



Skyline

n°10 Innovation takes off
MAY 2013

ALL ON BOARD FOR
INNOVATIVE SKIES

CONTENTS

EDITORIAL P.03

THE FUTURE OF
CLEAN SKY P.04

CLEAN SKY 2 : THE CURRENT STATUS

INTERVIEW P.05

MARIA DA GRAÇA CARVALHO

ASD & HORIZON 2020 P.06

JEAN-PAUL HERTEMAN

ONERA P.07

BOOSTING TECHNOLOGY AND INNOVATION

PARIS LE BOURGET P.08

17 - 23 JUNE 2013

ATYPICAL PARTNERS P.09

FROM WINE TO AERONAUTICS

A TRULY LITHUANIAN IT COMPANY

FIRST SUCCESSFUL STEPS OF
A MONO BENEFICIARY

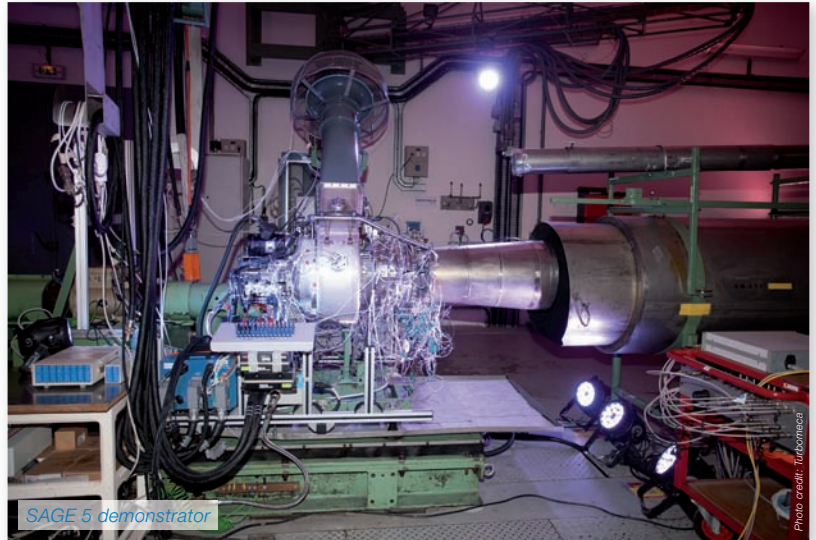
TWO PATENT
APPLICATIONS P.12

THE BUDAPEST UNIVERSITY OF
TECHNOLOGY AND ECONOMICS

CALLS

CELEBRATION OF THE FIRST DEMONSTRATOR

FRIDAY 26 APRIL, PAU (FRANCE)



SAGE 5 demonstrator

Photo credit: Turbomeca

This public-private partnership will bring research projects closer to their marketing and, through that, it will allow the European aircraft industry to maintain its position as a worldwide leader.

Siim Kallas,
Commissioner for Transport,
European Commission



Siim Kallas, Margus Rahuoja, Jean-Paul Herteman

Photo credit: Turbomeca

Today's ceremony also symbolizes the strength of EU initiatives when it comes to networking, between the large European aviation industries, SMEs, universities and research institutions.

Jean-Paul Herteman,
Chairman & CEO of Safran



Jean-Paul Herteman, Siim Kallas, Eric Dautriat

Photo credit: Turbomeca

In Clean Sky 2, we will go on developing demonstrators, either as a continuation of Clean Sky where technologies are promisingly matured but need some further, wider integration, or, in most cases, as new activities which will bring more to the future products beyond 2020, 2025 - meaning, brand new demonstrators.

Eric Dautriat,
Executive Director
of the Clean Sky JU



In this period full of achievements and promise, Clean Sky is presenting itself in a series of dedicated events.

On April 26th, the Clean Sky community celebrated, in Pau, the first test campaign of the “SAGE 5” demonstrator, a turboshaft coordinated by Turbomeca, a Safran company. Siim Kallas, the Commissioner for Transport and Vice-President of the European Commission, was welcomed to this event by Jean-Paul Herteman, CEO of Safran and current President of ASD. This demonstrator addresses the three main goals of Clean Sky : CO₂, NOx and noise; it puts together a set of new technologies which will decrease CO₂ emissions by 15% with an innovative core engine, NOx emissions by 60% thanks to a new combustion chamber, and noise by 50% through an air intake and exhaust plug acoustic attenuation.

The Joint Undertaking is very happy and very proud of Vice-President Kallas’ participation, which makes evident the continued support of the European Commission to this programme. Together with the “SAGE 3” demonstrator for large engines dedicated to long range commercial aircraft, which is running in parallel, this test campaign paves the way for many other upcoming technology demonstrations in Clean Sky.

These successful activities also pave the way for Clean Sky 2. The European Commission, the aviation industry and the Joint Undertaking (JU) are quite busy preparing the proposal to be submitted to the Council. Several wide, well-attended conferences took place already, in order to inform potential stakeholders of the programme draft content and the expected next steps, and to receive their feed-back. The latest events covered general aviation, with the inclusion of Small Air Transport objectives in Clean Sky 2 scope. This small air transport conference in Warsaw attracted more than 120 participants. There is no doubt that this segment has the capacity to involve newcomers and new skills, building technical synergies with regional aircraft and rotorcraft in Clean Sky 2 ITDs. This will contribute to the essential goal of strengthening, on a competitive basis, the “innovation supply chain” approach we have built thanks to the JTI organisation.

