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**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE  
EUROPEAN PARLIAMENT**

**Setting up an Aviation Safety Management System for Europe**

(Text with EEA relevance)

{SEC(2011) 1261 final}

## 1. INTRODUCTION

In publishing its White Paper on Transport<sup>1</sup> the Commission stated the clear aim that the European Union should be the safest region for aviation. In addition, the Report of the High Level Group on Aviation Research<sup>2</sup> stated a goal for 2050 of reducing the accident rate of commercial aircraft flights to less than one per ten million flights, i.e. half the current level. However, whilst the aviation accident rate continues to decline the rate of decline has slowed markedly since 2004<sup>3</sup> and at the same time we are seeing a continued growth in the number of flights, which are set to almost double by 2030<sup>4</sup>. As a consequence, in order to preserve the current low level of fatalities resulting from air accidents, we must ensure that the rate of accidents continues to decline in order to match the continued growth in the number of flights.

The EU is therefore faced with a significant challenge over the coming years if it is to be a world leader in aviation safety and save lives that would otherwise be lost. There is therefore a clear need for action.

This Communication, therefore, describes how this challenge can be met and sets out some specific actions. It is Europe's contribution in support of the aim, agreed at the International Civil Aviation Organisation's (ICAO) High Level Safety Conference<sup>5</sup> held in Montreal in 2010, of moving towards a pro-active, evidence based, management of aviation safety.

This Communication is also accompanied by a Commission Staff Working Paper 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"(EASP)<sup>6</sup>

## 2. THE CHALLENGE.

The current system in Europe for ensuring safety in aviation is predominantly based upon reliance on a set of rules, overseen by the European Aviation Safety Agency (EASA) and National Aviation Authorities (NAA), which have been developed after years of experience and using lessons learned following detailed and independent investigations of aircraft accidents and incidents. This reactive system has been effective over the past decades in delivering not only a very good safety record for aviation in Europe but also one which has steadily improved over the last decades.

However, as pointed out in the ICAO Safety Management Manual (SMM)<sup>7</sup>, regulatory compliance as the mainstay of safety is reaching its limit as the aviation system grows ever more complex and more is understood about the limitations of human performance and the impact of organisational processes. The SMM explains that safety is increasingly viewed as

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<sup>1</sup> COM(2011) 144 - WHITE PAPER - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system

<sup>2</sup> ISBN 978-92-79-19724-6 - Flightpath 2050 - Europe's Vision for Aviation.

<sup>3</sup> ISBN: 978-92-9210-097-1 - EASA Annual Safety Review

<sup>4</sup> EUROCONTROL CND/STATFOR Doc415 of 17 December 2010 - Long-Term Forecast - Flight Movements 2010 - 2030

<sup>5</sup> ICAO Doc 9935, HLSC 2010

<sup>6</sup> Reference to be added once SEC doc number is allocated

<sup>7</sup> ICAO Document 9859 AN/474 Second Edition - 2009

the process of keeping safety risks under organisational control and, as a consequence, ICAO introduced the need for a systemic approach to safety in its Standards and Recommended Practices, in other words the introduction of safety management systems (SMS).

It is therefore clear that, in order to continue to make progress, the European Union must move beyond concentrating on rulemaking, important though this activity is, and place greater emphasis on addressing the risks to aviation safety in a systematic fashion. We must move from a primarily reactive system where regulations are changed as a result of experience towards a system which is pro-active and attempts to anticipate potential safety risks in order to further reduce the likelihood of an accident.

Moreover, with the increasing sharing of the regulatory competencies for aviation safety between national and European authorities, it is no longer practical or desirable for the Member States or the Commission or EASA to be acting in isolation when seeking pro-active solutions to common problems. All the aviation safety 'players' in the EU must work together to ensure that the whole system is greater than the sum of its parts. This was highlighted by the Madrid Declaration<sup>8</sup> when considering the safety aspects of the Single European Sky. The conclusions stated, inter alia, that the extension of EASA's competences for the safety certification of Air Traffic Management (ATM) and airports by 2012 and 2013 should be complemented by the setting up of the appropriate governance, coordinating the activities and expertise of EASA and Eurocontrol.

