EWADE 2013

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17 to 19 September 2013, Linköping University, Sweden

MARGARET: A PERSONAL TRANSPORTATION AIRCRAFT OF TOMORROW USED TODAY FOR COLLABORATION AMONG UNIVERSITIES

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A: Aero
S: Space
S: System
E: Engineering
T: Team

Hochschule für Angewandte Wissenschaften Hamburg
Hamburg University of Applied Sciences

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Section 1:

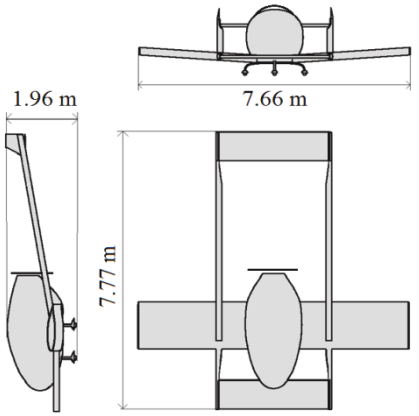
Introduction to MARGARET

WHAT IS IT?

MARGARET stand for: **M**odular safe and **A**ffordable not t**R**aditional **G**reen light **A**ircraft **R**esearch for **E**veryday personal **T**ransportation

MARGARET is a concept of ULM (Ultra Light Machine) Aircraft for Everyday Personal Transportation designed to be:

- Easy to pilot to be safe
- Passively Safe
- Modular & Affordable for Mass Diffusion
- Green
- Attractive and comfortable for everyday use

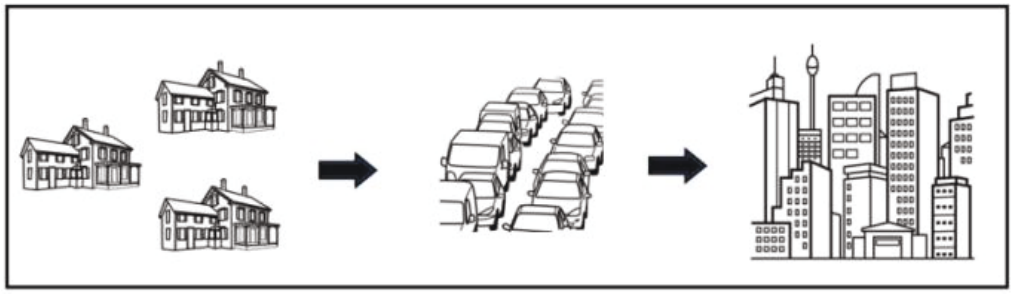


WHY?

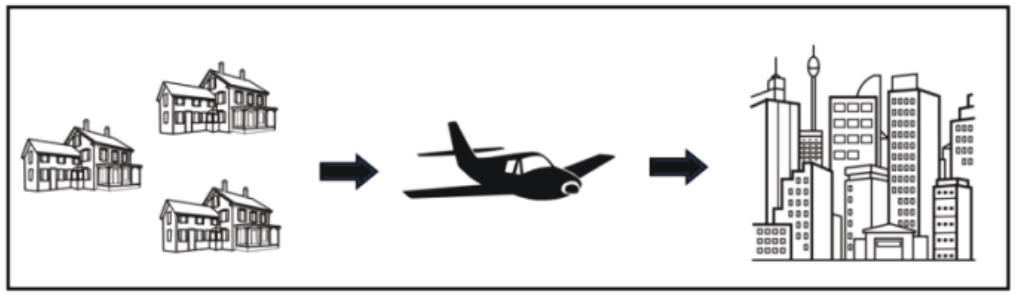
Why could be useful for the European society to have a Personal transportation system based on ULM (Ultra Light Machine)?

The idea is that a small, but important, percentage of people could use an aircraft for their daily travel from their house in the countryside to the job place in the city center.

