



DonQ Air NEWSLETTER No. 4

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DonQ Air - Promoting RTD in aeronautics SMEs of Poland, Romania and Turkey



DonQ Air is a Specific Support Action (SSA) project financed by the European Commission under the **6th Framework Program**, aiming at encouraging R&D activities in the aeronautic-related SMEs in Poland, Romania and Turkey.

Within DonQ Air project, several project proposals are to be identified and supported for submitting by the project consortium.

Project proposals supported by DonQ Air PROJECT

ESVIA - the objective of the proposal is to develop a new methodology involved in the aeronautical embedded system development process, able to share information between the models used in the different stages of the embedded systems development process to design, verify and validate aeronautical embedded systems. The *ESVIA* new methodology which will reduce development time and cost in the production of aeronautical embedded systems.

In the aeronautics industry a large number of embedded systems which combine hardware and software to, for instance, control the flight dynamics of the aircraft. The developments of these embedded systems are estimated to cost about 12% of the aircraft price [5]. It is therefore useful to research the possibilities of these costs. There is already an effort in the aeronautics industrial market to reduce the development time and cost in software systems. The efforts are focused on finding the errors in the early stages of the development process by means of testing, as such that the manifestation of the faults will not result in the failure of the system at a later stage in the design. Errors, faults and mistakes at a later stage will naturally need more time to correct and will cost significantly more.

Although the different models and tools are increasingly being used successfully in the aeronautical industry, the coupling between the design and testing models between the development stages is non-existent. The lack of this connection or decoupling between the development stages has the following consequences for the embedded system design process:

- At every design stage the new models have to build up from scratch which is a time consuming and expensive task,
- There is no information exchange between the models in different development stages, neither up nor down which is a source of possible errors,
- Changes in the different development stages are difficult to trace back in the whole embedded system development cycle.

The aim of the *ESVIA* project will therefore be to investigate breaking down the now existing barriers between the development stages in order to:

- Obtain a higher productivity in the development process,
- Reduce the cost of the development life cycle by not repeating modeling activities,
- Enhance the traceability of the process within different development stages,
- To detect mistakes in the development process earlier,
- Increase the quality of the design,



The main focus of the ESVIA project is, in summary, an increase in quality, the reduction of embedded system cost and decreasing time-to-market by increasing the productivity. Consequently, aeronautical transport for the citizen will be more affordable. The ESVIA project intends to develop a new methodology involved in the entire aeronautical embedded system development process.

Expected Impact

- Reduce time-to market, developments cost of aeronautical embedded systems,
- Increase the quality and robustness of aeronautical embedded systems,
- Increase the competence between European aeronautical companies,
- Reinforce Europe leadership in the design of complex AES.

The consortium is still looking for companies with experience in developing parts or systems including embedded software applications for the aeronautics industry.

DAFICS: developing structure of composite materials that rivals modern structures of airships and aeronautical structures. The purpose of the idea will be to apply the latest advances in composite technology to the design and optimize the airship structure while simultaneously researching and developing innovative aspects of the composite materials, its application to the structure and developing new structural composite profiles. The choice to use composite materials is based on their favourable weight-to-strength ratio when applied ingeniously

Modern air transport vehicles and aircraft largely depend on the consumption of a large amount of fuel to transport goods or people to different locations in Europe and over the world. The high fuel consumption is required for these aircraft to generate aerodynamic lift. The recent high oil prices, the economical down turn and environmental socio-economical developments support the potential of other type of aircraft or airship as they have the following advantages:

- Minimal use of fossil fuels,
- Vertical landing and take off and landing (VTOL) characteristics,
- Safe,
- Quiet means of transport, and
- No requirements for extensive infrastructure.

Therefore the idea for an All Electrical Aerial Transport Vehicle (AEATV) is hence conceived. To facilitate the AEATV some hurdles and challenges have to be taken to establish an energetically, structurally and scientifically safe and sound aircraft. This proposal relates to the development one of the subsystems required for the AEATV. As any concept for aerial transportation it is required that the structural integrity is immaculate and constructed in a way that secures the goods and passengers a safe and reliable flight. The subsystems that are identified are:

- Airship structure,
- Flight statics, dynamics & control,
- Aircraft propulsion,
- Photo Voltaic (PV) energy collection,
- Electrical systems, and
- Lighter than air gas reservoir and regulating mechanism.

The primary scientific and technical objectives of the proposed AEATVCP project would be:

- Development of a light composite structure,
- Innovative application of composite materials,
- Development of innovative profile cross sections,
- Weight reduction,
- Increase in strength and rigidity of structures, and



- a structural base for an AEATV

Additional achievements would be related to the RTD of the European industry and especially SMEs:

- To explore greener means of transport,
- To develop a structural frame for future research on AEATVs,
- To develop the technology for structural mechanics of composite materials in airship applications.

The consortium is still looking for companies with experience in manufacturing parts of aircrafts and entities with experience in using composites in the aeronautics industry.

News

FP7 Calls for proposals – SP1-JTI-CS-2009-02

The Clean Sky Joint Technology Initiative has launched its second call for proposals.

Publication Date: 25 November 2009

Budget: € 8 377 700

Deadline: 23 February 2010 at 17:00:00 (Brussels local time)

Specific Programme(s): Cooperation

Theme: Joint Technology Initiatives (Annex IV-SP1)

For detailed descriptions of the work topics and information on how to submit your proposal, please consult: www.cleansky.eu

Events

Info Day on Clean Sky second call for proposals, 15th December 2009, Brussels,
www.cleansky.eu

The Clean Sky Joint Undertaking is organising an Info Day in Brussels on 15th December.

This event aims at informing interested parties on the details of how to respond to Clean Sky's second Call for proposals.

Leaders from the five technology domains of Clean Sky will present the Call topics, while Clean Sky staff will present the procedures to be followed by applicants.

For further information and registration, please consult: www.cleansky.eu

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<http://www.kpk.gov.pl/donqair/index.html>