The Commission, together with EASA, has been considering for some time how to proceed, and held a safety conference in January 2011, open to all aviation stakeholders, to discuss the issues surrounding safety management. The details of the conference and summaries of the debates are available on the Europa web site.<sup>9</sup>

This Communication, drawing on the contributions made at the conference, sets out the parameters of a European aviation safety management system, what it would look like and discusses the obstacles to be overcome to ensure it is effective.

### **3. A EUROPEAN SYSTEM FOR DELIVERING AVIATION SAFETY**

#### **3.1. What is a safety management system?**

Before considering what such an EU system should look like, and what problems need to be overcome in establishing the various components, it is necessary to understand the fundamental processes that make up a safety management system.

A safety management system is a pro-active system that identifies the hazards to the activity, assesses the risks those hazards present, and takes action to reduce those risks to an acceptable level. It then checks to confirm the effectiveness of the actions. The system works continuously to ensure any new hazards or risks are rapidly identified and that mitigation actions are suitable and where found ineffective are revised.

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<sup>8</sup> Conclusions of the High Level Conference on the Roadmap towards implementing the Single European Sky

<sup>9</sup> [http://ec.europa.eu/transport/air/events/2011\\_01\\_26\\_aviation\\_safety\\_conference\\_en.htm](http://ec.europa.eu/transport/air/events/2011_01_26_aviation_safety_conference_en.htm)

Such a pro-active system at EU level should aim at supporting the efforts of the Member States and not replacing them. It is not about shifting the responsibility for taking action but about the need for increased cooperation to achieve better results. It should add value to the safety initiatives of the Member States by drawing together European wide information to aid the identification of risks to aviation safety across Europe. It should share information and act as a facilitator to enable concerted action to be taken. For this to happen it is clear that it will depend upon the assistance and contributions of the Member States and the aviation industry. It is by drawing together in a collaborative approach the work of safety management systems at Member State and industry level that European benefits are to be obtained. The recent events surrounding the eruption of volcanoes in Europe have shown the value of acting together, using information and contributions from all sides, to try to arrive at a common approach to this major new safety risk.

### **3.2. Providing Focus.**

In order to address the challenge of organising a safety management system operating in a regional context a focal point will be required. In 2004 the EU established EASA which houses the technical aviation safety expertise at EU level. It is logical, therefore, that EASA, which has the resources and facilities to ensure the system functions efficiently, should be at the heart of the European Aviation Safety Management System.

However, not all the activities and responsibilities associated with the functioning of the system should reside entirely within EASA. A systemic approach requires all the players to act cooperatively, with the Commission, EASA, the Member States, Eurocontrol and industry stakeholders working in partnership and providing feedback to one another. EASA, nonetheless, is the only organisation at the heart of the EU that is dedicated 100% to air safety and can therefore bring together the various strands of work which will contribute to success.

### **3.3. Hazard identification.**

The first activity of a safety management system is to identify the safety hazards to aviation. In order to identify safety hazards information is required. This information is a vital component of any safety management system, for without sound information any attempt to identify the hazards would be guess work. A variety of information sources are currently available, such as accident reports, ramp inspection reports from the Safety of Foreign Aircraft Programme (SAFA), the investigation and follow-up of incidents, data from occurrence reports integrated into the European Central Repository (ECR), oversight audits including EASA Standardisation Inspections, and information exchange. No one source provides all the required information, and an EU hazard identification process must make use of a combination of all sources, both reactive, proactive and predictive, and by sharing this information it can provide decision makers with comprehensive air safety “intelligence”. Typical hazards in an aviation environment include such things as poor weather conditions, mountainous terrain surrounding an airport, or failure of an aircraft engine.

