

DIRECTION GÉNÉRALE DE L'AVIATION CIVILE

Strategic action plan to improve aviation safety

THE 2018 agenda



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- COMMERCIAL AVIATION
- HELICOPTER OPERATIONS
- RECREATIONAL AVIATION



FOREWORD BY THE DIRECTOR GENERAL

Flying is a particularly safe means of transport, a fact confirmed, in particular, by ICAO, EASA, IATA and DGAC statistics. However, nothing should be taken for granted. Accidents and serious incidents involving French operators do take place; casualties are regularly recorded in the light aviation sector, while the risks inherent in aerial work or helicopter operations still exist. All this reminds us that safety must remain the first priority of all the players and, in particular, the DGAC.

Therefore, for the first time, I have asked that this strategic action plan include not only commercial aviation, but also the specific characteristics of helicopter operations and recreational aviation.

The implementation of the first version of the strategic plan (2009-2013) was a factor of improvement. The plan was an effective and vibrant tool with real progress at the end, be it with regard to the attainment of the objectives on the reduction of a specific risk or other more cross-functional targets, especially the anticipated implementation of safety management systems by French operators

In fact, while operators were equipping themselves with safety management systems, the State was developing a working framework, called «State Safety Programme» (SSP), designed to manage the State safety regulation, oversight and promotion functions. The strategic action plan to improve safety is part of this latter.

This new strategic action plan to improve safety, the “2018 Agenda”, has been mapped out using the safety data gathered by the DGAC and the BEA, in France and elsewhere, and considering the achievements of the 2009-2013 plan. It also includes some less factual information based on expert opinions, as well as recommendations by professionals. It should be considered as a document to be updated, especially, according to emerging risks. It contains some new objectives, while other ones of the previous plan are handled in more detail therein.

This plan defines the priorities for the actions to be taken by every player until 2018. Its success will require the establishment of a dialogue between the players, based on trust.

PATRICK GANDIL
Director General of the French Civil Aviation Authority

PART 1 :

COMMERCIAL AVIATION



INTRODUCTION

Beyond the definition of an acceptable level of safety¹ found, in particular, in the ICAO documents, we must strive to continuously improve the aviation system safety thanks, especially, to the risk management process and technical progress.

In a context of limited resources, it is important for the «2018 Agenda» to define some priorities and bring in some pragmatic actions and reasonable deadlines. Some of the objectives of this plan will be more difficult to attain, others will take some time. Finally, some of them are continuations of the objectives of the 2009-2013 plan.

Passengers' demands in terms of air-link availability, punctuality or cost, and, more generally, economic, social or political concerns are all factors that implicitly interact with the safety level.

The State itself, by federating its safety regulation, oversight and promotion activities, is faced with similar considerations while striving to optimise the use of its resources. All these facts must be taken into consideration while defining an acceptable level of safety. They are based on the standards and recom-

mended practices contained in Annex 19 of the Chicago convention, applicable since November 2013.

According to the 2010, 2011 and 2012 aviation safety reports published by the DGAC, although it is decreasing, the 5-year average for fatal accidents involving airplanes with more than 19 seats registered in France is still above an equivalent indicator for some other large European countries.

Thanks to the State Safety Programme (SSP), France aims to be one of the European Countries with the safest commercial aviation operators. Therefore, the above indicator, partly representative of this safety level, is given special attention.

The strategic action plan defines some:

- systemic/cross-functional objectives, when the objective is to reduce a set of risks;
- operational objectives, when the objective is to reduce the frequency or critical character of a specific risk.

People in charge of air transport and general aviation safety are invited to read this document, to take account

of the information concerning them, and to help update this plan.

This strategic action plan is completed by a DGAC risk portfolio which aims to identify the priorities of actions for certain types of events. The following notions and terminologies are used in the portfolio: danger, risk, undesirable event or feared consequence. These terms are used in the aeronautical sector and in other industrial sectors with different meanings, both at the national and international levels.

The following meanings are used in the context of the State safety programme in France:

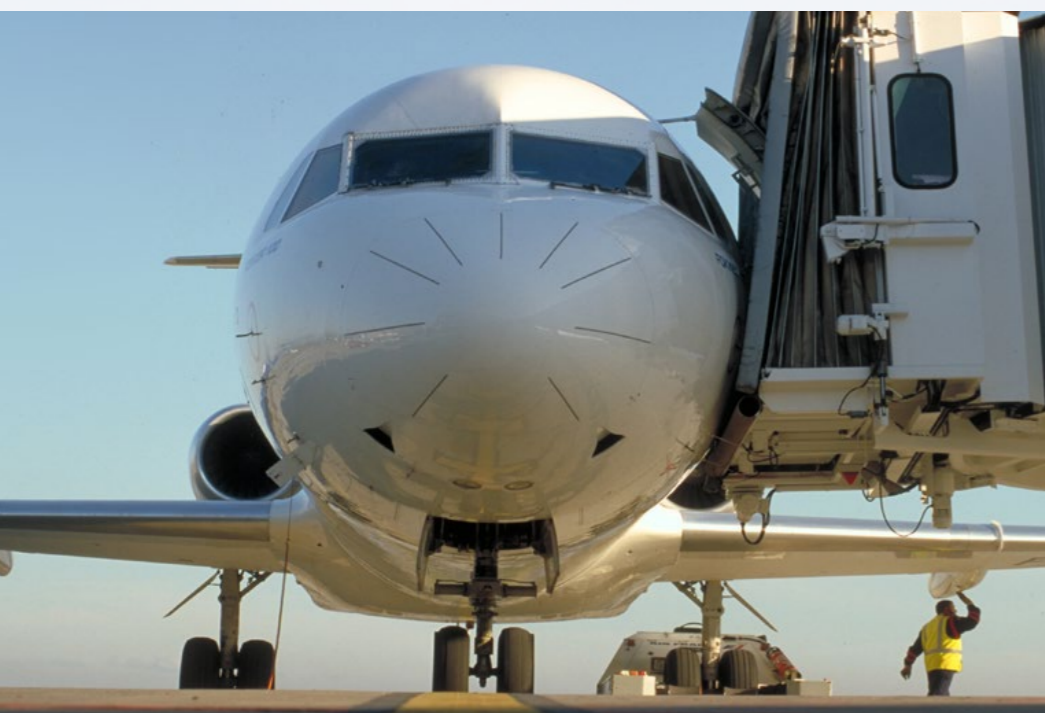
- A feared consequence (in the causal chain) is an accident in the sense of ICAO Annex 13;
- An undesirable event is an unwanted event in view of the services expected. An undesirable event may be technical, procedural or human.

¹ According to the ICAO, safety is the state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

A → SYSTEMIC/CROSS-FUNCTIONAL OBJECTIVES

This part stems from the previous plan, designed only for air transport. However, some of the elements developed here also apply to general aviation, including recreational aviation.

A/1 Making SMSs the cornerstone of the improvement of safety at the operators'



Regulation requires the implementation of SMSs by aircraft operators, maintenance organisations, aerodrome operators and training organisations. To support all these operators, the DSAC (DGAC's Safety Directorate) has compiled and circulated some implementation guides, available on the DGAC website

□ www.developpement-durable.gouv.fr/Guides-des-systemes-de-gestion-de.html

However, concrete implementation of SMSs inside training organisations, including in the recreational aviation

field, is still on-going and must be supported in the years to come.

A special symposium entitled «From occurrence processing to risk management» was organised in 2011 to improve awareness on the principles of implementing an effective SMS. The summary document on best practices, which emerged from this symposium, as well as the rest of the documentation on this latter, is available on the DGAC website

□ www.developpement-durable.gouv.fr/Symposium-DSAC-24-novembre-2011-Du.html

Several actions are planned to continue and reinforce this objective:

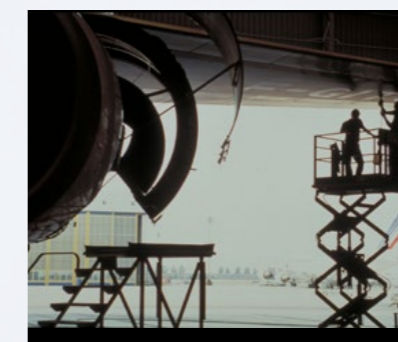
- Information gathered by the DSAC seems to point to the fact that some organisations have focused their efforts on the SMS methodology, by translating the guides published by the DGAC in form of manuals and formal procedures, to the detriment of a pragmatic implementation of the corresponding concepts; **actual implementation of efficient SMS by all the organisations, and the evaluation of their maturity by the Authority are a priority within the framework of this plan.**

- Some operators are complaining about poor exchanges with other operators on the interfaces, especially when these latter are not subject to SMS implementation obligations. **One of the solutions promoted by the DGAC is to include, in letters of agreement or contracts with subcontractors, a clause requiring the implementation of an incident management scheme in accordance with the SMS requirements in this field (creation of guidance material by DSAC).**

- The number of events resulting from the activity of a small operator is not enough to understand, based solely on this, the risks to which it is exposed. The quality and amount of feedback is a prerequisite to safety improvement. To increase the amount of data used as basis, and improve the management of risks related to interfaces, **a balanced approach of safety data sharing among operators will be sought. Moreover, effective relations between design, production and maintenance organisations, as well as aircraft operators shall be promoted.**

- The safety improvement loop is based mainly on incident reports which bring in decisive but also subjective and partial views.