TODAY

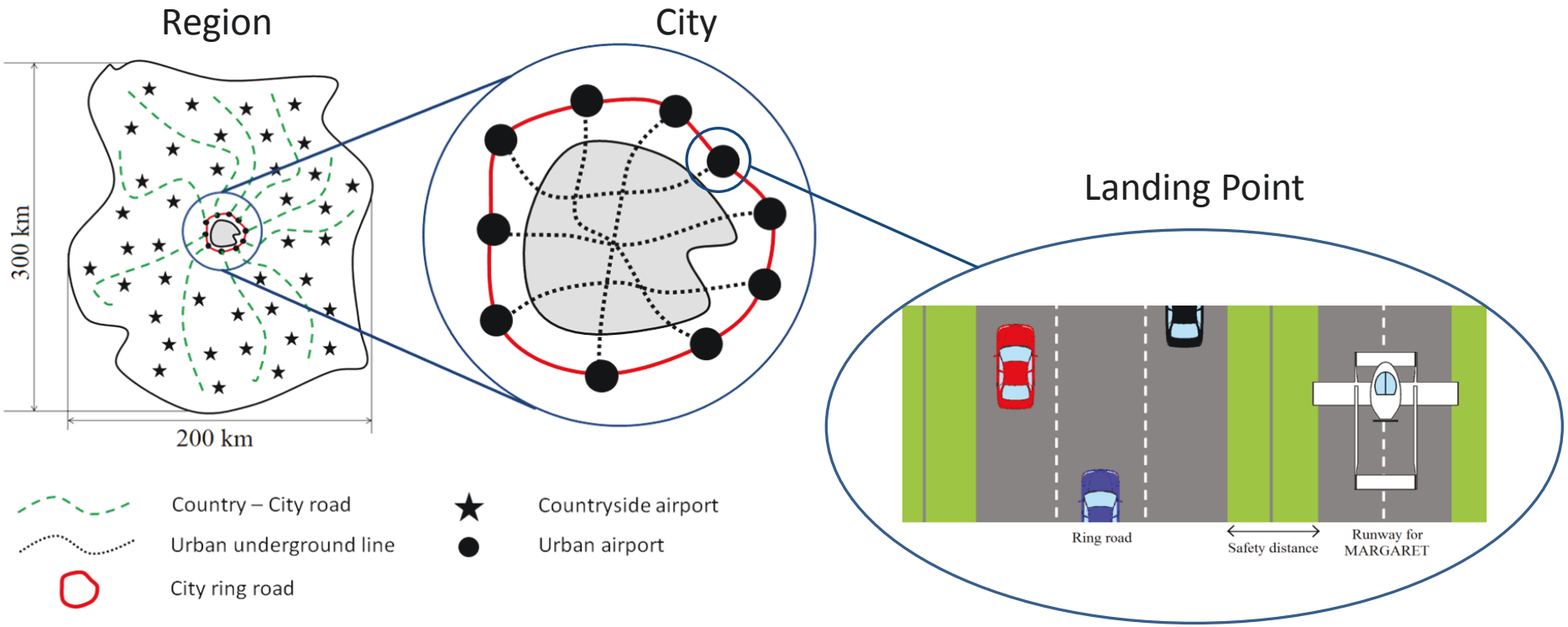


IN SECOND HALF OF THE CENTURY



HOW?

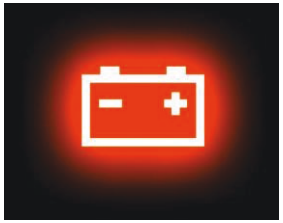
Every big city has a ring road around it, the idea to create dedicated runways parallel to existing ring road and strategic urban airports served by public transportations such as bus services, tram lines or subways.



