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AIR NAVIGATION

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AIR TRANSPORT INTERNATIONAL COOPERATION

52nd PARIS AIR SHOW LE BOURGET

SPECIAL EDITION

THE MAGAZINE OF THE DGAC (FRENCH CIVIL AVIATION AUTHORITY)
The aeronautical industry: a pole of excellence laying the groundwork for the future

The leading national export sector, the French aeronautical industry is paving the way for the future generations of aircraft. It is one of France’s top assets when it comes to international cooperation.

2016 was a record year for the French aeronautical industry. What does it represent in terms of jobs? France is the only country in the world, alongside the United States, to possess a complete aeronautical industry on its own soil. It brings together major manufacturers such as Airbus, ATE, Dassault, the engine manufacturer Safran, and a raft of equipment providers such as Thales, Safran, Zodiac and Daher, along with intermediate-sized companies and SMEs. Together, these companies encompass all the skills required for defining and constructing an aircraft.

This hub of technological and economic excellence enjoyed a record year in 2016, with a turnover of €60.4 billion, including €41.7 billion from exports. The aeronautical industry is the nation’s number one export sector. It also creates excellence enjoyed a record year in 2016, when it comes to international cooperation. The cradle of aviation, France has built a complete aeronautical industry on its own soil. It brings together major companies and SMEs. Together, these companies encompass all the skills required for defining and constructing an aircraft.

France is one of the main players in the international scene. It is one of France’s top assets in favour to help countries with their aviation development. The cradle of aviation, France has built up a comprehensive aeronautical industry with a number of the world’s leading companies, and has a training school that is recognised internationally. The missions and competences of the personnel of the DGAC cover all the fields of aviation. Lastly, the expertise of the DGAC has once again been recognised by the ICAO, with which it has concluded a partnership for cooperation.

International cooperation helps establish the highest levels of safety, security and environmental & economic efficiency for air transport around the world. France has many factors in its favour to help countries with their aviation development. The cradle of aviation, France has built up a comprehensive aeronautical industry with a number of the world’s leading companies, and has a training school that is recognised internationally. The missions and competences of the personnel of the DGAC cover all the fields of aviation. Lastly, the expertise of the DGAC has once again been recognised by the ICAO, with which it has concluded a partnership for cooperation.

The second wave of CORAC research projects was launched in 2016. What are the topics treated? Since its creation in 2008, CORAC has coordinated aeronautical research for improving both the safety and environmental & operational performance of future generations of aircraft. Working toward this objective, it brings together all the air transport stakeholders, in particular the manufacturers, who finance its work on a parity basis with the French State, whose own contribution is ensured via the budget of the DGAC and the “Programme de formation pour l’Avenir”. The CORAC roadmap comprises four components: propulsion, aerodynamics, avionics and energy. Two waves of projects have been launched in this way since 2011.

In the first, thanks to six technological demonstration platforms, the work culminated in significant results which should make it possible to reduce by 15-20% the fuel consumption and CO2 emissions of a commercial aircraft. In 2016, two new platforms were launched. One involves on-board systems and advanced functions, with the objective of preparing the new generation of cockpits, with enhanced pilot assistance, while the other aims at introducing innovative technologies in the production processes of the aeronautical factory of the future.

France is one of the main players in international cooperation. What are its main assets in this area? The leading national export sector, the French aeronautical industry is paving the way for the future generations of aircraft. It is one of France’s top assets when it comes to international cooperation. 2016 was a record year for the French aeronautical industry. What does it represent in terms of jobs? France is the only country in the world, alongside the United States, to possess a complete aeronautical industry on its own soil. It brings together major manufacturers such as Airbus, ATE, Dassault, the engine manufacturer Safran, and a raft of equipment providers such as Thales, Safran, Zodiac and Daher, along with intermediate-sized companies and SMEs. Together, these companies encompass all the skills required for defining and constructing an aircraft.

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What were the main results and trends in 2016 for the major corporate clients, the equipment manufacturers and the SMEs?

2016 has been a new record year for the French aerospace, defence and security industry, gathered under the banner of GIFAS. Totaling €60.4 billion, 78% in the civil domain, the turnover for the sector continues to increase by 4.1% on a constant scope basis. This technological and economic hub of excellence is a major source of exports, with exports accounting for 88% of the consolidated turnover: a rise of nearly 6%. The industry has, once again, generated the highest French balance of trade surplus, with a positive contribution of €18.6 billion. Order-taking was also very buoyant in 2016, amounting to €73.1 billion. However, even if 2016 has been a very good year, its results have proved contrasting. Indeed, never have so many civil aircraft continued to increase by 4.7% on a constant scope basis.

“In your opinion, what are the most significant developments in the research work coordinated by CORAC?”, asks CORAC has high ambitions, and its research projects constitute collaborative platforms designed to culminate in competitive programmes, for more sustainable air transport. Significant progress has been made in fuel consumption gains, while reducing noise and pollutant emissions. Genuine environmental benefits accrue, such as the 15% reduction in CO2 emissions. These are all practical advantages, with 30 national pavilions and 2,300 international exhibitors will be present, with 30 national pavilions and around 300 official delegations. Some 150,000 professional visitors are expected, not to mention the general public (200,000 strong), who always come in large numbers for the last three days of the Air Show to get a good look at all the aircraft and marvel at their prowess in the flight demos. There will be lots of events over the seven days of the Air Show: conferences, workshops, roundtables chaired by experts from the sector, all enabling professionals to find out more and to discuss the various topics. The “Cité des Métiers” careers initiative will provide the opportunity to understand the actual business of those who manufacture these aircraft and who make them safer, more efficient, more environmentally-friendly and more comfortable. And for those who discover their calling, they can turn to educational establishments in order to find out exactly what kind of profiles they are in the look-out for.

**Focus on the new technologies**

“For each edition, we highlight a particular theme,” says Emeric d’Arcimoles. “In 2017, we shall be focusing on the new technologies, including the digital, and their impact on the aerospace industry.” An innovative space packed with surprises, Paris Air Lab will offer greater coherence, and complex skills, it is essential to work towards ever more efficient coordination, to generate ever higher levels of excellence,” states Emeric d’Arcimoles in conclusion.

Interview with Marwan Lahoud

Aerospace in France: a competitive, innovative and united industry

“Since October, we’ve been fully booked!”, exclaims Emeric d’Arcimoles, chairman of the Paris Air Show. “For previous editions, we had to wait until the start of the year to see the bookings accrue. This year, just a few months ago, the exhibition spaces in the 6 halls and practically all the 150 business chalets have been snapped up!” These numbers confirm the strategic choice that was made some 28 years ago: to open up the exhibition to all the stakeholders in the aerospace sector, worldwide, in order to inject momentum into a global approach to the industry, encourage partnerships and consolidate agreements between partners.

