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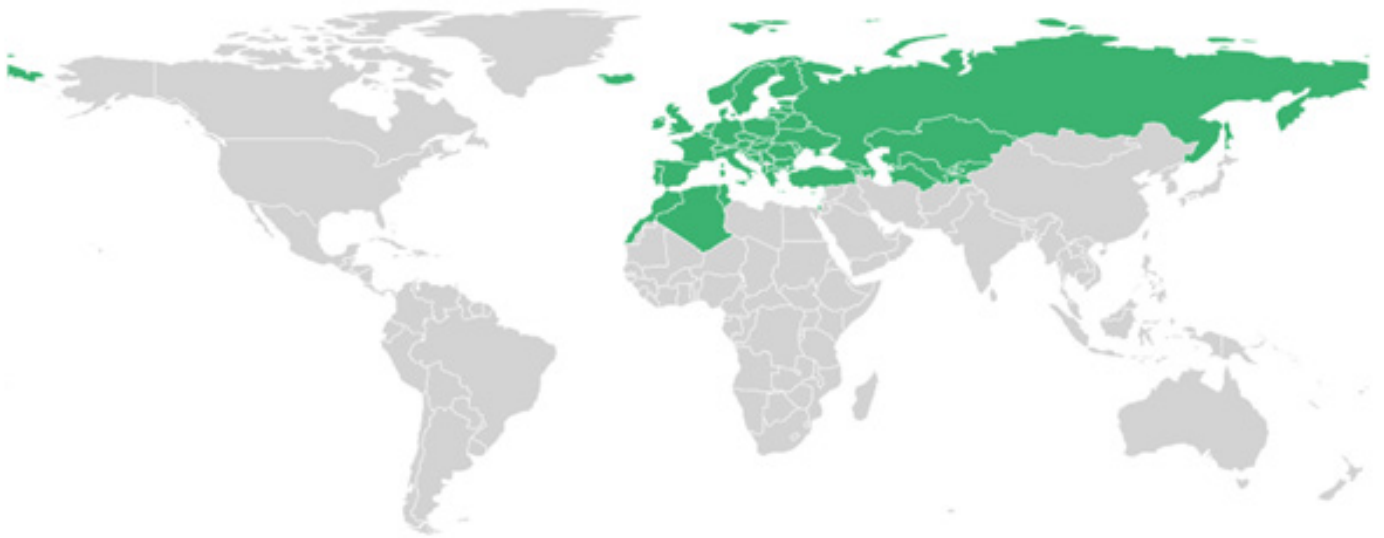
**SAFETY**

# REGIONAL AVIATION SAFETY GROUP EUROPE (RASG-EUR)

## 2017 Annual Safety Report



2018 Edition



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## Foreword

The Regional Aviation Safety Group Europe (RASG-EUR) was established in 2011 as the focal point to ensure harmonization and coordination of efforts aimed at reducing aviation safety risks in the European and North Atlantic (EUR/NAT) Regions. RASG-EUR supports the implementation of the ICAO Global Aviation Safety Plan (GASP) and complies with ICAO Council approval of Regional Aviation Safety Groups (RASGs) with the objective to address global aviation safety matters from a regional perspective.

RASG-EUR members and partners include representatives from States, regional organizations, international organizations, air operators, aircraft design organizations and manufacturers, air navigation service providers, aerodrome operators, aircraft maintenance organizations, aviation training organizations and other aviation industry representatives.



This report provides updates on Regional safety indicators, including accidents that occurred in 2017 in the EUR/NAT Regions, and related risk factors. Results of analysis from the 2013–2017 reports are used as benchmarks for comparison, although it must be noted that numbers presented in this report may not exactly match those of the earlier reports due to the data having been updated in the intervening period.

The accident data presented is strictly for information purposes only. It is obtained from data from ICAO EUR/NAT Regional Office, Accident Investigation Authorities of the EUR/NAT Regions and the aviation industry. It reflects knowledge that was current at the time that the report was generated.

Key activities undertaken or ongoing in 2017 to mitigate the identified risks, or to address emerging safety issues are presented in this report.

The report is developed fully in line with ICAO's "No Country Left Behind" goals to support aviation improvement projects and to optimize collaboration between States, ICAO, regional stakeholders and industry.

The Annual Safety Report and other RASG-EUR related documentation can be downloaded at: <https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx>

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## Executive Summary

The number of accidents involving scheduled commercial operations with aircraft of maximum mass of over 5700 kg and occurring in one of the 56 States of the ICAO EUR/NAT Regions has been showing a downward trend since 2015. In 2017, 14 of such accidents occurred representing a 42% decrease from 2016. These resulted in 46 fatalities, including 35 on the ground. Over the same period there was an increase in scheduled commercial departures which results in a regional accident rate of 1.54 accidents per million departures, down 45% from the 2016 rate of 2.79 accidents per million departures.

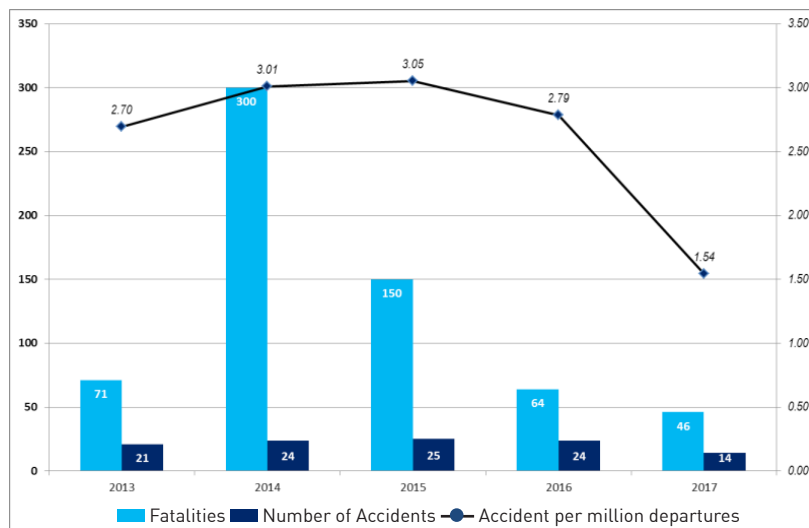


Figure 1 – Accidents in the EUR/NAT Regions involving scheduled commercial operations with fixed-wing aircraft with a MTOW greater than 5700 kg

In line with Annex 13, whereby the State of Occurrence shall forward a notification of an accident to ICAO when the aircraft involved is of maximum mass of over 2 250 kg or is a turbojet-powered aeroplane, regardless of the type of operations (scheduled commercial or not), this RASG-EUR 2017 Annual Safety Report (ASR) is providing details of accidents to aircraft of 2 250 kg or more that have occurred in the EUR/NAT Regions. In 2017, 41 of such accidents occurred, including 11 fatal accidents, causing 69 fatalities. The leading categories of fatal accidents in 2017 were Loss of Control In-flight (LOC-I), Controlled Flight into Terrain (CFIT) and Collision with Obstacle(s) During Takeoff and Landing (CTOL). All the accidents in these three categories have resulted in fatalities in 2017. Runway Safety events are the most frequent, as 19 of them (46%) have occurred, including one causing a fatality.

The Universal Safety Oversight Audit Programme Continuous Monitoring Approach (USOAP CMA) measures the effective implementation of a State's safety oversight system. In 2017, 17 USOAP-CMA related activities were carried out in the EUR/NAT Regions, including one for EASA. USOAP CMA results show an average Effective Implementation (EI) score for States in the EUR/NAT Regions of 74.91%, which is above the world average of 65.83%. USOAP CMA results also show that:

- 85.71% of the States in the EUR/NAT Regions have achieved the target of 60% EI as suggested by the Global Aviation Safety Plan (GASP)
- Accident and Incident Investigation (AIG) is the area with the lowest EI
- Technical staff qualifications and training (CE-4) is the top issue affecting States oversight capabilities in the EUR/NAT Regions.

SSP Foundation data from the ICAO integrated Safety Trend Analysis and Reporting System (iSTARS) shows that, on average, States in the EUR/NAT Regions have implemented 78.72% of the USAOP CMA protocol questions considered as essential to establish a mature foundation to support effective State Safety Programme (SSP) implementation. Safety promotion is one of the weakest SSP subject areas for States in the EUR/NAT Regions.

As of 31 December 2017, a total of 34 air navigation deficiencies classified as having top priority requirements necessary for air navigation safety were identified in the EUR Region. An additional two unresolved deficiencies having direct impact on safety that concern the provision of safety monitoring data to Regional Monitoring Agencies (RMA) were identified for two States in the EUR Region.

Based on the above, the RASG-EUR identified safety priorities, for which safety initiatives were either undertaken, in progress or completed in 2017 to address the associated safety risks:

Safety Priorities	Safety Initiatives undertaken, in progress or completed in 2017
<b>Runway Safety</b>	<ul style="list-style-type: none"> <li>• Release of the ICAO Global Runway Safety Action Plan</li> <li>• Conduct of 4 ICAO EUR/NAT Runway Safety Go-Teams</li> <li>• Inclusion in EASA's European Plan for Aviation Safety (EPAS) of RMT concerning the key risk areas of runway collisions and runway excursion</li> <li>• Release of safety promotion videos on Runway Incursion risks (SKYclips)</li> </ul>
<b>Loss of Control In-flight</b>	<ul style="list-style-type: none"> <li>• Release of the 3<sup>rd</sup> edition of the Airplane Upset Recovery Training Aid, created by Airbus, ATR, Boeing, Bombardier, Embraer and ICAO</li> <li>• Development by a Russian CAA working group of industry UPRT guidelines and a roadmap to reduce the risk of LOC-I accidents</li> <li>• Development of simulator UPRT scenarios by a Russian CAA working group</li> <li>• EASA's European Plan for Aviation Safety (EPAS) action on Aircraft Upset</li> <li>• Publication of EASA Opinion No 06/2017 on Loss of control prevention and recovery training</li> </ul>
<b>Controlled Flight Into Terrain (CFIT)</b>	<ul style="list-style-type: none"> <li>• Review by IE-REST of best practices to obtain the greatest safety benefit from Terrain Awareness and Warning System (TAWS)</li> <li>• Issuance of RASG EUR SAF Advisory RSA-06 related to guidance material on measures to improve the effectiveness of TAWS</li> <li>• Release of a safety promotion video about the contribution of sensory illusions on CFIT risks (SKYclips)</li> </ul>
<b>Safety Oversight capabilities</b>	<ul style="list-style-type: none"> <li>• Conduct of 6 ICAO EUR/NAT Technical Assistance projects under the NCLB initiative to build oversight capability in Azerbaijan, Belarus, Kyrgyzstan, Tajikistan and Ukraine</li> <li>• Conduct of 4 EASA technical cooperation projects to assist beneficiary authorities in implementation of EU safety framework or improvement of safety</li> </ul>
<b>EUR Air Navigation deficiencies</b>	<ul style="list-style-type: none"> <li>• Conduct of 5 ICAO EUR/NAT Technical Assistance missions to provide assistance to 9 EUR States in ensuring compliance with provisions related to PANS-OPS and Aeronautical Charts</li> <li>• Establishment of a network of PANS-OPS/Aeronautical charts experts to provide oversight capacity through dedicated workshops and OJT activities, and conduct of 2 such workshops</li> </ul>
<b>Safety Management capabilities</b>	<ul style="list-style-type: none"> <li>• Regional Safety Management Symposium for the EUR/NAT Regions from 16 to 18 October 2017</li> <li>• Conduct of 2 ICAO EUR/NAT missions to Kyrgyzstan to provide assistance in implementing Annex 19 provisions to CAA, airlines, airports and ANSP representatives.</li> <li>• Safety Management For Practitioners course provided on 20-24 November 2017 at the ICAO EUR/NAT Regional Office</li> <li>• Launch of the proof of concept of EASA 'Data4Safety' initiative in support of data collection and analysis for the management of safety risks at European level.</li> <li>• Safety promotion activities through the release of annual safety reports or other publications from various stakeholders in the EUR/NAT Regions, including EASA, IATA, EUROCONTROL, ENCASIA, IAC, IFALPA and France DGAC</li> </ul>
<b>RPAS integration</b>	<ul style="list-style-type: none"> <li>• Development of EU Drones Rules</li> <li>• Development of UAS ATM webinars on three topics: Airspace Assessment, Common Altitude Reference Systems and Flight Rules</li> <li>• EU network of U-Space Demonstrators aiming at promoting safe operations of RPAS through the exchange of experiences</li> </ul>

# 1. Accident Statistics

## 1.1. Accident rate

ICAO's primary indicator of safety in the global air transport system is the accident rate based on scheduled commercial operations involving fixed-wing aircraft with a maximum mass of over 5 700 kg. Aircraft accidents are categorized using the definition provided in Annex 13 — Aircraft Accident and Incident Investigation and the details of each accident for which the State of Occurrence is within the EUR/NAT Regions have been reviewed by the RASG-EUR Coordination Group (RCOG) Reporting Group (R-REP) to assure the accuracy of the data.

The accident rate for the RASG-EUR Region was 1.54 per million departures in 2017, showing a positive improvement compared with the accident rates of the previous years.

Year	Departures (millions)	Number of Accidents	Accident rate (per million departures)	Fatal Accidents	Fatalities
2013	7.79	21	2.70	2	71
2014	7.98	24	3.01	2	300
2015	8.19	25	3.06	1	150
2016	8.62	24	2.79	2	64
2017	9.06	14	1.54	3	46

Table 1 – Accidents in the EUR/NAT Regions involving scheduled commercial operations with fixed-wing aircraft with a maximum mass of over 5 700 kg

## 1.2. Accidents to aircraft of 2250 kg or more in the EUR/NAT Regions

The term 'accident' used throughout this report has the meaning defined in ICAO's Annex 13 to the Convention on International Civil Aviation:

**Accident.** *An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:*

a) *a person is fatally or seriously injured as a result of:*

- being in the aircraft, or
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
- direct exposure to jet blast,

*except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or*

b) *the aircraft sustains damage or structural failure which:*

- adversely affects the structural strength, performance or flight characteristics of the aircraft, and
- would normally require major repair or replacement of the affected component,

*except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windcreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or*

c) *the aircraft is missing or is completely inaccessible.*

Annex 13 — Aircraft Accident and Incident Investigation requires that the State of Occurrence forward a notification of an accident to ICAO when the aircraft involved is of maximum mass of over 2 250 kg or is a turbojet-powered aeroplane. This requirement is regardless of the type of operations (scheduled commercial or not).