The use of more factual and systematically recorded data from flight analysis or automatic recording systems helps to improve decision-taking pertaining to the safety



initiatives to carry out, and to better evaluate their impacts. Therefore, **the DGAC shall endeavour to promote the best means of effectively collecting and processing different types of safety data provided by operators.**

- Moreover, actions aimed at evaluating the level of safety performance of organisations and the Authority via indicators face implementation problems for which the standards and guidance material from international organisations (ICAO or EASA) still remain too theoretical. **A pragmatic implementation is the objective. It shall take account of the costs and benefits of such an evaluation and based on changes in European regulations in this field.**





A/2 Towards more synergy between the SSP and SMSs

The experience gained by operators following the introduction of their SMSs and by the Authority within the framework of its SSP must make it possible to consolidate exchanges



with the entities concerned on safety aspects in need of improvement. **An open dialogue between the Authority and these entities, to be as independent as possible of oversight actions, shall be sought.** This dialogue must encompass the knowledge and analysis of incidents, risk assessment, implementation of

risk reduction measures and evaluation of their effectiveness, and changes in the priorities to be given to the various risk areas, be it at the Authority level (risk portfolio and strategic action plan) or operator level.

This dialogue must take place not only between the entity in charge of the operator's SMS and risk management specialists at the DGAC, but also between the operators' management and oversight inspectors.

The latter, on their own part, shall eventually act inside the DGAC in order to update the priorities within the Authority.

These dialogues must also help the Authority to search for how to promote exchanges between similar or different operators (for instance, manufacturers and operators or operators and air navigation services). The choice of the themes of annual DSAC symposiums also includes this multi-domain component.

Depending on the maturity of the operator's SMS, this dialogue may have different orientations:

- For operators whose SMS only has a low maturity level, or operators with insufficient data volume (event reports or events detected by automatic tools, etc.) to feed their SMS, the dialogue is intended to help them to define the priority of their safety initiatives based, for instance, on the scrutiny of the SSP risk portfolio, when relevant within the framework of their operations or based on safety improvement actions promoted by the DGAC or by European or international organisations.



- For operators with a mature SMS, exchanges and collaboration between the operators and the Authority shall pertain to identified risks, with a view to mutually enhancing the risk reduction actions taken respectively by the DGAC and the operators. These exchanges must make it possible to better calibrate the safety improvement measures and promote the identification of

new lines of work. They shall also include discussions on the relevance of regulations.

In fact, some deviations from the standards may show the need to make some changes to the regulations. If necessary, operators should not hesitate to discuss with the Authority and to propose some modifications to regulations rather than

seeking to circumvent them. These modifications, just like exemption requests, must allow the introduction of alternative solutions which guarantee a satisfactory level of safety. **The DGAC will assist any operator who expresses the need for assistance, by providing error, transgression and bias management methods.**

A/3 The Authority is gradually introducing risk-based oversight.

EVALUATING KEY ASPECTS OF THE RISK-BASED APPROACH

First of all, while the traditional oversight methods will remain in place, the DSAC shall evaluate at the same time the effectiveness of actions carried out by operators within the framework of their SMS; these shall include:

- the efficiency of the incident management system;
- the organisation's methods of assessing exposure to risk, and the corresponding reduction targets (indicators, etc.);
- the assessment of the methods of managing deviations from the standards and the relevance of corrective measures taken;
- the consideration given to external data (published safety studies, DSAC's safety promotion actions, recommendations of investigation authorities). In fact, the safety improvement process must not only take account of internal events, but should also include external safety data, especially if the entity is small.

The size of the organisation shall also be taken into account.

IMPLEMENTING RISK-BASED OVERSIGHT

Risk-based oversight consists in ensuring that the main risks to which an operator is exposed have actually been taken into consideration in the continuity of its operations. The key aspects of this modus operandi



must be specified during the evaluation period; they shall be based on the experience gained within the framework of the European regulation which stipulates that the oversight programme shall be worked out by taking into account the specific nature of the organisation,

the complexity of its activities, the results of past required certification and/or oversight activities, and shall be based on the evaluation of associated risks.



A/4 Training of Authority personnel

The training of Authority personnel on risk management shall be gradually reinforced to support the orientations expressed in A/1, A/2 and A/3. This training shall be reserved for staff in contact with operators as well as other Authority personnel engaged in risk management functions.



This training shall enable the staff concerned to acquire and promote a pragmatic and effective approach to risk management on the one hand, and to risk-based oversight,

on the other hand. Some targeted guidance material, by type of activity and type of risk, shall be published for them as needed. This guidance material shall contain the types of events in relation with the type of

risk, as well as some (national or international) recommendations, advice or solution proposals to reduce these risks. These guides shall be regularly updated according to emerging risks, and may be used, for instance, during skill maintenance courses.