**Success foretold for the 2017 edition**

What this means is that 2,310 international exhibitors will be present, with 30 national pavilions and around 300 official delegations. Some 150,000 professional visitors are expected, not to mention the general public (200,000 strong), who always come in large numbers for the last three days of the Air Show to get a good look at all the aircraft and marvel at their prowess in the flight demos. There will be lots of events over the seven days of the Air Show: conferences, workshops, roundtables chaired by experts from the sector, all enabling professionals to find out more and to discuss the various topics. The “Cité des Métiers” careers initiative will provide the opportunity to understand the actual business of those who manufacture these aircraft and who make them safer, more efficient, more environmentally-friendly and more comfortable. And for those who discover their calling, they can turn to educational establishments in order to find out exactly what kind of profiles they are in the look-out for.

**Focus on the new technologies**

“For each edition, we highlight a particular theme,” says Emeric d’Arcimoles. “In 2017, we shall be focusing on the new technologies, including the digital, and their impact on the aerospace industry.” An innovative space packed with surprises, Paris Air Lab will offer professional visitors and the general public alike the possibility to travel through time in order to discover the Air Shows of the future! The innovations of today and of tomorrow will be showcased there. This totally unique space will be made up of 3 islands: industrial innovation and start-ups; the meeting of ideas; immersive experiences with virtual reality. Once again, the Paris Air Show at Le Bourget will be a place of discovery, encounters, exchanges and partnerships, all designed to reinforce the aerospace sector. “In a sector which calls upon varied and complex skills, it is essential to work towards ever more efficient coordination, to generate ever higher levels of excellence,” states Emeric d’Arcimoles in conclusion.

**Tools to prepare for your visit**

In and around the Air Show, the means of communication and information will be reinforced. Thanks to the mobile apps, it will be possible to prepare for your visit and select the events that you won’t want to miss: a useful aid for optimising your precious time!
With its A350-1000, whose maiden flight took place in late November 2016, Airbus intends to compete with the B777 (old and new generations) from Boeing.

**A350-1000, at the top of the range**

A350-1000, the top of the range – P. 07 • Second wave of CORAC work – P. 08 • Accompanying the boom in professional drones – P. 10 • ONERA: a key asset for the aerospace industry – P. 12 • Competitive clusters: regional research drivers – P. 13 • France conducting active industrial cooperation with other countries – P. 14 • Stamping up production of the LEAP from CFM – P. 15

*Effective Perceived Noise Decibel.*
Second wave of CORAC work

2016 saw the launch of the second wave of research projects defined by CORAC (Council for Civil Aeronautical Research), based on a first wave of highly encouraging results.

The results of the first work done by CORAC should enable the fuel consumption, and hence the CO₂ emissions, of commercial aircraft to be reduced by an extra 15 to 20%. At the same time, noise could be reduced by 5 to 10 EPNdB.

“The first wave of research projects has indeed obtained promising results, in terms of both environmental performance and reduced structural mass, through the optimised use of composite materials, more efficient avionics, improved engine performance and optimised management of on-board power, in particular electrical power, enabling less of a drain on the engines,” explains Anne-Laure Gaumerais, deputy head of the research support policy office at the DGAC.

Simulating, federating and coordinating

CORAC, set up in July 2008, was created with a view to simulating, federating and coordinating research and innovation efforts, so that future generations of aircraft might meet the more stringent requirements of competitiveness, safety and environmental protection. Taking inspiration from the ACARE model, it brings together, with the DGAC and GIFAS as its driving force, all the French stakeholders from the air transport sector, i.e.: the aeronautical industry, the airlines, the airports, ONERA, the institutional force, all the French stakeholders from the air transport sector, i.e.: the aeronautical industry, the airlines, the airports, ONERA, the institutional force, etc. (DGAC, GIFAS, DGA and ONERA).

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“The quality and active participation of the dedicated representatives of the State and the manufacturers in the CORAC work meetings testify to the importance accorded to it.” — FREDÉRIC LESCURE / OFFICE OF THE AERO-PME

Four broad themes

This roadmap comprises four components: propulsion, aerostructures, avionics and energy. Based on these themes, technological demo platforms have been developed, bringing together major clients and partner companies alongside subcontractors, for a total of 300 participants. The DGAC, which helped to create the roadmap and the platforms, is today, alongside the DGA and ONERA, keeping tabs on these research projects, in particular by means of periodic follow-up meetings giving rise to progress reports.

There have been two successive waves to date. In 2016, two new platforms were launched, with the following themes respectively: on-board systems and advanced functions, the purpose of which is to prepare a new-generation cockpit with enhanced pilot assistance, and the aeronautical factory of the future, whose objective is in particular to introduce innovative technologies into the production processes.

A group dedicated to the environment

Within CORAC, a subgroup bearing the initials RTE (Rétro-éclairage thermique environnement - Environnement topic network) is tasked with studying the impact of air transport on the environment, to obtain a better understanding of the physical phenomena involved and an objective assessment of the effects. Its work pursues three study themes: climate (relating to aircraft flight in cruise mode), air quality, and noise (at local level, around airports).

The climate theme is today the most advanced, with research projects now running for four years. These concern the impact of contrails, generated under certain conditions by aircraft in cruise mode, and which are subsequently transformed into induced cirrus clouds. The first results are expected in 2017. Other projects will follow.

After an initial report published in July 2012, the second topic gave rise to a research project on the quality of airport air, taking account of all possible sources of emissions, including in particular vehicles on the ground, possible chemical reactions and the influence of weather conditions. A preliminary project centred on the simulation of these dispersion phenomena was launched in 2016, involving consultation with all stakeholders concerned. Its results are expected by late 2018. Based on the results, a second project involving in particular a partner airport and its certified air quality monitoring association (AASQA) will be subsequently initiated.

Lastly, the envisaged work on noise will not relate to the causes of the noise pollution itself but will target reductions in the discomfort experienced by the persons on the ground. This involves understanding the factors that influence this discomfort. A report on the current situation was submitted in December 2015 by Régis Noyé.

Screen of the business jet (BJS) project.

1. Effective Perceived Noise Decibel.
4. Direction générale de l’armement (French Armaments Procurement Agency).
5. Office national d’études et de recherches aérospatiales (French National Aerospace Research Centre).

© Q. Reytinas/Thales
Accompanying the boom in professional drones

The CDC (Civil Drones Council) coordinates the efforts of the industry’s stakeholders. Its work helps to keep France at the cutting edge of research and regulatory development.

Since then, the CDC has continued its work in these areas for the future of the industry. Firstly, the CDC is working actively on so-called “high elongation” operations. These are drone flights at a height of 150 metres over distances of several hundred kilometres from their point of departure (and back), following line networks on the ground (power lines or railway lines, for example), for surveillance or inspection activities.

“High elongation operations means having to deal with a good number of the technological barriers limiting the operation of UAVs. This concerns, in particular the command and control link, which today is lost beyond 15 to 20 km for flights at this height. It also involves working on the capacity of the drone to fly safely in the airspace, in the midst of other users,” Carine Donzel goes on to say. The first line of action for the "high elongation" approach involves taking existing drones as the basis for reaching a stage of "pre-industrial use in 2018" above sparsely-populated zones. The second takes a more long-term outlook. After a preliminary study that is still ongoing, an R&D project will be launched for constructing a high elongation drone functional demonstrator.