In 2017, 41 accidents involving aircraft of maximum mass of over 2 250 kg occurred in the EUR/NAT Regions (see Appendix). Out of these 41 accidents, 11 were fatal accidents, causing 69 fatalities.

The breakdown of accidents involving aircraft of maximum mass of over 2 250 kg which occurred in the EUR/NAT Regions in 2017 by mass groups, by flight phases and by Occurrence Categories<sup>1</sup> are shown on the figures 2-3 and 4 below.

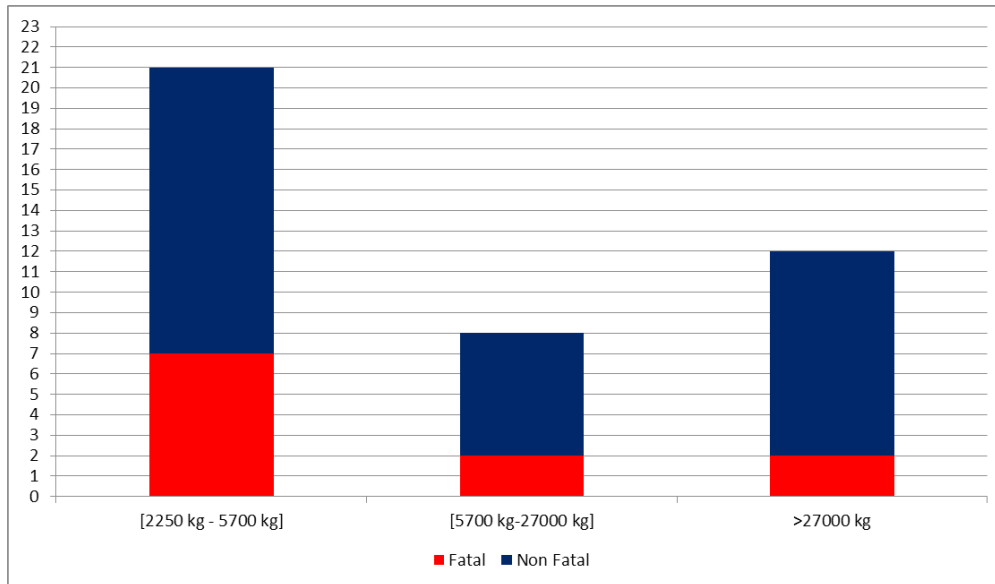


Figure 2 - Accidents involving aircraft of maximum mass of over 2 250 kg which occurred in the EUR/NAT Regions in 2017 by mass groups

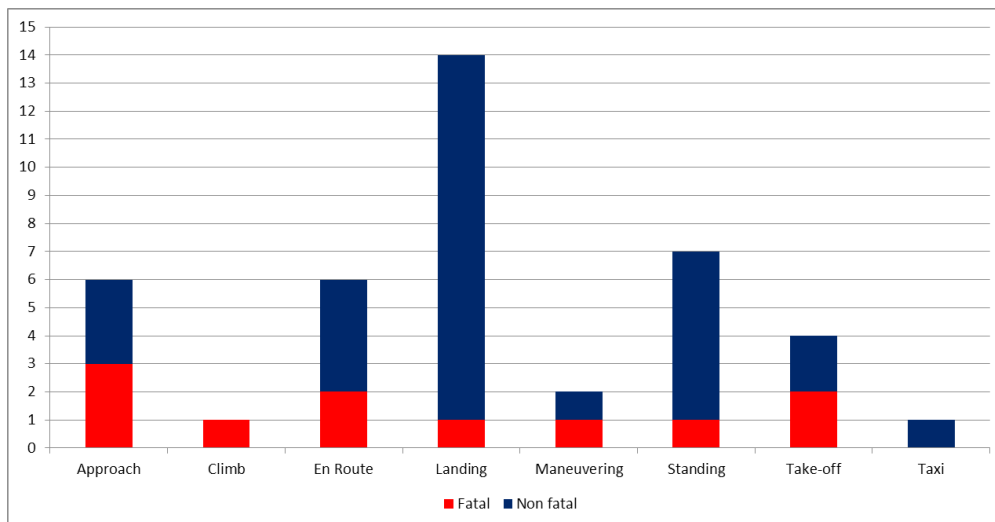


Figure 3 - Accidents involving aircraft of maximum mass of over 2 250 kg which occurred in the EUR/NAT Regions in 2017 by flight phases

<sup>1</sup> Occurrence categories are defined by the CICCTT taxonomy <http://www.intlaviationstandards.org/Documents/OccurrenceCategoryDefinitions.pdf>





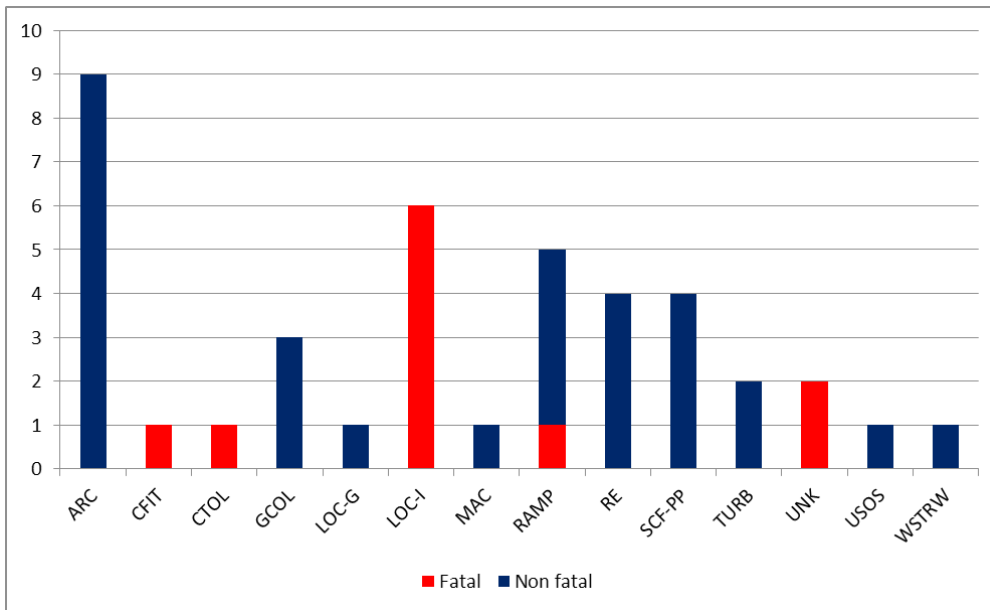


Figure 4 - Accidents involving aircraft of maximum mass of over 2 250 kg which occurred in the EUR/NAT Regions in 2017 by Occurrence Categories

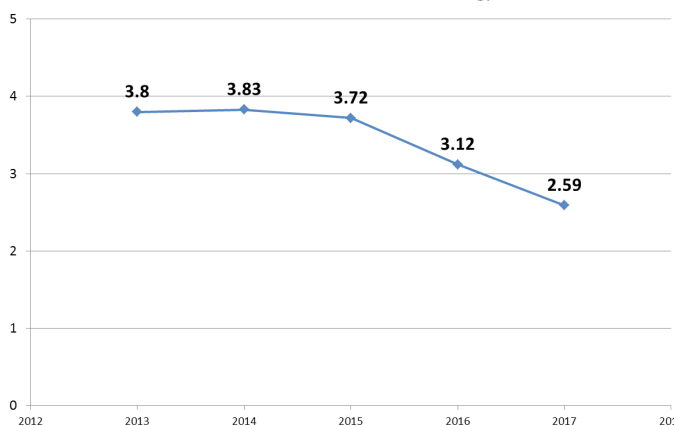
## 2. Regional Safety performance

The monitoring by the RASG-EUR of the achievement of formal safety targets (ST) indicates that the availability of financial and qualified human resources for CAAs remains a challenging area. Certification, surveillance and resolution of safety concerns scored marginally less than in 2016. The progress of SSP implementation continues to be a concern and is not sufficient to achieve the targets set out in the GASP, as less than 40% of the RASG-EUR States have a defined implementation plan and none have fully implemented their SSP.

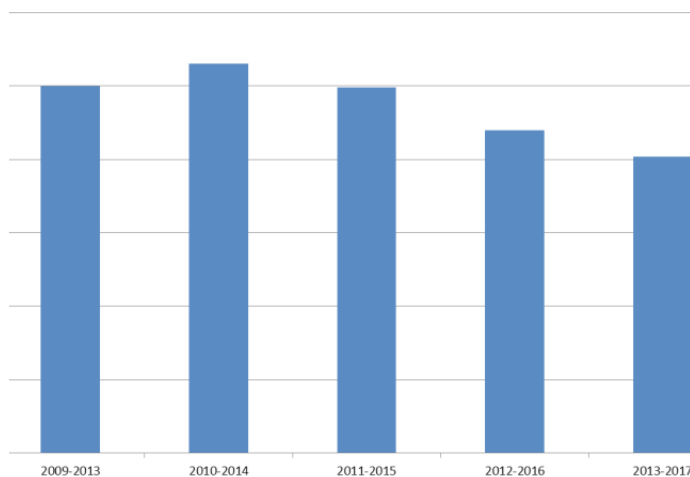
	Value for reference period	Value for 2017
ST1 – Accident rate in scheduled commercial air transport	2009-2013 regional average: 3.84 accidents per million departures (for aircraft with maximum mass above 5,700 kg) 2009-2013 moving five-year regional average number of accidents: 25.2 (for aircraft with MTOW above 27000kg)	2013-2017 average: 2.59 accidents per million departures (for aircraft with maximum mass above 5,700 kg) 2013-2017 moving five-year regional average number of accidents: 20.2 (for aircraft with MTOW above 27000kg)
ST2 – CAA resources	52.97%	56.47%
ST3 – Certification, surveillance and resolution of safety concerns	CE-6: 81.52% CE-7: 67.23% CE-8: 70.39% Average EI: 73.05%	CE-6: 80.78% CE-7: 68.81% CE-8: 69.09% Average EI: 72.97%
ST4 – SSC resolution	Unresolved SSC: 0 New SSCs not resolved within 2 years from publications in ICAO: 0	Unresolved SSC: 1 New SSCs not resolved within 2 years: 1
ST5 – SSP implementation	N/A	“Gap analysis started”: by 79.17% of States above 60% EI “Gap analysis completed”: by 62.50% of States above 60% EI “Implementation plan defined”: by 39.58% of States above 60% EI “SSP implementation completed”: by 0% of States above 60% EI
ST6 – Accident investigations	There were 21 accidents reported to ICAO in 2013 with State of occurrence in EUR/ NAT Regions. 19 accidents were found to have investigations launched. For the residual 2, no information was found if the investigation is launched, i.e. the rate was 90.48%	An investigation was instituted for all 41 accidents involving aircraft of maximum mass of over 2 250 kg occurring in the EUR/ NAT Regions in 2017 i.e. the rate was 100%

Table 2 – RASG-EUR Safety Targets

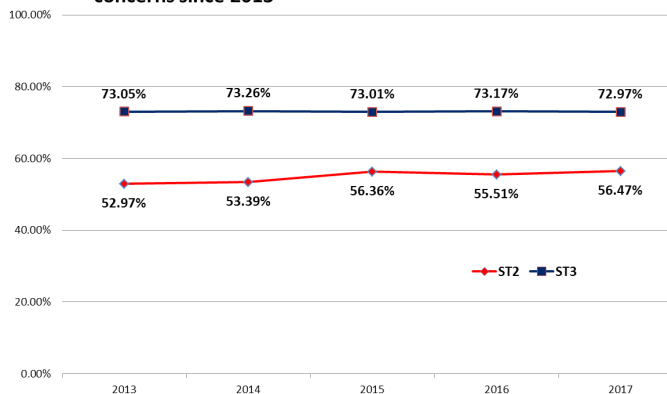
**ST1 - 5-year moving average accident rate in scheduled commercial air transport since 2013 (for aircraft with a maximum mass above 5,700 kg)**



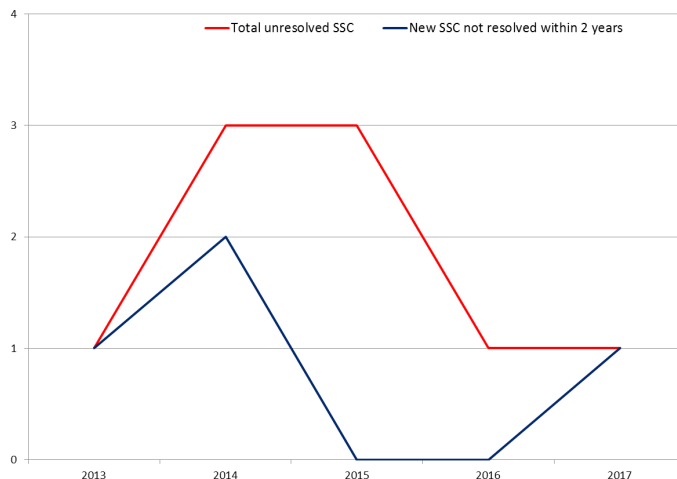
**ST1 - Moving average of the number of accident involving scheduled commercial operations with aircraft of maximum mass of over 27 000 kg**



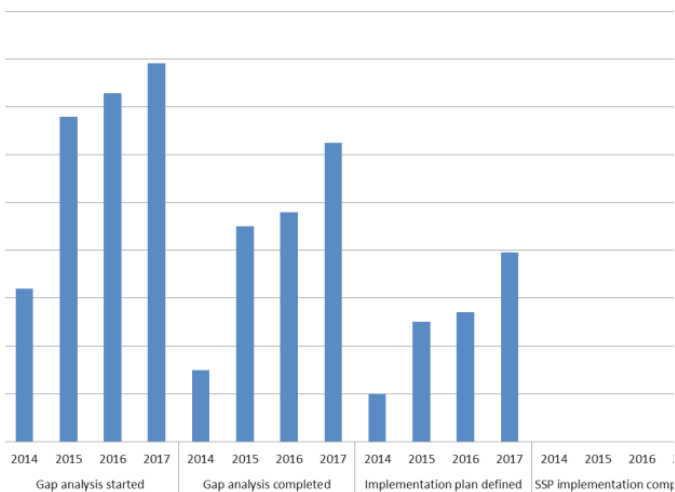
**ST2 - CAA resources  
ST3 - Certification, surveillance and resolution of safety concerns since 2013**



**ST4 - Number of unresolved SSC**



**ST5 - SSP Implementation of States in EUR/NAT regions having an EI 60% or above**



**ST6 - Ratio of investigations instituted into accidents involving aircraft of maximum mass of over 2 250 kg in EUR/NAT Regions**

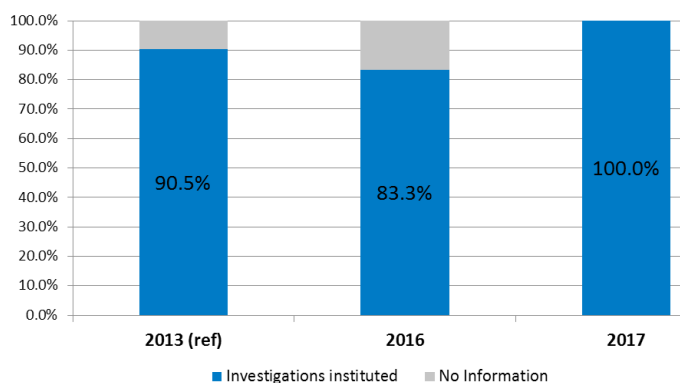


Figure 5 – RASG-EUR Safety Targets (Source ICAO)

### 3. Safety oversight auditing activities

#### 3.1. ICAO USOAP CMA activities

##### 3.1.1. List of USOAP CMA related activities completed in 2017

In 2017, 19 USOAP CMA-related activities were planned for States in the EUR/NAT Regions and for EASA. Seventeen (17) were carried out and two were postponed. The main activities under USOAP CMA are:

**Audit:** this activity is performed on-site to conduct a systematic and objective assessment of a State's safety oversight system. It can be a full or limited scope.