We will have an opportunity to discuss this during one full day, on May 30th, in Brussels, in another conference we are organising about the participation of SMEs. Everybody knows, or should know, the high rate of SMEs, close to 40%, we experience in our Calls for Proposals. We do believe that Clean Sky can be a model for attracting SMEs to European innovation, even beyond aeronautics. We think this deserves special attention, digging into this original approach, discussing the rationale, finding ways for further improvements, and above all, listening to what SMEs have to say.

This diverse and broad participation shows once again that the strategic issues covered by the Programme and the research topics developed in Clean Sky attract partners with quite different profiles and go beyond the frontiers of aeronautical research. Furthermore, the wide interest shown in becoming Core Partners in Clean Sky 2 demonstrates the positive impact of our action so far and reinforces our will to further open the Programme to new comers.

Building on these successes to respond adequately to the innovative and competitive challenge Europe is facing is our motivation. Relying on both public and private investments is a must to face international challenges and a JTI such as Clean Sky provides a significant leverage effect on private investment as recalled by Mrs. Carvalho, MEP and rapporteur for the specific programme implementing Horizon 2020.

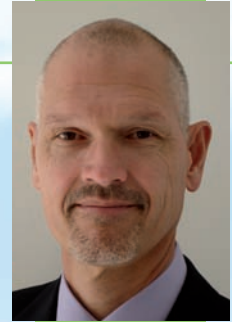
The launch of Clean Sky 2 under Horizon 2020 will be one of the key issues the discussed at the Paris Air Show. We will be there – of course. You will learn more about our presence at the show in this issue of Skyline. Interesting pieces of hardware will be on display: Clean Sky is now delivering a number of concrete, innovative parts, on its way to integrated demonstrators. I look forward to welcoming you there!

Eric Dautriat,
*Executive Director of
the Clean Sky Joint Undertaking*

THE FUTURE OF CLEAN SKY

CLEAN SKY 2 : THE CURRENT STATUS

Since our last Skyline, preparations have continued under a full head of steam towards establishing Clean Sky 2 and enabling an early start in the Horizon 2020 Programme. Ron van Manen highlights the current status.



Ron van Manen,
*Clean Sky Technology Evaluation Officer, and
project co-ordinator for Clean Sky 2 preparation*

“Efforts are ramping up across all areas, with the Industry Leaders, the Commission and the JU Team all playing a part in the efforts to be ready by early 2014. The wider stakeholder base of current Clean Sky members and partners, but importantly: an encouraging number of potential new participants, is showing strong engagement and many are providing excellent input for the Programme’s technical content. A major milestone in the coming weeks is the finalisation of the Lol Signatories’ **Joint Technical Proposal**. This will serve as the programme’s technical architecture and set out high-level work-plans, and support the selection process and creation of the teams of Leaders and Core Partners for the *Innovative Aircraft Demonstrator Programmes* (IADPs), and the *Integrated Technology Demonstrators* (ITDs).

Where it is clear that collaboration and co-ordination across these IADPs and/or ITDs is essential to the programme’s overall achievement of its goals, *Transverse Activities* are being worked out and these will be supported and coordinated by Transverse Leaders. Promising steps are being made to define the scope of these areas and to develop the model for co-ordinating activities across the programme. The Transverse Activities that were agreed in earlier stages are ECO-Design, enabling the continuation of the important gains made in Clean Sky to date; and the continuation of the Technology Evaluator (TE) where each IADP and ITD will contribute to the monitoring and evaluation of the progress towards programme goals and targets.

An exciting new area in Clean Sky 2 operating transversally across the ITDs Airframe, Engines and Systems is *Small Air Transport* (or SAT). This General Aviation sector spanning 4 to 19 seats fixed wing aircraft shows promising benefits in mobility and economic development. A well-structured and substantiated proposal from this sector was made to the JU; and agreement has been reached to absorb SAT in Clean Sky 2 alongside the aircraft sectors active in Clean Sky to date. Evktor of the Czech Republic and Piaggio of

Italy will join the group of initiating industry leaders as Transverse Leaders of SAT.

In the field of ECO-Design, a similar Consultation Session is on the cards (and will have been held by the time Skyline is published). And for the TE, workshops are being prepared between the industrial leaders and the key knowledge and competence centres such as Research Establishments and Universities in order to set out the principles for the TE for the new programme and the Horizon 2020 period.

On the institutional front, the Impact Assessment we touched on last time was successfully passed and the Commission has now started the formal process of Inter-Service Consultation: this being the next step before a formal proposal to the Council of Member States is prepared for the continuation and extension of Clean Sky under Horizon 2020. The Impact Assessment, the (draft) Regulation and Statutes forming the legislative framework for the continuation, and the technical proposal agreed by industry – to be underscored and cemented through a Memorandum of Understanding between the initiating leaders, all come together in this final push towards setting the scene for a new Clean Sky 2.

