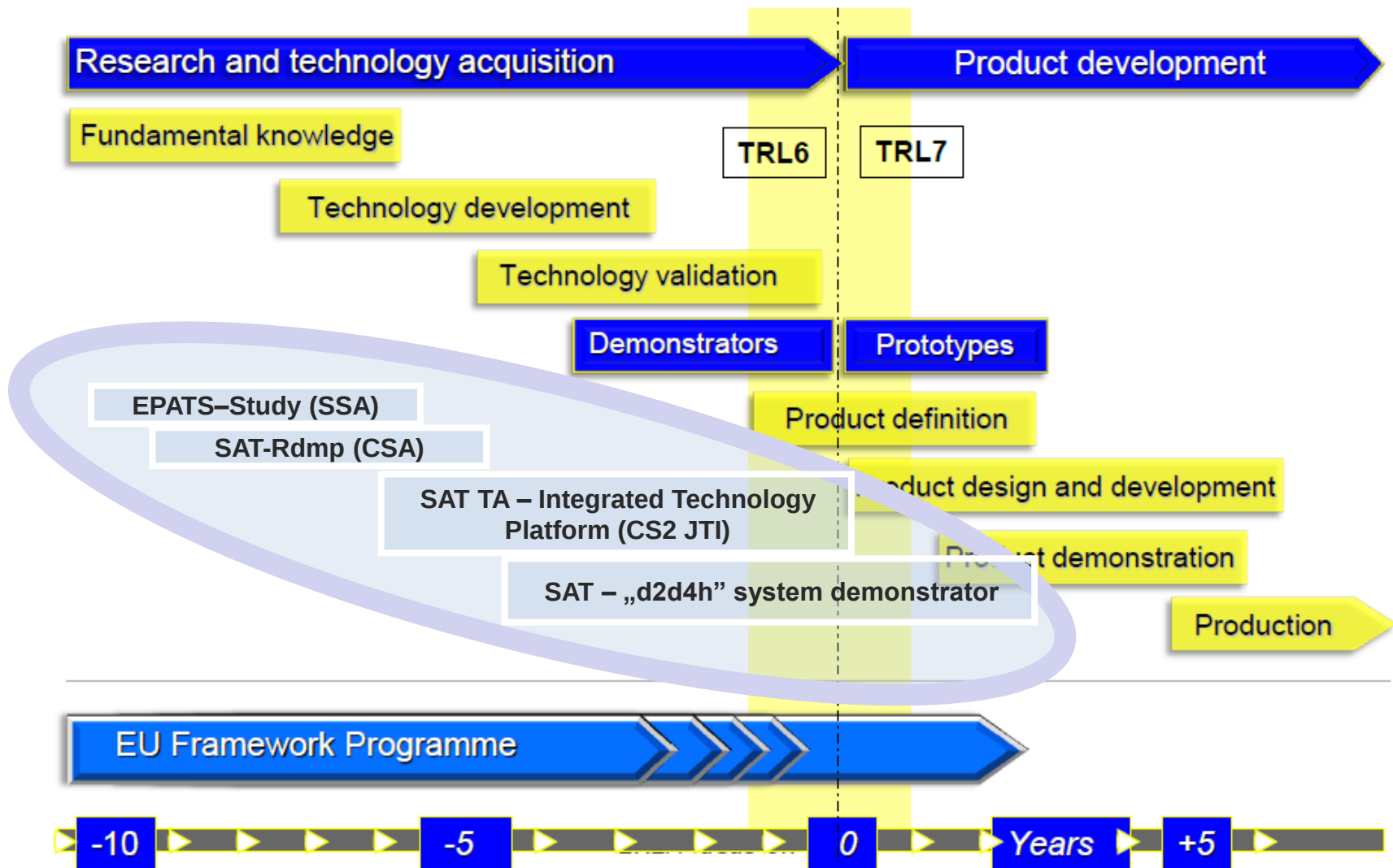
Small Air Transport – Affordable Manufacturing



✓ Hydrophobic Coating (HC)



Innovation Process + SAT next steps



Some Results of SAT Projects (ESPOSA)



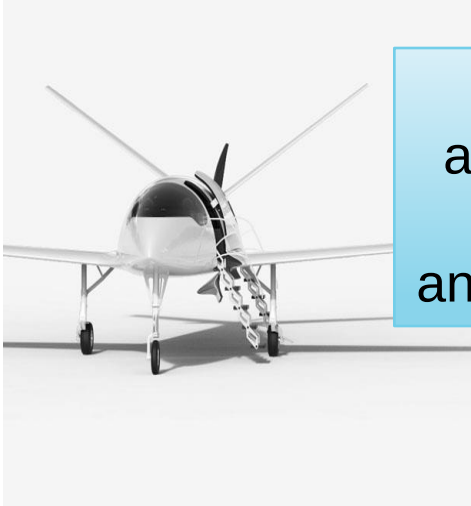
Some Results of SAT Projects (ESPOSA)



Jakie jest moje przesłanie?

- Strategia FP 2050 „90% d2d 4h” – pokrywa się z polską inicjatywą;
- Jest miejsce na nowy rodzaj transportu w Europie komunikujący regiony nie posiadające hubów, szybkich pociągów i autostrad. Ten transport to zagospodarowanie licznych ale „cienkich” potoków pasażerskich na odległościach 200 – 2000 km;
- Jest mocne wejście projektu rewitalizacji przemysłu małych samolotów SAT-in-CS2 (zainicjowanego w Polsce) w nowym Clean Sky 2;
- Bazując na SAT uruchomić demonstrator systemu w oparciu o wybrane lotniska regionalne i lokalne, w synergii: samorządy – transport – wytwórcy. Demonstrator testowałby możliwości osiągnięcia celu „90% d2d 4h” + smart regional specialization”;
- Program SAT – to przykład jak uparcie i w synergii dążyć do wyznaczonego celu i dowód, że możliwe jest skuteczne wykorzystanie polskiej składki do Unii na rozwój naszego sektora gospodarki.

Emerging and Converging Technologies and Industrial Initiatives



<http://www.tuvie.com/wp-content/uploads/eviation-alice-electric-aircraft5.jpg>

We are entering a new aeronautics epoch in aircraft, air mobility and airspace management.



<https://airbus-h.assetsadobe2.com/>



<http://zunum.aero>



<https://venturebeat.com/2017/01/22/back-to-the-future-roads-where-were-going-we-dont-need-roads/>

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