**ICAO Coordinated Validation Mission (ICVM):** this activity is performed on-site to collect and assess evidence of a State's effective correction of previously identified findings (in one or more audit areas). The collected evidence is reviewed and validated at ICAO HQ.

**Off-site validation activity:** this activity is performed to assess a State's effective corrective actions addressing previously identified findings related to PQs not requiring an on-site activity.

	State/Organization	Type of activity	Dates	Status
1.	Malta	Off-site validation activity	January 2017	Completed
2.	Belgium	Off-site validation activity	February 2017	Completed
3.	Hungary	Off-site validation activity	February 2017	Completed
4.	Denmark	Off-site validation activity	March 2017	Completed
5.	Lithuania	Off-site validation activity	March 2017	Completed
6.	France	ICVM and SSP implementation assessment (voluntary)	13 to 17 March 2017	Completed
7.	Ukraine	Audit	13 to 24 March 2017	Completed
8.	Uzbekistan	Audit	10 to 21 April 2017	Completed
9.	Turkey	Off-site validation activity	April 2017	Completed
10.	Germany	Audit	19 to 30 June 2017	Completed
11.	Azerbaijan	ICVM	<del>1 to 8 August 2017</del>	Postponed to 2018
12.	Finland	ICVM	5 to 12 September 2017	Completed
13.	Georgia	ICVM	<del>3 to 10 October 2017</del>	Postponed to 2018
14.	Romania	Off-site validation activity	October 2017	Completed
15.	Norway	Off-site validation activity	November 2017	Completed
16.	EASA	Audit	20 to 27 November 2017	Completed
17.	Bulgaria	Off-site validation activity	December 2017	Completed
18.	Italy	Off-site validation activity	December 2017	Completed
19.	Portugal	ICVM	12 to 19 December 2017	Completed

Table 3 – USOAP CMA activities in EUR/NAT Regions in 2017

##### 3.1.2. Effective implementation in the EUR/NAT Regions

Results of the USOAP are presented to show the Effective Implementation (EI) by States in reference to the 8 Critical Elements (CEs), which ICAO considers essential for a State to establish, maintain and improve in order to have an effective safety oversight system. According to ICAO iSTARS (Integrated Safety Trend Analysis and Reporting System), the average USOAP score for States in the EUR/NAT Regions is 74.91%, which is above the world average of 65.83%.

USOAP results also show that 85.71% of the States in the EUR/NAT Regions have achieved the target of 60% EI as suggested by the Global Aviation Safety Plan (GASP).

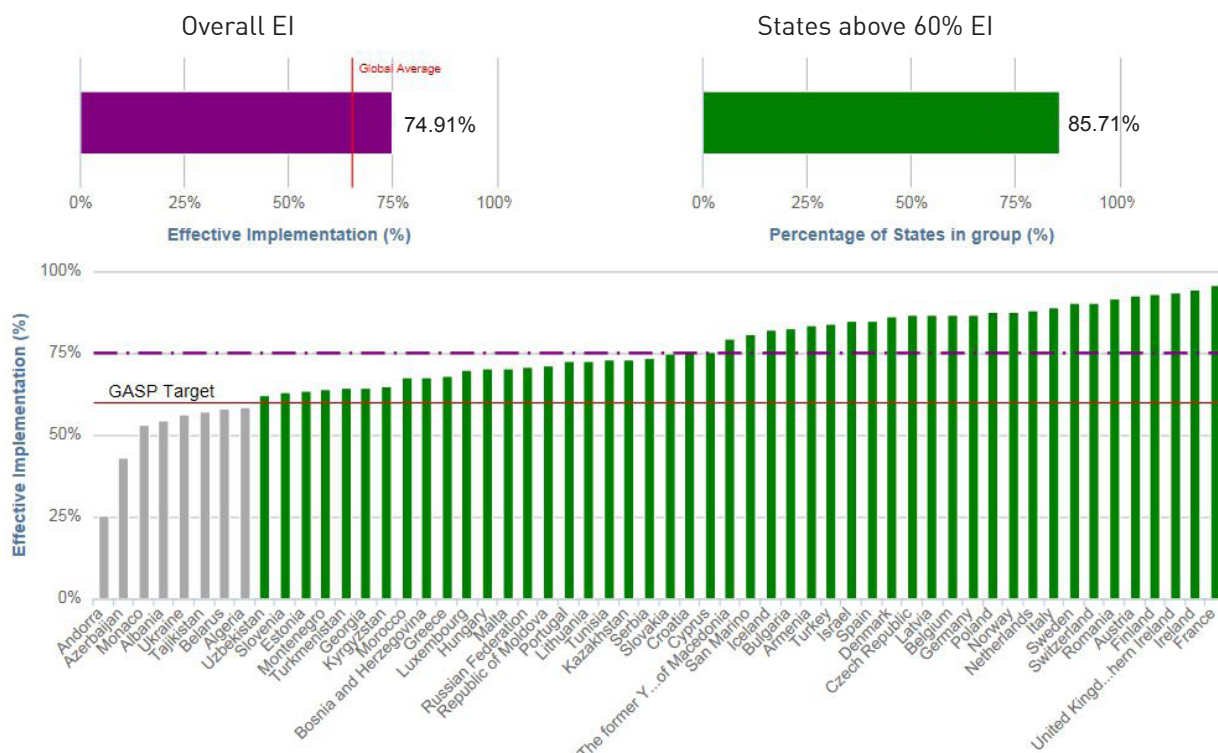


Figure 6 – USOAP Audit Results for States in EUR/NAT Regions in 2017

USOAP results also show that AIG (Accident and Incident Investigation) is the area with the lowest EI and that CE4 (Technical staff qualifications and training) is the top issue affecting the effective implementation percentage in the EUR/NAT Regions.

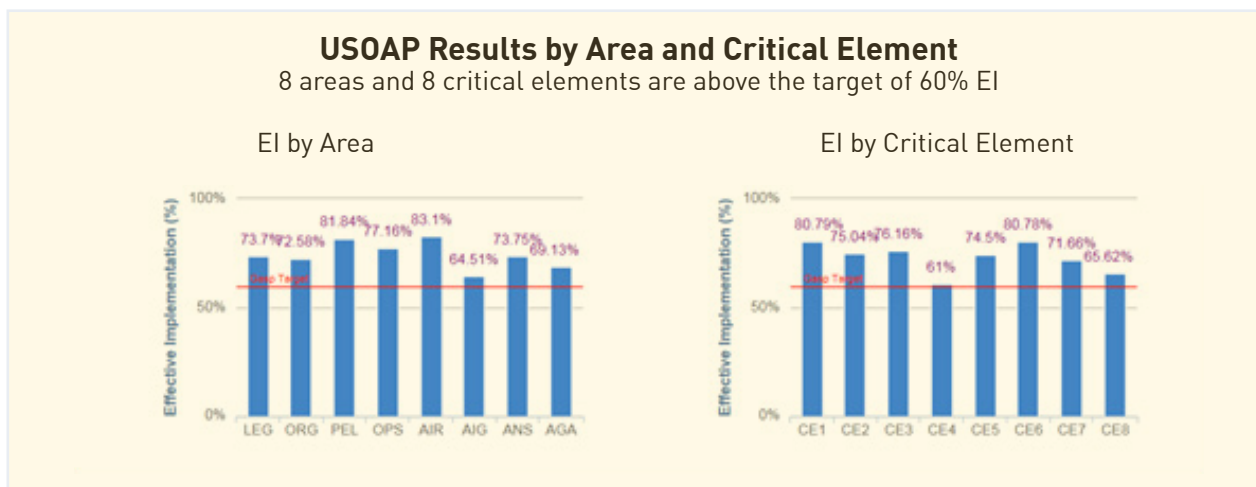


Figure 7 – USOAP Audit Results for States in EUR/NAT Regions by Area and CE in 2017

### 3.1.3. State safety oversight margins

The use of the overall EI score across all eight CEs of an effective safety oversight system looks at all audited areas and may not precisely focus on the system size and level of complexity of a State’s aviation activities. The safety oversight margin helps the aviation community complement a one dimensional score (i.e. the overall EI score) with one that provides a minimum EI score and takes into account traffic volume. The safety oversight margin of a State is the difference between that State’s EI score and the minimum EI score for that State. The minimum EI score is the value produced by a global linear regression of traffic versus EI, applied to the traffic of the State.

The Safety Oversight Margin application is available on the ICAO integrated Safety Trend Analysis and Reporting System (iSTARS) website at [www.icao.int/safety/iStars](http://www.icao.int/safety/iStars)

Safety oversight margins are broken down into three functional categories, as follows:

- a) **operations:** this category groups EI scores for USOAP audit areas related to personnel licensing and training (PEL), aircraft operations (OPS) and airworthiness of aircraft (AIR);
- b) **air navigation:** this category groups EI scores for USOAP audit areas related to aerodromes and ground aids (AGA) and air navigation services (ANS); and
- c) **support functions:** this category groups EI scores for USOAP audit areas related to primary aviation legislation and civil aviation regulations (LEG), civil aviation organization (ORG) and aircraft accident and incident investigation (AIG).

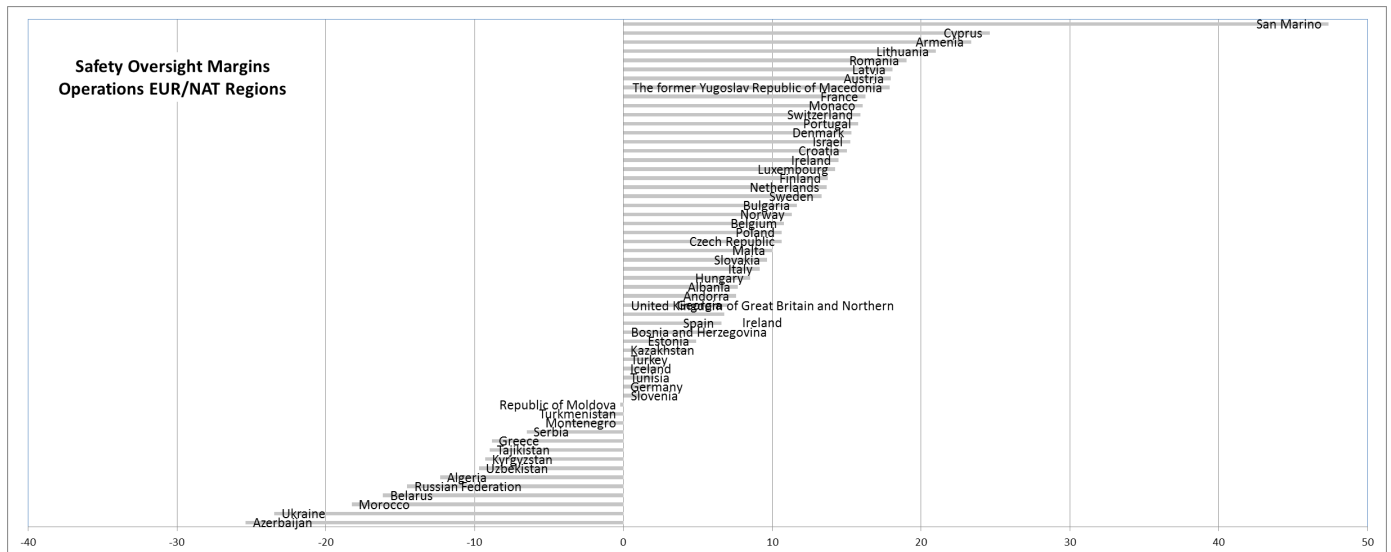
The operations safety margins are calculated taking into consideration only flights performed by carriers from the State, whereas the other margins are calculated using all departures from the State.

In each of the 3 functional areas, a State is given a target effective implementation score which is calculated based on a global linear regression of traffic versus effective implementation of all ICAO Member States.