The drone as “business tool”

The second CDC subject aims at adding a regulatory layer to the use of drones, on account of the characteristics of these activities. This indeed presents certain difficulties, in particular when considering the drone as a "business tool", and creating, "a specific mode of operation whereby a farmer or an industrialist could use a drone for their own business, on a given site, in a field, over buildings, pylons, etc., when they like, while limiting the flight range of the drone to the size in question,” says Carine Donzel. Within this framework, the user - a professional from the sector concerned - would receive limited aeronautical training with no exam to pass. In exchange, such users would only be entitled to work for themselves.

The third point on which the CDC is starting to work concerns the integration of drones in the air space. This indeed presents certain difficulties, on account of the characteristics of these airframes (slow flight, flight paths suited to particular missions, unusual altitudes) and their limited capacities for detection and avoidance in flight. This integration is key to the further development of the industry. Violeta Bulc, EU Commissioner for Transport, has asked to be presented with an initial concept of UAV traffic by the end of June 2017. The DGAC and the CDC are among the stakeholders consulted for drafting the project coordinated by the SESAR JU.

Europe takes control

A pioneer in this field, France drove up regulations applicable to drones back in 2012, with subsequent improvements made on two occasions: first in 2013 then in October 2016, with the “Drone Act”, drafted on the basis of a report from the Secretary-General for National Defence and Security (SGDSN) on the risks incurred by the malicious use of drones. Its implementing orders “...are subject of interministerial work that is ongoing today. The DGAC is directly concerned by the registration obligations for drones, the records of these registrations, the training of remote pilots and the capacity limits stipulated by law,” says Richard Thummel, deputy director, DGAC, who adds that one of the objectives of the Act, in the framework of the protection of sensitive sites, aims at: “Reducing the number of alert alarms through identifying ‘cooperative drones’.”

Furthermore, the revision of the basic European regulation, which led to the creation of the European Aviation Safety Agency (EASA) and which determines the safety rules for civil aviation in Europe, provides for the transfer of powers over drones to the EU. “The EASA has already been mandated by the Commission to prepare regulations in this regard,” says Richard Thummel, who points out that, in cooperation with its industry within the CDC, France is expressing a position that is increasingly finding favour on the European scene.”

* Single European Sky ATM Research Joint Undertaking
ONERA: a key asset for the aerospace industry

Central protagonist in the French and European leadership of the aerospace sector, ONERA develops its research activity in close association with the stakeholders in the industry and the DGAC. Its Chairman and CEO, Bruno Sainjon, explains to us the framework and orientations of this complex process.

In 2016, ONERA celebrated its 70th anniversary. What directions will its research activities take in the future?

1. The commemoration of the 70 years of ONERA highlighted its capacity to span the domains: civil, military and dual.

Bruno Sainjon
Chairman of ONERA

The civil drones sector needs new technological solutions in order to best meet the expectations of the major contracting clients. What work does ONERA do in this area?

1. In 2016, ONERA appointed a cross-disciplinary programme director to deal with this question. The work carried out relates to a number of major issues: the flight safety of these machines; the liability of the on-board automatic piloting; the capability of these machines to be reconfigured in the event of problems (a field in which ONERA is among the world leaders); and their integration in the air traffic. We are already anticipating the heavier drones we are likely to see in the future. We are also working on the performance of these machines, their sensors, and their travel and decision-making autonomy. What is more, we have been tasked with investigating how developments in terms of cybersecurity can be deployed for all flying objects. Lastly, we are active participants in the CDC (Civil Drones Council), issued from the recent merger of the Pégase and Risks clusters. Other, more cross-disciplinary, clusters also play an important role, such as EM²C in Paris La Défense and Systematic in Île-de-France. As certified “competitive clusters”, they benefit from the financial support of the State and local authorities. By doing so, they are closely associated with the momentum generated thereby.

These clusters have several stated aims: supporting innovation; supporting the growth of their member companies—notably in the marketing of new products, services or processes deriving from the results of research projects—and helping these companies to develop their market positions, in France and abroad, thereby constituting true drivers of growth and employment.

Access to the Interministerial fund

One of the essential roles of these clusters is to aid with setting up and developing collaborative R&D projects with a view to applying for national or European funding. For its part, the DGAC is involved mainly in the financing of research projects certified by the competitive clusters. By way of the Interministerial fund (Fonds unique interministériel - FUI) to be eligible for the FUI, these projects must be brought together at least two companies and one laboratory, and be certified by a cluster, as an indispensable prerequisite. These projects are then submitted for FUI funding in RFPs that occur twice a year, in spring and autumn. The ministries involved in this funding then analyse the projects with regard to the public policies that the ministries represent. After this stage, the results of these analyses are passed on to local authorities, which adopt a position on the funding of any given partner for each project. Lastly, the cluster, in association with the relevant ministries, handles the technical follow-up, and can support the project sponsors in exploiting the results.

Being invested in State missions, these clusters are in part funded by the State. For the above-mentioned clusters, this participation comes via the Directorate General for Enterprise (Ministry of Economy and Finance) and the DGA (French defence procurement agency). The DGAC works in close collaboration on

...
France conducting active industrial cooperation with other countries

Through its work groups set up with China, Russia and Japan, the DGAC is helping to support the French aeronautical industry with its exports.

“France is one of the few countries in the world to benefit from a powerful aeronautical industry that covers the entire chain of activities. Our mission in compliance with the rules on competition, is to consolidate its position, by standing shoulder to shoulder with our companies.”

BERTRAND DE LACOMBE / HEAD OF THE MCI

Ramping up production of the LEAP from CFM

Produced in parallel with the CFM56, around 500 units of the brand-new LEAP engine from CFM International should be delivered this year. The first few months of operations comply point-for-point with all customer and engine manufacturer expectations.

C.FM International, an equal joint venture between Safran Aircraft Engines and General Electric, seems capable of reproducing, with the LEAP engine, the enormous commercial success it enjoyed with the CFM56. By the end of 2016, it had already sold more than 12,200 units of its latest creation. This is an exceptional commercial result that could well be consolidated in the years to come, with the LEAP being the sole source for the Boeing 737 MAX, the sole Western source for the COMAC C919 and one of the two engine options for the Airbus A320neo.

The engine can indeed boast a host of assets, starting with its fuel consumption: down by 15% compared to its predecessor. It also emits 50% less NOx than the standard requirements of CAEP*/6. The engine can indeed be equipped with LEAP-1B and -1C versions, since Boeing is looking to that of the CFM56.

The LEAP engine had already been delivered to half a dozen airlines. The engine is of fine stock, and it has also been able to meet all the requirements of the LEAP-1B programme. The 500 deliveries scheduled for this year cover, in fact, the three LEAP-1A,-1B and -1C versions, since Boeing is looking to deliver its first Boeing 737 MAX equipped with LEAP-1B engines at the end of the first half of this year. As for the Chinese COMAC, it may be flying-testing its first CFM56 equipped with LEAP-EC engines in spring 2017. The success of this programme is all the more important inasmuch as the Chinese market could represent some 20% of the market worldwide by 2035.