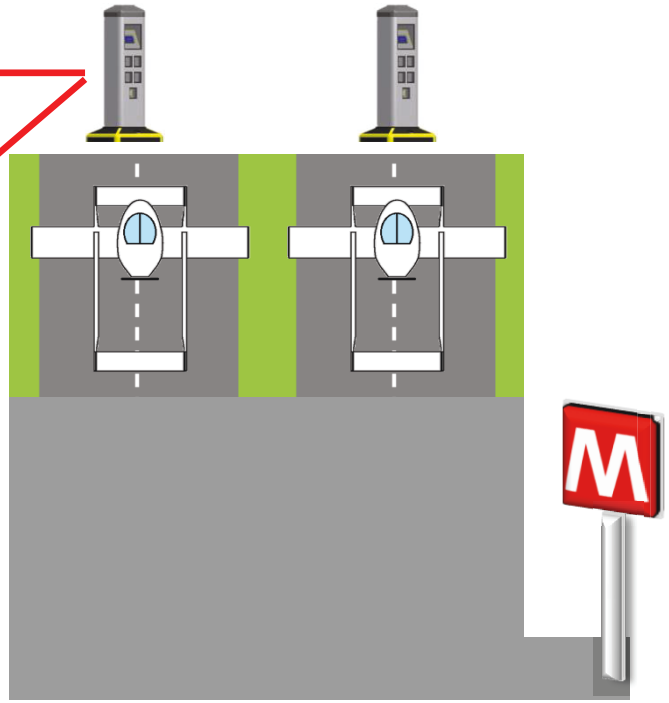
HOW?

Once landed MARGARET aircraft will be parked in dedicated parking point where it will be possible to recharge batteries for long stops or change them for short stops as showed in Figure. Parking points will be connected to the city center with Metro stations.

Possibility to park and charge batteries while the user is at work for long parking



Possibility to park and change batteries for short parking



Section 2:

MARGARET Aircraft Technologies

MARGARET

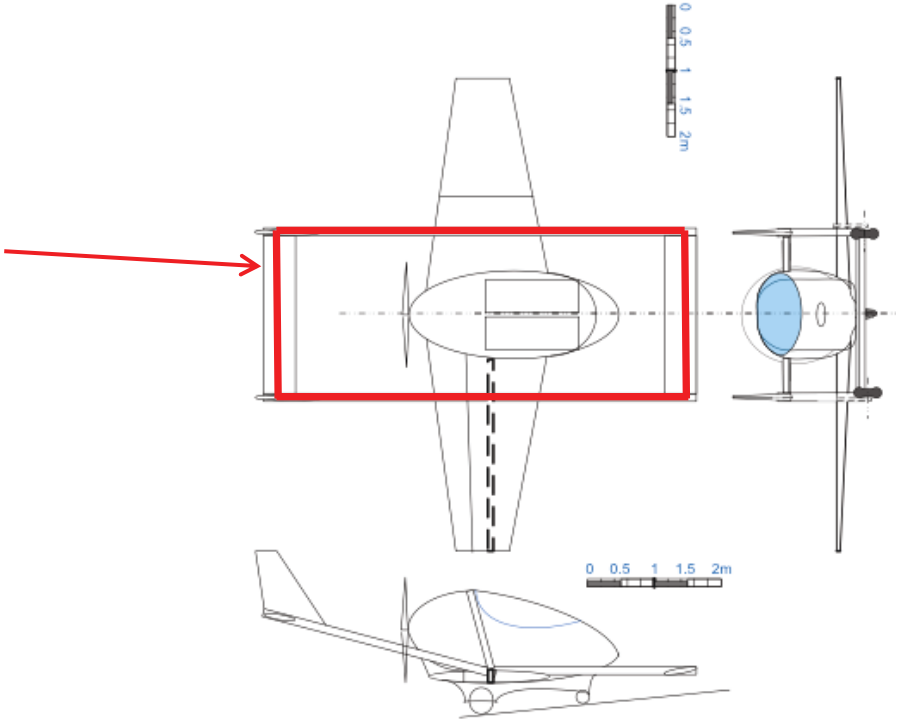
MARGARET technologies for a future everyday personal transportation:

1) Safety
2) Easy to pilot to be safe
3) Green Mobility
4) Integrated with the future Single European Sky