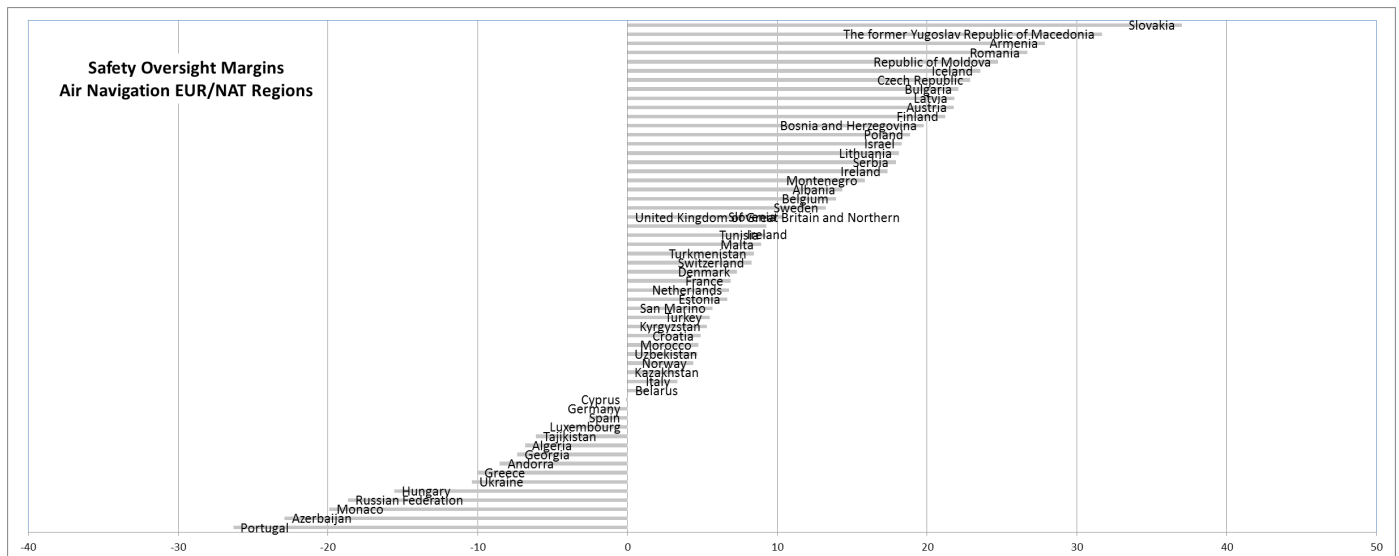
A State with a positive safety margin would be considered to have sufficient regulatory controls in place to cover its existing traffic volume.  
 A State with a negative safety margin would be considered to have an insufficient oversight system taking into consideration its traffic volume.

However, even States that have a positive safety oversight margin could have unsatisfactory PQs that, if left unresolved, could lead to safety-related issues. A positive safety oversight margin should not be considered as a stopping point for a State’s continuous improvement of safety. Ultimately, the GASP will set a goal for States to reach an EI of 75% by 2022, 85% by 2026 and 95% by 2030.

In the functional area of Operations, 14 (25%) of EURNAT States have a negative safety oversight margin, and 42 (75%) have a positive safety oversight margin.



In the functional area of Air Navigation, 15 (27%) of EURNAT States have a negative safety oversight margin, and 41 (73%) have a positive safety oversight margin.



In the functional area of Support, 21 (37.5%) of EURNAT States have a negative safety oversight margin, and 35 (62.5%) have a positive safety oversight margin.

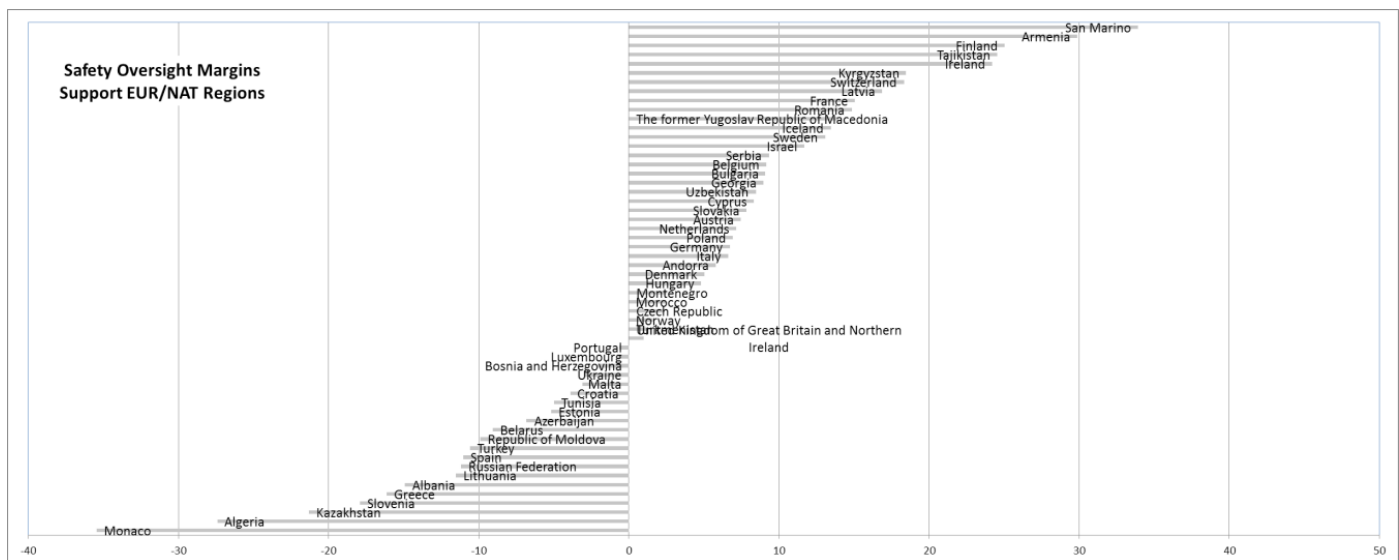


Figure 8 – Safety Oversight Margins for States in EUR/NAT Regions

### 3.1.4. SSP Foundation

A sub-set of 299 Protocol Questions (PQs) out of the 1,047 ICAO USOAP CMA PQs is used to assist States to build a solid safety oversight foundation for the implementation of SSP and identify the real gap. This sub-set of questions is considered as the foundation for a State Safety Programme (SSP) implementation. A SSP Foundation indicator is calculated, as the percentage of PQs which are either validated by the ICAO USOAP team or reported as completed by the State through the corrective action plans (CAP) on the USOAP CMA Online Framework.

The average EI for SSP foundation PQs for States in the EUR/NAT Regions is 78.72 %. The SSP foundation EI for States in the EUR/NAT Regions is shown on figure 9.

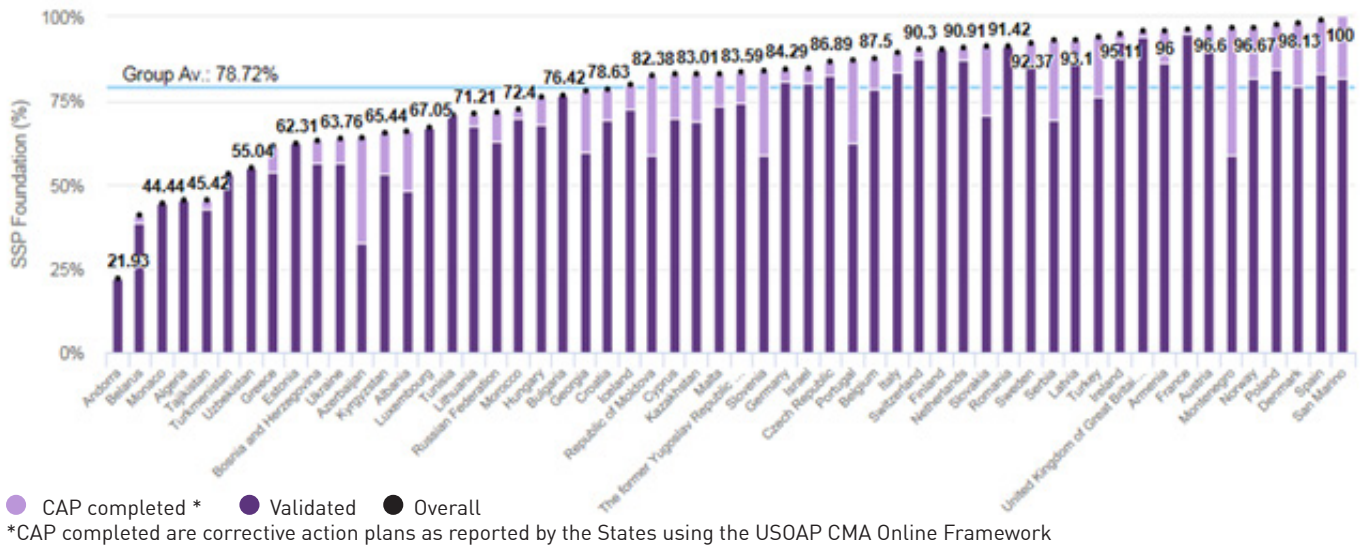


Figure 9 – Overall SSP Foundation for States in EUR/NAT Regions

The sub-set of PQs is divided into 17 subjects based on the Annex 19 Amendment 1 and the 4<sup>th</sup> edition of the Safety Management Manual (Doc 9859). States with EI above 60% may still have PQs to address which are fundamental for their SSP.

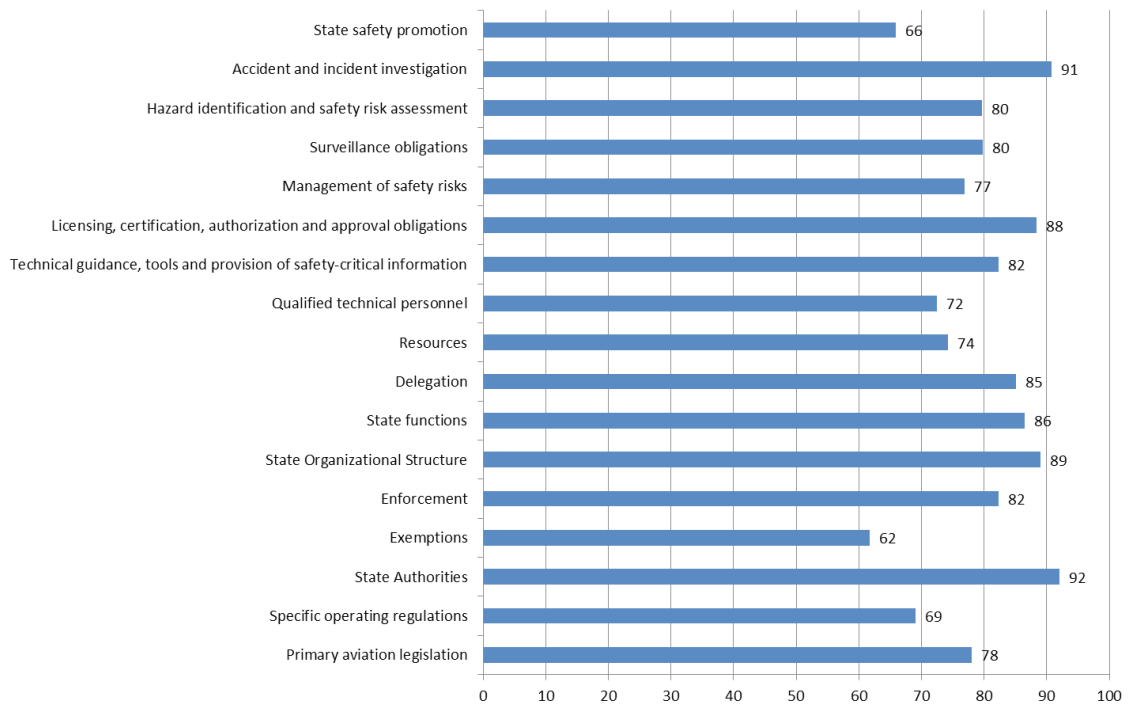


Figure 10 – Average EI by Safety Management subjects for States in EUR/NAT Regions

These PQs can be prioritized and addressed when conducting the SSP Gap Analysis or while defining the SSP implementation/action plan. States can use the ICAO iSTARS online application to perform an SSP Gap Analysis as defined in the 3<sup>rd</sup> edition of the Safety Management Manual (SMM). This provides an indication of the broad scope of gaps and hence overall workload to be expected. This initial information can be useful to senior management in anticipating the scale of the SSP implementation effort and hence the resources to be provided.

The SSP statistics shown in the figure 11 are high-level information about each Gap analysis project performed by States themselves. SSP implementation progress has been measured for each State using simple milestones as per the entered data. A State having reviewed all Gap Analysis Questions (GAQs) has reached Level 2. A State having reviewed and defined actions for all GAQs has reached Level 3. A State having completed all actions has Level 4.



The completion percentage of GAQs in each level is given below for States in the EUR/NAT Regions.

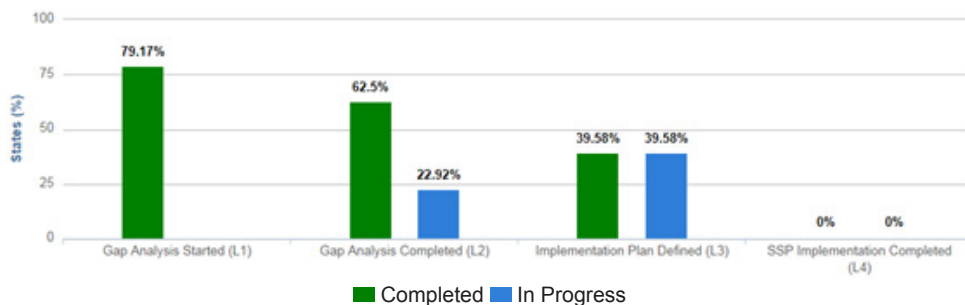


Figure 11 – SSP Implementation Progress for States in EUR/NAT Regions, limited to States with EI >=60%

### 3.2. EUR List of Air Navigation Deficiencies

A deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices (SARPs), and which has a negative impact on safety, regularity and/or efficiency of international civil aviation.

As of 31 December 2017, two deficiencies having direct impact on safety and requiring immediate corrective actions were identified in the EUR Region (in red on the chart below). These two deficiencies are related to the provision of air space safety monitoring data, for which the recommended action by ICAO is for States' CAAs to send the required monitoring data to the Regional Monitoring Agency (RMA) on a regular basis. An additional 34 deficiencies classified as having top priority requirements necessary for air navigation safety were identified. The types of deficiencies having a negative impact on safety as of 31 December 2017 are shown in the figure 12 below.

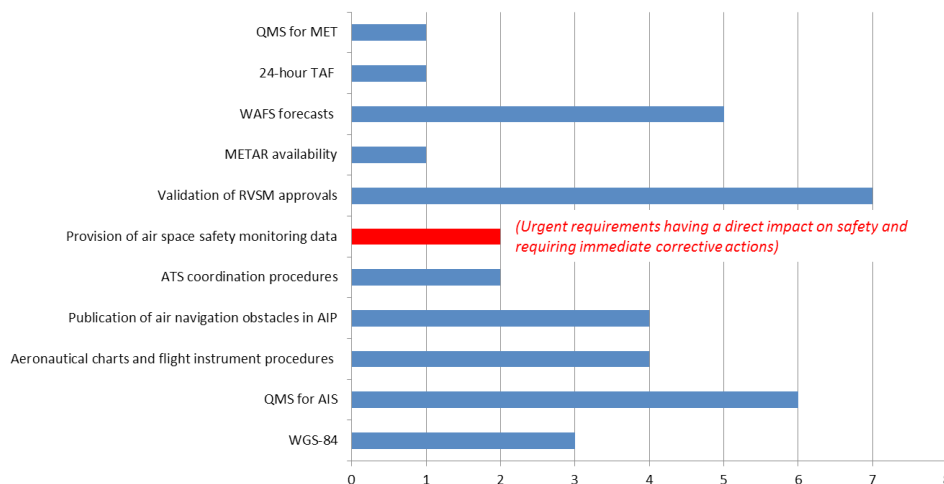


Figure 12 – EUR Air Navigation deficiencies in 2017

Note: deficiencies with intermediate requirements necessary for air navigation regularity and efficiency are not shown here.