Adrien Kipplehen, head of the major programmes office at the Aeronautical Sub-Directorate of the DTA, Safran also invested in new industrial facilities in France and the USA for producing the new-generation turbofan vanes and housings in 3D woven RTM composites. The engine manufacturer has also supported its suppliers, who have invested in more than 50 plants or extensions to contrib-
The airports go green – P. 17 · COP21: the first ever global CO₂ offsetting and reduction mechanism – P. 18 · Renewed dynamic for SESAR 2020 – P. 20 · Suborbital aircraft: preparing the new frontier between aviation and space – P. 22 · Satellite-based precision approaches at Roissy airport – P. 23 · Aviation safety: risks under high surveillance – P. 24 · Suborbital aircraft: preparing the new frontier between aviation and space – P. 22 · Satellite-based precision approaches at Roissy airport – P. 23 · Aviation safety: risks under high surveillance – P. 24 · A risk analysis capacity to respond more effectively to the terrorist threat – P. 25

The airports go green

Reducing gas emissions, preserving biodiversity, anticipating the risks related to climate change: the French airports, present in number at COP22 in Marrakech last November, are strengthening their environmental policies.

One year after the Paris Agreement, the French airports stakeholders restated their commitment to reducing sustainably the environmental impact of their activities at COP22. They reinforced their strong commitment to the Airport Carbon Accreditation (ACA) international programme. The major French airports, following the example of the airports of the ADP Group and of the Vinci Airports Group, have applied for this certification for their active greenhouse gas (GHG) management process. The Nice-Côte d’Azur airport was one of the guests of honour at COP22, after becoming in 2016 the first French airport to attain the top level of the ACA programme, synonymous with carbon neutrality.

In the framework of the French energy transition Act*, the major airports must assess their GHG and pollutant emissions for 2020 and 2025, an indispensable step forward in the framework of the drawing up of their programmes to reduce their environmental footprint. To help them to do so, the DGAC has designed and made available to them in late 2016 a tool for transforming traffic forecasts into emission forecasts for taxing aircrafts concerning GHGs and different pollutants.

Balancing biodiversity and airport activities

At COP22, the DGAC and the HOP! Biodiversité association, its partner, also presented biodiversity management actions on airport platforms, along with the participative protocols put in place with the dozen or so airports associated with this project. “The HOP! Biodiversité project marks an important paradigm change, insofar as we are no longer seeking to eliminate biodiversity, which previously used to be considered solely as a risk, but rather to preserve this biodiversity while maintaining the highest airport safety,” says Guillaume Van Reysel, deputy head of the environment office at the DTA. The project is based on scientific protocols designed with the National Museum of Natural History and open to all personnel of the platforms wishing to take part. Supervised by specialists, volunteers complete biodiversity inventories of the airport spaces processed by the Museum’s research scientists.

Lastly, regarding the measures related to climate change, the Civil Aviation Technical Department (STAC) is currently testing with several airports a method enabling them to diagnose the risks (air conditioning breakdowns during heat waves, the consequences of rising waters, etc.) related to climate change. Vulclim (see box insert), the so-called risk-mapping tool, should be available at the end of the year.

Henri Cormier

* Act No. 2015-992 of 17 August 2015 concerning energy transition for green growth.
CORSIA: the first ever global CO₂ offsetting and reduction mechanism

International aviation is the first economic sector to adopt a global mechanism for offsetting CO₂ emissions. Designated CORSIA, this mechanism will be operational in 2020.

The world of aviation has gone down in history as the first economic sector to adopt a universal and binding mechanism for controlling CO₂ emissions, at the 39th assembly of the International Civil Aviation Organisation (ICAO) which took place in autumn 2016. This mechanism marks a further stage in aviation’s efforts to combat climate change. France is strongly committed to this mechanism, which will be implemented from 2020.

The economic component of a global concept
Civil aviation represents around 2% of global CO₂ emissions. It has for some years been working on its contribution to combating climate change. A strategy has been put in place to lower CO₂ emissions and develop alternative fuels. A strategy has been developed and applied to aviation construction is the “carbon-neutral growth in 2020” objective. To achieve this, the ICAO has developed a concept: the “basket of measures”. What this implies is that each measure taken separately cannot alone suffice for achieving the objective of stabilised emissions. This is why 4 levers have been simultaneously activated: improving the environmental performance of aircraft thanks to technological progress; optimising flight procedures to reduce fuel consumption; developing aviation biofuels and economic measures aimed at imposing costs on any CO₂ emissions exceeding the authorised levels: this is the carbon offset system adopted by the ICAO assembly. “When the air carriers have done everything they can with the first three levers, they will, from 2021, offset the emissions exceeding the set objective by purchasing emission reduction credits. These will be available on the market once projects aimed at the reduction of greenhouse gases in other industrial sectors come to fruition,” explains Jonathan Gilad, deputy director for sustainable development at the French Air Transport Directorate (DGAC) (French Civil Aviation Authority).

Implementation
International air transport requires global and harmonised rules that are applicable to all. The mechanism nevertheless provides for several implementation phases, in order to take account of the special circumstances and respective capabilities of the world’s different nations: an initial phase between 2021 and 2026 on a voluntary basis, then a second phase from 2027 when the mechanism will be applied universally with the exception of a certain number of States exempted on account of their development level, their insularity or their low contribution to world air traffic. The 67 voluntary States taking part in the first phase of CORSIA already represent almost 80% of international aviation activity. Countries with high levels of aviation activity such as China, the USA, the United Arab Emirates, South Korea, Singapore, Japan and Canada, in particular, are volunteers, alongside the European Union, in committing to the first phase of this mechanism. Once the second phase is underway, the States included in the mechanism will represent over 95% of aviation activity. This means that almost 80% of the world’s CO₂ emissions from aviation will be covered by this scheme.

The CO₂ standard for aircraft certification
As the first component of the set of measures recommended by the ICAO for combating global warming, the technological developments applied to aviation construction are tending to bring down aircraft fuel consumption. It has therefore been decided on a worldwide level to define an aircraft certification standard for aircraft CO₂ emissions so as to encourage manufacturers to move progressively toward the most advanced environmental technologies. This standard, adopted in 2016 by the Council of the ICAO and applicable from 2020 both for new aircraft and aircraft already in production, is intended to be part of the requirements of the certification bodies, such as the European Aviation Safety Agency (EASA) or the US Federal Aviation Administration (FAA).

“The EU is looking to maintain its position at the vanguard of combating climate change in the field of aviation.”
JONATHAN GILAD / DEPUTY DIRECTOR FOR SUSTAINABLE DEVELOPMENT AT THE FRENCH AIR TRANSPORT DIRECTORATE (DGAC)

“The EU is looking to maintain its position at the vanguard of combating climate change in the field of aviation.”

“...is looking to maintain its position at the vanguard of combating climate change in the field of aviation.”

