



European Aviation Safety Agency

Report

*European Aviation Safety Plan
2013-2016*

*First Draft
(9 Nov 2012)*



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1 Executive Summary

The present document constitutes the third edition of the **European Aviation Safety Plan** covering the period between 2013 and 2016. The Plan has been developed according to the same methodology that was used to develop the previous two editions. Therefore the main risk areas have not been changed, as they cover issues that are still relevant for aviation safety in Europe.

Like previous editions, this third edition of the Safety Plan encompasses three broad areas: systemic, operational and emerging issues. The risks identified in these areas are mitigated by safety actions that Member States, EUROCONTROL, the European Commission, the industry and the Agency take on board. All the partners work together, streamline their activities and add their efforts to drive our accident rates even further down.

Furthermore, this third edition consists of two parallel activities:

- a. On one hand, it provides a report on the status of the 103 standing actions developed last year. A progress report with the details on each of the actions is included in **attachment A**. This has been obtained in coordination with the various action owners. Additionally, a brief summary of the progress made in each of the safety areas has been included in the main body of the document (sections 3 to 7).
- b. On the other hand, it expands the initial list of actions proposed in the previous edition by incorporating *13 new actions*. These new actions will be reviewed by EASAC and the States and have been placed within the existing framework. They take into consideration new safety initiatives aimed at mitigating the existing risks.

This first draft version of the EASp 2013-2016 is distributed among the States for review. The document is accompanied by two reports:

- The 2012 Status report on the EASp actions. It contains in-depth information on the implementation of the EASp actions and will be embedded in the present document to form the final version.
- A report titled EASp implementation in the States which supplements the information provided in this document by summarising the 20 action reports received from the various States involved in the implementation of the EASp. After the report is consulted with States during the EASp summit (16 November) it will be made public.

States are encouraged to send comments to rodrigo.priego@easa.europa.eu. The final version of the EASp will be submitted to the Management Board meeting in December for endorsement.

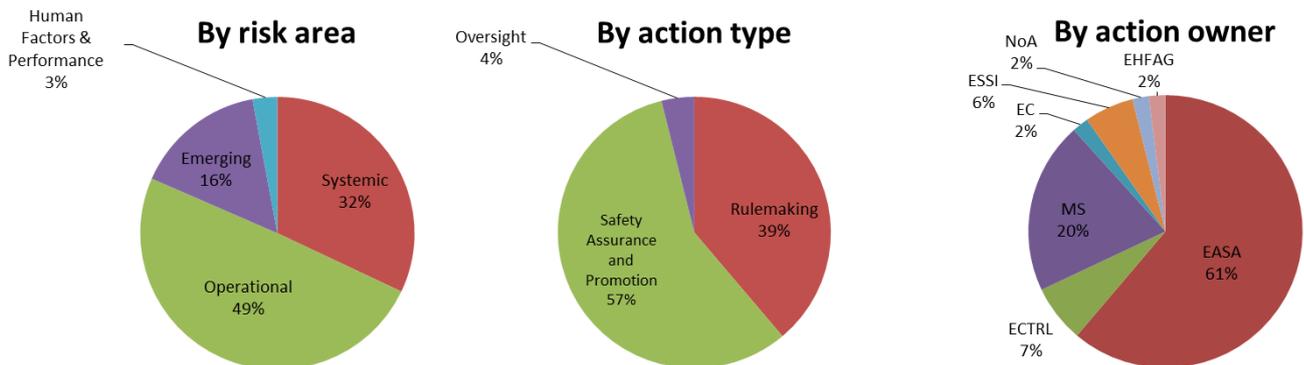


2 2012 Performance at a glance

This section focuses on three aspects of the Plan: the composition of the actions from various perspectives, the Plan performance measured against the original planning established at the beginning of the year and the level of implementation among the various States.

The third edition of the European Aviation Safety Plan (EASp) contains **103 actions** (12 more actions than the second edition). Almost half of the actions contained in the EASp mitigate operational risks, being the majority of them classified as safety assurance and promotion actions (57%). These actions include launching promotion campaigns, developing safety videos, leaflets and guidance material, holding specific workshops or financing research projects among others.

Almost two-thirds of the actions are owned by the Agency. Other EASp stakeholders are the various States involved in its implementation, Eurocontrol, the Strategic Safety Initiative's (ESSI) Teams, the European Human Factors Advisory Group (EHFAG), the European Commission (EC) and the Network of Analysts (NoA). An overview of the EASp composition is provided below:

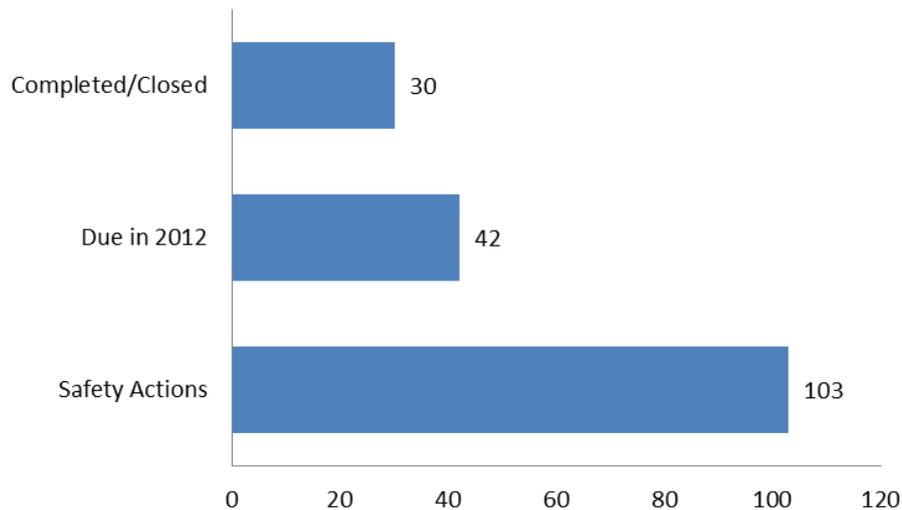


When it comes to delivering results, forty two (42) actions were due to be completed in 2012. 30 of them have been completed or closed¹. This includes both actions delivered during the year as well several actions (9) that have been combined with others in order to streamline the planning and better focus on priorities.

¹ At the moment of developing this paper not all the action reports had been made available, therefore the numbers provided below represent an estimate and maybe subject to change in the final version.



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Among the completed actions we find:

- the adoption of the first regulations containing safety management provisions for organisations and authorities in the areas of flight crews and air operations;
- the development of a Safety Management Manual (SMM) and Toolkit for complex helicopter operators;
- the delivery of the European Action Plan for the Prevention of Runway Excursions (EAPPRE) proposing recommendation to address the risk of runway excursions;
- the publication of the Agency opinions on Flight and Duty time limitations and rest requirements for commercial air transport by aeroplanes addressing fatigue issues;
- the results of a cockpit automation survey that addresses flight deck automation of complex aircraft and focuses on automation control;
- a methodology to assess future risks, with a view to enhance the emerging area of the Plan;
- two SIBs to provide information on the impact of space weather on aviation; and
- a strategy to endorse human factors and human performance across civil aviation activities.

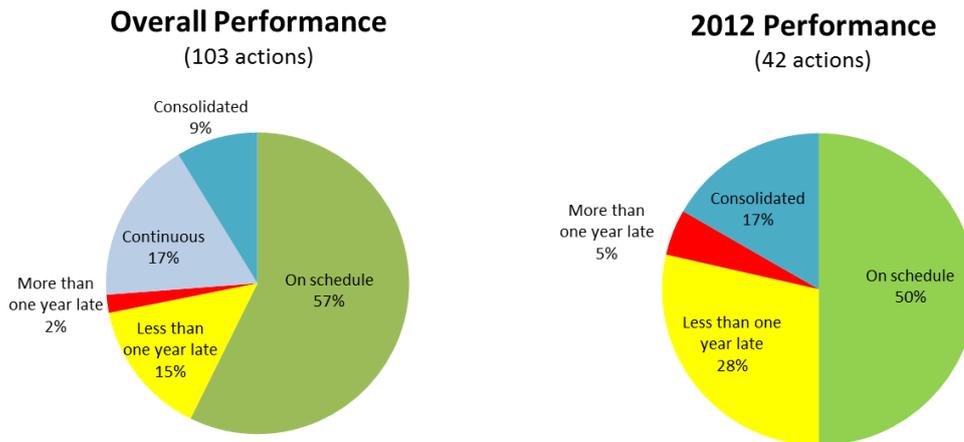
Overall, 57% of the actions are on schedule according to the initial Plan. Significant efforts have been made to deliver results on-time. A number of actions (17%) are continuous activities that are reported every year till the desired results are achieved.

In 2012, half of the actions (21) have been completed, while 17% (7 actions) have been consolidated with other actions of similar scope. 28% (12 actions) have been postponed into next year while 5% (2 actions) have been moved beyond 2013.