The USOAP CMA PQ 7.045 (“Has the State established and implemented a mechanism for the review and elimination of deficiencies identified within the framework of the Planning and Implementation Regional Groups (PIRGs)?”) has an average EI rate of 57.69% for the States in the EUR/NAT Regions.

### 3.3. EASA Standardization

One of the main tasks of the European Aviation Safety Agency is to monitor the level of implementation of the European aviation safety regulations in all EASA Member States<sup>2</sup>. This is to ensure that all EASA members are able to discharge their oversight capabilities and is achieved through a continuous monitoring process that includes inspections of all EASA Member States’ authorities.

<sup>2</sup> EASA Member States comprise Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

In addition, the European Commission has tasked EASA to extend the standardization over those neighboring States that have committed to progressively implement the EU aviation safety regulations. Therefore, in addition to the 32 EASA Member States, EASA performs standardization activities in Albania, Armenia, Azerbaijan, Bosnia & Herzegovina, Georgia, Moldova, Montenegro, Serbia, the Former Yugoslav Republic of Macedonia, Turkey and Ukraine. In 2017, the Agency performed standardization activities in the following domains:

Airworthiness (AIR)	Aircrew Flight Simulation Training Devices (FSTD)
Air Operations (OPS)	Air Traffic Management/Air Navigation Services (ANS)
Aircrew Licensing (FCL)	Ramp inspections (RAMP).
Aircrew Medical (MED)	

As of 2018, following the applicability of Regulation (EU No 139/2014), EASA will also cover the Aerodromes (ADR) domain.

The Agency's monitoring consists of two principal activities: continuous monitoring and inspection. The continuous monitoring uses multiple data sources to develop risk profiles for the scheduling and prioritization of standardization inspections. They support the establishment of a comprehensive risk-based approach, allowing the monitoring of the safety performance of the competent authorities, in line with the strategic objectives of the Agency.

On the inspection side, the Agency conducted 100 inspections, where a total of 580 findings of non-conformity were raised, including 3 immediate safety concerns (ISCs). In comparison with the previous years, there is a significant reduction, which suggests a general improvement in the level of implementation. However, around 30% of the findings were classified to raise 'safety concerns if not timely corrected' (class 'D').

The findings raised cluster around a few areas. Around 2/3 of them relate to the performance of oversight by the competent authorities (ICAO Critical Elements CE-6: Licensing, certification, authorization and approval obligations; 33 %, and CE-7: Surveillance obligations; 30 %), showing that this essential function remains the most challenging across almost all technical domains.

Compared with previous years, the number of open findings at the end of the year was further reduced in 2017. In particular there are less overdue findings, a fact that underlines the constructive cooperation between the Agency and the affected authorities. Also the number of open findings subject to Supplementary Report went down from 82 in 2016 to 38 in 2017, while only one new Supplementary Report was issued during the year.

Looking across Member States, 80% of class D open and overdue findings are concentrated in 9 States, including three non-EASA States.

Effective standardization is a key enabler for the safe implementation of the single European aviation market. The Agency continuously works to improve the standardization process, as part of its strategic objective to identify safety deficiencies and take corrective actions in a common, coordinated and rapid manner. A new standardization strategy has therefore been developed. It focuses on improving the overall efficiency of the process by means of several actions, starting from enhancing the continuous monitoring element in order to make better use of the data and intelligence available. This will also reinforce the risk-based approach currently in use. At the same time, planning and conduct of inspections will also be enhanced to better reflect the outcome of monitoring.

### 3.3.1. Airworthiness inspections

Starting from 2014, comprehensive, focused and ad hoc inspections have been planned and performed, based on continuous monitoring data and internal analysis of collected safety data and on the result of previous inspections. During both the preparation and visiting phases, more effort went into identifying and investigating the safety-sensitive subjects and areas following, e.g. whistle-blower information and occurrence reports, with a clear focus on adding value and improving safety.

In 2017, a total of 16 inspections were planned and performed; specifically, 12 comprehensive and 4 focused inspections. A total of 136 findings were raised in the AIR domain, with one "immediate safety concern". All findings were classified as non-compliant (i.e. class 'C', 'D' of 'G' findings), thus requiring corrective actions to strengthen the oversight systems of the competent authorities. The total number of findings in 2017 has again decreased in comparison to the number raised in previous years.

AIR Standardization team leaders further participated in one FAA Sampling Inspection System (SIS) inspection under the EU/US Bilateral, observed one USOAP audit activity by ICAO in one Member State and observed a visit to Sukhoi Civil Aircraft covering the oversight of the production of Sukhoi RRJ95B aircraft.

Feedback from standardization inspections has been provided to the respective Rulemaking sections in order to further improve the regulations.

### 3.3.2. Air Operations inspections

A total of 21 inspections were conducted in the domain of Air Operations in 2017, of which eight were comprehensive inspections and 13 were focused inspections. All the findings raised in the OPS domain were non-compliant (i.e. class 'C', 'D' or 'G' findings), thus requiring corrective actions to strengthen the oversight systems of the competent authorities. The total number of findings has decreased from 161 in 2015, to 134 in 2016 and now 101 in 2017.

In 2017, OPS standardization raised two immediate safety concerns. One related to a non-compliance in mass and balance, resulting in the undertaking operating an aircraft outside its AFM limitations. The other related to a non-compliance in flight crew training and checking, resulting in a single-pilot certified aeroplane being operated by a non-qualified flight crew member.

### 3.3.3. Aircrew inspections

All the standardization inspections performed in 2017 in the areas of flight crew licensing, medical and flight simulation training devices were based on the Aircrew Regulation (Regulation (EU) No 1178/2011). In addition, the Medical standardization team also performed inspections in regard of the medical certification of ATCO in accordance with Regulation 2015/340.

In 2017, 102 new findings were raised in the domain of aircrew. However, this total number of findings includes 14 findings raised during cross-domain inspections, which have been added to the findings stemming from the planned domain specific inspections. All the findings raised in the Aircrew domain were non-compliant (i.e. class 'C', 'D' or 'G' findings), thus requiring corrective actions to strengthen the oversight systems of the competent authorities.

In the FCL domain, the outcome of the standardization inspections shows a positive trend compared with the results from previous years. However, the process of certification and oversight of training organizations and persons continues to be an area of concern in some competent authorities. In addition, shortcomings continued to be identified in the area of compliance monitoring, including the safety risk management.

### 3.3.4. Air Traffic Management / Air Navigation Services and ATC inspections

In 2017, 19 inspections were performed in a total of 16 countries. Three of these countries have designated more than one authority to cover all their activities; therefore, the ratio is not 1 to 1.

A total of 190 findings were raised in the ATM/ANS and ATC domains of which 184 were raised against Single European Sky regulations and the Basic Regulation Implementing Rules (IRs) and 6 against the Basic Regulation itself.

Specific to this domain, Member States are obliged to implement the entire legal framework of the Single European Sky. To that end, the Agency has developed a questionnaire to assist the Member States to fulfil their obligations. The objectives of this questionnaire are to streamline the current reporting mechanism, to reduce the burden on competent authorities and States and to clarify the roles and responsibilities of the recipient(s). The questions serve two purposes: the first is to provide the Member States with a tool to comply with the requirements of article 12.1 of Reg. (EC) No 549/2004 (as amended) on the implementation of the Single European Sky and in article 7.2 on the Flexible Use of the Airspace, and the second is to assist the preparation of EASA Standardization Visits.

All countries are asked to update their answers on an annual basis by the 30th of April and before any planned inspection as indicated in the notice of inspection. The information is then assessed by the Agency on a rolling basis.

The overall implementation of EU Regulations in the domains of ATM/ANS and ATCO is robust for those regulations which have been in force for several years. Those regulations that have only more recently become applicable, such as Reg. (EU) 2015/340 and Reg. (EU) No 923/2012 show positive progress towards reaching the same standards of implementation.

### 3.3.5. Ramp inspections

In 2017, 11 inspections were performed, all of which were classed as comprehensive inspections. In 2017, 45 findings were raised in the domain of Ramp inspections; in addition, 6 cross-domain findings were attributed also to Ramp. All

the findings were classified as non-compliant (i.e.: class 'C' and 'D' findings), thus requiring a corrective action plan. The 45 findings from 11 inspections in 2017, raised concerns. This is because in 2016, there were 43 findings from 13 inspections. This is the only domain that has seen an increase in the number of findings and the increase came about despite there being two fewer inspections. However, with respect to the previous years, the total number of the 'D' findings decreased by more than half.

This trend denotes that there are still areas requiring additional attention and further improvement by the participating States in the appropriate implementation of the EU ramp inspection programme.

During the entire standardization inspection process, special effort was dedicated to identifying and investigating the safety-sensitive subjects and areas such as: the qualification process of the inspectors (initial qualification, recurrent and recent requirements), the availability and use of the appropriate information for effective and efficient planning, the performance of the ramp inspections and the appropriate follow-up actions.

The Agency continuously works to improve the standardization process and to align it with its strategic objectives. It aims for "one system based on partners working in an integrated, harmonized and coordinated manner".

To address this objective, a new standardization strategy has been developed, which focuses also on improving the overall efficiency of the standardization process by a number of measures. Improving the continuous monitoring element in order to make better use of the data and intelligence available will also reinforce the currently used risk-based approach. At the same time, planning and conduct of inspections will also be enhanced to reflect the outcome of monitoring. Finally, support to authorities in need, according to the manner described in the new Basic regulation, will close the loop in case of persistent difficulties identified during Standardization activities. To achieve the above, a roadmap has been defined, which will gradually be implemented in the next three years.

### 3.4. EUROCONTROL ATM operational safety risk assessment

Pursuant to Regulation (EU) No. 970/2014 (detailed rules for the implementation of ATM network functions), EUROCONTROL as the nominated Network Manager (NM) identifies operational safety hazards at European ATM network level and assesses the associated network safety risk. The process supports aviation service providers (ANSPs, aircraft operators and airport operators) in their proactive risk management. The current ATM Top 5 operational risk priorities identified in 2017 are:

Blind spot (conflict between aircraft in close proximity not detected by ATCO)	Detection of potential runway conflict by ATCO
TCAS RA not followed	Sudden, high-energy runway conflict
Flight without a transponder or with a dysfunctional one	

Operational safety studies are targeted risk studies and surveys carried out to support the analysis of the Top 5 operational risks. Every operational safety study focuses on a particular issue and examines in details the incident scenarios and associated safety risk, available or potential prevention barriers and their effectiveness.

The operational safety studies carried out over the past years are:

Landing without ATC clearance	Aerodrome hot spot identification on aerodrome charts
Detection of maneuvering area conflicts by ATCOs	Risk of operation without transponder or with a dysfunctional one
High-energy runway conflicts	Blind spot – inefficient detection of conflict with aircraft in close proximity
Airside vehicle drivers impact on runway safety	Detection of conflicts at the interface to adjacent ATC sectors

### 3.5. IATA Operational Safety Audit (IOSA)

The IATA Operational Safety Audit (IOSA) program is an internationally recognized and accepted evaluation system designed to assess the operational management and control systems of an airline. In 2017 a total of 96 IOSA audits were conducted within EUR/NAT Regions. The majority of findings were raised within the ORG (Organization and Management System) IOSA scope, particularly SMS and quality assurance, including ORG-linked ISARPs (IOSA Standards and Recommended Practices) within operational scopes. Training and qualification program for internal auditors and SMS training for operation personnel are within the top findings. More findings were raised in 2017 concerning safety performance indicators as a means to monitor the operational safety performance of the organization and to validate the effectiveness of safety risk controls.

## 4. Safety priorities for RASG-EUR

### 4.1. Risks from reactive and proactive safety information

Taking into consideration the GASP objectives as well as reactive safety information from 2017 and previous years (accident and incident data) and proactive safety information (safety oversight audit, inspections, studies and SMS/SSP assessments) from the EUR/NAT Regions, the safety priorities for RASG-EUR are:

#### **Runway safety:**

Runway safety-related events include the following ICAO accident occurrence categories: abnormal runway contact (ARC), bird strikes (BIRD), ground collision (G-COL), runway excursion (RE), runway incursion (RI), loss of control on the ground (LOC-G), collision with obstacle(s) during take-off and landing (CTOL) and undershoot/overshoot (USOS). Runway safety events remain the highest number of events, even if they do not cause the most fatalities. In 2017, 19 accidents involving aircraft of maximum mass of over 2 250 kg occurred in the EUR/NAT Regions, including one causing a fatality.

#### **Loss of control in flight:**

Loss of control In-flight (LOC-I) events include uncontrolled collisions with terrain as well as extreme manifestations of deviations from intended flightpath or aircraft flight parameters, regardless of whether the flight crew realized the deviation and whether it was possible to recover or not. These types of events account for a small portion of accidents in a given year but are generally fatal and account for a large portion of the total number of fatalities. In 2017, 6 accidents involving aircraft of maximum mass of over 2 250 kg occurred in the EUR/NAT Regions. All 6 were fatal, causing 22 fatalities.

#### **Controlled flight into terrain:**

Controlled Flight into Terrain (CFIT) events are in-flight collision or near collision with terrain, water, or obstacle without indication of loss of control. They can occur during either Instrument Meteorological Conditions (IMC) or Visual Meteorological Conditions (VMC) and include instances when the cockpit crew is affected by visual illusions or degraded visual environment that result in the aircraft being flown under control into terrain, water, or obstacles. These types of events account for a small portion of accidents in a given year but are generally fatal and account for a large portion of the total number of fatalities. In 2017, one fatal accident involving an aircraft of maximum mass of over 2 250 kg occurred in the EUR/NAT Regions, causing 39 fatalities, including 35 on the ground.