The training of Authority personnel shall take into account the methods used and initiatives taken in other countries, including non-European countries.

A/5 Reinforcing knowledge and implementation of a just culture suited to the vast majority of players

«Just culture» is one of the elements highlighted in many European countries to encourage feedback. In France a big majority of players in the aviation sector has actually put in place the non-punitive component of just culture, which is one of the reasons for the large number of incidents reported to the Authority via the operators' SMSs.

• **The DSAC shall ensure that the few organisations in which this culture is not well established shall work towards this goal.**

The punitive component of the just culture, clearly stated in case of wilful or repeated misconduct, is too often ignored and shall be subject to reminders within the framework of this plan. This component must

exist at the level of organisations and at the Authority level as well.

• **The DSAC shall seek to improve its sanctions policy,** such that wilful or repeated misconducts with the most grievous effects on safety shall be liable to sanctions collectively recognised as necessary and suitable for handling these misconducts.



A/6 Evaluating and implementing, at the national level, the appropriate safety improvement measures of the European plan

The annual European Aviation Safety Plan (EASp) is available on:

□ <http://easa.europa.eu/sms/>.

It is established by EASA, in collaboration with Member States. Some of the safety improvement actions proposed in this plan are intended for the States. These latter are free to respond or not, depending on their assessment of their relevance in the national environment. **The DGAC shall strive to ensure compatibility between the detailed actions of this strategic plan and the European plan,** both upstream, through the structures designed to have the European plan evolved, or downstream, by ensuring that the most relevant actions of the Euro-

pean plan are incorporated into the detailed French action plan.

Some of the cross-functional actions of the European plan which should result in major changes include the introduction of Competency Based Training, from initial training and throughout the career, to help crews manage risks better.

Moreover, taking into account **accidents that recently occurred in France to aircraft registered abroad, the DGAC shall ensure that, at national and European level, particular attention is laid on the competency level of the pilots flying these aircraft when mainly operated in Europe.**

The DGAC shall be very attentive to any future European requirements on the safety performance indicators, both for organisations and the Authority. It shall advocate for a prudent use of indicators' outcome when linked to safety data on collected occurrences, the interpretation of which is always very difficult. On the other hand, it shall highlight the benefit of an in-depth analysis of the data used to calculate an indicator to interpret the variations observed in its outcome.



B → OPERATIONAL OBJECTIVES

B/1 Informing and training flight crews better to reduce the risk of loss of control in-flight



The EASA has launched a rulemaking task (RMT 0581-0582) aimed at developing some regulations which guarantee that pilots are given adequate initial and continuous training to enable them acquire and maintain the knowledge and skills required to avoid and, where applicable, recover in-flight control losses. **The DGAC shall actively participate in regulatory work and ensure that appropriate and efficient provisions are imple-**

mented. While waiting for the successful completion of these European initiatives, the DGAC is circulating information and good practices aimed at reducing this risk.

Special attention is given to initial selection of pilots, their ability to react to unforeseen events, and the improvement of training (and the corresponding tools) on the identification, prevention and recovery

of loss of control, and more particularly of stall situations. It shall, in particular, be appropriate to **increase the time spent on manual flying in order to improve the crews' availability, especially in case of worsened situations in which they may be obliged to return to manual flying while managing flight.**

Moreover, the DGAC will continue its efforts to **improve the training of flight crews on the management of sensory illusions and spatial disorientations.**

Finally, the European plan aims to fully redesign the Crew Resource Management or CRM methods and the handling of the behavioural aspect of players in a heavy workload situation or in a worsened environment. **The DGAC shall ensure that the actions detailed in this operational objective are made their own by the crews.**

B/2 Improving the management of approach and landing phases

The most feared consequences include loss of control in-flight (LOC-I), controlled flight into terrain (CFIT) and runway excursion. These risks can be reduced through rigorous management of flight, approach and landing phases.

In the 2009-2013 edition of the strategic plan, reducing the rate of non-stabilised approaches was identified as the first operational objective. All the players in the sector adopted this topic which was also brought to the European level. Moreover, most of the actions emanating from the 2006 symposium pertaining to non-stabilised approaches are now implemented.

1. Comprehensive and summarized work was done by international institutions, including, in particular, the European Action Plan for the Prevention of Runway Excursions (EAPPRE) coordinated by Euro-control (http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_%28EAPPRE%29). The recommendations contained in this plan are intended for all the players and deemed to be examined in a national context. **The DGAC shall review the recommendations made in the EAPPRE, and undertake to implement those not yet implemented in France. In particular, it shall ensure that the training**

of pilots, air-traffic controllers and aerodrome personnel include the prevention of runway excursions.