MARGARET
1 - Safety

Innovative and completely new architecture of the aircraft

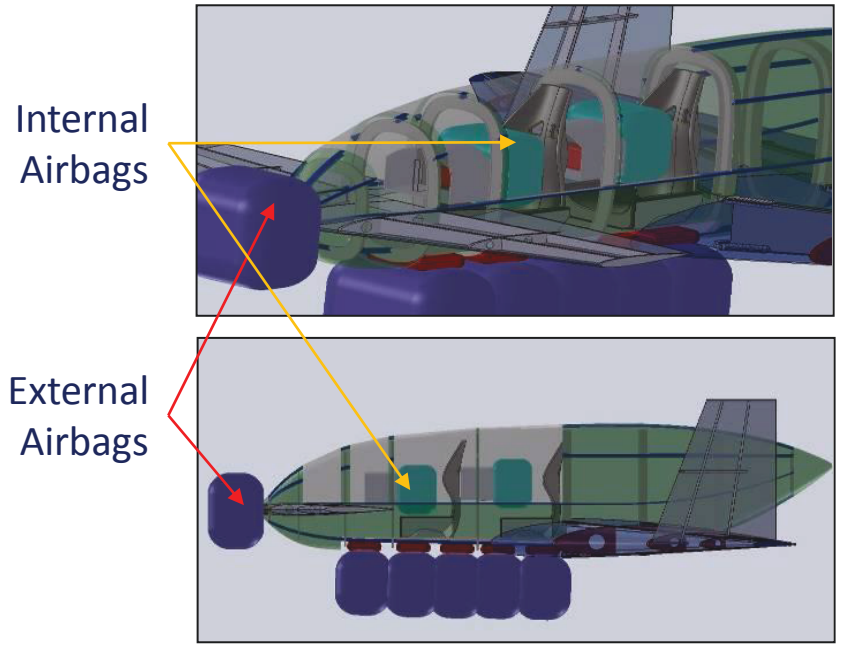
•Enhanced protection of the cabin due to the **fuselage completely surrounded on its four sides** from structural elements



MARGARET
1 - Safety

Thanks to the enhanced protection of the cabin a radical increase in passive safety is provided by **Air-Bags**

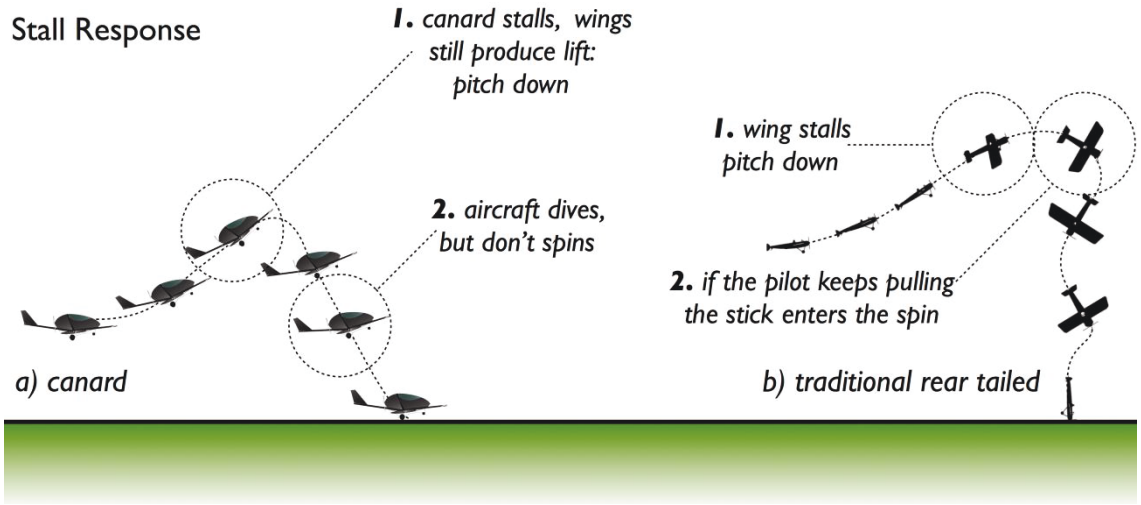
The synergic use of internal and external airbags allow the radically increase passive safety and survival probability in event of crash



