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AERO 2009

Europe's largest GA trade show underway in Germany

By Kent Misegades

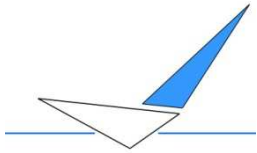
April 3, 2009 — AERO Friedrichshafen, Europe's largest trade show for general aviation (GA), opened on April 2, in this city on one of Europe's natural lakes, Lake Constance or "der Bodensee" as it's known in German. Like EAA AirVenture Oshkosh, AERO is a number of shows in one, and it is the showcase for new products for the European sport aviation scene.



Tools:



- the Italian “F30” sport plane, an all-aluminum version of the wooden Falco from Stelio Frati;
- the compact TP100 turboprop from the Czech company PBS;
- a sleek tandem LSA sport plane, the Slovakian “Shark”;
- an electric-powered aerobatic version of the German Silence “Twister”;
- the Avana Aerospace “Larus”, a luxury 6-place, composite turboprop amphibian from Hungary;
- the German-made TBS jet engine powering the Italian-made “Silent” sailplane;
- from Hungary the Corvus “Racer 540”, an aircraft designed specifically for the Red Bull racing series;
- and the latest version of the award-winning, highly-efficient “Virus” from Pipistrel of Slovenia.



General Aviation and European Air Transport System Workshop, Warsaw, July 7 - 8, 2009.

Prof. Dr. Jozsef Rohacs

Head of Department

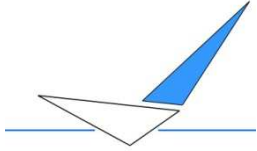
Department of Aircraft and Ships, BUTE
Executive, REA-TRECH Ltd.

General Aviation in Transition (Projects for Redefining the GA)



Introduction

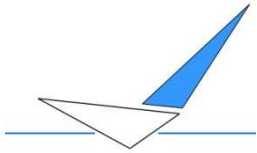
1. Transition drivers
 2. Needs
 3. Hungarian Results
 4. Our key competence
 5. EPAN
 6. Project ideas
- Conclusions



Introduction

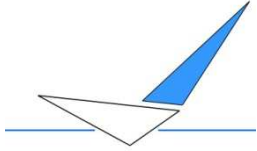
- **NASA SATS demonstrates – a new market has born**
- **major different in Europe and US – size**
- **personal transportation system**
- **new aircraft, new airports, new service required**
- **pilots with limited practice**
- **harmonisation required**
on the European level
- **technology and system**
integration





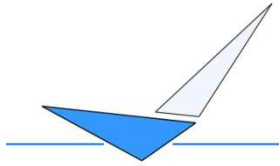
1. Transition drivers

- **traffic volume – increases into third dimension**
- **personal mobility required personal transport**
- **it is a new market, new business**
- **technology is ready**
- **price of new technologies (like MEMS) is rapidly decreasing**
- **new safety philosophy required – pilots with limited practice**
- **integration into the general traffic system – SESAR**



2. Needs

- **noew operational philosophy**
- **radically new aircraft**
- **acceptable operational cost**
- **safe piloting with comon „drivers”**
- **new system of airports**
- **integration into the air traffic monitoring and control**
- **new service providing – rent a plane system**