However, whilst the EU has access to all these sources of information, it is particularly in the area of occurrence reporting that a significant fault line exists. Despite the adoption of Directive 2003/42/EC<sup>10</sup>, occurrence reporting in the EU and the use of the ECR are still

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<sup>10</sup> Directive 2003/42/EC of the European Parliament and of the Council of 13 June 2003 on occurrence reporting in civil aviation.

affected by a number of shortcomings which limit the usefulness of the occurrence reporting system for accident prevention purposes. These problems are, notably, low quality of information, incomplete data, insufficient clarity in reporting obligations and in the flow of information, and legal and organisational obstacles to ensuring adequate access to the ECR information to enable information sharing. In addition there is considerable fragmentation within the current system. As well as the EU repository, Eurocontrol has its own safety repository and EASA is building its own internal database. It would be beneficial to combine this information on occurrences. Finally there is the difficulty in capturing all occurrences, and this problem raises the need for action in the area of the implementation of a 'just culture'.<sup>11</sup> Further work is required to encourage a culture of open reporting within the aviation industry and to support the development of an environment where individuals feel able to report safety significant events without the fear of reprisal.

#### **Action 1:**

**The Commission will bring forward proposals in 2012 to update the EU system on occurrence reporting by reviewing Directive 2003/42/EC and its Implementing Rules<sup>12</sup>.**

#### **3.4. Analysis of safety data.**

Having safety data is one thing, but making sense of it is another. Even now, with the shortcomings identified above, the ECR contains over 450,000 occurrence reports, and this figure is growing daily. The challenge is therefore to develop a process to enable meaningful information to be extracted from the data.

Today we have the situation where some Member States, EASA, Eurocontrol and others do their own analysis. Whilst this is effective in enabling each player to address their own issues there is potential for a great deal of duplication of effort which, more importantly, can hide a significant safety issue. An event that appears to be a 'one off' occurrence in one Member State, when looked at across the Union as a whole, can point to a need for action. This has been recognised in Commission Regulation (EU) No 996/2010<sup>13</sup> which, in Article 19, requires EASA and the competent authorities of the Member States to collaborate in the regular exchange and analysis of information. However, the framework and tools required to realise this have yet to be developed.

In order to achieve these aims work has already been set in train by EASA to create a Network of Analysts which uses expertise available within EASA, the competent authorities of the Member States, and the national safety investigation authorities. The Network of Analysts would be able to help with the identification of safety issues to enable the early detection of safety trends and contribute to the development of common analysis tools, methods and techniques. The Network could, for example, be asked to examine the available data to see if the risks inherent in winter operations are being effectively contained or whether there was evidence which indicated the need for further action.

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<sup>11</sup> Just Culture is defined in Art 2(k) of Commission Regulation (EU) No 691/2010 of 29 July 2010.

<sup>12</sup> Commission Regulation (EU) No 1330/2007 of 24 September 2007 & Commission Regulation (EU) No 1321/2007 of 12 November 2007.

<sup>13</sup> Regulation (EU) No 996/2010 of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC.

Finally, the Commission has been actively engaged in seeking opportunities for safety information exchange schemes at international level, most notably with the recent signing of a Memorandum of Understanding on a Global Safety Information Exchange (GSIE) between the Commission, ICAO, the FAA and IATA. This initiative aims at promoting a more proactive and evidence based approach to safety management at the global level. It provides a framework for cooperation for the exchange of safety information and will also facilitate the dissemination, through ICAO, of information about safety hazards or risks and safety enhancement solutions, identified on the basis of information exchanged under the GSIE.

Information shared will also contribute towards a “cross-check” of the list of top hazards identified in the EU with those of other regions in the world.

## **Action 2:**

**The Commission will come forward, subject to the results of the impact assessment being conducted as part of the review of legislation on occurrence reporting, with a proposal to further develop safety analysis at EU level.**

### **3.5. Determining the risks.**

Whilst it is essential to identify the hazards, it is understanding the potential risk those hazards pose that is critical to enable decisions to be made on mitigation action, and in particular to prioritise action.