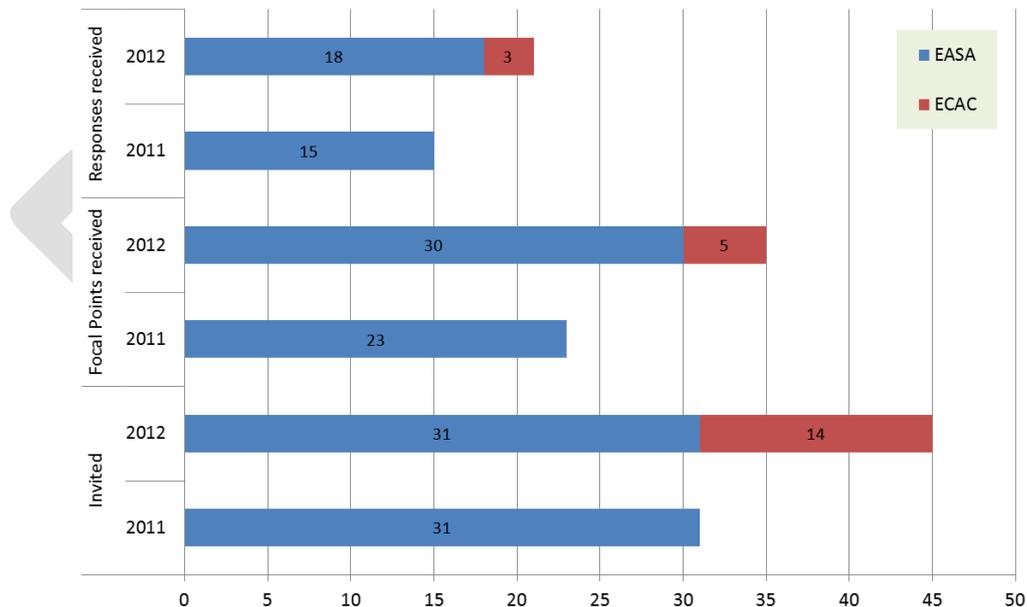
The below diagrams summarise the overall performance of the Plan and the results achieved in 2012.



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The implementation of the EASp has been extended to 45 States: 31 EASA States plus the 14 States outside the EASA system that are members of ECAC. A request was sent out to those States that have nominated a focal point in order to retrieve the status of the various actions under their leadership (21 actions). **Thirty** (30) EASA States plus five (5) non-EASA States have nominated focal points, thus formalising their commitment to the EASp. This is a considerable increase from previous year. Twenty-one (21) responses have been received in 2012, 6 more than in 2011. The increased commitment from the States is reflected in the below picture.



In 2012, responses on the status of EASp implementation have been received from Austria, Belgium, Croatia, Czech Republic, Estonia, Finland, France, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Monaco, Montenegro, the Netherlands, Romania, Spain, Sweden, Switzerland and United Kingdom.



3 Introduction

3.1 Objectives and principles

The main objective of the Safety Plan is to create a common focus on European aviation safety issues as a continuation of the European work to increase aviation safety and to comply with ICAO standards. The third edition continues the approach of compiling the on going work in Europe, hence improving traceability and reinforcing commitment to the current initiatives. This will contribute to avoiding the duplication and overlapping of safety initiatives and competition for resources.

As it was the case for the previous editions, this third edition is also driven by the national plans and priorities (bottom-up approach). While some safety issues will stay at national level and will be addressed by State Safety Programmes (SSP), there will be other instances where common issues of pan-European scope will require a collective action. The latter actions are the scope of the present publication.

The third edition of the European Aviation Safety Plan covers the 4-year period between 2013 and 2016. The objective of this edition is twofold: on one hand it informs stakeholders on the progress made on the actions during 2012; on the other hand it incorporates new actions to mitigate the already identified safety risks. The initial framework has been maintained.

The Safety Plan is built on the principle that the planning for the first year (2013) is a commitment and that the planning for the following years (2014-2016) might be subject to changes depending on changing priorities and availability of resources. Following this principle, the present 4-year Safety Plan commits the stakeholders to the actions planned for finalisation in 2013. These actions are highlighted throughout the document. The actions for the following years (2014-2016) will be reviewed in light of experience. The Agency's Rulemaking programme is also based on this principle.

3.2 Main risk areas: the Safety Plan Framework

The third edition of the Safety Plan builds on the methodology that was used to produce the first edition.

The first edition of the Safety Plan was developed by taking into account Member States safety concerns. In order to support the timely publication of the Plan, a request was sent to the 31 EASA Member States in the first quarter of 2010. They were asked to provide the top 5 safety concerns in their State as well as the process by which they had determined them. A total of 15 responses were received from Member States in May 2010. Additionally, input was aggregated with safety information from EUROCONTROL, ECAST and the Agency since these organisations have a pan-European view on safety. The first results were presented to EASAC in June 2010.

The inputs collected were further analysed and classified into three different areas according to the type of issues they highlighted. All of the responses received were placed into one of the following areas:



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- a) **Operational Issues**, which are closely related to the events that are reported during operation. The relationship between this type of issues and the final outcomes or end states can be supported by data.
- b) **Systemic Issues**, which affect the aviation as a whole. These issues play a role in accident and incident causation. They underlie operational issues; thus their improvement has an implicit effect on operational causes.

The above issues can be considered as the reactive elements of the Safety Plan since they address problems that have already happened and for which data is to some extent available. In order to balance the composition of the Plan with a more proactive or forward looking element, a third category of issues named **emerging issues** was also proposed.

- c) **Emerging issues**. This area gives some consideration to safety issues derived from operations or regulations that have not been fully deployed and where data is not always available.

Finally **human factors and human performance** affect all the safety topics discussed within the above areas and it is important to recognise that addressing human factors will bring safety improvements across all those issues. Due to the fact that they have an effect across all domains and the difficulty of associating them to one of the above broad areas, they will be addressed separately in the Safety Plan.

The proposed approach and list of issues was presented to EASA Management Board in June 2010 and constitutes the **Safety Plan Framework**.

SAFETY PLAN FRAMEWORK		
SYSTEMIC ISSUES	OPERATIONAL ISSUES	EMERGING ISSUES
Working with States to implement and develop SSPs	COMMERCIAL AIR TRANSPORT BY AEROPLANES	New products, systems, technologies and operations
Working with States to foster the implementation of SMS in the industry	Runway Excursions	Environmental factors
Safety Management enablers	Mid-air collisions	Regulatory considerations
Complexity of the system	Controlled Flight Into Terrain	Next Generation of Aviation Professionals
Training of Personnel	Loss of Control In Flight	
	Ground Collisions	
	OTHER TYPES OF OPERATION	
	Helicopters	
	General Aviation	
HUMAN FACTORS AND PERFORMANCE		

In this edition of the EASp, the chapter labelled "*next generation of aviation professionals*" that was part of the emerging issues has been moved to the systemic issues and renamed as "*Training of personnel*". This is also reflected in Attachment A. Safety actions have been added to address the below issues.



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3.3 Continuous update

In collaboration with all the stakeholders, the Safety Plan is being reviewed every year. The review consists of two main activities:

- a. Firstly, the status of the standing actions has been revised. An action is considered complete when the proposed deliverable is delivered. When the action could not be closed during the due date or a deviation from the Plan is expected, the causes have been recorded and a modification has been proposed. This allows measuring the progress and effectiveness of the Safety Plan. A progress report is included in **attachment A**.
- b. Secondly, the initial list of actions proposed in the previous edition has been updated with the incorporation of new actions after consultation with all stakeholders. These new actions have been placed within the existing framework. They take into consideration new safety initiatives aimed at mitigating the existing risks.

3.4 The European Aviation Safety Programme

On 26 January 2011, the European Commission organised a conference to discuss the future of European Union's Aviation Safety Management towards 2020 and to hear the views and experiences of the various stakeholders in aviation safety. The conference debated the issues surrounding moving from a largely reactive system towards a proactive system based upon proven safety management.

With the results of the debate, the EC developed a Communication² to the Council and the European Parliament called "*Setting up an Aviation Safety Management System for Europe*". The Communication sets the strategy for aviation safety in Europe for the coming years and supports the aim, set out in the Transport White Paper³, to raise the EU aviation safety performance to a level that matches or exceeds the best world standard.

According to the Communication this is achieved by adding a pro-active element to the current EU aviation safety system and publishing annual updates to the European Aviation Safety Plan detailing progress made in addressing identified safety risks at EU level. This is the scope of the present publication.

This Communication is accompanied by a Commission Staff Working Paper⁴ describing the current aviation safety framework at European level. It was prepared jointly by the Commission and EASA and is called the European Aviation Safety Programme. The work is based on the manual presented to the EASA MB at the end of 2010.

The Communication, the Commission Staff Working Paper and the present document constitute the main elements of the Safety Management System at European level: a strategy, a Safety Programme and a Safety Plan.

² EC COM(2011) 670 final of 25.10.2011 - Setting up an Aviation Safety Management System for Europe.

³ COM(2011) 144 - WHITE PAPER - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system

⁴ EC SEC(2011) 1261 final of 25.10.2011 – The European Aviation Safety Programme.



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3.5 Content of the Plan

The Safety Plan is divided in four areas, each one addressing the main safety topics presented in the Safety Plan framework.

- Section 4 addresses Systemic Issues
- Section 5 addresses Operational Issues
- Section 6 addresses Emerging issues
- Section 7 addresses Human Factors and Performance, which affect all of the above areas.

Within each of the above sections, the following information is provided:

- A table with the actions delivered during the year.
- A summary of the key achievements made during 2012 together with the main challenges encountered.
- A summary of the actions under the leadership of the States.
- A proposal for new actions to be incorporated on the EASp 2013-2016. Commitments for 2013 are highlighted in yellow.

Attachment A contains a **status report** on the progress made on the Safety Plan throughout 2012. In this section the following information is provided for each action item: a summary of the work done, the leader of the action, an assessment on whether the action is progressing according to the Plan, possible deviations from the Plan should they exist and an identification of the key deliverables.