3. Hungarian results

➤ Hungary is very active in small aircraft development

SEAWIND - Tököl



VIRTUS - Juta



APOLLO Fox Ultralight



➤ Corvus is a successful small company

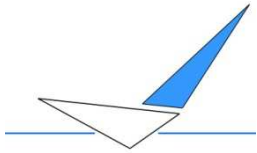
➤ It produces two seats small A/C

➤ and selles them worldwide



Corvus - Ballószög

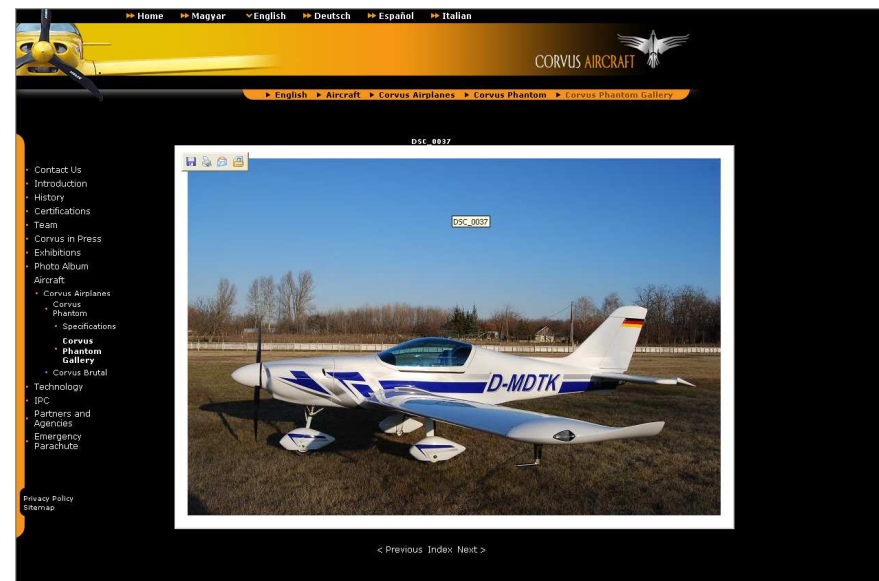


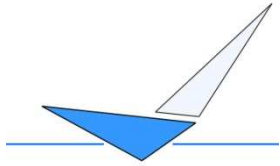


3. Hungarian results – cont'd.

A new project – Safe Fly

- four seats small aircraft development
- full composite aircraft
- two university departments take part in the project
- it is supported by Hungarian National Office for Research and Technology
- total project cost is 3.4 million EUR
- Hungarian Aeronautical
- Research Platform
- Hungarian Aerospace
- Technology Platform






4. Our key Competences - BUTE

Nobel laureates of BME

Dénes GÁBOR (1900 – 1979)
holography, in 1971

Jenő WIGNER (1902 – 1995)
theoretical physics, in 1963

György OLÁH (b:1927)
carbonic chemistry, in 1994




**226 years old
state university**

Former students of BME

Tódor (Theodore) von KÁRMÁN
Aeronautical Engineer & Mathematician
(1881–1963)

Leo SZILÁRD
Physicist
(1898–1964)

Ede TELLER
Physicist
(1908– 2004)