#### **Safety oversight capabilities:**

Universal safety oversight audit programme (USOAP) audits have identified that States' inability to effectively oversee aviation operations remains a global safety concern. AIG (Accident and Incident Investigation) is the area with the lowest EI in the EUR/NAT Regions and CE4 (Technical staff qualifications and training) is the top issue affecting the effective implementation percentage. The States safety oversight margin numbers indicate a lack of adequate safety oversight support functions (LEG, ORG and AIG) within the civil aviation authorities of some States in the IE-REST<sup>3</sup> geographical area (the part of the ICAO EUR Region which is not covered by the EU/EASA regulatory framework) as well as some States in the EU. A quarter of EUR/NAT States have a negative safety oversight margin in the functional area of Operations (PEL, OPS and AIR) and/or in the functional area of Air Navigation (AGA and ANS). One has an unresolved Significant Safety Concern<sup>4</sup> in the OPS area.

#### **Air Navigation Deficiencies:**

A total of 34 deficiencies classified as having top priority requirements necessary for air navigation safety are identified in the EUR/NAT Regions. An additional two unresolved deficiencies identified for two States and concerning the provision of safety monitoring data to RMAs have a direct impact on safety and require immediate corrective actions.

#### **Safety management:**

The GASP near-term objective requiring that all States which have an EI of 60% or greater should have a SSP implemented by 2017 is not met. The progress of SSP implementation continues to be a concern and is not sufficient to achieve the targets set out in the GASP – less than 40% of EUR/NAT States have a defined

<sup>3</sup> ICAO-EUR Regional Expert Safety Team

<sup>4</sup> A significant safety concern occurs when the audited State allows the holder of an authorization or approval to exercise the privileges attached to it, although the minimum requirements established by the State and by the Standards set forth in the Annexes to the Chicago Convention are not met, resulting in an immediate safety risk to international civil aviation.

implementation plan and none have fully implemented their SSP. SSP Foundation data from ICAO iSTARS show that safety promotion is one of the weakest SSP subject for States in the EUR/NAT Regions.

## 4.2. Emerging risks

### UAS integration:

Unmanned Aircraft System (UAS), and in particular Remotely Piloted Aircraft Systems (RPAS) have a vast range of possible uses. This is creating a new industry with a large economic potential. The technological developments are being developed at a much faster pace than that for manned aviation. The challenge lies in integrating the worlds of manned and unmanned aircraft in a safe and efficient way as both types of aircraft will use the same airspace. EASA monitors RPAS incidents as part of its Annual Safety Review and has developed a safety risk portfolio that supports the development of safety actions in the European Plan for Aviation Safety (EPAS).

Analysis of Unmanned Aircraft System (UAS) occurrences in the European Central Repository (ECR) alone identified 1,904 occurrences of all severity levels for the last 5 years, of which 75 had been classified as accidents. None of the accidents involved fatalities. This is a significant increase in the number of occurrences compared with past years and highlights both the increasing UAS activity and improvements in the reporting of their occurrences. The collection of data on UAS occurrences is still in its infancy and there is still a lot of work to be done to ensure the correct application of taxonomy terminology related to UAS. The latest figures for UAS incidents are shown below, using combined data from both the European Central Repository and data reported to EASA from several European operators:

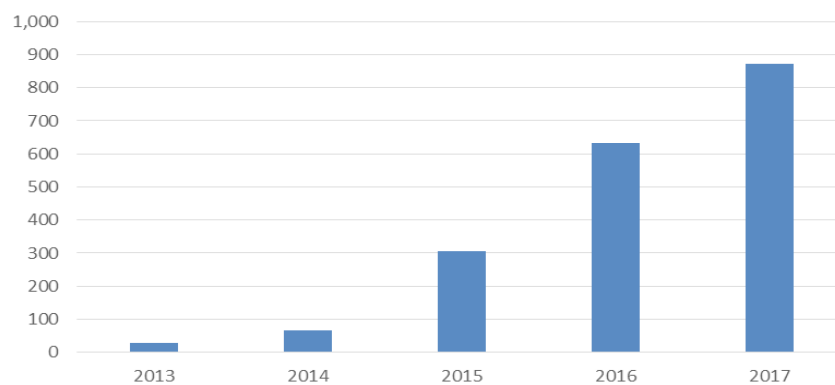


Figure 13 - Number of reported UAS incidents per year in EASA Member States

By far the majority of occurrences involving UAS are airspace infringements and where UAS could come into contact with other aircraft. A great deal of work is taking place across Europe with regards to UAS and EASA has recently published its opinion on the EU Drones Rules, which will be published later in 2018. The publication of these Rules will be supported by a European Safety Promotion Campaign on drones to focus on providing simple and clear information to support the safe expansion of this new domain of operations.

In the last few years, EVAIR5 recorded a continuing and steep increase in UAS reports, with a 26% upsurge in 2017. As in the previous reporting period, almost all occurrences were triggered by small drones flying at low altitude (usually below 500 ft), creating problems to traffic in the approach phase of flight. In some cases, the vertical separation was down to a few meters only, which shows the high safety risk generated by these UAS. More about EUROCONTROL activities addressing the issue of the ATM integration of UAS below 500 ft. can be found at: <http://www.eurocontrol.int/news/air-traffic-management-fit-drones>.

**Unruly/Disruptive passengers:**

EASA monitors the incidents involving Unruly/Disruptive Passengers as part of its Safety Risk Management process that supports the development of safety actions in the European Plan for Aviation Safety (EPAS). Analysis of these incidents in the European Central Repository (ECR) alone identified 7,557 occurrences over the last 5 years. Of these, 5 led to serious injuries and 32 led to minor injuries. There were no fatalities involving Unruly/Disruptive Passengers. None of the accidents involved fatalities. The latest figures for Unruly/Disruptive Passenger incidents are shown below, using combined data from both the European Central Repository and data reported to EASA. This covers both occurrences that took place in the EASA Member State and those that involved EASA Member States operator worldwide. From the data available, it can be seen that the number of incidents has increased considerably over the past 5 years and there is a great deal of discussion across the European Aviation Community on how to improve the situation.

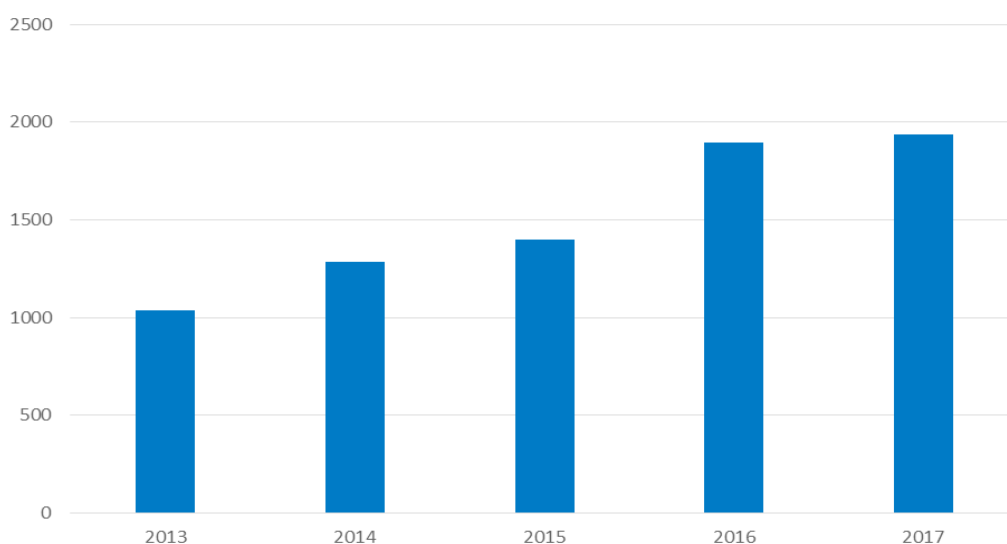


Figure 14 - Number of Unruly/Disruptive Passengers occurrences in EASA Member States

Further analysis of the occurrences involving Unruly/Disruptive Passengers has identified 2 main causes of such occurrences:

- ◇ The major cause of Unruly/Disruptive Passenger occurrences is excessive consumption of alcohol. This is mostly related to drinking at the airport prior to the flight but also involves passengers drinking alcohol purchased from shops at the airport and then drinking this during the flight.
- ◇ Another major factor involves passengers smoking either in the toilet or the cabin.

EASA is currently working with NAAs and other stakeholders to identify what safety improvement actions could be included in future versions of the EPAS.

## 5. Safety enhancement activities in 2017

The following initiatives conducted by ICAO and various stakeholders for States in the EUR/NAT Regions were either on-going or under development in 2017.

### 5.1. Initiatives addressing Runway Safety risks

#### ICAO Global Runway Safety Action Plan

The first edition of the Global Runway Safety Action Plan was released in November 2017 (see <https://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/Forms/DispForm.aspx?ID=19&ContentTypeld>).

It provides recommended actions for all runway safety stakeholders, with the aim of reducing the global rate of runway excursions and runway incursions. The Global Runway Safety Action Plan was developed in collaboration with the Runway Safety Programme Partners and is linked to the ICAO Global Aviation Safety Plan.

#### ICAO EUR NAT RWY Safety 16003 phases 1 and 2 project (completed in 2017)

This Technical Assistance project supported 5 States in two phases within EUR Region (Turkey, Israel, Montenegro, Kyrgyzstan and Tunisia) for the establishment and development of effective local Runway Safety Teams (RSTs) to improve runway safety.

In 2017, the following missions were conducted by Runway Safety Go-Teams, consisting of ICAO and experts from partner organizations:

Ankara Esenboga International Airport, Turkey, 6-10 March 2017.
Bishkek Manas International Airport, Kyrgyzstan, 2-4 August 2017.
Podgorica International Airport, Montenegro, 13-17 November 2017
Enfidha-Hammamet International Airport, Tunisia, 11-14 December 2017

The objectives of these missions were to establish local RSTs and support their development, through action plans and continuous guidance. These missions were implemented by ICAO EUR/NAT Technical Team and with in-kind donations from France, IATA, CANSO Europe, EUROCONTROL, FAA, IFALPA, ISRALPA, ACI Europe, Brussels Airport, St. Petersburg Pulkovo Airport, Turkish Airlines, and Aeroflot.

#### EPAS action on Runway Safety

For the key risk areas of runway collisions and runway excursions, EPAS actions include RMT.0296 on the review of aeroplane performance requirements for CAT operations, RMT.0369 concerning the prediction of wind shear for aeroplane Commercial Air Transport operations, and RMT.0570 on the reduction of runway excursions.

#### Safety promotion videos for Runway incursion prevention

SKYclips website, initiated by EUROCONTROL, makes available a collection of short animations of approximately two minutes duration, which focus on a single safety topic in aviation. Additions made in 2017 address runway incursion risks and include videos on stop bars, conditional clearances and landing without ATC clearance:

<https://www.skybrary.aero/index.php/Stopbars> [SKYclip]

[https://www.skybrary.aero/index.php/Conditional\\_Clearance](https://www.skybrary.aero/index.php/Conditional_Clearance) [SKYclip]

[https://www.skybrary.aero/index.php/Landing\\_without\\_ATC\\_Clearance](https://www.skybrary.aero/index.php/Landing_without_ATC_Clearance) [SKYclip]

### 5.2. Initiatives addressing Loss of Control In-flight (LOC-I) risks

#### ICAO EUR Regional Expert Safety Team (IE-REST) Safety Enhancement Initiatives (SEI)

At the IE-REST/09 (Tbilisi, Georgia, 13-15 June 2017) and IE REST/10 (Baku, Azerbaijan, 2-5 October 2017) updates were provided by the Pilot Training Group (IE-PTG) Rapporteur on the implementation of SEI related to reducing LOC-I accidents.

The following progress was demonstrated in 2017:

- a. Russian CAA (Federal Air Transport Agency - FATA) as Champion organization for the SEI created a LOC-I Working Group to develop industry Upset Prevention and Recovery Training (UPRT) guidelines. The group included representatives from "Pobeda" and "Meridian" airlines as well as from the Gromov Flight Research Institute. Airbus, Boeing and Sukhoi representatives participated in this Working Group as experts;



- b. Detailed Road Map for UPRT guidelines development has been created by the Russian CAA Working Group related to the reduction of the risk of Loss of Control Inflight (LOC-I) accidents;
- c. In February 2017, the 3rd Revision of the Airplane Upset Recovery Training Aid (AUPRT Rev.3), created by Airbus, ATR, Boeing, Bombardier, Embraer and ICAO, was released: <https://www.icao.int/safety/LOCI/AUPRTA/index.html>. The LOC-I Working Group decided to translate AUPRT Rev.3 into the Russian language with this work to be completed by October 2018;
- d. Significant work was completed by the Russian CAA Working Group to develop simulator UPRT training scenarios by using the facilities of the Central Aerohydrodynamic Institute (TsAGI) and Boeing Skolkovo Aviation Training and Research Centre.

At the IE-REST/09 (Tbilisi, Georgia, 13-15 June 2017) the group was informed that some training centers started the enhancement of their simulator training devices. In this regards the IE-REST noted information provided by Boeing on the work done to modify the B737 NG Simulator with the new enhanced stall model at Boeing Skolkovo Training Center. It was also noted that the work was ongoing in this area at the Central Aerohydrodynamic Institute (TsAGI) as well.

#### **EPAS action on Aircraft Upset**

EPAS actions include RMT.0397 on unintended or inappropriate rudder usage (rudder reversals), RMT.0581 concerning loss of control - prevention and recovery training and RMT.0647 on loss of control or loss of flight path during go-around or climb. There are also a number of safety promotion tasks covering this key risk area.

#### **EASA Opinion No 06/2017 on Loss of control prevention and recovery training**

EASA has published its Opinion No 06/2017 to integrate upset prevention and recovery training (UPRT) requirements and provisions into the EU pilot training regulatory framework. The proposed training requirements aim to provide pilots with competencies to prevent upsets or to recover from developed upsets and is currently revising the existing acceptable means of compliance (AMC) and guidance material (GM) published with regard to the provisions of Annex I (Part-FCL) to Regulation (EU) No 1178/2011.

### **5.3. Initiatives addressing Controlled Flight into Terrain (CFIT) risks**

#### **ICAO EUR Regional Expert Safety Team (IE-REST) Safety Enhancement Initiatives (SEI)**

At the IE-REST/09 (Tbilisi, Georgia, 13-15 June 2017) the group received information from the CAA of Bermuda regarding possible actions to increase effectiveness of Terrain Awareness and Warning System (TAWS). It was noted that several low-cost but crucial measures could be taken by stakeholders to reduce the likelihood of false TAWS warnings or of failure to provide a timely warning.

The IE-REST noted the aircraft operators could obtain the greatest safety benefit from TAWS by implementing the following best practices directly related to the equipment in use :

- update software to the latest available standard;
- update databases to the latest available standard;
- ensure that the GNSS position is provided to TAWS;
- enable the TAWS geometric altitude function (if available);
- enable the TAWS peaks and obstacles function (if available); and
- implement any applicable service bulletins issued by manufacturers.