This aspect, known as safety risk assessment, is carried out individually by a number of Member States when determining where they need to focus actions at Member State level. As an example, one Member State has identified the issue of unstabilised approaches<sup>14</sup> as a major risk following their own risk assessment process, and is taking actions aimed at reducing the number of such events. A similar process could be conducted at EU level using analysis by EASA, the Member States the Network of Analysts, and from the aviation industry in order to determine where best to direct efforts at this or other problems.

However, there is not yet a universally accepted risk assessment methodology in common use across the European Union for all the aviation domains which would enable a standardised approach and better priority setting to tackle those risks that pose the greatest threat to safety. This shortcoming will have to be overcome.

Finally, in order to thoroughly assess the risks and draw conclusions for the improvement of aviation safety, the EU will need to put the information about occurrences in a statistical context. Sound and consistent information about the level of aviation activities in EU Member States will be needed. This is not yet the case, especially for general aviation where currently, due to the lack of exposure data, it is difficult to calculate the rates even for the key categories of accidents.

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<sup>14</sup> An unstabilised approach is where, for whatever reason, the aircraft is not in the ideal position at the correct speed, altitude and configuration for landing.

### **Action 3:**

**The Commission will examine, following the results of the impact assessment on occurrence reporting, whether it is appropriate to bring forward proposals to establish a common risk assessment classification. (See Action 1).**

#### **3.6. Taking action.**

Member States, to a varying degree, individually take action to address the safety issues they themselves have identified, but some of these issues are common to the EU as a whole. There is therefore benefit to be had from a more coordinated approach across the Union, enabling actions taken by individual Member States, the Commission and EASA to complement one another. The value of this coordination of effort would be to focus action on the significant risks at all levels of aviation activity within the EU.

However, before they commit to taking action, it is essential that the Member States have the opportunity to formally discuss and agree on the significant risks. The Commission is currently assisted by a Committee on aspects concerning Regulation (EC) No 216/2008<sup>15</sup>. This Committee, known as the EASA Committee, contains the relevant aviation safety experts from the Member States and is therefore well placed to provide the necessary expertise for decisions concerning safety risks.

### **Action 4:**

**The Commission will use the EASA Committee as the principal forum for enabling full discussions with Member States on actions to be taken.**

#### **3.7. The European Aviation Safety Plan.**

Given the technical nature of the issues, it should be for EASA to set down its view to the Commission on the best course of action to mitigate the risks, on the timescales for such actions, and finally on the measurement of success. This view, drawing on inputs from all stakeholders, including the aviation industry, should be set out as a plan of action, known as the European Aviation Safety Plan<sup>16</sup>.

This Safety Plan should provide a detailed description of specific safety issues, clarity on the actions to be taken to mitigate the associated risks, and clear deliverables for such actions, all presented in a style which is understandable to European citizens.

EASA has already published an initial version of such a plan which was based upon Member States' plans and priorities and was published in early 2011. It contained a variety of actions, one example being the need to address the issue of runway excursions, an issue also identified by the ICAO High Level Safety Conference in 2010.

Having published a Safety Plan it is necessary to keep EU citizens apprised of the progress being made in addressing the specific safety issues. To this end the Safety Plan will need to be

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<sup>15</sup> Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC

<sup>16</sup> <http://easa.europa.eu/sms/>

regularly updated, not only to include the actions taken to date but also to take the opportunity, if required, to include any new risks identified and to amend any actions that are found not to be effective.

#### **Action 5:**

**EASA will publish annual updates to the European Aviation Safety Plan detailing progress made in addressing identified safety risks at EU level.**

### **3.8. Measuring achievements.**

It will be important for all stakeholders to know if the activities undertaken to improve safety are having an effect. To this end safety performance indicators (SPI) are a valuable tool. A simple and generally accepted example of such an indicator is the measurement of safety used in EASA's annual safety review of 2010 when comparing the relative performance of world regions. EASA uses the indicator of annual rate of fatal accidents per 10 million flights. Using such an indicator permits comparisons with past performance to enable a confirmation of progress, and also enables a comparison to be made with other regions. The EU made a significant contribution to the subject at the last ICAO General Assembly in which the European view on SPIs was presented, however it has yet to decide on the specific indicators and further work needs to be done in order to agree on a set acceptable to all stakeholders.