education

**About 250 EU FP
projects**

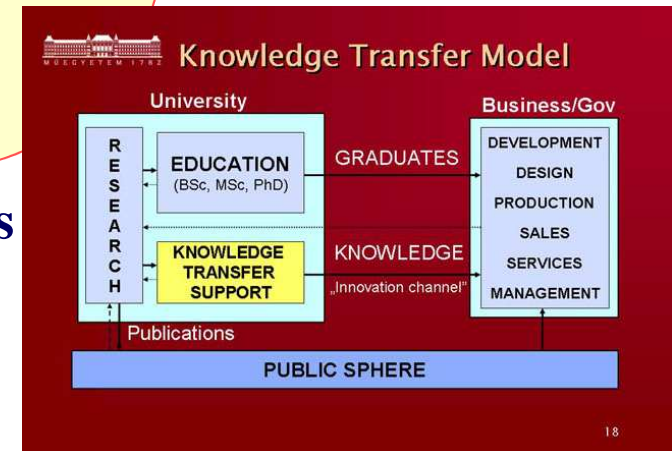
research

service

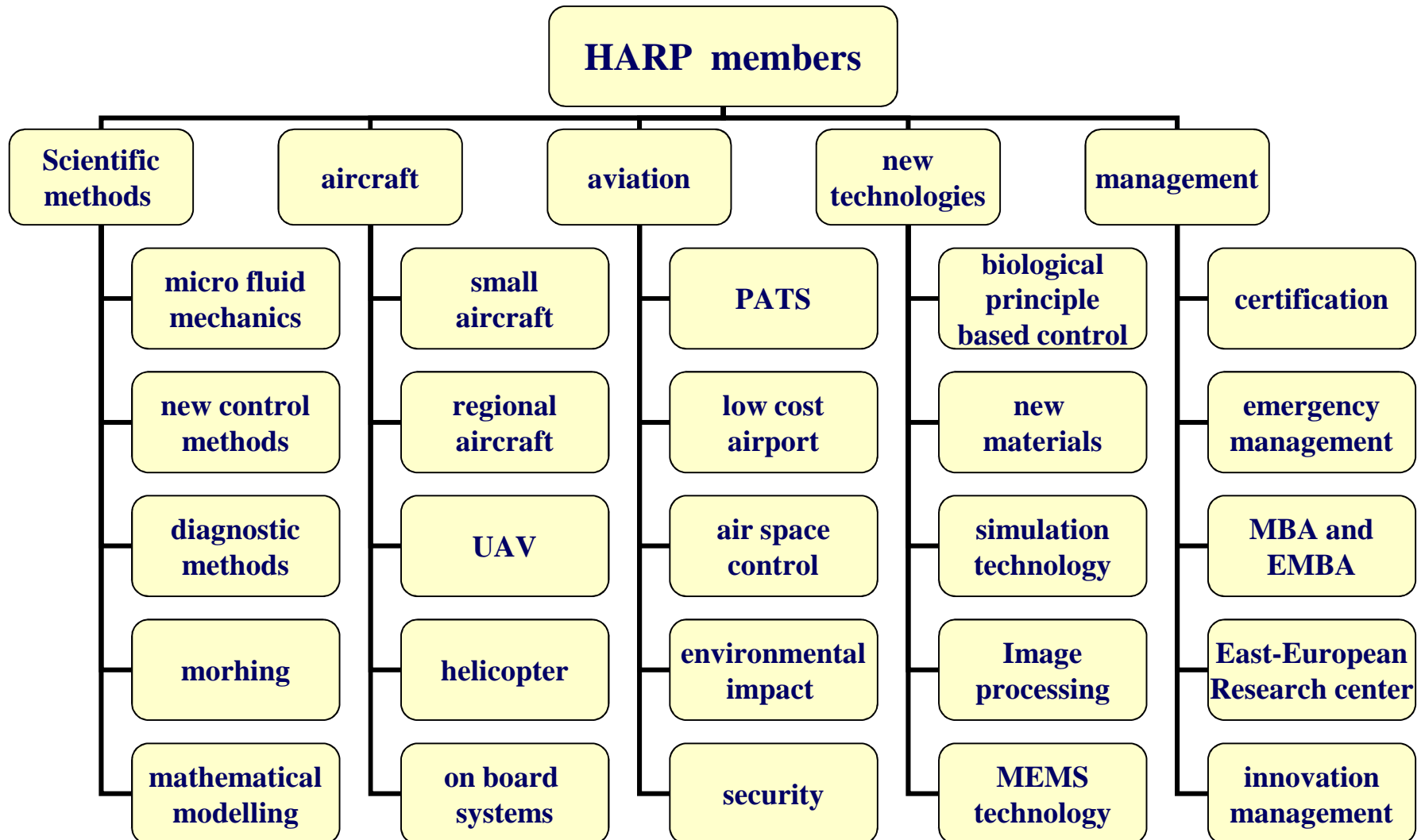


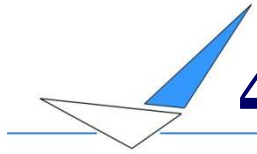
fund raising

contracts



4. Our Key Competances - HARP





4. Our Key Competances – REA-TECH

Some results of the owners of REA-TECH Ltd.

development of a measurement technology for the infrared radiation evaluation

preliminary materials to Hungarian Aviation Policy development of a CAD, CFD, FEM methods and their application

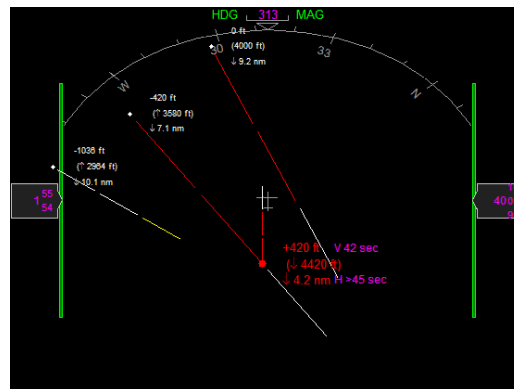
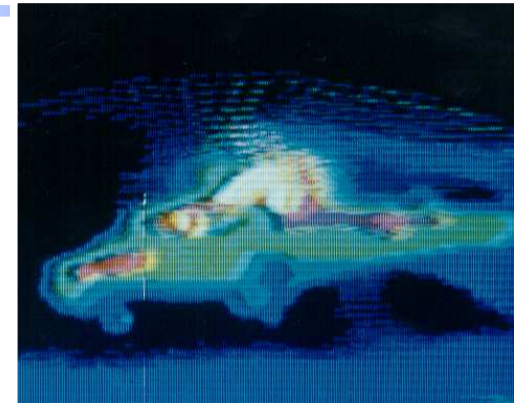
lifetime evaluation of a small aircraft composite wing emission scattering simulation

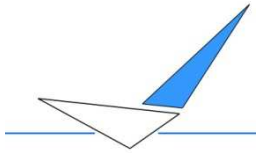
development of the emergency technology management

development of a new traffic monitoring system development of the building security evaluation methods

large eddy simulation of the inside flow for nuclear station

new cockpit instrument development





5. EPAN

- Need recognized by the Commission:

”The Commission ... is calling on all interested stakeholders to pursue a dialogue on the future of this sector in Europe”

[An Agenda for sustainable Future in General and Business Aviation (11 January 2008, COM(2007) 869)]

- What is EPAN?