MARGARET
2 - Easy to pilot to be safe

Aerodynamic Configuration to ease the piloting experience

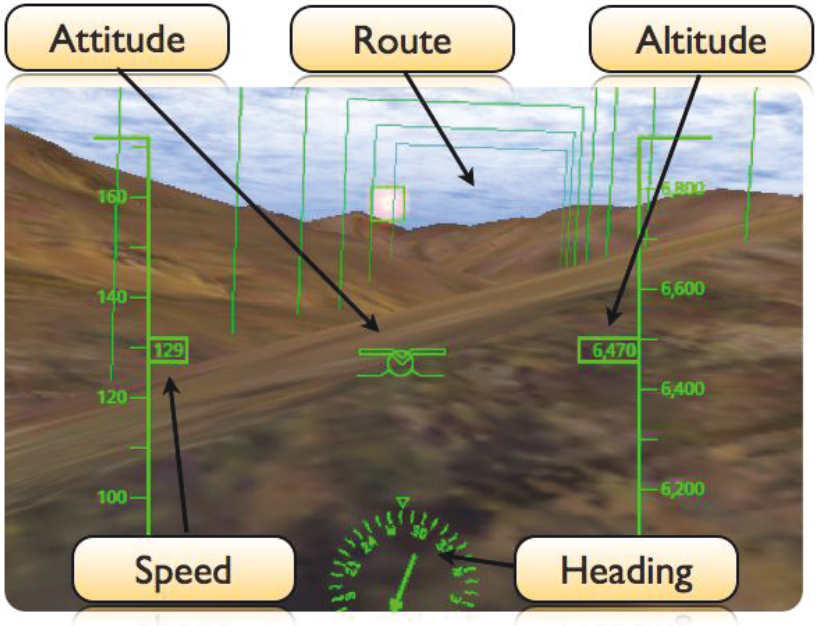
- Three Lifting Surfaces
- High Wing Area but Low Aspect Ratio



MARGARET
2 - Easy to pilot to be safe

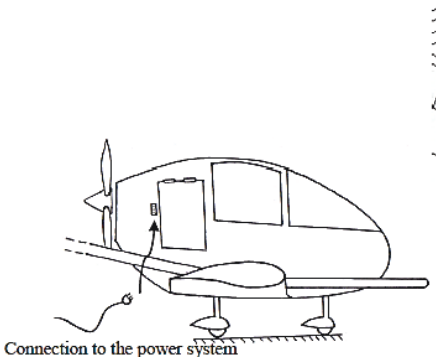
Innovative Avionic System

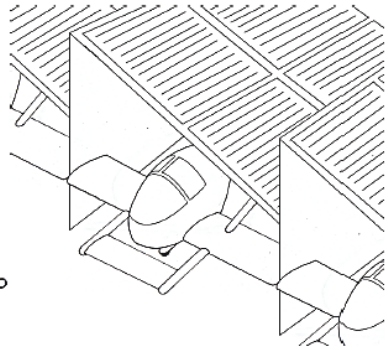
- HMI (Human Machine Interface) for Enhanced Situational Awareness
- All Weather Flight
- Auto-piloting capability
- Interactive HMI