It was essential to note that other measures should be undertaken to ensure CFIT prevention through effective use of TAWS. These measures included, but were not limited to: crew training; use of standard operating procedures; crew reporting and operator investigation of spurious warnings; and implementation of a safety management system by operators.

The IE-REST noted that authorities were called to ensure that the safety benefits from the use of TAWS equipment were being achieved by implementation of the following measures:

- advise to operators of factors that could reduce the effectiveness of TAWS;
- require GNSS input into TAWS;

- ensure that air operators obtain the greatest safety benefit from TAWS by verifying during inspections of air operators that the following procedures have been established and implemented:
  - software updates to the latest available standard;
  - databases updated on a regular basis (except if there are no changes within the area of operations);
  - TAWS geometric altitude function enabled (if available);
  - TAWS peaks and obstacles function enabled (if available); and
  - implementation of any applicable service bulletins issued by manufacturers.

To this effect RASG-EUR safety advisory RSA-06 on measures to improve on the effectiveness of TAWS was issued. It is available at <https://goo.gl/4jxeAd>

#### **Safety promotion video on the contribution of sensory illusions in CFIT**

An animation on how somatogravic illusions can contribute to CFIT events was made available in 2017 on the SKYclips website, initiated by EUROCONTROL: [https://www.skybrary.aero/index.php/Sensory\\_Illusions\\_\(SKYclip\)](https://www.skybrary.aero/index.php/Sensory_Illusions_(SKYclip))

## **5.4. Initiatives addressing Safety Oversight capabilities**

### **ICAO EUR/NAT AZE 16001 project (ongoing at the end of 2017)**

This project supports the State Civil Aviation Agency (SCAA) of Azerbaijan in the coordination of Corrective Action Plan (CAP) implementation activities and capacity building through qualified technical staff, with the objective of achieving an EI above 60%. In 2017, some activities took place in the framework of this project to support the SCAA in the resolution of ICAO USOAP audit findings and update the CAP. These activities included a visit of 3 ICAO EUR/NAT Regional Officers on 15-18 May 2017 with donations from Turkey. Follow-up recommendations and further steps were agreed with the Azerbaijan SCAA and are being implemented by the State.

### **EUR NAT KGZ 16004 phase 1 project (ongoing at the end of 2017)**

This project supports the CAA of the Republic of Kyrgyzstan in building the necessary capacity during the short term period of the Tailored Plan of Action (2017-2018) in order to rectify a SSC. Two missions were conducted by the ICAO EUR/NAT technical team in 2017, during which the status of the corrective actions regarding the OPS SSC was reviewed and assistance was provided on the Corrective Action Plan (CAP) in the PEL, OPS, AIR, AGA and ANS areas. A briefing on SMS/SSP and the 2<sup>nd</sup> edition of Annex 19 was also held.

### **EUR NAT KGZ 16004 phase 2 project (ongoing at the end of 2017)**

This project aims at providing On-the-Job Training (OJT) to PEL, OPS and AIR inspectors of the Civil Aviation Authority (CAA) of Kyrgyzstan, for a period of 2 months. The objective of this Technical Assistance (TA) project is to assist the State in resolving the Significant Safety Concern (SSC) identified by the ICAO USOAP activity in the area of OPS and in particular with regard to findings related to the lack of training and experience within the CAA inspectorate. The project also supports the necessary capacity building in the area of PEL by addressing deficiencies identified by the USOAP CMA audit. The project is in line with the ICAO Tailored Plan of Action for Kyrgyzstan and complements the on-going ICAO EUR/NAT TA Project 16004 phase 1. Partnerships and resource mobilization (in kind donations) from the Regions are considered, as part of the implementation process.

### **ICAO EUR NAT TJK 17001 project (ongoing at the end of 2017)**

This project, started in October 2017, focuses on supporting the Tajikistan CAA during the period 2017-2019 in coordination of updates and implementation of the Corrective Action Plan (CAP). The project shall also assist in the strengthening of safety oversight capabilities of Tajikistan CAA through provision of theoretical and on-the-job training. The project's primary objective is to achieve effective implementation (EI) above 60% in the reference period.

This project is to be implemented by EUR NAT Technical Team and with the in kind donations from States. A project document has been completed and submitted to the State for their coordination and a response from the State was still expected at the end of 2017.

### **ICAO EUR NAT OJT 17002 project (completed in 2017)**

This project provided assistance to Ukraine to enhance their oversight capacity, through capacity building activities and dedicated OJT for national inspectors. It was implemented by ICAO EUR/NAT Technical Team.

### **ICAO EUR/NAT Special Implementation Project**

ICAO EUR/NAT Special Implementation Project (SIP), developed and completed in 2017, aimed at providing assistance to improve the EI rate of the following States, when it was found to be below the global average: Azerbaijan, Belarus and Tajikistan. These States benefitted from the mission assistance programme (3 working days for each mission, during

2017) during which the ICAO EUR/NAT staff assisted the CAA staff in the review of the CAPs, assistance in update of the CAPs, development of recommendations to the CAAs and identification of further steps/follow-up actions.

### **EASA International Cooperation in the EUR Region**

EASA managed four technical cooperation projects in the EUR Region. The technical cooperation projects were funded by the European Union and aimed at assisting the beneficiary authorities in implementation of the EU safety framework or improvement of safety level through implementation of ICAO SARPs, where applicable.

- EUROMED Aviation Safety project (until December 2017) - EUR beneficiaries: Algeria, Israel, Morocco, Tunisia
- EASA Eastern Partnership / Central Asia project (ongoing) - EUR beneficiaries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Ukraine, Uzbekistan
- EASA-SAAU Airworthiness Convergence Project (ongoing) - EUR beneficiary: Ukraine
- EASA-IPA 4 (ongoing) - EUR beneficiaries: Albania, Bosnia and Herzegovina, The former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey

## **5.5. Initiatives addressing EUR Air Navigation deficiencies**

### **ICAO EUR/NAT PANS-OPS 16002 phase 1 and phase 2 project (completed in 2017)**

This project provided support to States in strengthening their safety oversight capabilities in the areas of Procedures for Air Navigation Services (PANS-OPS) and Aeronautical Charts.

Phase 1 of the project consisted of dedicated missions to support 9 EUR States included on the EUR List of Air Navigation deficiencies in correcting their lack of effective mechanisms to ensure compliance with ICAO Annex 4 (Aeronautical Charts) and Doc. 8168 (PANS OPS) provisions. Five Technical assistance missions were completed in 2017 for the phase 1 of the project:

- 16-20 January 2017 – Tashkent, Uzbekistan
- 27 February - 3 March 2017 – Tbilisi, Georgia (with participation of Azerbaijan, Republic of Moldova and Ukraine)
- 27-31 March 2017 – Ashgabat, Turkmenistan
- 2-7 July 2017 – Bishkek, Kyrgyzstan
- 8-10 August 2017 – Astana, Kazakhstan

At the end of Phase 1, 5 out of the 9 States had rectified their deficiencies and were no longer on the EUR List of Air Navigation deficiencies. Phase 1 of the project was implemented by ICAO EUR/NAT Technical Team and with the in-kind donations from Portugal.

Phase 2 of the project consisted in establishing, within the EUR Region, a network of PANS OPS/Aeronautical Charts experts to provide additional oversight capacity through dedicated workshops and OJT activities. A dedicated workshop was organized in coordination with Austria (Ministry of Transport and Austro Control) on 24-26 July 2017 in Vienna. Representatives from 9 States attended this workshop. The workshop was conducted by 2 ICAO EUR/NAT experts. A second dedicated workshop (for Algeria, Morocco and Tunisia) was organized in partnership with Austria and Portugal on 10-12 October 2017 in Paris. Sixteen PANS OPS experts have been trained in these two dedicated workshops in 2017. In total, 106 experts/national inspectors have been trained in both phases 1 and 2.

### **IATA Operational Safety Audit (IOSA)**

Throughout the years, the usage of IOSA has evolved from the pure codeshare purpose to suit different needs of Regulatory Authorities. ICAO has officially recognized the value of IOSA as a complementary measure to the regulatory oversight activities of States, FAA fully supports IOSA for the application of the US Code Share arrangements and many States make use of the IOSA audit report which assists them in focusing their oversight resources to the areas most needed. Regulators in several countries either support, endorse or mandate IOSA. In the European Union, EASA uses IOSA in the risk model for TCO Authorizations (Third Country Operators). European Union States use IOSA as an acceptable means of compliance for code share operations of EU carriers with non-EU carriers.

As Civil Aviation Authorities in EU States are moving towards performance-based oversight, IATA is suggesting States to make better use of IOSA, giving credit to airlines who invest effort to enhance their level of safety and focus more on other airlines applying a risk driven approach to safety oversight.

There are several ways authorities might use IOSA like:

- having a tailored oversight program which considers the IOSA audit through the avoidance of duplicating audit elements,
- a variable oversight cycle,

- a risk based oversight program,
- development and functioning of a State Safety Program etc.

Recently IATA has signed Memorandums of Understanding (MoUs) on the usage of IOSA for oversight purposes with Finland and Estonia. Several other European States have expressed interest to start this cooperation.

### **IATA Safety Audit for Ground Operations - New Business Model**

The IATA Safety Audit for Ground Operations (ISAGO) is an industry global standard for the oversight and audit of ground service providers, started by IATA in 2008 in response to an industry request to address the safety risks and incident costs of ground operations. It is complementary to the internationally recognized and accepted IATA Operational Safety Audit (IOSA) designed to assess the operational management and control systems of an air operator. Over 230 ground service providers are on the ISAGO registry covering 460 stations at over 290 airports. Since 2013 IATA safety statistics have identified that ground damage incidents rate has fallen by 20%, with ISAGO registered GSPs experiencing significantly less severe damage. While ground operations are not strongly regulated globally, ISAGO presents a valuable safety enhancement tool in this area. In 2017 IATA introduced fundamental changes to ISAGO for all audits conducted from January 2018. One of the major changes is the establishment of an IATA Charter of Professional Auditors (CoPA) where auditors are to undergo standardized IATA ISAGO Auditor Training and their qualification and performance will be monitored on the ongoing basis. This will ensure audits are conducted in a standardized and consistent manner using internationally recognized auditing principles. IATA aims to establish regulatory authority recognition of ISAGO such that it can be used by air operators and airports as an acceptable means of compliance with relevant regulations for the oversight of ground handling activities. A reduction in the significant duplication of the audit of ground operations is just one benefit capitalized through ISAGO. In May 2017 IATA delivered two workshops – in Paris and Saint Petersburg to explain the new ISAGO model to the relevant stakeholders.

More information on the new ISAGO program can be found at:

<https://www.iata.org/whatwedo/safety/audit/isago/Pages/index.aspx>

## **5.6. Initiatives addressing Safety Management capabilities**

### **ICAO Regional Safety Management Symposium**

The ICAO Regional Safety Management Symposium for the European and North Atlantic Regions was convened in Tallinn, Estonia, from 16 to 18 October 2017, as an outcome of collaboration between ICAO Headquarters and ICAO EUR/NAT Office. Around 250 participants attended and information on the following topics was provided:

- Integrated risk management
- Interaction between SSP and SMS
- Protection of safety data, safety information and related sources
- Scalability for the implementation of SSP and SMS

### **ICAO SMS/SSP Capacity building in Kyrgyzstan**

Two missions to Kyrgyzstan were conducted by ICAO EUR/NAT technical team in 2017 to provide assistance in implementing Annex 19 provisions to CAA, airlines, airports and ANSP representatives.

### **Safety Management For Practitioners course**

A Safety Management For Practitioners course (SMxP) was provided on 20-24 November 2017 at the ICAO EUR/NAT Regional Office to more than 20 participants from air operators, approved maintenance organizations, aerodrome operators, air traffic services providers and qualified personnel from State aviation authorities. The training included a comprehensive application of operational safety management processes and practical examples on hazards identification, risk assessment/mitigation, change management, safety reports and safety performance monitoring.

### **EASA EPAS**

The European Plan for Aviation Safety (EPAS) 2018-2022 was published in November 2017. It provides a coherent and transparent framework for safety work at regional level, helping the identification of major safety risks and actions to take, supporting Member States to implement their State Safety Programmes (SSP) and the Global Aviation Safety Plan (GASP), and aiding the sharing of best practice and knowledge. The plan also includes European States not under the EASA umbrella.

### **EASA 'Data4Safety'**

In 2017, EASA initiated 'Data4Safety' (also known as D4S), which is a data collection and analysis programme to support the management of safety risks at European level. It will include, but not be limited to: safety reports (or occurrences), flight data, air traffic surveillance data, and weather data. More specifically, the programme will allow to better identify



where the risks are, determine the nature of these risks (risk assessment) and verify whether the safety actions are delivering the needed level of safety (performance measurement). It aims to develop the capability of discovering vulnerabilities in the system across terabytes of data.

EASA launched an initial phase called the 'Proof of Concept' in 2017. The objective is to build a prototype or tester with a limited number of partners and a limited technical scope to test the technical and organizational challenges of the programme before launching the operational phase planned for 2020.

### **IATA Safety Promotion**

The IATA Safety Report provides the industry with critical information derived from the analysis of aviation accidents to understand safety risks in the industry and propose mitigation strategies. The report combines reactive, proactive and predictive information gathered from industry safety sources and provides valuable information aggregated at global and regional levels.

The report can be requested at: <http://www.iata.org/publications/Pages/safety-report.aspx>

### **IATA Safety Information Exchange Program**

IATA's Safety Information Exchange Program (SIEP) proposal aims at enhancing Industry/State collaboration by leveraging the use of IATA's infrastructure to process, analyze, and review de-identified aggregate safety information from Global Aviation Data Management (GADM) to enhance capabilities available to industry stakeholders implementing Collaborative Safety Teams (CST). This voluntary, collaborative program also supports SSPs to manage safety at the State level and addresses the concerns of airline operators on the protection and use of such operational safety information. SIEP's core principles are to:

- use safety information solely for maintaining or improving safety;
- identify and analyze systemic safety trends and not specific events;
- provide a framework for the exchange and use of safety information at a State, regional, and global level;
- ensure that information exchange takes place in accordance with ICAO Annex 19 principles for the protection of safety data, safety information and related sources; and
- support SSP activities as one of its numerous components.