2. The considerations made during the 2006 symposium have been developed and have resulted, in particular, in the introduction of the concept of non-compliant approach (NCA) in order to integrate better the contribution of air-traffic control and, on onboard, to work upstream the approach stabilisation heights in order to improve flight crew availability during final approach. **Studies are conducted within the framework of this plan, especially pertaining to systematic detection of NCAs through flight analysis and air-traffic control data systems, on the one hand, and to recurrent training of pilots and controllers, on the other hand.**

3. Moreover, some accidents and events which occurred during the go-around phase have drawn attention to the difficulties in performing this manoeuvre in response to any non-stabilised approach. The corresponding risk transfer should not be underestimated. **In particular, the DGAC shall develop some means of ensuring that flight crews master the fundamentals of trajectory control, on the one hand, and of specifying the interfaces between the ATC and**

the aircraft during this flight phase, on the other hand.

4. The meteorological conditions during approach are a recurrent factor contributing to non-compliance. **Actions shall be taken within the framework of this plan concerning, in particular, the content of the information given to crews and the decision making process on runway change.** Some aerodromes are more sensitive than others with regard to these problems. Operational trials dedicated to air-traffic controllers' communication of enhanced wind-related information (tail wind on the ground, gusts, wind shear) to pilots have been launched on some aerodromes, in collaboration with Météo France and some airlines.



5. The quality of landings may be studied and monitored with the help of air and ground data systems. **The DGAC has launched a study using ground radar data and shall share its outcome with airlines.**

B/3 Managing adverse meteorological conditions better

The 2009-2013 edition of the strategic plan already contained an objective concerning the assistance given to crews in the face of adverse meteorological conditions. Although some progress has been made on this complex and multi-faceted issue, this objective is still being pursued.

1. Contaminated runway situations led DGAC to publish an operations suspension procedure, which identifies the players of a platform and clarifies everyone's role. Moreover, some directives and guidance material have described the measuring means and methods, if the contaminant is not water. Water is a complex type of contaminant due to its rapid variability, and studies are in progress to evaluate some associated methods and tools. **Beyond these practical tools, the most significant action taken within the framework of this plan is to improve the information given to crews related to the runway surface condition by including all available feedback and parameters which may be quantitative and qualitative, in accordance**

with the data provided by aircraft manufacturers and taking account the work done abroad in this field.

2. One of these parameters is the short-loop feedback from preceding crews and recalled by air-traffic controllers, especially concerning the weather conditions encountered, or the runway surface condition. The success of this loop depends on the support of the crews and controllers, and on a relative standardisation of the information transmitted to ensure they are well understood by all. **The objective is to seek a more efficient use of this short loop based on good practices identified across the Atlantic, notably the PIREP system.**

3. In addition to this short loop, **improving weather-related aeronautical information** must be considered as a safety enhancement parameter. Therefore, **Météo France is carrying out an in-depth study of the use of appropriate new technologies with the support of the players using this information.** The profound chan-

ging Météo France shall be assisted by the DGAC in order to ensure that this improvement in the production of weather information is reflected all through the chain to the end-users.

4. Providing controllers with display of storm cells on «control positions» seems to bring an improvement to the monitoring function and traffic management forecasts. Thanks to this technical effort and the transmission of information to the ground staff, it is possible to provide elements that help to better understand the situation. Controllers, just like the crews, thus, have information and means to better understand adverse meteorological conditions.

5. Weather information may be given to the crews through the air-traffic control or weather service provider; it may also be provided by the onboard systems. Therefore, **the characteristics, usage and intrinsic limits of the onboard weather radar must be better known to the crews** so they can pertinently process the information provided by this system.



B/4 Reducing the risk of mid-air collision involving commercial aircraft

The air space is a cohabitation place for all aviation types: recreational, commercial or military aircraft. Latest international agreements such as «SESAR» and «single sky» have led to the emergence of a new factor in traffic flows. The context is also marked by an increase in the traffic capacities and arrival of innovative aerial vehicles such as drones.

The feared consequence in this respect and for commercial aviation is a mid-air collision involving commercial aircraft. The «airspace» aspects for the recreational aviation part also aim at reducing the mid-air collision risk and are focused on the peculiarities and needs of this sector (see the safety orientations part of the recreational aviation SSP).