It is said that today’s economic and political environment is so fast-moving that only ‘parallel processing’ can deliver adequate results. The preparatory work towards Clean Sky 2 is a good example of this. It is a credit to the many individuals involved from industry, the JU and the Commission this is succeeding. Often with huge efforts from within teams already working flat-out on realising the current objectives of Clean Sky – which is now in the critical phase of preparing the major demonstrators and proving the success of Clean Sky as PPP. And it is appropriate to take this opportunity to thank all of our Clean Sky ‘champions’ for this support.



INTERVIEW

MARIA DA GRAÇA CARVALHO

*Rapporteur for the Specific Programme
Implementing Horizon 2020, European Parliament*

Maria da Graça Carvalho is a member of the European Parliament in the PPE group since 14 July 2009. She is member of the ITRE-Industry, Research and Energy Committee, substitute member of the

Budgets Committee and member of the ACP-UE Joint Parliamentary Assembly.

She was elected co-President of the Economic Development, Finance and Trade Committee of ACP-UE Joint Parliamentary Assembly.

She is a Full Professor at Instituto Superior Técnico (Technical University of Lisbon) and she has a 30 years research experience in the areas of energy, environment and climate change fields.

• How far the overall budget reduction of Horizon 2020 could affect the tree pillars of Horizon 2020? Would you consider a proportional repercussion on them?

We are already waiting for the final figures of the MFF to discuss how we will distribute the final budget among the Pillars. If the cuts are not too big we will probably suggest a proportional cut for the different priorities.

• A little bit under €71 billion for H2020, is still a net increase compared to €55 billion of FP7. Still not enough the boost Europe Competitiveness and address the essential societal challenges?

If we convert the €71 billion for 2011 constant prices the Horizon 2020 will not have a budget increase compared to FP7. According to our calculations we would need a budget increase of about €76 billion in order to ensure a real growth compared to 2013 levels, as aimed by the European Council.

• What is the EP view on the EC proposed flat rate funding scheme?

The EC proposed flat rate is a great progress towards simplification. A simplified and trust-based programme is essential to reduce the time to grant, to facilitate the participation of all beneficiaries and to remove barriers for the participation of newcomers. However, we cannot forget the research institutions that have high indirect costs due to the maintenance of costly research infrastructures. For this reason the Parliament suggests a funding model with the possibility of using real costs instead of a flat rate.

• Once again, JTIs and among them Clean Sky will have an exhibition at the EP at the end of September. In December 2011, you said that 'JTI instruments might play an important role within the Horizon 2020 landscape'. Could you please develop your view today?

PPPs have already demonstrated their potential as a mobilising force for converting aspirations into action. Especially in times of budget constraints it is of most importance that public and private sectors join efforts both in terms of converging in research and innovation agendas and of budget spending and JTIs provide a very significant leverage effect on private investment.

• What should the essence of a PPP in Research and Innovation be? How would you consider the respective roles and duties of the Public and Private party?

The essence of a PPP is the coordination of large scale research and innovation programmes dedicated to common strategic research targets. Both private and public parties should be committed to this common end and should share expenditures. The ability of PPPs to contribute to a more dynamic and competitive European industry and economy is something that has already proven its success.

• How far do you consider that environmental goals should still be prioritized for aeronautics in a possible Clean Sky 2?

Europe has clear and ambitious targets for combating climate change. To achieve this target Europe has to consider very seriously the air transport sector which has a steady increase in number of passengers and is one of the sectors with a high potential for improvement, especially in terms of emissions and noise. Moreover, if Europe intends to establish a better Emissions Trading System we have to provide our airlines the technology and tools they need in order to compete in a level playing field.

• More than 20 demonstrators developed at a high maturity level, more than 50% of SMEs among new entrants in Clean Sky, more than 80 Academia involved, the programme is a success. To what extent the lessons learned and specificities of Clean Sky should be preserved in H2020?

These figures prove the success of Clean Sky, and it is based on this experience that we must build future initiatives. The involvement of the major European key players in the Aeronautics sector and the high percentage of SME participation are essential for the continuation of this success. I am currently involved, as a rapporteur, in the negotiations of Horizon 2020 where we try to improve the existing instruments especially in terms of simplification and transparency.

ASD & HORIZON 2020

JEAN-PAUL HERTEMAN

*Chairman and CEO of Safran, President of ASD
(AeroSpace and Defence Industries Association of Europe)*



The European Commission submitted a proposal in November 2011 for research spending of 87 billion euros and one year later the European Parliament defended a budget of 100 billion euros. But the compromise that now seems to be taking shape with member states is closer to 70 billion euros.

This is very bad news for the future of Europe. With emerging countries becoming more powerful, the lingering economic and budgetary crisis possibly imperiling future investments, and both energy and the environment subject to growing restrictions, the European Union cannot afford to throttle its ambitions.

Firstly, because it would break with a policy of supporting innovation that has largely proven its effectiveness. A number of member states have only been able to revitalize the dynamic created by the industrial policy of the 1970s because of a clear commitment from Europe. The power of European networks has increased the effectiveness of national programs such as the Aeronautical Research Program (LuFo) in Germany, the Strategic Vision for UK Aerospace and the Civil Aviation Research Council (CORAC) in France. This is in fact one of the lesser-known successes of the European Union, one in which the aerospace, defense and security industry played a pioneering role by helping create organizations such as ACARE (Advisory Council for Aeronautics Research in Europe), visions such as Flightpath 2050 and programs such as Clean Sky, that we are now hoping to extend via Clean Sky 2.