Several other appendixes clarify the acronyms and define the terms used throughout the document (attachment B), and provide a brief description of the different working groups and initiatives at European level dealing with aviation safety (attachment C).

3.6 EASp summits

Reinforcing the coordination with the States participating in the implementation of the EASp has been one of the objectives set up for 2012. With this aim the EASp implementation and review summits have been created. They are a vehicle to consult on the Plan with the States.

They consist of face to face meetings between the States, the European Commission and the Agency to take the pulse of the implementation and discuss safety risks affecting the system. They are held twice a year. The first two summits took place on 29th May and 16th November 2012 providing with an opportunity to introduce the approach to new colleagues of several States. The material discussed and main outcomes can be found [here](#).

3.7 Governance

The content of the Safety Plan is developed by EASA under the supervision of EASAC. The Committee created in 2009 brings together safety experts from the Member States, the European Commission, Eurocontrol, the Performance Review Body (PRB), industry and EASA. Their role is to provide advice on how to address the identified safety risks at EU level.

Once it is reviewed and approved by EASAC, the Safety Plan is submitted to the EASA MB for endorsement. After it is endorsed, it becomes a public document that is implemented on a voluntary basis by all the stakeholders.



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3.8 Promotion

A dedicated web site (www.easa.europa.eu/sms) has been created to publish the key deliverables and update on the major developments. Inquiries concerning the EASp can be addressed via a dedicated mailbox (easp@easa.europa.eu)

The Agency, in cooperation with all the stakeholders, continues to further disseminate the approach. To this end, in 2012 a [brochure](#) has been developed and handed out at various safety events. The brochure briefly explains the key aspects of the EASp and points out where to get the information.

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4 Systemic Issues

Systemic issues are system-wide problems that affect aviation as a whole. Their association to a particular safety event or circumstance is not always obvious. In most scenarios, they become evident by triggering factors and play a significant role in the development of safety occurrences. They often relate to deficiencies in organisational processes and procedures.

Completed actions		
No.	Issue	Finished action
SYS1.2	SSP Requirements.	European requirements for Aviation Authorities (AR) in the domains of air operations and flight crew licensing have been published.
SYS2.1	SMS requirements.	European requirements for Aviation Organisations (OR) in the domains of air operations and flight crew licensing have been published
SYS2.6	Promotion of SMS.	SMS best practices for helicopter operations have been developed and promoted
SYS2.11	SMS International cooperation.	European stakeholders have contributed to the work on the new ICAO Annex on SMS and represented the European position.
SYS3.9	Understanding of European wide operational issues.	The NoA has performed an analysis of the operational issues in the Safety Plan from the National Databases in the EASA Members States. This has been combined with any additional information found in the ECR
SYS3.10	Exchange of information on aviation safety risks.	An annual conference to facilitate the exchange of information and address the issues identified in the Safety Plan has been hosted at EASA premises in Cologne.

Progress made during 2012

One of the cornerstones to improving safety in Europe is providing organisations and authorities with tools to manage risks at their level. Safety management systems (SMS) are one of such tools. Enabling SMS within the aviation system starts with introducing regulation and follows with actual implementation.

Even though SMS requirements already exist in the ATM domain which is well advanced in this area, the first opportunity for the Agency to draft regulations in the area of SSP and SMS has been realised in 2012 through the first extension of its remit to cover the areas of Air Operations (Regulation (EC) 965/2012) and Flight Crew Licensing (Regulation (EC) 290/2012). The adaptation of the management systems of authorities and organisations will take some time.

This process started back in 2006. Among other deliverables it resulted in the development of two distinct sets of requirements for authorities and organisations respectively:

- **Authority Requirements** take due account of the critical elements of a safety oversight system defined by ICAO, thus they support the implementation of SSPs, while serving the standardisation objective set out in the Basic Regulation (Regulation (EC) 216/2008). They further include elements that are essential for establishing a



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comprehensive aviation safety management system at EU level, encompassing EU and Member State responsibilities for safety management.

- **Organisation Requirements** include consolidated general requirements for management systems, designed to embed the ICAO SMS SARPs in a way as to ensure compatibility with existing management systems and to encourage integrated management. The Agency believes that SMS should not be implemented through an additional requirement superimposed onto the existing rules. The EASA management system requirements fit various organisations, whatever their size, nature or complexity of activities and whatever business model they follow, thus catering for proportionate application.

These requirements serve as the starting point for drafting safety management regulations in other domains. Aerodrome operators (of such aerodromes that will require certification) and competent authorities will also implement management systems. The corresponding NPAs were published in December 2011. The next domains that will follow are initial and continuous airworthiness.

When it comes to implementation, there is a need to develop practical tools that assist those implementing management systems. The European Helicopter Safety Team (EHEST) has recently published a Safety Management Manual and toolkit (SYS2.6) for complex operators with little experience in implementing SMS. This manual has been aligned with the regulations about to be adopted and is available at the EHEST website. Besides the manual, the toolkit also includes an Emergency Response Plan and a Safety Management Database User Guide.

EUROCONTROL Generic Safety Management Manual (EGSSMM) is in Edition 2.0 (SYS2.8). A full range of guidance on various SMS procedures complements the manual (such as on safety surveys, ATM occurrence investigation, safety records and safety assessments). The promotion is being done through ES2 (Experience Sharing to Enhance SMS) – see action SYS2.9. A third edition of the EGSSMM that will integrate the results from the ANSP/NSA SMS interface project is planned during 2012.

One of the key processes of SMS is measuring performance. This requires that organisations and States develop safety performance indicators (SPIs). Furthermore, SPIs at European level are mandatory in Regulation 691/2010 that established a performance scheme for ATM. The European Commission is considering contracting a study (SYS3.7) to explore the possibility of extending the approach beyond ATM. With the outcome of the study a roadmap may be developed (most likely not before 2015).

The Safety Management International Collaboration Group (SMICG), chaired by the Agency, has defined a model for the measurement of safety performance (SYS3.5) addressing outcomes, service provider's and regulatory behaviours. The model will be available in 2013. In addition, the Network of Analysts (NoA) coordinated and managed by EASA has set up a sub-group to focus on developing SPIs, with a view to having the first definitions ready in 2013. A new action has been incorporated in the EASp to cover the work of the NoA (action SYS3.16 below)

To obtain the full potential of an SMS, data of good quality are necessary. At the beginning of 2013, the EC will put forward proposals to provide solutions to some of the shortcomings of the occurrence reporting system (SYS3.8). Formal consultation processes have been completed and drafting of the Impact Assessment is on-going.

Finally, the subject of proposing a common framework for the risk classification of single events in aviation is being addressed by the Network of Analysts (NoA). This is being carried



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out by the NoA Risk Classification sub-group, which is chaired jointly by EASA, European Commission and Eurocontrol. This NoA sub-group brings together all interested and involved parties from a number of previous groups with the goal of developing a single European solution. The sub-group has developed a work programme that will deliver a European Risk Classification Framework in 2014. Although this is a delay over the original timescale, the inclusion of all relevant stakeholders will greatly improve the chance of success and buy in for the solution in the long term.

The EASp also includes two actions (SYS3.11 and SYS3.12) intended to foster a more active involvement of States with Flight Data Monitoring (FDM), including FDM promotion, a regular and open dialogue on FDM programmes with aircraft operators, and promoting FDM indicators relevant for the prevention of RE, MAC, CFIT and LOC-I. To that end EASA and NAAs have formed a group of experts called the European Authorities Coordination Group on FDM (EAFDM). The EAFDM has produced guidance material for NAAs on setting up a "national FDM forum", i.e. a regular dialogue on FDM between a State and its aircraft operators. This guidance is published on [EAFDM website](#).

To tackle the issue of increasing pilot's reliance on automation, EASA developed an Automation Policy. The Policy was presented in the EASA Safety Conference on LoC (October 2011), at the European Aviation Safety Seminar (EASS) organised by the Flight Safety Foundation this year and previously to this Committee. Furthermore, a web-survey has been published on the EASA website on 24 April and has been open till the end of July (EME4.6). Results have been analysed and follow-up actions are now incorporated in the plan (action SYS3.17 below).

Work to develop a training implementation policy to reduce the differences in training implementation among States has started (EME4.5). A training implementation working group has been established within the EASA Internal Group on Personnel Training (IGPT). The issue has been discussed with NAAs in a Workshop on 27 June. The results of the workshop will be taken into consideration to develop the Policy that should be available in 2013.

Coordination with Member States

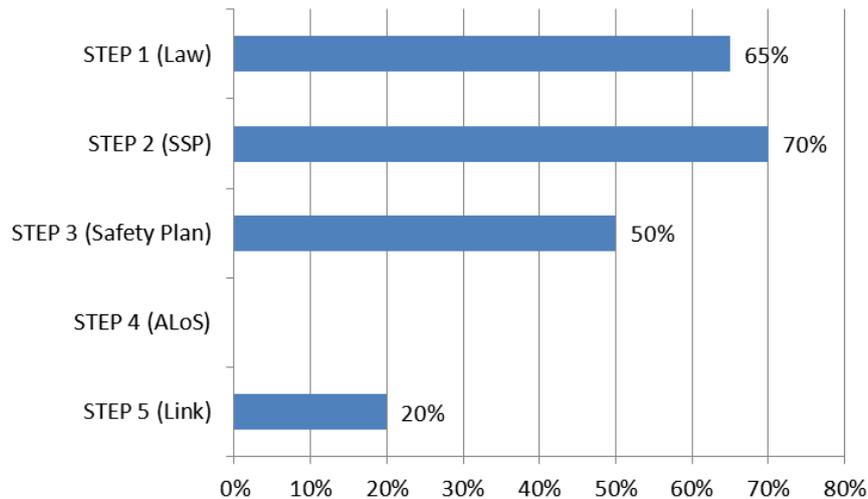
ICAO Annex 19 and regulation 691/2010 (Performance Scheme for Air Navigation Services and Network Functions) require that States develop an SSP. Action SYS1.7 encourages States to prioritize its implementation (due in 2014). An overview of the State Safety Programmes and Safety Plans that have been made available to the Agency as part of the implementation of the EASp can be found [here](#).