1. The feared consequence, ie the mid-air collision, may be the outcome of an airspace infringement. **Eurocontrol has studied this risk within the framework of the European Action Plan for Airspace Infringement Risk Reduction (EAPAIRR). Three recommended actions have been identified as being particularly relevant for France and shall be monitored in this strategic plan.** These are the following actions and proposals for air navigation service providers:

- Implement procedure for ATC to advise alternative route if entry clearance into CAS is refused
- Develop the means to introduce buffer airspace for mandatory SSR and/or radio communication with

ATC as and when required in the vicinity of busy and/or complex controlled airspace;

and for military organisations:

- Improve airspace infringement occurrence reporting.
- 2.** In relation with the previous paragraph, **the means of improving the prevention of collisions between commercial and military aircraft** must be studied, especially in terms of safety enhancements brought in by the anti-collision systems.
- 3. Reinforcing attention regarding loss of separation events, especially the quality of associated analysis and the corresponding risk reduction measures.**



B/5 Adopting a global approach to safety on a platform

1. Past studies of runway incursions have shown that appropriate coordination of all the stakeholders working on a platform was a key factor for improving ground safety. To this end, Local Runway Safety Teams (LRST) have been created on most commercial airports and have proven to be a good tool for supporting communication between operators and ensuring collective management of this co-activity space.

Based on the LRSTs, **instances with a large mandate (Local Safety Teams) must be created to serve as a privileged forum for exchanges on all priority platform-related safety issues (for instance runway incursions, wildlife hazards, loss of separation - issues which apply to the previous objectives B/1, B/2 et B/3), and in particular those pertaining to specific local conditions.**

2. Moreover, **the DGAC shall especially focus on changes of ANSP at involved airports.**





B/6 Improving aeronautical information on infrastructures and air navigation systems, from inception to use by crews

The aeronautical information relates to the availability of air navigation systems or ground equipment, especially when works are on-going on the platform.



The risk resulting from malfunctions in the inception or use of aeronautical information is not considered as a major risk which would require urgent

measures. However, it is a recurrent risk considered as a contributing factor to a large number of events.

There are few studies at the international level on the entire chain; this is why there is a real added value in combining efforts on this issue at the national level.

1. The first observation is that any action aimed at improving the content of the information should not lose sight of the ultimate target which is that this information should be taken into account by frontline players and particularly crews. In fact, aeronautical information is crucial for safety, but its integrity (quality or intrinsic conformity) alone cannot

guarantee full and satisfactory use. It is important to find the right balance between comprehensive but excessive information and reduced but more accessible information, that could nevertheless potentially be insufficient to allow appropriate decision-making.

2. Besides, the flow of aeronautical information, from its inception to its use, is complex because a lot of different players are involved. It is important that they speak the same language and have a common view of the main risks. The objective is to make information flow more robust to guarantee its continued integrity and availability..

In a first phase, the aim is to encourage relations between the players involved so each party's needs and constraints can be better understood, and an agreement reached on the most effective improvement methods to be examined.

B/7 Reducing the risk of undetected fire onboard the aircraft or in an inaccessible part of the aircraft

A lot of incident reports collected describe situations of fire or smoke in accessible areas such as galleys, toilettes or passenger areas. These events are classified as low-risk events, which is not the case of events of fire outbreak in areas with little or no access, much more rare but with potentially more serious consequences.

The risk of fire can be handled through actions related to aircraft airworthiness. Fire can also break out inside a transported cargo load. The first aspect must be taken into account in the design and continued airworthiness processes implemented, in particular at the European Agency. Efforts must now be focused at the national level on the manage-

ment of goods and hold baggage containing dangerous products. ***The players (DGAC, airlines, ground handlers...) must take measures to increase awareness on this risk and support the work done at the European level.*** ■



Commercial air transport risk portfolio

This is the risk portfolio related to commercial air transport, managed by the DGAC within the framework of the State Safety Programme (SSP) and does not affect operators' risk portfolio.

It is noteworthy that in the context of the State Safety Programme:

- An feared consequence (FC) (in the causal chain) is an accident in the sense of ICAO Annex 13;
- An undesirable event (UE) is an unwanted event in view of the services expected. An undesirable event may be technical, procedural or human.

In the analysis model used by DGAC, which is close to the «bowtie» model, the feared consequence is placed on the right side, and the undesirable event at the centre.