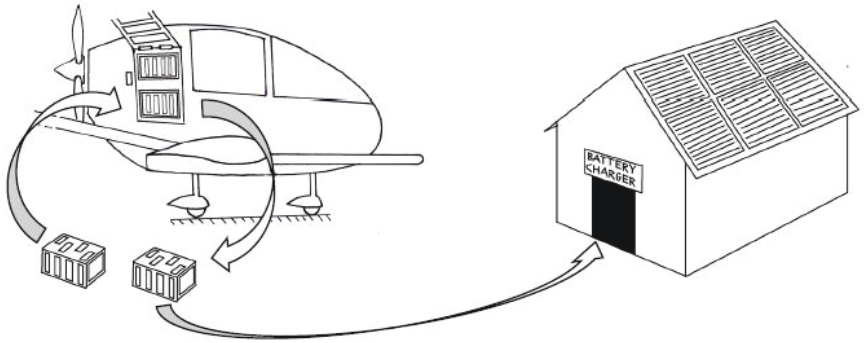


MARGARET
3 - Green Mobility

A greener mobility concerns <u>zero emissions</u>







MARGARET
4 - Integrated with the future Single European Sky

Adaptation of MARGARET on the base of the foreseen evolution of the European ATM system designed by SESAR:

- Dedicated access to SES(Single European Sky) Web Net for Planning and Sharing of a 4D Trajectory
- Use of ADS-B technology for separation and collision avoidance

Section 3:

MARGARET Consortium:

Collaboration among Universities and

Educational Initiatives

MARGARET
The Consortium

Leader

Politecnico di Torino

Hochschule für Angewandte Wissenschaften Hamburg
Hamburg University of Applied Sciences

Scuola universitaria professionale
della Svizzera italiana
SUPSI

Cranfield University

MARGARET
Collaboration and Educational Initiatives

Participation to EWADE 2013 (TODAY)

Sergio CHIESA, Dieter SCHOLZ, Giovanni Antonio DI MEO, Marco FIORITI, Andrea FURLAN

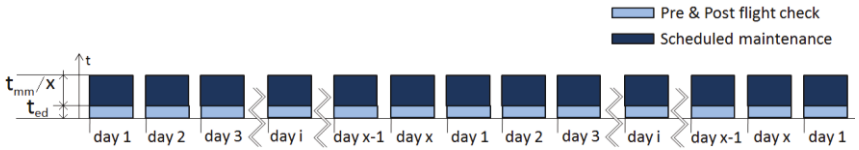
"MARGARET: A PERSONAL TRANSPORTATION AIRCRAFT OF TOMORROW USED TODAY FOR COLLABORATION AMONG UNIVERSITIES"

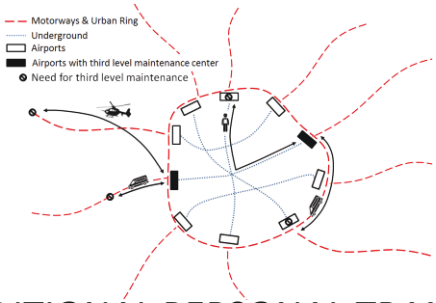
Hochschule für Angewandte Wissenschaften Hamburg
Hamburg University of Applied Sciences

Participation to World Maintenance Forum 2013 4-6 September 2013 in Lugano, Switzerland.

Sergio Chiesa, Giovanni A. Di Meo, Marco Fioriti, Andrea Furlan

"SUPPORT AND MAINTENANCE STRATEGIES FOR FUTURE, INNOVATIVE AND LARGELY WIDESPREAD AIR PERSONAL TRANSPORTATION SYSTEMS"

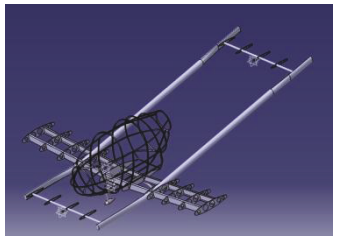


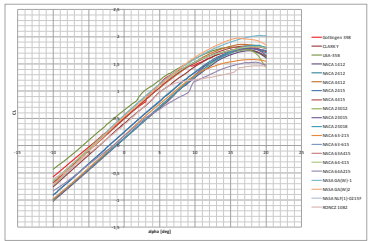


Scuola universitaria professionale della Svizzera italiana
SUPSI

Master Degree Thesis

Andrea Furlan *"SAFE AND AFFORDABLE NON TRADITIONAL PERSONAL TRANSPORTATION AIRCRAFT"*
MSc Thesis in Aerospace Engineering –POLITECNICO di TORINO, March 2013