Twenty (20) States provided an action report, which contained details on the implementation of SSPs and Safety Plan at State level. The majority of States have modified their law to enact an SSP and published a document describing how the management of safety is organised in their States. Half of them have also published a Safety Plan. Many States are developing indicators, however no single State has agreed targets with industry and service providers. A small amount of States have established a link between the indicators and the risk areas coming from their Safety Plans. An overview is provided in the below picture.

The establishment of SPIs and targets at both national and European level is one of the priorities for future work. A new action has been identified in the following section (action SYS3.16)



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Action SYS3.11 encourages States to set up a regular dialogue with their national aircraft operators on flight data monitoring (FDM) programmes. Among the States that provided a response, seven of them mentioned safety promotion meetings addressing FDM. Three States expressed their intention to organise these types of meetings in the future. Discussions on FDM events relevant for preventing the major operational risks identified in the EASp are held in 4 States. Among the issues discussed are non-stabilised approaches and events relevant to prevent runway excursion.

New actions

Safety Management enablers

Frequency of information support management of safety

EASA publishes an annual safety review on a yearly basis. The review provides an overview of the level of safety in Europe for a given year. Many stakeholders use the information to take decisions at their level. In order to provide stakeholders with a more frequent update on the state of safety in Europe and worldwide EASA will publish a safety dashboard through its website.

Proposed action(s)

EASA should publish a safety dashboard on the EASA website with the intent to provide regular statistics on the state of safety in Europe and worldwide. The dashboard will be updated quarterly.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
SYS3.13	Frequency of information to support the management of safety	EASA should publish a safety dashboard on the EASA website with the intent to provide regular statistics on the state of safety in Europe and worldwide	EASA	2013	SP	Safety dashboard published



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Measuring safety performance in ATM at European and national level

Even though agreed safety performance indicators at European level do not exist in all domains of aviation, the Performance Scheme regulation (Commission Regulation 691/2010) has established the first Europe-wide indicators in ATM/ANS. The indicators measure performance not only in safety, but also in other areas like capacity, environment and cost-efficiency.

The European-wide safety indicators in ATM measure the effectiveness of safety management in both National Supervisory Authorities (NSA) and Air Navigation Service Providers (ANSP), the level to which the assessment of the severity of ATM-related events (runway incursions, separation minima infringements and ATM specific technical events) is harmonised by means of the Risk Analysis Tool (RAT) and the reporting of just culture.

Data to support their measurement will start flowing at the beginning of 2013. EASA and PRB have been working together to make this happen. The performance reporting activity is organized around annual reports to be prepared by the States as well as a Commission/PRB annual report to the Single Sky Committee.

Proposed action(s)

States will develop annual monitoring reports on ATM/ANS safety to the European Commission. The reports will be prepared by National Supervisory Authorities (NSA) and will monitor the performance on their respective States according to guidelines and templates prepared by EASA and PRB.

PRB with the support of EASA will report to the European Commission on ATM/ANS safety performance. This exercise will be a good opportunity to learn the first lessons on the established process to measure performance at European level.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
SYS3.14	Measuring safety performance in ATM at European and national level	States will develop annual monitoring reports on ATM/ANS safety to the European Commission	MS	2013	O	Report on ATM/ANS safety performance for the State.
SYS3.15	Measuring safety performance in ATM at European and national level	PRB with the support of EASA will report to the European Commission on ATM/ANS safety performance.	PRB & EASA	2013	O	Report on European ATM/ANS safety performance

All domains, except ATM, lack indicators and targets on key performance areas in order to achieve and maintain required safety levels

Without measuring performance it is not possible to know how effective our mitigation actions are in reducing the identified risks both at European and national level. Measuring performance is one of the cornerstones of SSPs as well as vital to measure the achievements of the EASp. A sub-group of the NoA has been set up to pave the way on establishing SPIs for use at a European and national level. The sub-group draws on the available expertise from safety analysts from NAAs and is co-chaired by the NAA of the Netherlands (IVW) and



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EASA.

Proposed action(s)

The NoA will develop high-level SPIs for use at a European and national level. The first definitions will be published in 2013 in order to support States.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
SYS3.16	All domains, except ATM, lack indicators and targets on key performance areas in order to achieve and maintain required safety levels	Develop high-level SPIs for use at European and national level in all domains of aviation safety.	NoA & MS	2013	SP	Publications of the high-level SPI definitions

Training of Personnel

Issue of increasing pilot reliance on automation

From 30 April to 23 July 2012, EASA published a cockpit automation survey aimed at consolidating the Automation Policy (*action EME4.6*) developed by the EASA Internal Group on Personnel Training (IGPT) following the EASA International Conference on Pilot Training of November 2009 and the International Conference Staying in Control Loss of Control Prevention and Recovery of October 2011.

This Policy addresses flight deck automation of complex aircraft and focuses on automation control. The EASA Automation Policy adopts an innovative approach consisting of mapping crew-automation interaction issues, design, certification and training principles, and respective regulatory provisions to identify top issues and paths for improvement.

This survey's objective was to evaluate the degree of agreement with the identified automation issues and suggested paths for improvement.

Most supported and consensual action proposals

1. Improve basic airmanship and manual flying skills of pilots.
2. Improve recurrent training and testing practices with regard to automation management
3. Improve the Multi Crew Cooperation (MCC) concept and training (instruction and testing) practices to better address automation management.
4. Improve the Competence Based Training (CBT) and Evidence Based Training (EBT) approaches to better address automation management.
5. Develop automation policies specific to aircraft types and variants to account for differences regarding automation and flight path management.
6. Improve the Multi-crew Pilot Licence (MPL) programme to better address automation management.



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Proposed action(s)

EASA, through the IGPT, will study possibilities for mitigating the risk of increasing pilot's reliance on automation through the proposals derived from the cockpit automation survey.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
SYS3.17	<i>Issue of increasing pilot reliance on automation</i>	EASA, through the IGPT, will study possibilities for mitigating the risk of increasing pilot's reliance on automation through the proposals derived from the cockpit automation survey.	EASA (IGPT)	2013	SP	Mitigation proposals developed

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5 Operational Issues

Operational issues are brought to light by the reporting and analysis of occurrence data. The Safety Plan starts by addressing the main risks that affect commercial air transport operations⁵, especially those carried out by aeroplanes. Additionally an effort has been made to capture actions that address other types of operation; thus acknowledging the existing initiatives at European level.

Within the commercial air transport operations by aeroplanes, safety issues have been organised into five different categories, which constitute the various ways in which accidents and serious incidents take place. These events are unrecoverable and represent end states in the series of events that develop into a safety occurrence. Before they occur, usually other recoverable safety issues are triggered that reduce the available safety margin. These may be related to weather, air traffic services, airport services, operations, flight crew, etc. The latter are the issues that the safety actions aim to address.

It is also important to recognise that certain issues like unstable approaches, the encounter with hazardous weather conditions or inappropriate actions performed by the crew have an impact on more than one risk area. Human factor issues also affect different areas and are addressed in section 7.

Completed actions		
No.	Issue	Finished action
AER1.1	Produce a European action plan to prevent RE by combining Authorities' and industry efforts.	European Action Plan for the Prevention of Runway Excursions (EAPPRE) has been published
AER1.7	Global response to runway safety.	European partners have taken part in the RRSS organised in March 2012 in Amsterdam and have contributed to develop action plans to promote the establishment of collaborative runway safety teams.
AER3.2	Aircraft Design.	CS-25 have been amended to introduce requirement aiming at reducing approach and landing accidents.
AER3.3	Fatigue.	Flight and Duty Time Limitations and rest requirements for commercial air transport with aeroplanes have been updated to take into account recent scientific and technical evidence
AER4.4	Fuel System Low Level Indication / Fuel Exhaustion Associated crew procedures.	CS-25 has been amended by introducing new provisions and associated AMC addressing safety recommendations in order to better protect Large Aeroplanes against fuel exhaustion/fuel low level scenarios
AER4.9	Response to unusual attitudes.	Part FCL has been published, which new European-wide requirements addressing the training of and recovery from unusual attitudes.
AER5.11	Lack of harmonisation of ground operation activities.	Industry developed ground operations manual has been issued and its use is being promoted in Europe.

⁵ These operations involve the transportation of passengers, cargo and mail for remuneration or hire.



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5.1 Commercial Air Transport by Aeroplanes

Progress made during 2012

To mitigate the risk of runway excursions a European Action Plan for the Prevention of Runway Excursions (EAPPRE) has been delivered in 2012 (action AER1.1). The Plan contains actions for authorities, various industry organisations (operators, service providers, aerodromes) and also for the Agency. Follow-up have been included in the EASp (actions AER1.9 and AER1.10).

In the area of loss of control, which continues to be the category with the major number of fatal accidents in Europe, the update of certification specifications to improve safety of large aeroplanes and engines in icing conditions has been delayed (AER4.2) due to a delay in the FAA rulemaking activities from which they are dependant. In view of this, the Agency has decided to take the lead on the rulemaking process.