Jonathan Gilad points out. This is all the more pertinent, he concludes, insofar as the EU “... is looking to maintain its position at the vanguard of combating climate change in the field of aviation.”
Renewed dynamic for SESAR 2020

Following a fruitful initial phase, phase 2 of the SESAR programme, dubbed 2020, was launched in late 2016. Based on the results acquired, it aims to expand upon the work already begun and develop new projects.

Phase 2 of the SESAR programme, dubbed 2020, began in autumn 2016. Its content was established to follow on from the first phase, based on the latter’s highly encouraging results. It therefore pursues,” explains Patrick Souça, Director of the SESAR programme at the DGAC, “two main objectives: firstly, to consolidate the initial results and pursue the development of the solutions proposed, in order to get them to a sufficient stage of maturity; and secondly, to study new subjects, in some cases deriving from the first studies, and bringing them to maturity.” The SESAR (Single European Sky ATM Research) programme, launched in 2004, constitutes the technological component of the European Single Sky, aimed at modernising and harmonising the European air traffic management system.

Phase 1, devoted to research and development (R&D) work, ran from 2009 to 2016, culminating in results leading to the deployment of the first technological solutions that were able to be validated. No fewer than 63 of these solutions were presented at a seminar organised in June 2016 by the SESAR JU 1 (cf. Aviation Civile No. 379, page 22).

Three new topics were identified: the virtualisation of air traffic control; the oversight of drone traffic; and cybersecurity, a priority cross-disciplinary issue that can also be found across all the subjects of SESAR 2020.

Virtualisation of air traffic control

The increase in air traffic signals an increasing quantity of information needed for its management, with ever denser circulation of this information between several stakeholders. Faced with this situation, the subject of air traffic control virtualisation has emerged. Truly innovative, this subject derives from a concept, issuing from SESAR 1, which has already been given form in the framework of SESAR 2020. This is because any project that relates to new subjects and uses new systems must now include a cybersecurity risk analysis.

Cybersecurity becomes generalised

As for cybersecurity, which had only been the subject of a feasibility study as part of SESAR 1, the topic becomes more generally applicable with SESAR 2020. This is because any project that relates to new systems and uses new systems must now include a cybersecurity risk analysis.

The budget allocated to SESAR 2020 derives from the Horizon 2020 programme defined by the European Commission. At €585 million, it is slightly down on the €700 million allocated to SESAR 1. It is also distributed among a larger number of members (19 instead of 16) since the renewal of the SESAR JU membership, in 2016.

The effective start-up of the 25 chosen projects took place between September 2016 and January 2017. The projects will be developed until the end of 2019, whereupon there will follow a second wave of projects, scheduled to run until the end of 2022. The follow-up will clearly depend on the subsequent funding allocations.

The schedule and resources for SESAR 2020

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DSNA involvement

Out of the 28 projects proposed in all in the framework of SESAR 2020, 25 were selected, including 21 involving the DSNA (French Air Navigation Services Directorate). Among the latter, the DSNA holds the leadership of three of them: the SAFE project, for Air Traffic Safety Nets; the “To Be Free” project, relating to the Free Routes concept; and the X-Stream project, following on from the Stream projects (optimised arrivals management), on the Extended AMAN (Extended Arrivals Manager) and Target Time (Target Arrivals Time) topics.

In association with the “Coflight Cloud Services” project, the objective is to run this system in the prototype stage as part of SESAR 2020. This stage will prefigure an operational version that may be the object of a service contract proposal based on the technologies that can ensure perfect operational maturity, such as Voice over IP, which enables calls to be rerouted from one centre to the other.

“This concept,” says Guillaume Ramonet, Coflight programme director at the DSNA, “can generate savings in the costs of European air traffic management, through the pooling of the services and data that it enables between different control centres.” The Swiss AMSP (Air Navigation Service Provider), Skyguide, has already successfully tested the principle, with the transmission of flight plan information processed remotely by the Coflight system.

Controlling drones

The development of civil drones brings with it new problems of how to integrate them into the manned air traffic and how to manage them in the air space at low or very high altitudes. Cobhabitation with the IFR (Instruments Flight Rules) traffic and airport traffic, and the collision-avoidance problem arising from this, are topics that have already been launched in the framework of SESAR 2020. Also arising from the exploratory research undertaken for SESAR 2020 was the need to define a traffic management concept specific to drones, and designated “Unmanned Traffic Management” (UTM). In summer 2016, the SESAR JU invited tenders for the definition of this UTM concept and for technological systems that would make it possible to realise some of its aspects, such as the identification and localisation of drones and the protection of certain air spaces against their intrusion. These projects will be starting in 2017 and should provide answers to these emerging questions.

The Swiss ANSP (Air Traffic Service Unit - ATSU). In the framework of SESAR 2020, this concept requires harmonisation of the data exchanges between all stakeholders concerned, in particular the control centres. Dubbed SWIM (or “System Wide Information Management”), it has been tested and validated in SESAR 1. In association with the “Coflight Cloud Services” project, the objective is to run this system in the prototype stage as part of SESAR 2020. This stage will prefigure an operational version that may be the object of a service contract proposal based on the technologies that can ensure perfect operational maturity, such as Voice over IP, which enables calls to be rerouted from one control centre to the other.

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Suborbital aircraft: preparing the new frontier between aviation and space

In order to prepare for the launch of commercial suborbital flights, French and international working groups are busy assessing the current state of play in this nascent field and assessing a potential future regulatory environment well suited for such operations. The beginning of commercial suborbital flights, postponed several times, could finally become a reality in the coming months. These suborbital aircraft, manned or unmanned, will cover a wide range of missions. Future suborbital flights will open opportunities in the field of research and technology with scientific experiments conducted in microgravity which will last 3 to 4 minutes, compared to only 25 seconds for parabolic flights. Also, they will enable what is commonly referred to as “spaceflight experience or tourism”. Suborbital flights may also serve the purpose of training professional astronauts for future orbital missions. Last but not least, suborbital vehicles will allow small satellites (up to 500 kg payloads) to be launched into Low Earth Orbit. Boosted by the 2004 award of the X Prize ($10 million) to the SpaceShipOne project of Scaled Composites, many private initiatives have been developed in this new field, with the arrival of new players. These include the development of such emblematic projects as the SpacePlane from Dassault Aviation, in Europe, along with SpaceShipTwo from Virgin Galactic and the New Shepard from Blue Origin, in the USA.

Structuring thoughts

This dynamic led the International Civil Aviation Organisation (ICAO) to set up a Learning Organisation (ICAO, 2015) to assess the current state of play and design a new, flexible and stable legal and regulatory framework, inspired from both aviation and space law, and well suited for the various types of manned or unmanned suborbital systems, as well as for new types of space missions. This exercise will take time, but it will prove to be very useful for the future growth of this new aerospace industry.

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Olivier Constant
Aviation safety: risks under high surveillance

The DSAC (French Civil Aviation Safety Authority) has been developing the concept of aviation safety oversight based on risks. The objective is to mobilise the resources where the risks and the gains are the greatest in terms of safety for passengers and third parties.