Secondly, settling for this budget would weaken entire sections of the European economy –just at a moment when the Union has to call on all the growth levers at its disposal. And the aerospace,

defense and security industry is one of the most effective of these levers. With over 2,000 major enterprises, 80,000 subcontractors, nearly 734,000 direct jobs and annual revenues of 171 billion euros, this industry is one of Europe's primary assets in today's globalizing markets. But if we merely settle for improving today's technologies, if we don't start working today on the technological breakthroughs the world will need tomorrow, then our continent will not be able to sustain its leading position in the face of increasingly fierce international competition.

Our
continent's
position in the world
of 2050 will depend
on how ambitious we
are today in terms
of research and
innovation.

Lastly, we are in the process of implementing several major projects, such as the Single European Sky, which should reduce the carbon footprint of air traffic by at least 10%. Europe is engaged in a race with the United States in this regard, and we cannot afford to lag behind. Another good example is access to space. At its last meeting in Naples on November 20-21, 2012, the ministerial-level European Space Agency Council approved support for the Ariane 5 upgrade and successor programs, and reaffirmed that the Galileo and GMES (Copernicus) programs are indispensable to Europe's autonomy. Security and defense are equally important, and they are one of the main things that citizens expect from Europe, which in turn means that the European Union must deploy the resources needed to address these geostrategic challenges.

The situation is very serious. And we cannot let the battle between European institutions imperil Europe's future. Our continent's position in the world of 2050 will depend on how ambitious we are today in terms of research and innovation. It will also depend on whether a spirit of audacity, unity and confidence prevails, and protects Europe's public interests.

THE FRENCH AEROSPACE LAB

BOOSTING TECHNOLOGY AND INNOVATION

ONERA, the French Aerospace Lab, has played a leading role in the European Union's science and technology-based projects for over twenty years. Today, **ONERA** is an Associate Member in three platforms, and is participating in the Technology Evaluator for Clean Sky.



Denis Maugars,
Chairman and CEO of ONERA

ONERA'S TECHNOLOGICAL CONTRIBUTIONS TO CLEAN SKY:

Smart Fixed Wing Aircraft (SFWA)

SFWA represents half of the ONERA research activities in Clean Sky. Research activities have been focused on achieving progress on target 'key' technologies such as: natural and hybrid laminar flow, buffet and vibration control, active fluidic flow control, load control functions and architectures as well as gust alleviation.

Moreover, ONERA research units have also been very active in the integration of either CROR engine or turbofan-fitted innovative afterbody for bizjets. ONERA has been involved in the preparation and analysis of the 2012 Falcon F7X flight tests and has been and will be involved in the preparation of the foreseen flight test campaigns: BLADE NLF and F7X vibration reduction.

Green Regional Aircraft (GRA)

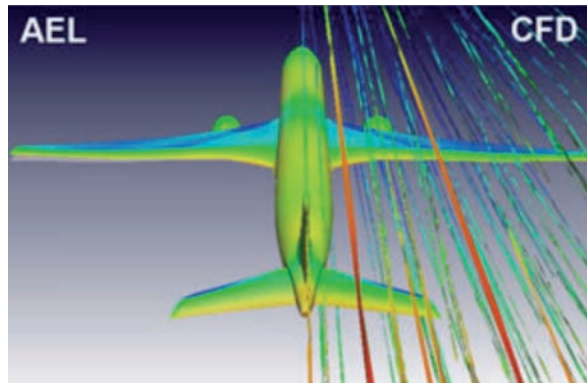
GRA represents nearly 20% of ONERA's contribution to Clean Sky. In aerodynamics, a laminar flow wing has been designed, being the reference for the regional aircraft with open rotor and geared turbofan engines. Noise reduction techniques for high lift devices and aeroacoustic phenomena for landing gears have been analysed with advanced high fidelity CFD and CAA methods. Our activities on composite materials include studies on health monitoring, composite design, repair techniques and lightning damages.

Green Rotorcraft (GRC)

ONERA's contribution to GRC in Clean Sky is 16%, mainly in the field of innovative passive blade shapes, drag reduction and flow control on the fuselage, environmentally friendly flight path as well as the project part in charge of data delivery for Technology Evaluator, for several generation of rotorcraft (today and H2020). To highlight the research work, ONERA's major contribution aimed at the reduction of parasite drag of non-rotating and non-lifting components. ONERA is leading a task on the use of active flow control applied on helicopter fuselage. This is a joint numerical/experimental activity performed on a simplified blunt fuselage at model-scale. It assessed the potential benefit of the active flow control and demonstrated fuselage drag reduction of about 15%.