The introduction of provisions to protect against fuel low level scenarios is now completed (AER4.4) by incorporating new fuel indication system(s) standards into CS-25. This is the outcome of the work of an international working group led by the Agency and including major airframe and engine manufacturers (Boeing, Airbus, ATR, Embraer, Rolls Royce), and civil aviation authorities (FAA, TCCA, EASA). This effort was made as a reaction to accidents and incidents involving engine fuel starvation, fuel exhaustion or fuel low level.

In addition, Part-FCL has been published (AER4.9). It contains European-wide requirements that address training of and recovery from unusual attitudes, one of the scenarios that has originated several loss of control accidents. EASA and Member States continue to participate in the International Committee for Aviation Training in Extended Envelopes (ICATEE) and Loss of Control Aviation Rulemaking Team (LOCART). The work of ICATEE continues on technical aspects of simulation and on the update of the Upset Prevention and Recovery Manual which will be presented to ICAO in October.

Fatigue is one of the factors that contributes to many accidents and serious incidents. The opinions on Flight and Duty time limitations and rest requirements for commercial air transport with aeroplanes taking into account recent scientific and technical knowledge have been published in October 2012. The proposed rules will now enter the legislative process, where they will be finalised by the European Commission assisted by National Authorities, with Parliamentary scrutiny.

The second extension rules will incorporate European requirements that will contribute to mitigate the risk of runway excursions, mid-air collisions, runway incursions and will enhance the safety of ground operations. In the ATM domain, the first Implementing Regulations have already been transposed. The opinions on the Aerodrome regulations are now expected in 2013.

Through its Ground Safety Working Group, ECAST has contributed to the development of the IATA Ground Operations Manual (IGOM). The first edition of the IGOM, was published on 2nd April 2012. The IGOM and other related IATA material are promoted by IATA and ECAST and through international conferences such as the IATA Ground Handling Council Conference (IGHC 2012).

Eurocontrol is leading the development of guidance material for ground-based safety nets (AER2.2 and AER2.3).

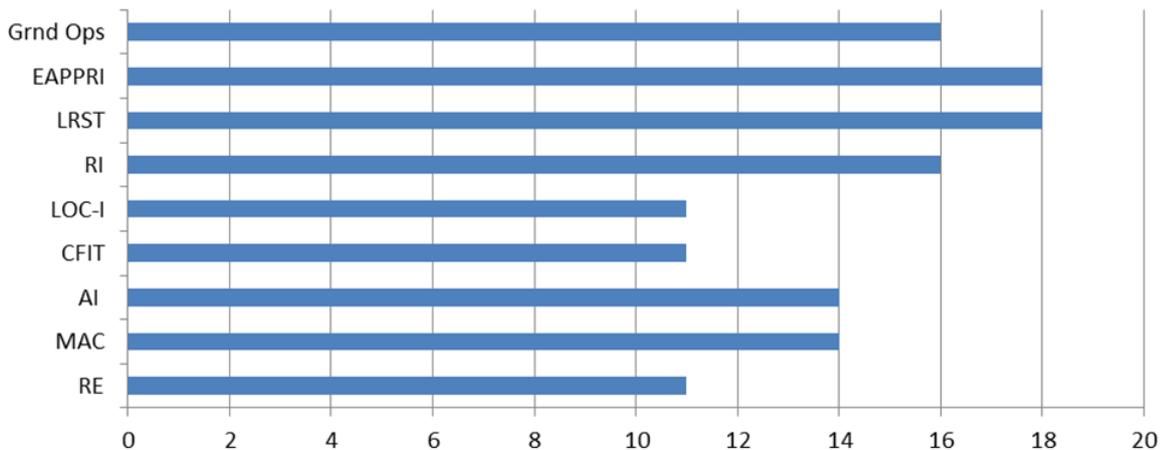


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Coordination with Member States

The responses received from 20 Member States conclude that all the risk areas proposed in the EASp are already incorporated in risk portfolios of more than half of the States. Out of the 20 reports received the European Action Plan for the Prevention of Runway Incursions (EAPPRI) and Local Runway Safety Teams (LRST) are being implemented in 18 States. Runway Incursions and the safety of ground operations are included in the risk portfolios of 16 States, followed by Mid-air collisions (MAC) – 14 States – and Controlled Flight Into Terrain (CFIT), Loss of Control In Flight (LOC-I) and Runway Excursions (RE) – 11 States-.

Number of States considering the safety issue



EAPPRI = European Action Plan for the Prevention of Runway Incursions; LRST=Local Runway Safety Teams; RI=Runway Incursions; LOC-I=Loss of Control in Flight; CFIT=Controlled Flight Into Terrain; AI=Airspace Infringement; MAC=Mid-air Collisions; RE=Runway Excursions; Grnd Ops = Safety of Ground Operations.

Attachment A and a supplementary report (*EASp implementation in the States*) offer more details on the feedback provided by the States including SPIs and safety initiatives carried out at national level to mitigate the above issues. The feedback will be discussed with the States during the 2nd EASp implementation and review summit on 16 November.

New actions

Runway Excursions

Runway excursions

There are at least two runway excursions each week worldwide. ICAO (Global Runway Safety Symposium 2011) has noted that the rate of runway excursions has not decreased in more than 20 years. A wide array of aviation stakeholders have requested to address the risk of runway excursions.

The European Action Plan for the Prevention of Runway Excursions (EAPPRE) developed by the European Working Group for the Prevention of Runway Excursions (EWGPRE) under the aegis of ECAST is now available. The recommendations contained in the Plan stem from the findings of a Eurocontrol study of runway excursions in the European region. The study findings made extensive use of lessons from more than a thousand accident and incident



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reports.

Key findings:

- The risk of a runway excursion is increased by wet and contaminated runways in combination with gusts or strong cross or tail winds;
- Practices such as landing long and or late or ineffective deployment of braking devices are highly relevant to runway excursion risk;
- The majority of runway excursions occur on a dry runway;
- In the cases of both landing and take-off excursions, the primary opportunity to prevent a runway excursion is in the decision making of the flight crew to go around or, once at or approaching V1, continue a take-off.
- Approximately 30% of all Go Around manoeuvres are called by flight crew, meaning that performing a Go Around manoeuvre is a normal but rarely performed procedure;
- Many landings are performed using dispatch data.

Key enablers:

- Local Runway Safety Teams;
- Aeronautical Information publishers;
- Participation in lesson sharing;
- The uniform and consistent application of ICAO provisions;
- Training;
- Know your aircraft type performance limits for the aerodrome concerned;
- Communication of the recommendations and guidance materials contained in the European Action Plan for the Prevention of Runway Excursions to all operational staff.

Proposed action(s)

Two recommendations are proposed that encompass action at both Member States and Agency level.

A. On one hand Member States should address the recommendations made by the EAPPRE via their State Safety Programmes in coordination with service providers and industry organisations.

B. On the other hand EASA should study possibilities for mitigating the risk of runway excursions through regulation, starting by evaluating the proposals made by the EAPPRE.

It has to be noted that as part of the second extension of the Agency's remit to ATM and aerodromes there are proposals in the process of being adopted that will contribute to this effort.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
AER1.9	Runway excursions	Member States should address the recommendations made by the EAPPRE via their SSPs in coordination with service providers and industry organisations	MS	Per Plan	SP	Report on progress



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New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	
AER1.10	Runway excursions	EASA should study possibilities for mitigating the risk of runway excursions through regulation, starting by evaluating the proposals made by the EAPPRE	EASA	Per Plan	SP	

Mid-air collisions

Loss of separation/Airprox

Many Member States are now developing their SSPs. As these Programmes are established consideration must be given to actions and processes to mitigate major risk affecting the EU aviation system. The NoA has set up a sub-group to further analyse the risk of MAC. This sub-group plans to also assist MS in setting up mitigation actions and measuring effectiveness.

Proposed action(s)

A set of actions to mitigate the risk of MAC and processes for measuring their effectiveness shall be developed for use by the MS in their SSPs.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
AER2.10	Loss of separation/Airprox	Develop a set of actions to mitigate MAC and processes to measure their effectiveness for use by the MS in their SSPs	NoA & MS	2013	SP	Report by NoA with actions and processed.

Loss of control in flight

Erroneous weight or centre of gravity.

Accidents and incidents have occurred because the actual aircraft weight and/or centre of gravity were out of the certified limits or ranges. The Dutch investigation authority reviewed the ICAO database and found that 37 such accidents are known to have occurred since 1995 world-wide.

When the take-off is initiated either with an aircraft weight or centre of gravity outside the operating envelope, with insufficient engine thrust/power or incorrect take-off speeds, there is clearly a risk of a catastrophic outcome. The aeroplane may not be able to lift off and may have to reject the take-off at high speed, with a risk of runway overrun; or the aeroplane may be able to lift off but may not be able to climb with the expected gradient, which may result in a collision with obstacles or in a stall of the aircraft.

Erroneous estimates or entry of these parameters are quite likely during operations. On-board autonomous systems are available, which give an indication of the aeroplane's weight and balance that is sufficient to attract the crew's attention in case of an abnormal situation. Current aircraft are not required to be equipped with such systems.