- European Personal Aircraft Network

- Hungarian division: HUPAN: founded in 2009

- European division: looking for founding members

- Organization and participation:

- SA operators (e.g. personal, air-taxi),

- SA industry (e.g. Diamond, Corvus),

- Research institution (e.g. NLR, DLR)

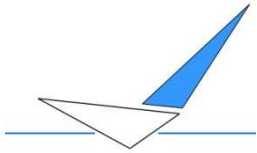
- Universities

- International organizations (e.g. EUROCONTROL)

- National and international regulators

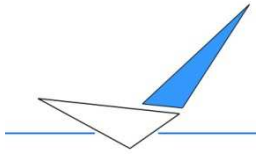
- Airports operators and service providers





5. EPAN – cont'd.

- Objectives:
 - **Primarily:**
 - **Catalyze and support the European personal air transportation related actions, programs and R&D**
 - Secondly:
 - Establish the channel of communication between the actors
 - Provide an overview of the related activities
 - Widen the scope of the actors coming from different domains
 - Facilitate the European PA operations (from the technical and operational aspects)
 - Assist the integration of PA into the European air transportation system
 - Provide guidelines on the targets and characteristics of the coming air transportation system (e.g. SESAR)



6. Project ideas

6.1. Possible themes

Area 7.1.1.1. Green Aircraft - AAT.2010.1.1-2. Aerostructure --
composite materials – Coordination and Support Action

ACTIVITY 7.1.3. ENSURING CUSTOMER SATISFACTION AND SAFETY

AAT.2010.3.3-3. Avionics -- collaborative project

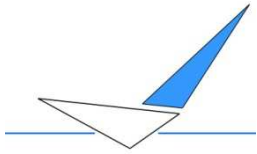
AREA 7.1.6.3. Promising pioneering ideas in air transport

AAT.2010.6.3-3. Personal air transport systems – collaborative project

7.1.7. CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme

AAT.2010.7-3. Improving passenger choice in air transportation with the incorporation of additional and new vehicles

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



6. Project ideas

6.2. Composite Aircraft

Proposal acronym:	COMP-AIR
Proposal title:	Composite Aircraft
Company/originator:	Corvus Aircraft Ltd.

The usage of composite materials in General Aviation and the lessons learned for the European aeronautics industry

What are the techniques used in smaller composite aircraft

How these technologies can be used for larger commercial aircraft

A CSA composing of small studies, survey and workshops

Participation of:

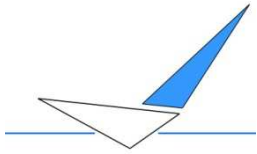
- smaller Central European SMEs,

- Central European research organisations and universities,

- large European manufacturers.

Helped by the newly formed EPAN network

The project is to be serviced under the AeroPortal – www.aeroportal.eu



6. Project ideas

6.2. GA System

Proposal acronym: EGAS

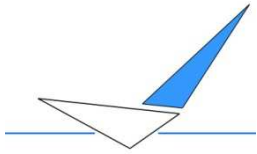
Proposal title: European General Aviation System

Company/originator: REA-Tech

The EGAS proposal aims at demonstrating 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.

The project will identify the technologies necessary to meet the safety, environmental, operational and economic requirements and will provide a study of a road map and a business case. The project will be supported by the newly formed EPAN network.

The projec is to be serviced under the AeroPortal – www.aeroportal.eu



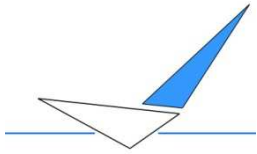
6. Project ideas

6.3. Equipment

Proposal acronym: OMEGA
Proposal title: On-board and ground equipMEnt for GA
Company/originator: BUTE (and/or REA-Tech)

The existing certified equipment (avionics, communication, etc.) developed for the civil passenger aircraft reader expensive for the small aircraft. However GA and as specially the personal air transport piloted by the persons having limited practice extremely important in case of increasing the number of small aircraft and integration them into the civil aviation system.

The goal is the development and definition of the joint concept of the ground and on-board equipment system for small aircraft (personal air transport system) for interest of all the Europe.



6. Project ideas

6.3. Equipment – cont'd.

Workplane:

WP1. Definition of the needs in new ground and on-board equipment for the small aircraft (guided from analysis of results of existing projects, systems, and their future development – like EPATS, PPLANE, SESAR, etc.)

WP2. Analysis of the Human factors, safety and security aspects.

WP3. System specification – joint concept (development of the operational concept (from the equipment point of use)).

WP4. Investigation on development of the ground equipment.

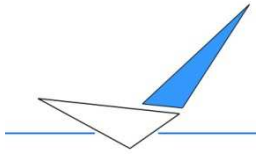
WP6. Investigation on development of the aircraft on-board system.

WP7. Economical benefit analysis

WP8. Dissemination and management

The project structure including the horizontal lines as data handling. communication, avionics, advisory systems, etc.

Project size: 2.5. – 3 MEUR.



Conclusions

New market is open.

East and Central Europe have strong interest in EPATS

National projects have attractive results.

EU – US competition – NASA SATS, PAV have not mirror actions.

Now, 3rd call gives shans.

We must be more organised -- EPAN.

There are several good themes for PATS.

We must prepare 2 – 3 excellent project.