Technology Evaluator (TE)

In TE that represents 14% ONERA's contribution to Clean Sky,

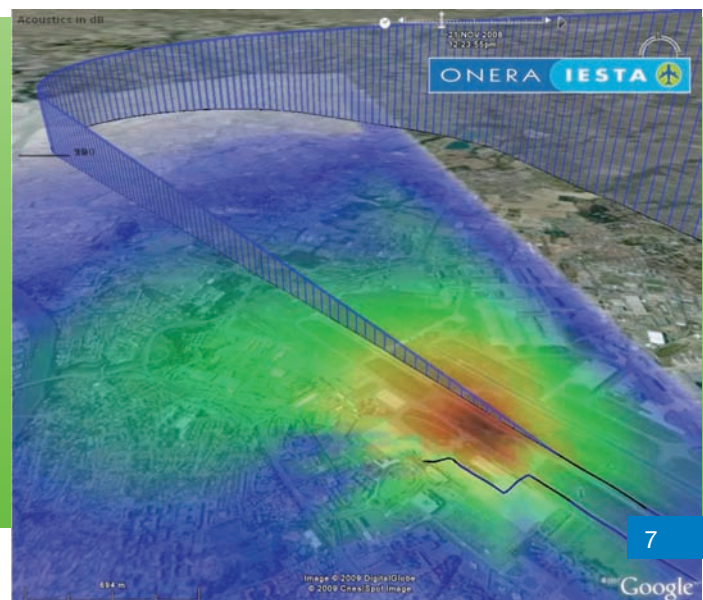


Computation of an aircraft crossing a gust.

of the ITD aircraft models provided by vehicle ITDs. It then verifies the compliance with specifications and finally provides assessment results of each Clean Sky aircraft versus its aircraft reference through a set of typical missions and trajectories. In parallel, ONERA also carries out Trade-Off Studies for ITDs upon request for which ONERA uses its in-house models capitalised in the so-called Air Transport Systems Evaluation Infrastructure, IESTA.

ONERA, a pivotal player in European aviation

ONERA, a major contributor to the European aviation industry, made important contributions to the Clean Sky JTI, based on its outstanding assets: multidisciplinary expertise, powerful numerical simulation tools, wind tunnels for design and research, and a proven ability to support project development by manufacturers. For ONERA, the scope and ambitious goals of the Clean Sky program offered a tremendous opportunity to express its broad expertise and bolster synergies with all European partners.



Acoustic impact of an aircraft during take off, IESTA simulation.

PARIS LE BOURGET

READY, STEADY, GO !



In just a few weeks the 50th edition of the Paris Air Show will open its doors to aeronautics professionals and the public at large. Clean Sky will not miss the opportunity to be part of the greatest international air show and the entire team, in close cooperation with integrated technology demonstrator (ITD) leaders and with the support of the European Commission, is now set into motion to offer a rewarding experience to those who will visit the Clean Sky Stand and attend our conference programme.

The presence of Clean Sky at **Paris le Bourget from 17-23 June** will help to secure visibility of the organisation and the achievements of our programme. Clean Sky aims to show tangible results of the environmentally friendly technology that our organisation has generated since its start back in 2008. Clean Sky will offer visitors the chance to see a wide array of hardware such as an open rotor mockup, an open rotor composite blade, a wing flap, a mockup of the upcoming A340 flying test bed for laminar wing, a helicopter diesel engine as well as a performing power electronic model, an ice detector sensor and an air intake. Not least, we will display a selection of brand new eco-design samples.

Those objects represent cutting-edge technology developed to help meet by 2020 the environmental goals set by ACARE. They have been tested and evaluated and will be part of the performing aircraft of tomorrow.

The stand will also offer extensive visual and printed information on Clean Sky, our supporting membership, our technological priorities and objectives. Not least we will count on the dedicated presence of Executive Director Eric Dautriat and the team of Project Officers who will guide visitors through the details of the pieces of work on show.

In addition to the stand, Clean Sky is finalising a conference programme built around topical themes for the aeronautics industry. These are Clean Sky 2, eco design and the technology evaluator.

Clean Sky 2 is now approaching an essential phase where the European Commission and industry will agree their proposal before it can be formally adopted by the Commission and then sent to Council and the European Parliament for discussion and final approval by the end of 2013. Participants to our conferences at the Air Show will have the opportunity to hear the new features of Clean Sky 2, including information on objectives, calls for proposals and timing of the project. Eco-design is a no-way-back trend that inspires European aeronautics and will establish a difference from foreign competitors. Our debate will look at aircraft life cycle analysis, innovative metallic materials and the development of greener composite structures. Finally, our conference programme will debate the technology evaluator: Its functioning and how to make it even more efficient.

As you read these lines, do not forget to pencil in your diary a visit to the Clean Sky stand from 17-23 June. Also, remember to sign up for any or all of the three conferences planned on 19-20-21 June from 9h-11h30.

You will find all the information about the activities of Clean Sky at Paris le Bourget on www.cleansky.eu



Maria-Fernanda Fau,
*Communications Officer at
Clean Sky Joint Undertaking*



ATYPICAL PARTNERS

FROM WINE TO AERONAUTICS



Cleaning of A320 engine hoods

All roads lead to Rome, all projects to the Moon! After 5 years in Martinique as Sales Director for a Rum Company and 10 years in the wine industry as a Quality Director, I had to admit that working as a winemaker 'AOC Côtes de Bourg' (for those of you who are more expert in wine than in aeronautics!) was not enough to survive and therefore I decided to create a 'Scouring Environment' with the aim of working on the regeneration of wine barrels. The market was however not booming – les grands châteaux (the big Castles) have enough money to buy new barrels and 'small castles' wash/clean the barrels with hot water - I had to think about another sector.