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Proposed action(s)

Propose an amendment of certification specifications for Large Aeroplanes (CS-25) to require that the aeroplane is equipped with a weight and centre of gravity measuring system. Additionally, it is envisaged to propose a retroactive requirement for such system to be installed on already Type certificated Large Aeroplanes (using a Part-26/CS-26 rule). Finally, the safety benefit which could be gained by requiring such system to be installed on CS-23 commuter aeroplanes will be investigated; and subsequent amendments to CS-23 will be proposed as appropriate.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
AER4.12	<i>Erroneous weight or centre of gravity.</i>	Propose an amendment of certification specifications for Large Aeroplanes (CS-25) to require that the aeroplane is equipped with a weight and centre of gravity measuring system.	EASA	?	R	Agency Decision

Ground contamination of aircraft surfaces.

In spite of existing operational procedures (EU-OPS), accidents and serious incidents have been caused by the degradation of aircraft aerodynamic performances due to ground icing contamination and de-/anti-icing operations. Several scenarios have been encountered involving loss of control of the aeroplane during take-off caused by the aerodynamic performance degradation occurring due to aerodynamic surfaces contamination. Such contamination may be present before take-off if the operational procedures fail to detect and/or remove ice contaminants, or if substantial ice contamination occurs during the taxi phase.

The application of de-/anti-icing fluids on aerodynamic surfaces can also degrade the aerodynamic performances of the aircraft if for example the fluid gets trapped in the gap between horizontal stabilizer and elevator.

In addition to operational procedures, further risk mitigation could be achieved during the design of the aircraft.

Proposed action(s)

Propose an amendment of certification specification for Large Aeroplanes (CS-25) to require applicants to perform an assessment of the effect of on-ground contamination of aircraft aerodynamic surfaces on take-off performance and on aircraft manoeuvrability and controllability.

The applicant would have to demonstrate that prior to take-off, the aircraft aerodynamic surfaces cannot accumulate undetectable hazardous quantities of ice contamination. When the aircraft has been de-iced by application of de-icing and/or anti-icing fluid, the applicant would have to demonstrate that there is no hazardous effect on aircraft performance and manoeuvrability or controllability.



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A retroactive measure (Part-26/CS-26) applicable to large aeroplanes TC holders; and requiring similar analysis and means of protection as the ones proposed for CS-25 will be proposed. The retroactive rule may be limited to the most vulnerable category of aircraft.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
AER4.13	Ground contamination of aircraft surfaces.	Propose an amendment of certification specification for Large Aeroplanes (CS-25) to require applicants to perform an assessment of the effect of on-ground contamination of aircraft aerodynamic surfaces on take-off performance and on aircraft manoeuvrability and controllability.	EASA	?	R	Agency Decision

5.2 Helicopter Operations

Progress made during 2012

The European Helicopter Safety Team (EHST) continuously cooperates with the International Helicopter Safety Team (IHST) to develop risk awareness, safety promotion and training material. The EHST website contains videos addressing major helicopter specific issues like loss of control in degraded visual environment (DVE) as well as leaflets with safety considerations for helicopter pilots.

The issue of DVE is also addressed by one of the research projects financed by the Agency (HDVE), which aims to define and evaluate visual augmentation possibilities for VFR helicopter flight to mitigate the potential hazards associated with this scenario. The EHST is also developing a tool to assess the impact of technologies on mitigating helicopter safety issues. A first version of this tool should be available in 2013.

Coordination with Member States

Action HE1.3 encourages NAAs in partnership with industry representatives, to organise Helicopter Safety events annually or every two years and to promote the EHST materials. Half of the States that provided a response (10) organise helicopter safety events on a regular basis. Four (4) more States have plans to organise these type of events in the future. The EHST materials are widely promoted in these events, but also through individual meetings with operators. Dedicated helicopters working groups/teams exist in at least 3 States in some cases also addressing general aviation issues.



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5.3 General Aviation

Progress made during 2012

One of the major known issues in General Aviation (GA) is the lack of fleet usage data. The European General Aviation Team (EGAST) has sent a letter and a form to the NAAs and GA Associations to collect and aggregate at European level the number of airplanes by type as well as the number of movements.

EGAST develops and shares good practices and safety promotion material for the GA pilots and community in Europe. The latest material can be found on the EGAST website.

A research project (SISA) financed by the Agency reviewed on-going local/national initiatives looking at improvements on see and avoid for GA with the aim to identify best-practices and promote standardisation. The results are available here.

Coordination with Member States

Action GA1.5 encourages that national authorities play the leading role in establishing and promoting local implementation priorities and actions to prevent the risk of airspace infringement in General Aviation. Airspace infringements committed by General Aviation are a safety concern for 75% of the States (15) that submitted a response. The infringements are committed in most cases by VFR traffic infringing the controlled airspace (in some cases at international airports). Most of States have implemented or are implementing the recommendations provided in the European Action Plan for Airspace Infringement Risk Reduction.



6 Emerging Issues

This section anticipates issues that are emerging or where potential hazards exist for the immediate or near future. Giving consideration to safety issues derived from operations or regulations that have not been fully deployed incorporates a forward looking element in the Safety Plan, thus complementing the approach illustrated in previous chapters. Developing a possible picture of the future with some of the trends that are more relevant to aviation is one of the actions captured in this section.

The nature of the issues identified in this chapter is twofold: on one hand, it addresses safety aspects of changes and trends that impact aviation; on the other hand, it copes with the introduction of new products, systems, technologies and operations for which safety regulations may need to be updated.

Actions will not only deal with uncertainties at early stages of development but also with gathering data that are lacking from operations. Gaps in safety data can be mitigated by specific research actions either to produce simulation experiments (at different scales) or by gathering operational experts input on safety issues and prioritising them.

In addition to new products, systems and technologies, consideration is given to issues related to the environment, possible evolution of the role of the regulator and oversight authorities as well as personnel training as one of the key issues that the next generation of aviation professionals will face.

Completed actions		
No.	Issue	Finished action
EME1.1	Methodology to assess future risks.	A method to assess future risks based on expert judgement, project studies, questionnaires and scenarios has been proposed.
EME1.7	Composite Damage Metrics and Inspection.	The understanding of high energy blunt impact on composite structure for aircraft, its significance, and the associated damage metrics and damage indications has been improved through research.
EME2.4	Flying through clouds with High Ice Water Content at High altitude.	Research to validate the proposed regulatory mixed phase and glaciated icing environment has been completed with a view to assess the necessity of further amendment/extension of the envelope and define the necessary actions for a more detailed characterisation of the composition of cloud masses at high altitude.
EME2.5	Impact of space weather on aviation.	Two SIBs to raise awareness on the impact of space weather on aviation have been published.

Progress made during 2012

Actions EME1.1 and EME1.2 address the issue of developing a methodology to assess future risks as well as a possible picture of the future. The Future Aviation Safety Team (FAST) has issued a report that reviews several methods that could be used to assess the risk associated with emerging issues.

In parallel a concept paper to establish how a possible picture of the future may be depicted is under development. The paper will be used to approach existing groups after an exploration of the activities they carry out.



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Actions EME1.4 and EME1.5 encompass the regulation of certain products like high-performance aircraft or operations like powered lift pilot licensing operations. Since they were incorporated in the EASp, they have been however subject to several delays due to the various unknowns that surround the rulemaking activity. The actions are now scheduled to start in 2015. The safety risk associated with the introduction of new products has been re-evaluated, taking also into consideration the on-going preparatory work that has already been started before the establishment of a formal regulatory framework.

Two Safety Information Bulletins (SIB) were published on 23 May addressing the impact of space weather on aviation, thus closing action EME2.5

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7 Human Factors and Performance

A projected increase in passenger numbers over the next decade, the move towards a Single European Sky and next generation aircraft technology, together with constantly shifting political, economic and regulatory frameworks demand that the role of the human in achieving the highest possible standards of safety within the aviation industry is seen as essential.

The entire aviation system, through people, processes and performance, relies predominantly on individuals and teams for safety, efficiency and effectiveness. In practice, people are required to communicate, apply judgments and make decisions and in doing so are constantly exposed to the risk of error. Therefore, human factors and performance of individuals and organisations affect all aspects of aviation and should not be addressed in isolation.

Completed actions		
No.	Issue	Finished action
HFP1.1	Strategy for human factors.	A human factors strategy has been developed in conjunction with EHFAG to enable and endorse human factors and human performance across civil aviation activities including rulemaking, regulatory oversight and standardization.

Progress made during 2012

The European Human Factors Advisory Group (EHFAG) has finalised a Human Factors Strategy with the intent of endorsing human factors principles across civil aviation activities (HFP1.1). Once the strategy is consulted with all stakeholders, the next step for the group is to make concrete proposals in the form of actions that will be incorporated in the EASp to implement the strategy.

Eurocontrol's Safety Team provides support to ANSPs in the deployment of ATM human factors activities (HFP1.3). To that end a work programme has been approved that covers the following strands of work:

- Weak Signals
- Human Factors in safe ATM Design
- Human Factors intelligence for all safety actors and all layers of management
- Human Performance safety culture improvements
- Safety Human Performance Dissemination and Toolkits
- Fatigue management
- Human Factors in Investigation
- Degraded Modes
- Critical Incident Stress Management
- Safety and Team Work Factors

One of the objectives that has been set up for the this edition of the EASp is to reinforce the Human factors and human performance section. To that end 3 new safety actions are proposed in the below section. The EHFAG is also in the process of developing a comprehensive action plan on human factors based on the strategy delivered this year (HFP1.2). The delivery of the human factors plan is expected in 2013.



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New actions

Consideration of HF in rulemaking activities.