N°	IDENTIFICATION OF UNDESIRABLE EVENT	CFIT	LOC-I	IN-FLIGHT COLLISION	GROUND COLLISION	RWY-EXC	ACFT DAMAGE OR IN-FLIGHT POB	ACFT DAMAGE OR IN-FLIGHT POB ON GROUND
UE3.1	Non-stabilised or non-compliant approach	■	■			■		■
UE3.2	Unusual flight attitude (pitch, bank angle, angle of attack...)		■				■	
UE3.3	Event relating to aerodrome conditions (runway surface condition and aerological parameters)		■			■	■	■
UE3.4	En-route encounter of dangerous weather phenomena (thunderstorm, turbulence, icing)		■	★			■	■
UE3.5	Misuse of aircraft systems (weight and balance, speed, track, aircraft configuration, etc.)	■	■	■	■	■	■	■
UE3.6	Events pertaining to works/maintenance operations on or close to a runway		★		■	■		■
UE3.7	Bad coordination / execution of ground operations (deicing, loading, stowing, line maintenance, etc.)	■	■		■		■	■
UE3.8	Runway incursion		★		■	■		■
UE3.9	Loss of separation in flight and/or airspace infringement		★	■			■	
UE3.10	Wildlife hazard, including bird hazard		■		■	■	■	■
UE3.11	Ground-onboard interface failure (misunderstanding, unsuitability of transmitted information, etc.)	■	■	■	■	■	■	■
UE3.12	Aircraft maintenance event	■	■		★	■	■	■
UE3.13	Fire/smoke in flight	★	■			★	■	■
UE3.14	Aircraft system failure resulting in flight management disturbance	■	■	★	★	■	■	■
UE3.15	Loss of cabin pressure		■	★			■	
UE3.16	Aircraft damage due to FOD		■			■	■	■

CAPTIONS :

■ the undesirable event leads to a significant increase in the probability of the occurrence of a feared consequence.

★ the undesirable event leads exceptionally to a feared consequence.

Column : colour code according to the severity of individual feared consequences.

PART 2:

HELICOPTER OPERATIONS



Helicopter operations is a civil aviation sector that offers a wide range of services (passenger transport, medical evacuations, homeland surveillance, slung load transport, etc.) often provided by small-sized operators.

In addition to the special characteristics of the aircraft used, the risks taken by helicopter operators are relatively different from those taken by other air operators, due to their specific nature. The small size of the operators, their corporate culture and relative partitioning do not make easier an objective analysis of these risks and their reduction.

According to a study of helicopter accidents in Europe between 2000 and 2005 by the EHEST (European Helicopter Safety Team), 70% of the accidents are directly or indirectly attributable to the crews involved; although their decisions or real-time performances are highlighted, the study shows that there is a limited safety culture in the operators in half of the accidents

□ (<http://easa.europa.eu/essi/ehest/wp-content/uploads/2010/10/EHEST-Brochure.pdf>)

In 2012, the DGAC organised a symposium on helicopter safety, in collaboration with operators' representatives. The areas of improvement presented below illustrate the conclusions of this symposium. The cross-functional/systemic objectives of the part dedicated to commercial aviation also apply to helicopter operations.

• Like for airplane operators, **the introduction of SMSs is considered as the cornerstone of safety enhancement.** Although an operator's motivation and commitment are the prerequisite for obtaining an efficient SMS, it is also necessary for DSAC's support and oversight activities to be pragmatic and thus, especially, suited to the size of the operator as well as to the special characteristics of its operations.

• Beyond the DGAC's oversight activities, **safety promotion actions among aviation professionals (managers, flight crew or ground staff) shall continue to be intensified** (through awareness campaigns, safety letters, posters, promotion of websites such as those of IASA, EHEST, Skybrary, etc.). These communication campaigns shall be initiated both by the central level of the DSAC and by the regional levels in direct contact with operators.

• Among the items that allow the implementation of an efficient SMS, equipping helicopters with flight data recorders and using them to analyse flights are considered as key factors of safety enhancement. **The existence and quality of flight analysis, as well as the implementation of protocols designed with flight personnel and defining the conditions to use these flight data recorders, in accordance with just culture principles, shall be promoted by the DGAC and be taken into account in the framework of the risk-based oversight activities.**

• Today, the types of incidents brought to the DGAC by helicopter operators are very much focused on technical failures, or loss of separation with other aircraft. **The DSAC shall encourage helicopter operators to also report some precursors to accidents linked to flight preparation or aircraft handling** (for instance, pressure to fulfil a mission, flight performed in weather conditions worse than expected, difficulties related to the use of a particular helipad, exceeding performance limits, incident specific to a type of activity - rescue, winching, spraying missions, etc.). The existence of this type of report and the quality of their analysis by the operator shall also be among the criteria taken into account within the framework of risk-based oversight.

• **The DGAC shall strive to reinforce its collaboration with organisations representing helicopter operators, in order to define some safety enhancement measures and evaluate their efficiency.** This collaboration shall be sought also for the organisation of forums that bring together flight safety officers and/or SMS managers of the operators. ■

PART 3:

RECREATIONAL AVIATION



INTRODUCTION

According to available statistical data, the number of fatal accidents in light aviation tends to remain relatively high in France (on average, about forty fatal accidents occur in



France every year, leading to the death of about 70 persons). The regulation, long considered as the main driver of safety enhancement, no longer seems to be sufficient and may even, in some cases, turn out to be counterproductive. Changes in European regulations on incident reporting and analysis shall also affect this field of civil aviation.