And that is where the aeronautical sector arises as The opportunity: using chemicals (not to say a lot!), it has to change its processes because of REACH¹ and employee exposure to chemicals.

Our BiMed project is born. Scouring Environnement was created in 2009 in the vicinity of Bordeaux (France). The company is an SME specialized in the cleaning and scouring process, sells and offers equipment, services, and solutions in accordance with environmental matters, for many surfaces and products. Scouring Environnement's creed is to avoid as much harsh chemistry as possible from an environmental and economic point of view. Initially created to regenerate wine barrels and realize public works but responding to the economic crisis, Scouring Environnement, through its address book, the support of Aquitaine Development Innovation and Bordeaux Aeroparc has reoriented its development in aerospace.

Scouring Environnement's mobile equipment can be used in a wide variety of application fields such as: industry in general, mechanics, aeronautics, food industry, viticulture but also, historical monuments,

public works, train and road transport, electrical circuits, fire disaster, graffiti, printing, boating ...

Through its experience and the strong desire of Dassault Aviation for a scouring method for aircraft and varnish without chemistry, Scouring Environnement subscribed to a Clean Sky call for proposals with the support of Capital High Tech for the writing and Rescoll as a partner. An incredible and friendly opportunity for a young SME even though, such a project requires determination to answer to the call, more work time than initially planned. But what a visit card! And the project developed in the framework of the Clean Sky Programme represents more or less 20% of Scouring Environnement's turnover.

Scouring Environnement has acquired valuable experience in the treatment of delicate surfaces such as wood, aluminium and composites elements. Some of the most valuable aeronautics companies in the area of Bordeaux such as Héraklès (SPS & SNPE), EADS (Sogerma & Composites Aquitaine), Sabena Technics, Dassault Aviation trust this SME.

The Clean Sky 'label', combined with the names of those prestigious companies, even allowed Scouring Environnement to perform in French Guyana, a 3 weeks mission to clean the interior of an Ariane 5 booster. A 4 million € saving mission for the launcher...

Louis de Baillencourt,
Business Manager
Scouring Environnement, France

¹ REACH is the European Community Regulation on chemicals and their safe use. It deals with the **R**egistration, **E**valuation, **A**uthorisation and **R**estriction of **C**hemical substances.

A TRULY LITHUANIAN IT COMPANY

We cannot really say that Lithuania is a flagship in aeronautics! We cannot really say that an IT company is perceived as the vital partner in a project financed by Clean Sky!

When ELSIS was invited to join the Programme in 2007, we knew very little about Clean Sky. Elis is a typical SME working in field of IT and providing various customized software solutions, mainly intended for public sector clients. We received the invitation to participate in Clean Sky from Alenia Aermacchi and eagerly signed the Green Regional Aircraft Consortium Agreement and became members of the CIRA Plus cluster.

At that time, we knew a few words about Clean Sky namely Green Regional Aircraft, Trajectory & Mission Management, and Flight Simulator. We knew that we would have to develop software but we ignored what technologies or tools to use. And to be honest, the lack of knowledge and experience in this very specific area and the uncertainty and relatively low value of future works should have lead us to reject the offer but because of solid arguments our management was persuaded to be part of it.

So, you wonder: what is the added value of such a project for a traditional IT company like ELSIS? It is not commercial for sure, because the value of the work performed does not exceed 5% of the company's annual turnover. It is hardly likely that the value is technological. When participating in the programme, we were able to verify that this business sector is quite conservative, and that priority is given to proven and mature technologies.

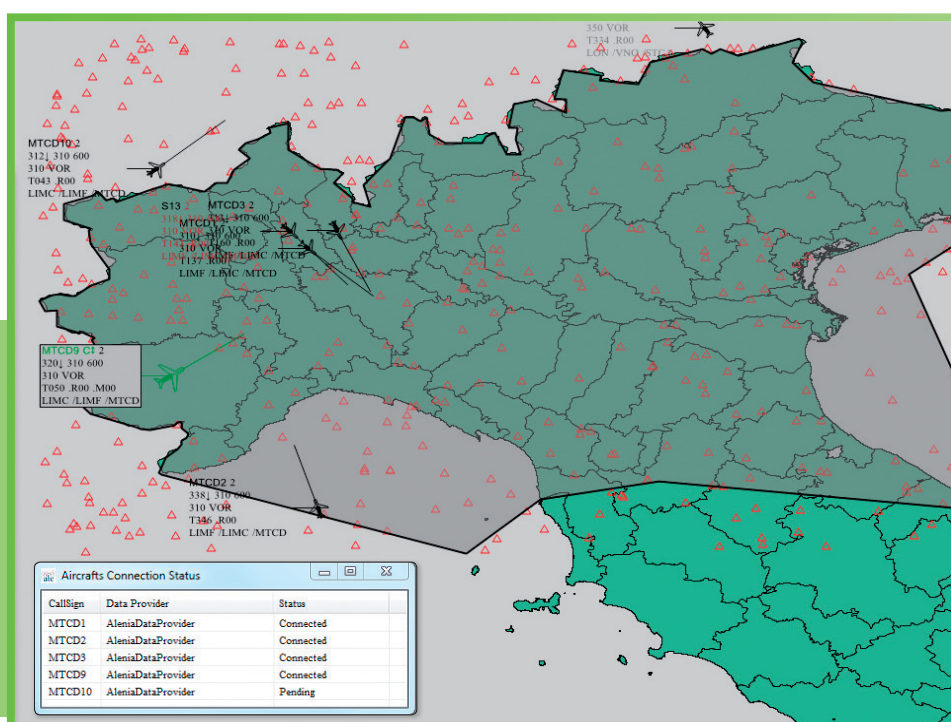
So, why? Firstly, it is a unique opportunity to see how such large-scale joint programmes are implemented and managed. Secondly, it was an opportunity to see how leading world-class international companies work, and how software in the aeronautics sector, which is distinguished by its very strict requirements for the quality and reliability of the product/service, is developed. Thirdly, we could see our effective contribution to the work and compare our technical and organisational abilities in a broader context than Lithuania, i.e. in an international context. Fourthly, we could prove that the technical competition and management of the company's specialists allow us engage without any fear in similar projects in the future.