EASA is committed to ensure that human factors are addressed in regulatory materials across the aviation system in a consistent and proportionate manner. It recognises that current and future operations rely on humans (Pilots, ATC, Trainers, Managers, Maintainers, Loaders, Dispatchers, Designers, Regulators, etc.) for safety, efficiency and effectiveness. Human factors and performance affects all aspects of the Aviation System (individual and organisational) and should be addressed in an integrated manner.

The Agency is provided guidance in the multidisciplinary field of Human Factors by the European Human Factors Advisory Group (EHFAG). This expertise is drawn from National Aviation Authorities (including the FAA), industry, professional associations and Human Factors academia and science community.

Wherever relevant, the EHFAG shall task themselves with providing EASA expert Human Factors knowledge and advice in the scope of rulemaking activities. Advice shall be communicated in the form of comments, position papers or other deliverables. The various subjects requiring Human Factor expertise may be split among the EHFAG Working Groups . To ensure consistency, all EHFAG deliverables are reviewed and agreed at plenary level before communication to the Agency.

Proposed action(s)

EASA will take into account HF in any rulemaking task that may have human factors considerations. To assist in this activity the Agency may task the EHFAG to review such material at the initial drafting stage. EHFAG to review the rulemaking programme for 2013 to 2016 and identify tasks that have potential HF considerations.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
HFP1.4	Consideration of HF in rulemaking activities	The Agency to take into account HF in any rulemaking task that may have human factors considerations. To assist in this activity the Agency may task the EHFAG to review such material at the initial drafting stage. EHFAG to review the rulemaking programme for 2013 to 2016 and identify tasks that have potential HF considerations.	EASA / EHFAG	September 2013	SP	Report on RT with HF considerations

Inadequate guidance certification specifications. HF on

Proposed action(s)

Identify gaps or areas to improve in AMC and guidance material for CS25.1302 Installed Systems for use by the Flight crew to address design-related pilot error and recommend that the material is updated and harmonized.



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New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
HFP1.5	Inadequate HF guidance on certification specifications	Identify gaps or areas to improve in AMC and guidance material for CS25.1302 Installed Systems for use by the Flight crew to address design-related pilot error and recommend that the material is updated and harmonized.	EHFAG	November 2013	SP	Report with identified improvement areas

HF competencies for regulatory inspectors are not developed.

Proposed action(s)

Development of human factors competencies for the various functions of regulators, initially for maintenance inspectors.

New Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
HFP1.6	Define HF competencies for regulatory inspectors	Development of human factors competencies for the various functions of regulators, initially for maintenance inspectors.	EHFAG	March 2014	SP	Define HF competencies for regulatory inspectors

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Attachment A: 2012 Status Report (see attached file)

This section provides the individual details concerning each of the action items, including a status update and the point of contact responsible for reporting. An initial identification of likely deviations in time or scope for each action is also provided. A “traffic-light system” (green, yellow and red colours) has been used to track progress against the plan.

In the attached report, the actions have been organised following a comprehensive format illustrated in the example below:

Safety Actions						
No.	Issue	Actions	Owner	Dates	Type	Deliverable (Measure)
Unique identifier (No.).	Safety issue being addressed.	A brief description of the course of action taken to mitigate the safety issue	The action owner or key stakeholder that will be responsible for its implementation (it does not mean that it is the only one contributing to the action). Being owner of an action means to be able to report on its progress.	As a minimum the year in which the deliverable is expected. When possible the starting year is also provided. Actions due in the year that the plan is issued are highlighted in yellow since the commitment is in this case stronger.	The actions type: rulemaking (R), Oversight (O) or Safety Assurance and Promotion (SP) according to the functional areas that are part of the EASP. When a rulemaking task has been created or a research project has been launched, the reference is provided in brackets (e.g. ATM.001 refers to a rulemaking task as it can be found in EASA's rulemaking programme).	The deliverable that is expected as a result of the actions. It allows evaluating the completion status on a yearly basis and serves as a first measure of progress.

Each action is accompanied by its implementation status according to the following format

Implementation						
Update	Status	Lead	POC	According to PLAN	Reasons for deviation	Deliverables
Brief description of the progress made on the action	Not started Started Advanced Complete Closed	Organisation leading the development of the action	Name of the person who can provide details on the subject action	On schedule Less than one year late More than one year late Not finalised	When there are deviations according to what was initially planned the reasons are recorded here.	A link to the deliverable or relevant website is provided when available



Attachment B: Acronyms and Definitions

Acronyms

AER	Aeroplanes
ANSP	Air Navigation Service Provider
ATM	Air Traffic Management
CAST	Commercial Aviation Safety Team (US)
CBT	Competence Based Training
CFIT	Controlled Flight Into Terrain
CMA	Continuous Monitoring Approach
COPAC	Spanish Professional Pilot Association
CPL	Commercial Pilot License
EACCC	European Aviation Crisis Coordination Cell
EAPAIRR	European Action Plan for Airspace Infringement Risk Reduction
EAPPRE	European Action Plan for the Prevention of Runway Excursions
EAPPRI	European Action Plan for the Prevention of Runway Incursions
EASA	European Aviation Safety Agency
EASP	European Aviation Safety Programme
EBT	Evidence Based Training
EC	European Commission
ECAC	European Civil Aviation Conference
ECAST	European Commercial Aviation Safety Team
ECR	European Central Repository
EGAST	European General Aviation Safety Team
EHEST	European Helicopter Safety Team
EHFAG	European Human Factors Advisory Group
EME	Emerging
ESP+	European Safety Programme for ATM
ESSI	European Strategic Safety Initiative
EVS	Enhanced Vision System
FAA	Federal Aviation Administration
FCL	Flight Crew Licensing
GA	General Aviation
GRSS	Global Runway Safety Symposium
HE	Helicopters
HFP	Human Factors and Performance
HLSC	High Level Safety Conference
IASCC	International Air Safety and Climate Change Conference
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ICATEE	International Committee for Aviation Training in Extended Envelopes
IGPT	Internal Group on Personnel Training of EASA
IHST	International Helicopter Safety Team
IMC	Instrumental Meteorological Conditions
IR	Instrument Rating
JRC	Joint Research Centre
LAPL	Light Aircraft Pilot License
MAC	Mid-air Collision
MS	Member States
NAA	National Aviation Authority



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NextGen	Next Generation Air Transportation System
NGAP	Next Generation of Aviation Professionals
NoA	Network of Analysts
O	Oversight
OSC	Operational Suitability Certificate
PPL	Private Pilot License
PRB	Performance Review Body
LOC-I	Loss of Control In Flight
R	Rulemaking
RE	Runway Excursions
RRSS	Regional Runway Safety Symposium
SES	Single European Sky
SESAR	Single European Sky ATM Research Programme
SLD	Super-cooled Large Droplets
SMICG	Safety Management International Collaboration Group
SMS	Safety Management System
SP	Safety Assurance and Promotion
SPI	Safety Performance Indicator
SSP	State Safety Programme
SYS	Systemic
TAWS	Terrain Awareness Warning System
VLJ	Very Light Jets
UAS	Unmanned Aircraft Systems
URT	Upset Recovery Training

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Definitions

Aeronautical Information Publication

An Aeronautical Information Publication (AIP) is a publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation. (ICAO Annex 15 - Aeronautical Information Services)

Airborne safety nets

Airborne Safety nets provide alerts and resolution advisories directly to the pilots. Warning times are generally short, up to 40 seconds. Pilots are expected to immediately take appropriate avoiding action.

Airspace infringement

Airspace infringement occurs when an aircraft penetrates an area into which special clearance is required without having such clearance.

Controlled Flight Into Terrain

Controlled Flight Into Terrain (CFIT) occurs when an airworthy aircraft under the complete control of the pilot is inadvertently flown into terrain, water, or an obstacle. The pilots are generally unaware of the danger until it is too late.

European Aviation Safety Programme

European regional approach to the ICAO requirements of State Safety Programmes. It contains an integrated set of regulations and activities to improve safety within EASA Member States. It is published as a Commission Staff Working Paper⁶ developed jointly by the European Commission and the Agency. The latest version is available at www.easa.europa.eu/sms.

Ground-based safety nets

Ground-based safety nets are an integral part of the ATM system. Using primarily ATS surveillance data, they provide warning times of up to two minutes. Upon receiving an alert, air traffic controllers are expected to immediately assess the situation and take appropriate action.

Ice crystal icing conditions

Ice crystal icing condition exists when all of the liquid water particles in the cloud have frozen into ice particles and may be encountered in high concentrations at higher altitudes in the area of convective weather systems.

Non-precision approach

A non-precision approach is an instrument approach and landing which utilises lateral guidance but does not utilise vertical guidance. (ICAO Annex 6) For pilots of older aircraft, in which use of automated systems to assist in flying the approach is limited, a high degree of piloting skill is required to fly such approaches accurately and the frequent practice which many pilots need to achieve this can be difficult to come by if precision approaches are the normal method used.

Mid-air collision

A Mid-Air Collision (MAC) is an accident where two aircraft come into contact with each other while both are in flight.

⁶ EC SEC(2011) 1261 final European Aviation Safety Programme.



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Mixed phase icing conditions

Mixed phase icing conditions occur when super-cooled liquid water droplets and ice particles coexist in a cloud, often around the outskirts of a deep convective cloud formation.

Loss of separation

Loss of separation between aircraft occurs whenever specified separation minima are breached. Minimum separation standards for airspace are specified by ATS authorities, based on ICAO standards.

Level bust

A *level bust* occurs when an aircraft fails to fly at the level to which it has been cleared, regardless of whether actual loss of separation from other aircraft or the ground results. Level busts are also known as Altitude Deviations.