#### **Action 6:**

**The Commission, in cooperation with EASA, will continue work on the development of SPIs, and will consult stakeholders before making proposals on a common set of indicators covering all the aviation domains.**

### **3.9 Working with our neighbours.**

Issues arising from aviation safety are not confined to the EU but are shared by our neighbours. The EU has in place many arrangements to facilitate cooperation between the EU and its neighbours on aviation matters. Such arrangements include the European Common Aviation Area with a number of Balkan states<sup>17</sup> and the Euro-Mediterranean Common Aviation Area<sup>18</sup>, as well as assistance programmes and enhanced cooperation in the framework of the Safety Assessment of Foreign Aircraft (SAFA). As an example, the SAFA programme involves 15 States outside of the EU and is an excellent illustration of where the EU and its neighbours co-operate in providing and sharing safety information, to the benefit of all.

The work and outputs of the EU safety management system should, similarly, be shared in order to gain from the experience of our neighbours and to contribute to their efforts in improving aviation safety, and thus contribute to our mutual aims of a high level of safety.

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<sup>17</sup> Croatia, Former Yugoslav Republic of Macedonia, Albania, Bosnia and Herzegovina, Kosovo, Serbia, Montenegro.

<sup>18</sup> The Euromed Aviation Project involves the following States: Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, The Palestine Authority, Syria, Tunisia.

#### **Action 7:**

**The Commission, in cooperation with EASA, will continue to share the work of the safety management system and encourage mutual cooperation with our neighbours on the identification of safety issues.**

#### **4. THE EUROPEAN AVIATION SAFETY PROGRAMME (EASP)**

Standards contained in the various annexes of the Chicago Convention<sup>19</sup> require Contracting States to implement a State Safety Programme (SSP). A SSP is a system for the management of safety by the State, and is normally described in a single document which sets down a State's policy and objectives, risk management, safety assurance and safety promotion activities.

However, Member States now rely, to a significant extent, on the activities already being carried out at European level. Therefore, in discharging their obligations to ICAO, as well as describing their purely national activities, Member States also need to describe the areas of responsibility that now rest with the EU and the activities undertaken at EU level which support the Member States. Whilst all 27 Member States and 4 EEA/EFTA States could do this separately, it is not an efficient or transparent means of addressing this requirement. Production of an EU equivalent of an SSP, i.e. a European Aviation Safety Programme (EASP), is a more efficient means of discharging this obligation and would support the Member States in developing their own SSPs.

Furthermore, by setting down how aviation safety is managed at EU level it helps bring clarity on where the various responsibilities for safety lie within the EU and makes clear how the EU as a whole can achieve and then maintain a satisfactory safety performance. It also provides transparency to all stakeholders with an interest in safety. The EU is leading the way in organising aviation safety on a regional basis, and the production of a document describing how a regional body manages aviation safety will be a first of its kind.

Work on an EASP has been going on within the EU for some time and it is now ready for publication. The Commission is therefore taking the opportunity of this Communication to simultaneously publish the document as a Commission Staff Working Paper. The paper describes the current aviation safety framework at EU level, including how specific safety issues are identified and addressed, as described in the European Aviation Safety Plan (see paragraph 3.7). It complies with the format set down in ICAO's safety management manual in order to provide an approach consistent with international guidelines and to compliment the Member States SSPs. The Commission will update the document when required to reflect any changes to the European aviation safety system..

#### **Action 8:**

**The Commission will, with the assistance of the Member States and EASA, update the European Aviation Safety Programme as changes in the management of aviation safety within the EU occur.**

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<sup>19</sup> Signed in Chicago on 7th December 1944

## 5. THE FUTURE

### 5.1. Setting Performance Targets.

An important element in addressing safety risks and in achieving continuous improvement in safety performance is the setting of safety performance targets. These targets are the concrete objectives in achieving a level of safety. An example of such a target could be to reduce the number of runway excursions in the EU by 50% over the next five years. Such targets need to be realistic and achievable.