We participate in the activities the Green Regional Aircraft (GRA) Mission and Trajectory Management (MTM) domain and took part in the set up of a GRA Flight Simulator (FS). The aim is to demonstrate optimized missions and trajectories tailored to the characteristics of regional aircraft. The aim of the GRA FS is to assess, in real time and pilot in the loop environment, the benefits in terms of environmental impact reduction of new green Flight Managemens System (FMS) functions.

The GRA FS is a real-time distributed interactive simulation environment and is being jointly developed by Alenia Aermacchi, Thales, University of Bologna and ELSIS. Our part of the work covers development of the Air Traffic Controller (ATC) simulator, in other words Advanced Communication Interface Model. The ATC will be linked to the Alenia GRA Flight Simulator and will receive input data from the air traffic scenario model prepared by the University of Bologna (UNIBO) and the A/C simulators.

The ATC is responsible for aircraft at the airport and in air space and it shall be able to manage future communication requirements such as CPDLC (Controller Pilot Data Link Communication) and support ADS-B and C communications. The pressure for security improvement is leading to new communication technologies. Radio systems that already contributed highly to flight safety are now being joined by, and will soon be replaced by, new data link applications.

The ATC simulator has been created and succesfully tested, and is currently waiting for the integration into final configuration of GRA FS and testing, which is scheduled for autumn 2013.



Region (flight zone)- Italy. Symbols of flying aircrafts. Communication window.



Components and equipment in progress

FIRST SUCCESSFUL STEPS OF A MONO BENEFICIARY*

our commitment really strong. Dealing with a very motivated and collaborative customer and with tight specifications makes our daily job really interesting and rewarding.

Next Technology Tecnotessile is not completely new to the aeronautical and aerospace sectors. Over the years, we have collaborated with Proel and Thales Alenia in the framework of National funded programmes, and with a small French company manufacturing aircraft interior parts within an FP4 Craft. Our experience in composite materials ranges from preform design and manufacturing, such as 3D weaving of Si-C roving (Nicalon and Tyranno), to thermoset processes (RTM) and reinforced thermoplastics, where we bring our textile knowledge in producing hybrid yarns and complex knitted and woven structures.

As a monobeneficiary in E-SLEEVE, we are in charge of all activities ranging from design, set-up and demonstration as well as of most static testing on new laminates.

We came to know about the topic and Clean Sky through an Italian aeronautic engineer who knew we had a suitable technology and long experience in European projects. We became familiar with the company which proposed the topic during the negotiation of the grant agreement. Meeting the Liebherr team at the kick-off made

This article is our first dissemination step since the project started back in September. We are not yet exploiting the Clean Sky partnership widely. In the last ten months we have considered two new topics but have preferred not to participate because we did not feel strong enough regarding these topics. On the other hand, we are looking forward to participating to the SGO Annual Review Meeting, at Nottingham University in June, as a good opportunity to widen our contacts and promote more recent activities in nanotechnologies, like electrospinning polymer nanofibres.

We are very proud of being yet another Italian company participating in the largest aeronautical research program in Europe and we cannot but encourage other Italian companies to take part in Clean Sky calls. We believe that this is in itself an accomplishment of our internationalisation and technology diversification efforts in the last twenty years, and are fully aware of the big challenge we have undertaken. We grab this opportunity with both hands.

Marco Barbieri,
Project Manager,
Next Technology Tecnotessile, Italy

* One single entity signing a grant agreement.