Local Runway Safety Team

Local Runway Safety Teams (LRSTs) are aerodrome centric, multi-organisational groups of experts providing practical suggestions to resolve runway incursion causal factors. More than 100 LRSTs have been established at European airports, as a consequence of which, the safety of runway operations has increased although incidents continue to be reported.

Loss of Control In Flight

Loss of control usually occurs because the aircraft enters a flight regime which is outside its normal envelope, usually, but not always at a high rate, thereby introducing an element of surprise for the flight crew involved.

Occurrences

Operational interruptions, defects faults, or other irregular circumstances that have or might have influenced flight safety and that have not resulted in an accident or serious incident.

Runway Excursion

According to the definition provided by ICAO, a runway excursion is a veer off or overrun off the runway surface. Runway excursion events can happen on takeoff or landing.

Runway Incursion

A *runway Incursion* is defined as "Any occurrence at an aerodrome involving the incorrect presence of an aircraft vehicle or person on the protected area of a surface designated for the landing and take off of aircraft". (ICAO Doc 4444 - PANS-ATM)

Safety Management System

A Safety Management System (SMS) is a systematic approach to manage safety, including the necessary organisational structures, accountabilities, policies and procedures (ICAO). ICAO through various Annexes to the Chicago Convention has incorporated requirements for service providers in various domains of aviation to have an SMS.

Space weather

Space Weather is the travel of solar and galactic radiation and their interaction with the Earth magnetosphere and ionosphere. It is a cyclic phenomenon.

State Safety Programme

According to the ICAO definition it is an integrated set of regulations and activities aimed at improving safety. ICAO requires contracting States to implement SSPs.



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System Complexity

Complexity is an attribute of systems or items which makes their operation difficult to comprehend. Increased system complexity is often caused by such items as sophisticated components and multiple interrelationships (EUROCAE/ SAE Doc ED-79/ ARP4754)

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Attachment C: Working Groups

EAFDM

EASA and NAAs have formed a group of experts called the European Authorities Coordination Group on FDM (EAFDM). It is a voluntary and independent safety initiative with the following objectives:

- a. to foster actions by NAAs which contribute to improving the implementation of FDM programmes and to making FDM programmes more safety effective,
- b. to contribute to EASA objective of a high and uniform level of safety in Europe,
- c. to contribute to a better overview of air transport operational safety in Europe for EASA and NAAs.

For more information, visit <http://easa.europa.eu/safety-and-research/european-authorities-coordination-group-on-flight-data-monitoring-EAFDM.php>

EASAC

The **European Aviation Safety Advisory Committee** (EASAC) was established by the Executive Director of the Agency in October of 2009. The main objective of the Committee is to advise on a European Aviation Safety Strategy and propose a European Aviation Safety Programme and Plan. The first Plan is the present document, endorsed by the Committee.

The EASAC is chaired by the Executive Director of the Agency and composed of safety experts' ad persona from Member States, the European Commission, EUROCONTROL, the PRB, Industry and EASA. The Committee reports regularly to the EASA Management Board.

EARPG

The **European Aviation Research Partnership Group** (EARPG) prepares proposals and suggests priorities for research topics to be funded by relevant sources available. Identification of research needs is based on: certification experts' experience, evidence of accumulation of safety related concerns resulting from safety analysis of incident and accident databases, Safety Recommendations stemming from incident and accident investigations and proposals by the European Strategic Safety Initiative (ESSI) and its safety teams ECAST, EGAST, EHEST.

The research results are expected to lead to recommendations and improvements of safety or environmental protection through changes to requirements, compliance and guidance material. The EARPG membership consists of the Agency's research focal points, EASA Member States with an interest in research, the European Commission and EUROCONTROL. It shares information with authorities from Non-EASA Member States, particularly the FAA and Transport Canada, on on-going research and where appropriate, co-ordinates future research activities. The group interfaces with Industry and Research Institutions on a regular basis through workshops.

For more information visit <http://easa.europa.eu/safety-and-research/european-aviation-research-partnership-group-EARPG.php>

ECAST

The **European Commercial Aviation Safety Team** (ECAST) is a component of European Strategic Safety Initiative (ESSI). ECAST addresses **large fixed wing aircraft operations**, and aims to further enhance commercial aviation safety in Europe, and for European citizen worldwide. It was launched in October 2006.



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ECAST is a partnership between EASA, other European regulators and the aviation industry. ESSI is based on the principle that industry can complement regulatory action by voluntary committing to cost effective safety enhancements. ECAST cooperates with CAST and with other major safety initiatives worldwide, in particular under the Cooperative Development of Operational Safety and Continuing Airworthiness Programme (COSCAP).

For more information visit <http://www.easa.europa.eu/essi/ecast/>

EGAST

European General Aviation Safety Team (EGAST) is a component of European Strategic Safety Initiative (ESSI). General Aviation (GA) is a high priority for EASA. EGAST creates a forum for sharing best practices, improving data sources, and promoting safety.

EGAST's mission is to promote and initiate for all sectors of General Aviation best practices and awareness in order to improve safety, thereby reducing the accident rates. The team may make non binding recommendations. EGAST will help EASA and the industry focus their resources on combined safety promotion efforts to reach the goal of reducing accidents

For more information visit <http://easa.europa.eu/essi/egast/>

EHEST

Launched on November 2006, the **European Helicopter Safety Team (EHEST)** brings together manufacturers, operators, research organisations, regulators, accident investigators and a few military operators from across Europe. EHEST is the helicopter branch of the ESSI, and also the European component of the International Helicopter Safety Team (IHST).

EHEST is committed to the goal of reducing the helicopter accident rate by 80 percent by 2016 worldwide, with emphasis on improving European safety.

For more information visit <http://easa.europa.eu/essi/ehest/>

EHFAG

The **European Human Factors Advisory Group (EHFAG)** is an existing body of human factors expertise drawn from national Aviation Authorities (including the FAA), industry, professional associations and research organisations. This Group will be tasked with developing a human factors strategy and action plan on behalf of EASA.

For more information visit <http://easa.europa.eu/safety-and-research/european-human-factors-advisory-group-EHFAG.php>

ESSI

The **European Strategic Safety Initiative (ESSI)** is an aviation safety partnership between EASA, other regulators and the industry. ESSI's objective is to further enhance safety for citizens in Europe and worldwide through safety analysis, implementation of cost effective action plans, and coordination with other safety initiatives worldwide. ESSI was launched in June 2006 by EASA as a ten year programme and has three pillars: ECAST, EHEST and EGAST

For more information visit <http://easa.europa.eu/essi/>

IGPT

The Agency's Internal Group on Personnel Training (IGPT) has been set-up by the Agency to follow-up the EASA International Conference on Pilot Training of 29 Nov 2009. Its first meeting took place on 27 Jan 2010. Building on proven internal expertise and competences, the IGPT



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bridges Design, Certification, Training, and Operations by creating a forum to address training within the Agency and deliver the official Agency's position on the subject. The IGPT is composed of experts from all operational Directorates and adopts a total system approach in training based on the three pillars Rulemaking, Oversight and Safety Promotion. The IGPT addresses all types of training and checking for all types of personnel and operations. Regarding pilot training, this includes flight and type rating training, including both ab initio and recurrent elements, all categories of aircraft, all types of operations, and pilots with different backgrounds (e.g. those trained on highly automated glass cockpits aircraft and those pilots trained on older generation conventional aircraft).

NoA

The European Aviation Safety Agency has recently established a Network of Analysts (NoA) to provide a formal process to analyse safety data at a European level. The membership of the NoA is drawn from the National Aviation Authorities (NAAs) and Investigation Authorities of all EASA Member States.

The NoA focuses on:

- understanding what barriers exist to the provision of the best possible safety data and developing ways to improve safety data across Europe;
- agreeing the classification of aircraft accidents in EASA MS;
- carrying out analysis of safety data to support the European Aviation Safety Plan (EASp) and State Safety Plans, as well as identifying emerging issues for possible inclusion in the future;
- sharing experiences, good practice and developing safety analysis projects across Europe to enable the European aviation community to exploit the ECCAIRS European Central Repository for the benefit of all and
- providing analysis support to existing EASA groups such as the European Strategic Safety Initiative (ESSI) and the European Human Factors Advisory Group (EHFAG).

For more information visit <http://easa.europa.eu/safety-and-research/network-of-analysts.php>

PRB

On 29 July 2010, the EC adopted a Decision designating EUROCONTROL acting through its Performance Review Commission (PRC) supported by the Performance Review Unit (PRU) as the **Performance Review Body** (PRB) until 30 June 2015. The EUROCONTROL Organisation accepted to be designated as PRB on 15 September 2010.

For more information visit <https://www.eurocontrol.int/articles/european-atm-performance-review-body>

SM ICG

The **SMS International Collaboration Group** (ICG) created in Feb 2009 is a collaboration activity between aviation authorities in order to promote the common understanding of SMS principles and requirements in different countries, share lessons learned and encourage progress and harmonisation. The ICG consists of a core group and a participant group. The core group is comprised of authorities with resources and expertise for product development. It includes members from the FAA, EASA (supported by FOCA of Switzerland, the DGAC of France, the CAA of the Netherlands and UK CAA), ICAO, TCCA, CASA of Australia, JCAB of Japan and NCAA of Brazil. The participant group tests and reviews the core group's work products and resources. The ICG interacts with several industry members and groups, including CAST, ECAST and the SMS ARC.