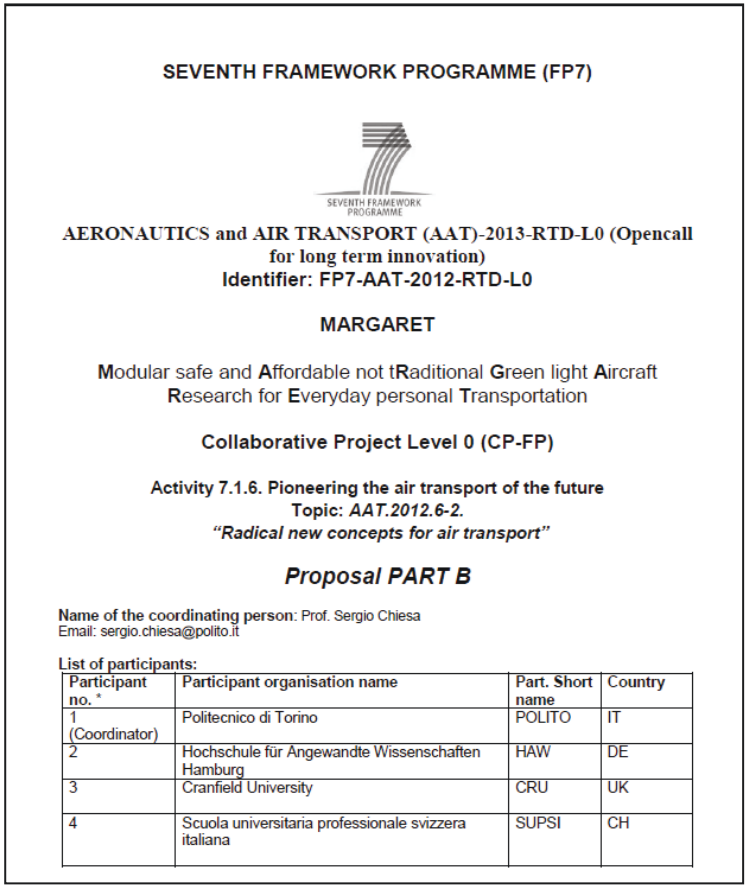
Cranfield UNIVERSITY

Section 4:

Future of MARGARET

We Submitted MARGARET to 7th Framework in a Level 0 Call on March 14th 2013

FP7 – AAT – 2013 –Transports (Aeronautics) Call
Level 0 - CP-FP –
Call: FP7-AAT-2012-RTD-L0
AAT.2012.6-2. Radical new concepts for air transport



SEVENTH FRAMEWORK PROGRAMME (FP7)

AERONAUTICS and AIR TRANSPORT (AAT)-2013-RTD-L0 (Opencall for long term innovation)
Identifier: FP7-AAT-2012-RTD-L0

MARGARET

Modular safe and Affordable not tRaditional Green light Aircraft Research for Everyday personal Transportation

Collaborative Project Level 0 (CP-FP)

Activity 7.1.6. Pioneering the air transport of the future
Topic: *AAT.2012.6-2.*
"Radical new concepts for air transport"

Proposal PART B

Name of the coordinating person: Prof. Sergio Chiesa
Email: sergio.chiesa@polito.it

List of participants:

Participant no. *	Participant organisation name	Part. Short name	Country
1 (Coordinator)	Politecnico di Torino	POLITO	IT
2	Hochschule für Angewandte Wissenschaften Hamburg	HAW	DE
3	Cranfield University	CRU	UK
4	Scuola universitaria professionale svizzera italiana	SUPSI	CH

MARGARET has been positively evaluated even if not financed due to lack of founding

We are not discouraged…..

WE ARE READY FOR HORIZON 2020

Thanks for the attention
Any question?