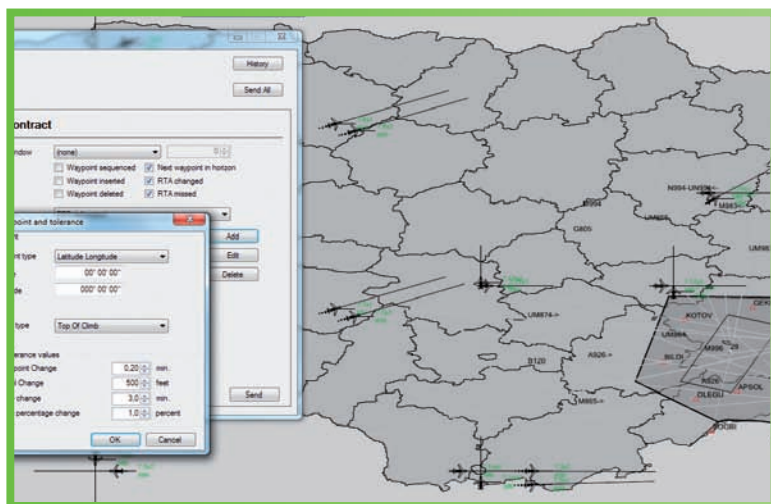
Participation in the Programme has brought tangible benefits, even if they are indirect, to ELSIS. First of all, it is associated with the image of a reliable company providing high-quality services, and capable of participating successfully in international projects and cooperating with world-class companies. The words 'aeronautics' and 'aviation'

automatically display the sign of the highest quality. When working with the public sector, where our major clients come from, it is of utmost importance. Because of this project we had nice coverage in the Lithuanian business press and it has had an impact on our clients and prospects and decision-makers. 'Clean Sky' or 'Green Regional

Aircraft' attract everyone's attention and interest.

The most frequently asked questions are how did you get to be involved in such a Programme with such famous companies and what do you offer to the project since you are not experts in aeronautics? We do not pretend to be experts in aeronautics but we have expert knowledge in IT and we apply that by offering high-quality software engineering services to our highly-demanding clients. We encourage other, similar, IT business companies to follow our approach.

Vytautas Mielkus,
Business Development Manager
EL SIS, Lithuania



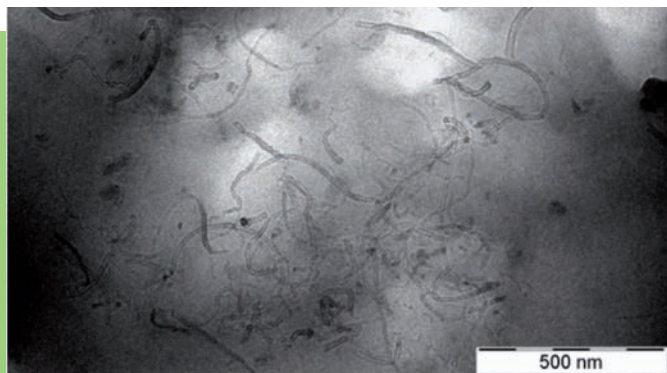
Region (flight zone) - Lithuania. Symbols of flying aircrafts. Communication windows for direct message communication between the Controller and Pilot (aircraft Flight Management System)

TWO PATENT APPLICATIONS

THE BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS

"There is no progress in the field of aero-structures without a progress in new materials". This statement may sound trivial. However, behind trivial statements there are quite often interesting stories.

A recently concluded project managed by the Budapest University of Technology and Economics (BME) supported by the 3rd Call for proposals of Clean Sky as part of 'Green Regional Aircraft' addressed the challenge of the development of a new process and technique to improve the mechanical, electrical and thermal properties of CFRP laminates. It did this by means of adding nanoparticles into the carbon fibre itself and into the epoxy resin matrix to obtain a fully nanoparticle filled material to be used in carbon fibre reinforced aeronautical structures.



TEM micrographs of the MWCNT reinforced epoxy matrix

What is more in this project? To get details on the technical development of the project, please take a look at the enews on the website.

BUT THIS TECHNICAL SUCCESS IS JUST A BEGINNING

- Among the BSc, MSc and PhD students of Budapest University of Technology and Economics involved in the project a number of them have been successfully defending their projects in internal reviews and subsequently in front of external reviewers. Projects supported by Clean Sky do also have a strong impact on students defending their thesis.
- The pool of knowledge acquired during the project was deep and extensive but it was also broadly shared during relevant laboratory practices and lectures attended by a lot of people.
- A woman managing the team & a perfect gender equality approach: 6 women working together with their 6 male counterparts.
- Two patent applications have been filled in:
 - K. Molnar, Zs.K. Nagy, L. Meszaros, Gy. Marosi. High output spinneret and method for producing nanofibers. HU – No. 1200677/1 (2012).
 - K. Molnár, Zs K Nagy, L M Vas, T Czigány, J Karger-Kocsis, Gy. Marosi: Electrostatic process and device for coating particles by nano- and microstructures. HU – No. P1200119/1 (2012).

Andrzej Podsadowski,
Project Officer Green Regional Aircraft
Clean Sky JU

CALLS

The 14th Call for Proposals was closed on **April 18th 2013** (evaluation ongoing).

The **results for Call 13** are now available.

There are **30 winning proposals with a total of 63 participations**. The total requested funding for those winning proposals is more **than 14.5 million euros**, which amounts to **48.8% of the call funding value**.

Out of the total funding, around **4.7 million euros** will be provided to winning **SMEs**: they account for **33% of the funding**.

The 15th Call for Proposals will be launched on **July 9th 2013**.