**Critical dialogue with the operators**

The RBO approach requires the establishment of risk profiles for each of the operators based on three elements: their risk exposure, the assessment of their safety performance based on SMS assessment criteria and, lastly, the compliance performance, which determines the assessment not only of regulatory compliance but also the capacity to implement corrective actions. These developments also involve initiating a critical dialogue between the operators and the oversight authority. “The role of the oversight authority does not consist in purely and simply duplicating the work carried out by the operators, but also in obtaining a qualitative assessment of risks and performance in order to facilitate a genuine exchange with them when producing the end-of-year report,” says Baptiste Lefèvre, quality and standardisation manager at DSAC and coordinator of the RBO working group.

**A risk analysis capacity to respond more effectively to the terrorist threat**

With the terrorist threat still high, air transport continues to be a favourite target. For two years, the Civil Aviation Risk Analysis unit (PARAC) has been analysing the risk so that France is better prepared to counter the threat.

PARAC has three teams focused on: threat, surface to air risk, inbound flights. The “threat” team, in connection with the intelligence services, “points the terrorist threat for the aviation sector by determining the capacity and intentions of terrorist groups to attack or a given location,” Olivier Boulnois explains. “The ‘surface to air risk’ team deals with risks linked to flying over conflict zones. Using information from the intelligence services on the dissemination of weapons in conflict zones, the team judges if the air carriers can safely fly over the zones, and at what altitude, in order to avoid tragedies such as that of the MH17 flight over Ukraine. This team also coordinates a cooperation programme to raise awareness in other countries of the risks posed by ground-to-air weapons, and helping them to address this risk.

Finally, the “inbound flights” team manages assessments of overseas locations to evaluate the effectiveness of air port security. These assessments are used to suggest appropriate measures in response to the risk. These responsibilities are not set in stone, and evolve according to the risk. PARAC also works on emergent threats such as cyber threats and drones. It is also responsible for establishing, in coordination with the French Interior Ministry, an assessment programme for the “landslides” of French airports.

**Permanent adaptation and evolving remains the best means of maintaining a high level of safety.** As early as 2004, the first European regulation (1) included targeted oversight concepts designed to adapt oversight procedures according to the characteristics of different operators (especially airports, airlines, training organisations, and air traffic control providers) on the basis of risk exposure. “Risk-based oversight, operating in accordance with a principle of twofold modulation,” declares Richard Thummel, Deputy Director at DSAC. “The first element relates to the oversight cycle, the duration of which may be lengthened or shortened depending on the characteristics and performance of the operator; and the second covers the content of the topics observed during this oversight cycle.” This may involve flight preparations, crew training, flight time limits for pilots, airlines, for example, along with aviation security, runway, wild life hazards, or any worksites in the vicinity of airports. The audits are adapted to the risks identified in each domain.

**For more than 15 years, the aviation sector has been restructuring its security measures in response to the risk posed by terrorism.** “After the shock of the 9/11 attacks in 2001, new international regulations were put in place,” says Frédérique Gely, Assistant Vice-Director for Security and Defence at the DSAC. “This has been a more effective but also costly process. At DSAC, we are working towards trying to adapt this by adopting an approach that systematically takes account of the level of risk before implementing security measures. The idea is to construct a comprehensive, consistent and robust system of defence,” Frédérique Gely explains.

**A unit dedicated to risk analysis**

IMRAC, created in July 2014, is tasked with implementing this new approach. “Our mission is to analyse the risk for each of the different segments of the civil aviation sector,” explains Olivier Boulnois, Head of PARAC. “We work in liaison with the intelligence service to identify the most credible threats, and the weak points in the protection of our airports and aircraft. This enables us to determine the risk level for a specific airport, a specific destination, or even for a specific flight. This directly informs decisions about operations at the airport and regulatory changes.”

**Deployment could be started as early as 2018**

Régis Noël

International cooperation: so that no country is left behind

The DGAC has a Department of International cooperation called the MCI (Mission de la coopération internationale), for sharing its experience and know-how with all the countries that ask for it. Focus on the actions of this expert cell.

Drawing on aviation history stretching back more than a century, a first-tier industrial sector, and a civil aviation training school recognised the world over, France is in a legitimate position to help countries with the development of their aviation. Within the MCI, five experts, specialised per geographical zone, carry out projects all around the world for presenting and sharing French aeronautical skills and training the authorities of the countries that so desire, all in a true spirit of partnership. “We also have four French civil aviation attachés in our embassies in Brasilia, Moscow, Beijing and Delhi. They are working in strategic countries in terms of aeronautical development,” explains Bertrand de Lacombe, Head of the MCI.

By drawing on all the dynamic energies to be found within the DGAC, the MCI covers all fields of aviation. It proposes long-term cooperation to partner countries, suited to their organisation, their history and their expectations. This inevitably concerns a bespoke project, aimed at reinforcing, sustainably, the civil aviation competences of these countries.

Varied and essential missions

Help with internal reorganisation and establishing conformity with international standards; assistance in the implementation of a security system; sharing experience and expertise; training personnel: these are the kinds of missions that are conceived on a case-by-case basis, for and with foreign organisations, designed to drive forward civil aviation as a whole. “Around fifty cooperation agreements are ongoing worldwide, with variable action density and intervals,” says Bertrand de Lacombe. “We also run twinning projects, funded by the European Union, with certain nearby countries in Europe. Although international cooperation is not the core business of the DGAC, it is an essential element of its activity. “So many economic and human exchanges take place by means of civil aviation,” insists the Head of the MCI. “With the strong and continuous growth of traffic expected over the years to come, international cooperation will be increasingly necessary, and France intends to continue playing a major role in this dynamic.”

Béatrice Courtois

Collaborative working

To run this mission successfully, the MCI draws on a broad collaborative network. Domestically, this includes the ENAC National school of civil aviation, a prestigious establishment that trains many foreign civil aviation executives in various fields. Each year, the MCI invites foreign interns to study there, and finances training ranging in duration from several days to a full year.

Manufacturers such as Airbus, Thales and Safran - major players in the aeronautical industry - are closely associated with this international cooperation, as are other State services, in France and abroad (Ministry of Foreign Affairs, the Treasury). Lastly, the European Aviation Safety Agency (EASA) and, of course, the International Civil Aviation Organisation (ICAO) are also stakeholders in the approach, which is designed to increase the safety and efficiency of civil aviation all around the world.
The DGAC on an international cooperation mission for the EASA

The DGAC, via the MCI\(^1\), has been selected by the EASA\(^2\) to support it in its international cooperation actions, with a contract that encompasses a wide variety of actions and concerns many countries around the world, and with major industrial issues at stake.

Today we have succeeded in becoming a strong and recognised country in terms of partnerships for the Federal Aviation Administration\(^3\), declared Patrick Ky, EASA Director, with satisfaction, a decade after the creation of the European agency. Although promoting European industry may not be an explicit part of the EASA mandates, the agency has nonetheless been able to develop over the years international cooperation agreements, sometimes even quite far from its natural base, with the purpose of disseminating European standards of aviation safety\(^4\). Since the industrial issues are linked to the international standardisation choices, this effectively means that the EASA is thereby supporting the export of European technology around the world.

