SIXTH FRAMEWORK PROGRAMME

Call Selected: FP6-2005-Aero-1

Proposal full title:	**Development of a flying vehicle for sustainable and safe mobility**
Proposal acronym:	METROPOLIS
Date of preparation:	13 July 2005
Type of instrument:	Specific Targeted Research Project
List of participants:	

Participant no.	Participant organisation name	Participant org. short name
1 (coordinator)	Pininfarina SPa.	PF
2	CEIIA-Centro de Engenharia	CE
3	Politecnico di Torino	PO
4	Università la Sapienza	LS
5	LH Aviation	LH
6	Critical Sofware	CS
7	Skysoft	SKY
8	Instituto Superior Técnico - Instituto de Sistemas e Robótica	IST

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Proposal Summary

Proposal full title: Development of a flying vehicle for sustainable and safe mobility

Proposal acronym: METROPOLIS

Research objectives/Topics addressed:

AERO-2005-1.3.1.1l New aircraft concepts and breakthrough technologies

AERO-2005-1.3.1.1a Integrated design and product development

AERO-2005-1.3.1.1d Aerodynamics

Proposal abstract:

Increasing the ability to move people and goods require innovative solutions, and mixed road and airborne transport concepts will take its place in the future urban travelling. The project object is to develop a novel vehicle concept able to cover a niche in transport solutions for the people and goods. In particular, regarding capillary access to urban and congested sites or hardly accessible site like some rural and country areas.

The idea at the basis of Metropolis offers a solution to the problems that up to now relegate aircraft and rotorcraft to dedicated sites or quite wide areas for take off and landing procedures.

In particular Metropolis offers a solution to the following transportation problems:

- Time consuming ground displacement to reach take-off and landing sites;
- Time consuming airport operations for departure and take off (for people using regional air transport, time spent to effectively cover the distance is a small fraction of real time spent for entire trip: home-airport-flight-airport-destination);
- Requirement for dedicated and equipped areas for earth-air interface (helicopters, due to free-blade rotors, require relatively big open areas to safely operate);
- High skilled and training pilot and crews required to safely operate traditional flying vehicles.

Metropolis Project envisages therefore a hybrid vehicle capable of ground and airborne operation.

The concept is a small vehicle (length 4500 mm, max width 2300 mm, height 1500 mm, total weight about 600 kg) capable of vertical take off and landing (in very narrow spaces) and able to move in the air as a normal rotorcraft and on the ground as a normal automobile. The possibility to fly is guaranteed by two counter-rotating propellers placed in the central position.

The vehicle will be able to transport a maximum of two people and, when there is only the pilot/driver, he/she will seat in the middle to solve the balancing issues.