By the end of 2009, considering this context, the DSAC organised a national symposium on the issue of light and sports aviation safety. This meeting was followed, in 2011, by a series of bilateral exchanges between the DGAC and the federations in order to continue the dialogue initiated at the symposium. **In 2012, in agreement with all the federations and several associations, five safety-related structuring orien-**

tations were validated. These five orientations are the structure of the recreational aviation part of the State Safety Programme. Moreover, the cross-functional objectives presented in the part dedicated to commercial aviation are also applicable or transferable.

The specific characteristics of recreational aviation make this part to differ, in particular through its organisation and operating mode, from the one dedicated to commercial transport. One of these specific characteristics is the existence of associations on the side of many individual pilots, a huge diversity of activities and of machines used, the importance of voluntary work and the search for the pleasure of flying - specific characteristics which may undermine comprehensive safety risk awareness.

These specific characteristics, combined with the desire to go beyond regulation-based traditional exchanges, have led to the choice of setting-up an administration/federations partnership in order to conceive the recreational aviation part of the SSP. Its main target shall be to significantly reduce the death rate, in particular, by developing a safety culture shared by all the players in the sector. On its own part, the DGAC shall strive to implement an efficient regulation and to ensure that it is actually enforced. The initial and continuous training methods shall be reviewed, and access

to key flight preparation information facilitated. Finally, emphasis shall be laid on feedback on safety issues.

These orientations shall be reflected through the development of concrete actions, which shall be implemented and monitored by federations, associations and the DGAC. In this context, the European dimension of safety promotion shall also be considered, and the activities of the EGAST group shall help stimulate national discussions and promote the actions introduced in France at the international level.



Orientation 1 / Supporting the safety measures initiated by recreation aviation players

1. Compiling a list of federations', associations' and individual safety initiatives, to make them known to a wider public and promote remarkable initiatives.

The DGAC shall contribute, in particular, to this orientation by financially assisting some of these initiatives,

selected within the framework of the Commission Nationale Consultative des Aides à l'Aviation Légère.

2. Defining, in collaboration with the ENAC, among others, ground training programmes for DGAC staff in charge of the recreational aviation part of the SSP (SSP/AL) as well as

for correspondents within the federations. The trainers, who should have a recognised technical skill, may be drawn from the administration and federations.

3. Supporting the IASA in its safety awareness campaigns.

Orientation 2 / Reviewing the initial and continuous training methods

1. Promoting «competency-based training methods».

2. Reinforcing the training of instructors and underlining the instructors' exemplary value.

Orientation 3 / Developing and encouraging feedback

1. Encouraging the consolidation of the federations' REX.

2. Promoting the usefulness of flight briefings and debriefings.

- Promoting flight briefing and debriefing methods suited to recreational aviation.

- Evaluating the use of recording equipment (GPS and software, on-board camera, flight recorder).

3. Encouraging DGAC exchanges with the federations' and associations' safety correspondents.

4. Organising the collection of infor-

mation on accidents for which no safety investigation is carried out.

5. Launching a reflection on the notions of safety indicators and associated objectives.

Orientation 4 / Facilitating users' access to flight information

1. Making aeronautical information easily accessible to users.

2. Making weather information easily accessible to users.

3. Striving to make the air space easily understandable and more simple with a view to reducing mid-air collision risk.

Orientation 5 / Evaluating the pertinence of safety regulation and oversight initiatives and improving them as needed

1. Introducing oversight commensurate with safety risks.

- Evaluating the oversight methods.

- Supporting the aero-club certification.

2. Encouraging awareness on safety issues and regulatory compliance at the best level.

- Developing declaratory schemes wherever this is allowed by the regulation.

- Encouraging federations and user associations to take over some tasks if it is the most effective solution.

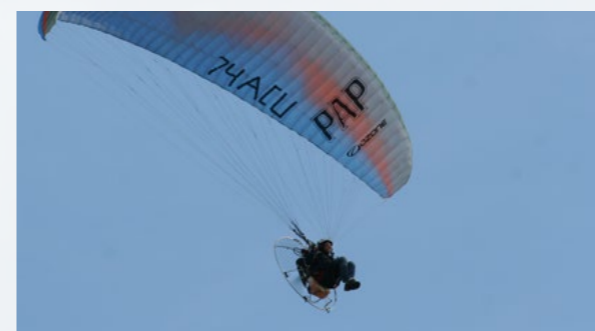
3. Considering ways to improve the sanctions scheme to enhance its exemplary value, with a view to making a positive impact on safety.

- Promoting difficult behaviour analysis methods in clubs.

- Encouraging clubs to include this point in their procedures and, in particular, in their internal rules.

- Targeting better the violations that must be clearly sanctioned, and publicising better the decisions of disciplinary commissions.

- Being very vigilant to and intervening if necessary on European proposals to change existing regulations. ■



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