Commission Regulation No 691/2010<sup>20</sup> laid down a performance scheme for air navigation services and network functions. The performance scheme aims, inter alia, at providing indicators and binding targets in key performance areas to enable safety levels to be achieved and maintained. Whilst the first steps have therefore been taken in setting up a safety performance scheme it is currently restricted to European Air Traffic Management (ATM) and does not include other domains within the aviation safety arena. It will not be an easy task to decide on safety performance schemes for these other disciplines (e.g. flight operations, airworthiness etc.), such work will be complex and demand an innovative approach. It will therefore need to be subject to the full consultative process before any proposals are brought forward, nonetheless it is an area that will need to be considered in the future in order to support the aim of continuous improvement.

#### **Action 9:**

**The Commission will consult stakeholders and conduct an impact assessment before bringing forward proposals for performance schemes for other aviation safety domains.**

### 5.2. A risk based approach to standardisation.

The introduction of safety management principles into the EU aviation system will change the way we approach aviation safety, and will lead to a significant improvement in the way in which safety risks are controlled. However, the use of such principles should not be confined to the development of the Safety Plan alone but should encompass the whole system. The work by EASA in conducting standardisation inspections, required under Regulation (EC) No 216/2008 to monitor the application of that Regulation, should evolve beyond compliance monitoring towards an approach that is driven more by safety risks identified by the safety management system. This risk based approach would add benefit by focusing on those issues where mitigation action would have a clear benefit to safety.

### 5.3. An approach based on safety performance.

In addition, whilst the current safety rulemaking effort is concentrating on transposing, and where necessary updating, existing requirements into EU Regulations the future development of rules should focus on performance aimed at achieving desired results and outcomes based upon agreed safety performance. This approach, known as performance based regulation,

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<sup>20</sup> Commission Regulation (EU) No 691/2010 of 29 July 2010 laying down a performance scheme for air navigation services and network functions and amending Regulation (EC) No 2096/2005 laying down common requirements for the provision of air navigation services

would build on the use of safety management systems, and their development and introduction into EU aviation safety regulations should be a longer term goal.

#### **5.4. Placing the system on a formal basis.**

Finally, the system described in this Communication is based to a large degree on arrangements without the underpinning of regulation. It may be necessary, once further experience is gained and the effectiveness, or otherwise, of this approach becomes clear, to consider whether it is necessary to put the EU Aviation Safety Management System on a formal basis in order to ensure its continuing success. The Commission will therefore monitor the progress made as the system develops and consider if specific regulatory action should be proposed to ensure the effectiveness of the system into the future.

#### **Action 10:**

**The Commission will consider, once further experience is gained and the potential impacts have been assessed, if regulatory proposals to formalise the EU Safety Management System should be brought forward.**

### **6. CONCLUSION**

The EU faces major challenges in the coming years in terms of aviation safety. To prevent the continued growth in aviation resulting in an increase in fatalities from aviation accidents, and to ensure it becomes the leading world region in terms of aviation safety, a paradigm shift needs to occur in its approach to safety. Whilst the current system for ensuring safety has been highly successful in the past it appears to be reaching the limit of its effectiveness in driving down the accident rate. The Commission believes that we must, therefore, move from reaction to prevention by adopting a pro-active approach to aviation safety, one that places emphasis on the systematic targeting of actions to address significant risks based upon the results of careful analysis of information gathered from across the Union.

This sharing of effort and concentration on identified issues will lead to action being taken across the Union in a coordinated fashion, thus leading to a 'joined-up' approach to safety management. Such an approach will lead to legislation and guidance material being focussed on the issues that can make a difference, on oversight targeted on areas of greatest safety significance, and on research and recommendations being directed accurately at the high risk areas. It will also ensure the best use of limited resources by focusing them on those areas where greatest safety benefits can be achieved.

By improving the quality of safety information, by sharing the information and the results of analysis, by reaching agreement on those risks where coordinated action will bring the greatest benefits, and by taking the agreed actions, the Commission believe the EU can become the leading aviation safety region in the world to the benefit of all EU citizens.