Unprecedented RFP

Not possessing any expertise in the practical implementation of this type of cooperation, the EASA turned to certain players “on the ground” in order to develop these activities by way of framework contracts. This was the case of the request for proposals issued by the EASA in January 2016, and for which the DGAC was chosen. This RFP (request for proposals) was unprecedented in its scope. “The EASA had already issued targeted RFPs, such as for an initiative undertaken with China, but this is the first time that the agency had invited tenders for an entire international cooperation actions programme,” explains Bertrand de Lacombe, Head of the MCI at the DGAC. In the framework of this RFP concerning technical assistance services in matters of safety and economic regulation, the DGAC will provide the authorities with its expertise on the relevant subjects. On account of

the volume of actions envisaged and the needs in this regard of the countries concerned, the DGAC has chosen to join forces with the British (Civil Aviation Authority) and Spanish (Agencia Estatal de Seguridad Aérea) authorities within a parity consortium, the coordination of which has been entrusted to the UK section. These are partners with whom the DGAC is used to conducting international cooperation actions, and which offer the complementary competences and resources required for accomplishing this wide-ranging contract, as the MCI relates.

A wide range of actions

The missions for which the consortium has been chosen concern three broad fields of competence: conducting audits, delivering expertise and producing studies. The range of actions is vast. It will encompass the internal organisation of an authority, the certification processes, the rules applicable in the field of ATM and the regulating of safety measures. For the operations concerning airworthiness, the DGAC also presented itself alongside its partner, the OSAC (Organisme pour la Sécurité de l’Aviation Civile/French civil aviation safety organisation). “The OSAC is certified by ministerial order to exercise control and oversight missions in the field of airworthiness,” explains Jean-Marc de Raffin Dourny, President of the OSAC. “In the case of this RFP, we shall be called upon in particular to act, as a subcontractor of the DGAC, on questions of inspections with regard to airworthiness.” The action requests began to be issued by the EASA last July, and the members of the consortium must now examine, on each occasion, the resources and organisation to be put in place in order to suggest proposals to the European agency. “We are qualified for our competences, but it is hard to say what precise resources we will be going to have to deploy throughout the period of the contract. It is the EASA that sets the rhythm by progressively delivering action requests of fairly variable nature, to which we need to respond within five days,” Bertrand de Lacombe explains. This cooperation is scheduled to run until 2019, and will concern many regions around the world, according to the head of the MCI, who points out on a map all the regional programmes already undertaken by the EASA.

Key figures

- Unprecedented RFP
- Over €255 million: Global amount of the financial commitment from the EASA since its creation to international cooperation projects
- Number of actions for which the EASA has already formulated service requests
- €3.4 million: Global value of the contract awarded to the consortium of which the DGAC is part

1. Mission de la coopération internationale / Department of international cooperation.
2. European Aviation Safety Agency.
3. In accordance with article 2.2 of Regulation (EC) 216/2008 to “promote Community views regarding civil aviation safety, standards and rules throughout the world, including the sharing of experience on a global scale with third countries and international organisations.”
4. Direction du transport aérien (French Air Transport Directorate).
5. Air Traffic Management.
The DGAC and the ICAO: a partnership for training

The agreement signed last September with the International Civil Aviation Organisation (ICAO) illustrates the long-term policy conducted by the DGAC in the field of the training of international civil aviation executives. Here we look at this win-win partnership.

ENAC: partnering international institutes

“We are the only academy in the world that possesses what I call the ‘Four Jewels Crown’,” Marc Houalla says wryly, referring to the links that the National school of civil aviation, ENAC, has fostered over the years with these four major international institutes or associations: the International Civil Aviation Organisation (ICAO), the European Aviation Safety Agency (EASA), the International Transport Association (IATA) and the Airport Council International (ACI). Civil aviation, safety, airlines, airports today, ENAC works on developing collaborations with all these major international movers and shakers in the aviation world, pursuing a dual objective: optimising the development training initiatives and underpinning the reputation and influence of the school worldwide. This has led to ENAC obtaining certification as a regional centre of excellence from the ICAO, it delivers training on safety for the EASA and organises pooled training with the ACI. It has also concluded a global agreement with the IATA concerning not only training but also student internships and research, in particular in the field of big data.

Promoting French know-how

The DGAC will in this way be channelling at least €1 million over three years into the organisation of courses, extending all the way up to specialised one-year Master’s degrees. Drawn up in consultation with the ICAO, the training programmes will encompass three broad areas: air navigation, safety and security. The latter aspect is assuming increasing importance, moreover, with, in particular, a security instructor course on offer. E. J. Patrick Gandil, DGAC director, points out, this sharing of French expertise makes it possible to: “... contribute to the development of the safest, most efficient and most sustainable aviation possible,” and at the same time it underscores the “soft power” of French aviation. For his part, the ENAC director, Marc Houalla, points out: “When we get external service providers from groups such as Airbus, Thales or Dassault involved in our training, we raise the awareness of students to the French aeronautical industry and help to develop an appreciation for things French.” All in all, this is a win-win approach.

Renforced cooperation with Colombia

With the support of the DGAC, its Colombian equivalent, Aerodinática Civil (Aerocivil), is to improve its training and increase its regional appeal.

In September 2015, the DGAC signed a four-year cooperation contract with its Colombian equivalent, Aerocivil. Its training body, the CEA (Centro de Estudios de Aeronáutica Aeronáutica), will therefore benefit from the support of the ENAC National school of civil aviation to improve its teaching levels, as Emmanuel Roquey, in charge of cooperation with the Americas at the DGAC, explains: “The objective is to trigger a ramp-up in skills and disseminate best practices to move up from the status of a technical training centre to that of an entity recognised by the Ministry for Higher Education, so that the students are, at the end of their studies, to obtain the title of engineer.”

These developments will also have repercussions on another scale. For now, the CEA only has Trainer certification delivered by the International Civil Aviation Organisation (ICAO). Thanks to the support of the ENAC teams, it is Full Membership Trainer certification that is being targeted. These are changes that will resonate well beyond Colombia, as Emmanuel Roquey explains: “The CEA is already training civil servants from surrounding countries, such as Panama, Ecuador and Peru. With Full Membership status, its appeal would be even stronger, and would reinforce the position that Colombia has already established in the field of aviation.”

An agreement between the European Union and Latin America

The European Union (EU) has tasked the European Aviation Safety Agency (EASA) with conducting a programme of cooperation with the main countries of Latin America (Argentina, Brazil, Chile, Colombia and Mexico) along with regional partners. These being the SIRYOP and the ACPA*. Endowed with €7 million in funding, the envisaged actions will take place over a four-year period. The objective of the programme is to improve the partnership between the EU and Latin America in the field of civil aviation. More specifically, it aims at promoting EU standards, reinforcing cooperation in the field of regulations and facilitating economic exchanges. This cooperation programme also comprises a facet designed to minimise the impact of the air sector on the environment and climate change.

1. Sistema Regional de Vigilancia de la Seguridad Operacional (Regional system of oversight and operational safety), whose members are Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Uruguay and Venezuela.

2. Agencia Comisionada de Seguridad Aérea (Central American aviation safety agency), whose members are Belize, Costa Rica, El Salvador, Honduras, Guatemala and Nicaragua.
The ten ASEAN States are addressing the challenge of strong growth in air transport in their air space. Many of them are calling upon the MCI (Mission de la coopération internationale / Department of international cooperation) of the DGAC to help them with this.

An action plan founded on an inventory

The ASEAN States that are members of the ICAO have their civil aviation authorities subject to audits conducted by the ICAO in order to check their conformity with international standards. The conclusions of these audits bring to light any deficiencies or failings that the authorities need to overcome or correct. In this context, by way of technical cooperation agreements signed with these authorities, the MCI of the DGAC provides its support to several administrations of the ASEAN States (Laos, Cambodia, Philippines, Indonesia, Thailand and Vietnam).

"Network essentially in three areas: air operators, airworthiness and aircraft maintenance, as well as licences for personnel," says Emanuela Gellini, MCI Head of Mission for the Asia-Pacific region at the time.

Before undertaking any cooperative action, the MCI and the DGAC carry out an on-site inventory based on points for improvement. An action plan is then proposed to the beneficiary authority.

Improving regulations

"The problem may be situated at the level of the regulations implemented by the country’s authority," the former Mission Head goes on to say. "Either these regulations are not entirely compliant with international requirements, or else they leave gaps that need to be filled. Or else, despite being compliant with the international standards, the authority’s personnel have difficulty implementing them." Whatever the case, the action proposed will consist in bringing the regulations up to the requisite level and, if necessary, supporting the management staff in order to enable them to fully assume their responsibilities. "In any cooperative action, although it is certainly a matter of deploying human and financial resources, it is also a matter of raising the awareness of the personnel," the former Mission Head points out. "It is important to involve them in the work carried out on site by our experts, to ensure that they appropriate the tools and methods proposed, and to get them involved in the process. Each time, we strive to take into account the local context, including the cultural factors."

Drawing up a continuous oversight plan

Beyond the framework of these bilateral agreements tying it to the authorities of ASEAN, the DGAC is also called upon to provide its support in a multilateral framework. This has taken the form of a programme launched by Europe in 2012 (for a four-year duration) and designated AATIP. Its purpose is to support the ten ASEAN States in the creation of a single air transport market, by helping them to reinforce safety whether in terms of air transport operations or air navigation. A signed by the European Aviation Safety Agency (EASA), the management of this programme (backed by a budget of some €45 million) has required the intervention of several partners grouped into a consortium, of which the DGAC is part, in collaboration with the British civil aviation authority. As initially planned, the programme was run until the end of 2016.

Getting off the European blacklist

The cooperative efforts of the DGAC and the ASEAN States have already begun to bear fruit. These have led, for example, to the Philippines airlines being removed from the European ‘blacklist’. Indonesia has seen seven of its main airlines taken off this same list, while cooperation with the DGAC continues to proceed apace. For Thailand, a programme was launched in September 2016 for a two-year duration. In Laos, with the oversight mission of the national authority is underway. These progress all benefit from the backing of Airbus, which has a significant presence in the region. The support of this manufacturer has made it possible to make available on-site certain resources, through the mobilisation of experts. This daily presence alongside the various stakeholders in the air transport system encourages efficiency and responsiveness, and guarantees the implementation of identified improvement measures.

Through all these actions, it is made patently clear that the safety chain remains an insuperable whole in which authorities, manufacturers and operators all play a key role.

1. Association of South-East Asian Nations. Created in 1967 by five founder States, it today comprises Brunei, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam (www.asia.org).

2. AATIP (Air Transport Integration Project).
DSNA Services is strengthening its activities and its partnerships

Three years after its creation, DSNA Services has succeeded in broadening internationally its credibility and established itself as a provider of expertise, consultancy, training and innovation.

Innovative solutions

In developing innovative solutions, DSNA Services combines the excellence of the DGAC personnel with the agility of various French start-ups. In partnership with the ADP Group and the start-up Aviellant, DSNA Services has developed a one-of-a-kind solution to detect, identify and track drones, including small ones. Its efficiency is proven in spotting targets up to 5 km away. “Quite a feat!”

In barely three years of existence, this expertise and consultancy office of French civilisation supports its customers in reinforcing aviation safety by developing innovative and tailored services as well as solutions on strategic, organisational and operational levels.

Reinforced cooperation with Thales

“Combining the capacity to act of a large corporation with the flexibility of a start-up enables French know-how to fully express itself.”

DSNA Services promotes French civil aviation know-how worldwide. Founded by the DGAC and the ENAC, DSNA Services is the expertise and consultancy office of French civilisation. It supports its customers in reinforcing aviation safety by developing innovative and tailored services as well as solutions on strategic, organisational and operational levels.

As a world leader in conformity assessment of materials and certification, Bureau Veritas has offices in 144 countries worldwide. Arnaud Schoeller, in charge of the Aviation Safety and Security division, underlines the particular contribution of DSNA Services in the implementation of activities to assist foreign civil aviation authorities.

“Enables French know-how to fully express itself.”

In the Caribbean, DSNA Services has been supporting since 2013 the Haitian civil aviation in modernising its operations, its organisation and its tools. This cooperation was reinforced by the visit of French President Francois Hollande in May 2015 and by the signing of a four-year contract to strengthen the surveillance activities.

“This is about supporting the Haitians in building their civil aviation market while guaranteeing the highest safety levels,” says Stéphane Durand, DSNA Services Executive Director. “This project involves the drafting of the legal basis that governs the operation of the aviation sector, the certification of its players, the training of its personnel with the agility of various French start-ups. As Stéphane Durand says: “This partnership combines the recognized experience of a large key player with the flexibility of a start-up.”

The experts from DSNA Services have developed a one-of-a-kind solution to detect, identify and track drones, including small ones. This solution has been deployed in many other locations such as Iran or Cuba. Addressing specific needs is a method that has definitely proven its efficiency judging from the growing number of projects in which DSNA Services has been involved since its creation: 14 in 2014, 25 in 2015 and 31 in 2016.

Complementary expertise with Bureau Veritas

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“The experts from DSNA Services provide complementary expertise (focused on airworthiness, air operations, safety management, security) to Bureau Veritas, particularly in the field of ATM. These assistance programs, conducted jointly by Bureau Veritas and DSNA Services teams, will be developed, consolidated and diversified in the near future.”

Find out more about Thales’ ATM activities on www.thalesgroup.com/aviation/traffic-control/

Jean-Marc Alias observes. The two partners cannot yet publish concrete results as their reinforced cooperation and collaborative prospection has only just begun. Also, Thales established and consolidated its vast network of contacts with international clients over several decades, whereas DSNA Services has been in service for only three years.

The reinforced cooperation between the partners expresses itself in particular through collaborative approaches and presentations. To illustrate their partnership, they shared a stand at the International Fair for Colombia in November 2016.

“Thales’ ATM activities are diversified in the near future.”

Jean-Marc Alias points out.
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