### **ENCASIA Safety Promotion**

Regulation (EU) No 996/2010 established the European Network of Civil Aviation Safety Investigation Authorities (ENCASIA) and has put strong emphasis on the coordination between Safety Investigation Authorities (SIA) and its reinforcement in the European context, in order to generate real added value in aviation safety. This is to be achieved by building upon the already existing cooperation between such authorities and the investigation resources available in the Member States.

The primary objective is to ensure that any major civil aviation accident, wherever it occurs in Europe, would be properly investigated and a comprehensive final report published so that lessons to prevent reoccurrence will be learned and shared. More globally, SIAs should be able, in each Member State, to conduct efficient and independent investigations and contribute to the prevention of accidents through their activities. ENCASIA is composed of the Heads of the SIAs in each of the Member States and / or, in the case of a multimodal authority, the Head of its Aviation Branch, or their representatives, including a Chairman chosen among these for a period of three years.

The 2017 ENCASIA Annual Work Programme included the following activities:

- Management of the 'Network communication and Internet presence'.
- Update of the inventory of 'best / good practices' for Safety Investigation Authorities in Europe.
- Establishment of an inventory of safety investigation resources / capabilities available in EU Member States; reinforcement of procedures / automated tool for sharing these resources / capabilities; providing assistance between the EU authorities, on the basis of the experience learned from previous workshops related to the response to a major accident. This activity will lead to the publication of training and guidance material.
- Coordination of training activities.
- Implementation of the 'Peer Review' programme to help authorities enhance their investigating capabilities.
- Operation of the safety recommendations database by all authorities with the progressive identification of safety recommendations of Union-wide relevance.
- Preparation of a practical guide in the form of a manual or leaflet for victims and their relatives in order to facilitate their understanding of the role and the different phases of a safety investigation, as well as its relationship to the other entities involved in dealing with the accident.

The leaflet for victims and their relatives is available in 23 languages at: [https://ec.europa.eu/transport/modes/air/encasia/activities\\_en](https://ec.europa.eu/transport/modes/air/encasia/activities_en). This group will follow-up matters on family assistance and disseminate the lessons learnt to ENCASIA members.

The 2017 ENCASIA Annual Report related to the implementation of its work programme is available at: <https://ec.europa.eu/transport/sites/transport/files/2017-encasia-report.pdf>

### IAC Safety Promotion

The Interstate Aviation Committee publishes every year a report on flight safety in civil aviation of contracting states of the Intergovernmental Agreement on Civil Aviation and Air Space Use, signed on 30 December 1991. As of December 2017, the States participating in the Agreement are: Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Uzbekistan and Ukraine.

The 2017 edition is available in both Russian and English on the IAC website <http://www.mak-iac.org>

### EUROCONTROL Safety Promotion

SKYclips are a growing collection of short animations of approximately two minutes duration, which focus on a single safety topic in aviation. Recent additions in 2017 include:

Stop Bars	Sensory Illusions
Call Sign Confusion	TCAS – Always Follow The RA
Conditional Clearances	Landing Without ATC Clearance
Controller Blind Spots	Helicopter Somatogravic Illusions

All clips can be accessed via <https://www.skybrary.aero/index.php/Solutions:SKYclips>

Registered users of SKYbrary can make further contributions and / or participate in the discussions. The objective of the SKYbrary website, initiated by EUROCONTROL, is to facilitate the widest possible dissemination and exchange of aviation safety information to, and between aviation professionals in order to raise their awareness of aviation safety related issues. The SKYbrary concept is based primarily on a database of aviation safety information presented in a uniform manner and style, and organised according to aviation safety related topics. Working with the FAA, SKYbrary has uploaded the outputs of the Commercial Aviation Safety Team (CAST) to provide a unique on-line resource of reference material for safety managers.

### EUROCONTROL Safety Analysis Team

The EUROCONTROL Safety Analysis Team has assisted its Member States to improve the coding of ATM-related occurrences and to evaluate the risk posed by such occurrences using the EUROCONTROL Risk Analysis Tool (RAT) Methodology.

In addition, it maintained an active coordination with EASA, Industry and its Member States to ensure that the users of the EUROCONTROL e-TOKAI (Toolkit for ATM Occurrence Investigation) suite of tools would provide the ATM-related occurrences to their regulators in an ADREP compatible format in line with the requirements of Regulation (EU) No. 376/2014.

### IFALPA Safety Promotion

IFALPA publishes Position Papers on a number of issues that have an effect of air safety. Position Statements are divided into subject categories:

Accident Analysis & Prevention	Helicopter
Aircraft Design & Operation	Human Performance
Airport Issues	Licensing
Air Traffic Management	Security
Dangerous Goods	

In 2017, the following positions were posted on <http://www.ifalpa.org/publications/ifalpa-statements.html>

- 17POS10 - PED Smoke or Fire Response Kit
- 17POS09 - Head-Up Display (HUD) & Vision Systems
- 17POS08 - Unmanned Aircraft Systems

- 17POS07 - Pilot Assistance Programs
- 17POS05 - UAS Security

### **France Safety Promotion – “Veille Sécurité” a simple tool to foster safety awareness**

Safety promotion is one of the levers offered to States to develop a positive safety culture among civil aviation operators and State agencies. The need for safety awareness is mentioned at article 3.5 of the second edition of Annex 19 to the Chicago Convention, which recommends « the sharing and exchange of safety information » to States. Through the years, DGAC of France has developed different tools to fulfill this recommendation. The first tool that was developed is a safety bulletin, called “Objectif SECURITE”, targeting the French aviation operators and dealing with safety issues deemed of interest at the time of publication. A safety information vector more specifically aimed at the DGAC agents seemed however to be missing. This gap was filled through the development of « Veille Sécurité » (Safety Watch). In short, Veille Sécurité is a weekly digest of safety information gathered by a dedicated DGAC agent, sent as an e-mail to DGAC staff whose activities are related to safety. More precisely, this digest is comprised of links to documents of interest related to aviation safety (e.g. investigation reports, safety studies) available on the internet. A title and a short abstract of each document – stressing the lessons to be learned – accompany each link, so recipients may quickly decide to explore further or not the described matter. Besides these documents, each Veille Sécurité contains a de-identified safety occurrence selected among the safety reports sent to DGAC by French operators.

### **Air Astana regional workshop on flight safety**

In October 2017 Air Astana held its third regional workshop on flight safety, ‘High-quality Safety Risks Management’, in Almaty. Speakers from IATA, ICAO, Airbus and other international organizations presented various SMS-related issues. Participants from Kazakhstan as well as Russia, China, Tajikistan, Kyrgyzstan, Canada, the UAE and EU Member States took part in the seminar. The goal of the event was to let the participants exchange relevant knowledge and experience and get insights on how to improve flight safety management systems and risk management.

## **5.7. Initiatives addressing UAS integration**

### **EUROCONTROL UAS ATM webinars**

The UAS industry is growing, as do the UAS activities. Therefore, the primary goal is to ensure that the level of safety for UAS operations is the same to that of manned aviation. All efforts are being made and thus, EUROCONTROL is running several initiatives in close collaboration with stakeholders, to tackle the issue of safely integrating UAS into airspace. EUROCONTROL organises three series of webinars concentrating on three topics: Airspace Assessment, Common Altitude Reference Systems and Flight Rules to create guidance material to make them part of the implementation manual, which will be a joint EUROCONTROL – EASA document. These deliverables are fully mature now and awaiting EASA’s review, which is expected to be finished in summer 2018.

### **EU Network of U-Space Demonstrators**

Following a request by the European Commission, the SESAR Joint Undertaking (SJU) announced its blueprint to use drones in low-level airspace. However, drones’ operations must be safe, secure and environmentally friendly. The U-Space aims at putting together all the services needed to develop a strong and dynamic EU drone market. As there are numerous U-Space related projects across Europe, the Commission proposed to set-up an “EU U-Space Network” to trigger all innovative businesses and service opportunities in the drone marketplace, especially for Beyond Visual Line of Sight (BVLOS) and automated operations. This is the reason why the “EU Network of U-Space Demonstrators” was created to promote the safe operations of RPAS through the exchange of experiences. The role of EUROCONTROL is to be part of a Support Cell, along with EASA and the SJU, as there is a need to move from the technical demonstrations to business applications. The deliverables will be in the form of an inventory to have access to all projects within this EU Demonstrator network where all the information will be available to all the States through an on-line platform.

## Appendix – List of Accidents

### List of accidents involving aircraft of maximum mass of over 2 250 kg that have occurred in 2017 in one of the States of the accredited area of the ICAO EUR/NAT Regional Office

Note: Accidents involving scheduled commercial operations with aircraft of maximum mass of over 5700 kg are shaded in grey in the table below.

Date of Occurrence	State Of Occurrence	Aircraft Type	Max. Mass (kg)	Phase Of Flight	Fatalities	Occurrence Category	Description
14-Jan-17	United Kingdom	BOEING 737	78220	En Route	0	TURB	Overspeed event during descent to Manchester Airport.
16-Jan-17	Kyrgyzstan	BOEING 747	447696	Approach	39	CFIT	Collision with the ground during approach in low visibility conditions.
23-Feb-17	Netherlands	DE HAVILLAND CANADA DHC-8	29260	Landing	0	ARC	Main landing gear collapsed during landing roll at Amsterdam-Schiphol International Airport (AMS/EHAM). The aircraft came to rest on the runway with the right hand wing tip contacting the ground.
25-Feb-17	France	PILATUS PC-12	4740	Landing	0	USOS	The aircraft hit a mound before the runway threshold while landing at Courchevel altiport.
03-Mar-17	United Kingdom	AIRBUS A320	77000	Taxi	0	GCOL	Towbar shear pins fractured during pushback and tug subsequently collided with the aircraft at Manchester Airport.
27-Mar-17	Slovakia	LET L-29 Delfin	3540	Landing	0	ARC	Gear-up landing.
06-Apr-17	United Kingdom	DE HAVILLAND CANADA DHC-8	29260	Standing	0	GCOL	Aircraft struck by ground service vehicle. Front cargo door and fuselage damaged.
10-Apr-17	Spain	BOEING 757	122470	Landing	0	ARC	Tail strike on landing at Alicante Airport in Spain.
11-Apr-17	Austria	GULFSTREAM GIV-X (G450)	41277	Landing	0	ARC	The nose landing gear collapsed after landing at the Salzburg Airport.
17-Apr-17	Portugal	PIPER PA-31T	4082	Climb	5	LOC-I	Loss of control after takeoff - Collision with Terrain.
16-May-17	France	AYRES S2	3130	En Route	0	SCF-PP	Engine failure during aerial work. Emergency water landing in a lake near Montpellier.
17-May-17	United Kingdom	CESSNA 525 CITATIONJET	5625	Landing	0	RE	The pilot reported that after landing at Gloucestershire Airfield, the aircraft brakes were inoperative. He steered the aircraft off the runway to a clear grassy area on the right hand side, where it came to rest. The aircraft sustained minor dents on the right main landing gear door and on the right flap.
26-May-17	Ireland	ATR ATR72	22000	Standing	0	RAMP	At 17.55 hrs on the 26 May 2017, the ATR 72 aircraft landed at Cork Airport (EICK) following a scheduled flight from Manchester (EGCC). During disembarkation a passenger fell from the top of the passenger door stairs to the ground. The passenger sustained.



11-Jun-17	France	SUPERMARINE SPITFIRE	3976	Take-off	0	LOC-G	The aircraft tilted forward onto its nose and then flipped over onto its back during the takeoff roll from Longuyon - Villette airport during an open house event at the airfield, projection of debris into the public.
15-Jun-17	United Kingdom	CESSNA 510 CITATION	3921	Standing	0	GCOL	The aircraft rolled forward from its parked position and struck a fuel bowser when the chocks were removed without hydraulic pressure in the brake system.
16-Jun-17	United Kingdom	SUPERMARINE SPITFIRE	3976	Approach	0	ARC	Immediately after touchdown at Sywell Aerodrome, the landing gear retracted and the propeller struck the ground, breaking all four blades. The aircraft slid for a short distance before coming to rest on the runway.
30-Jun-17	United Kingdom	PIPER PA-23 AZTEC	2360	Landing	0	ARC	Landing with the nose landing gear partially extended at Shoreham Airport, Sussex.
09-Jul-17	United Kingdom	NORTH AMERICAN MUSTANG P-51	5490	En Route	0	SCF-PP	The engine stopped without warning during the latter stages of an air display at Duxford Aerodrome and after it restarted and stopped several times, the pilot concluded he would be unable to return to the airfield. The aircraft sustained damage after a forced landing in a cornfield.
26-Jul-17	Greece	RAYTHEON HAWKER 850XP	12700	Landing	0	ARC	During landing procedure the a/c had an abnormal landing surface contact at Mykonos airport , which caused a substantial damage to the left wing of the a/c.
03-Aug-17	Spain	AIR TRACTOR AT-400	3000	Take-off	0	RE	Runway overrun upon take-off from Huerta de la Arena airport.
19-Aug-17	United Kingdom	CESSNA 208 CARAVAN	3970	Landing	0	WSTRW	Possible windshear on landing at Netheravon.
02-Sep-17	Russian Federation	ANTONOV AN-2	5500	Maneuvering	2	LOC-I	Loss of control in flight during aerobatics display flight at Chernoye airport.
06-Sep-17	United Kingdom	PIPER PA-31T	4082	Landing	1	UNK	The aircraft crashed while landing at Caernarfon Airport.
21-Sep-17	Turkey	CESSNA 650 CITATION VII	10455	Landing	0	RE	Runway excursion while attempting to land on runway 35L at Istanbul-Atatürk International Airport, post impact fire.
23-Sep-17	United Kingdom	NORTH AMERICAN MUSTANG P-51	5490	Maneuvering	0	MAC	Mid-air Collision at Duxford Airfield, Cambridgeshire during an air show.
26-Sep-17	Czechia	CESSNA 421	3379	En Route	2	LOC-I	Aircraft fell fast from its altitude and disappeared from radar.
28-Sep-17	Russian Federation	AIRBUS A321	93000	Standing	1	RAMP	Two passengers fell down the stairs while deplaning at Saint Petersburg airport. One passenger was fatally injured.
30-Sep-17	Denmark	AIRBUS A380	569000	En Route	0	SCF-PP	Uncontained engine failure during cruise over the North Atlantic ocean, diversion to Goose Bay (Canada).
03-Oct-17	Kazakhstan	ANTONOV AN-28	7000	En Route	5	UNK	Collision with terrain 28 km WNW of Almaty airport during an ambulance flight.

07-Oct-17	Greece	ATR ATR42	18600	Standing	0	RAMP	During the preparation of the aircraft for departure one member of the ground handling personnel was seriously injured by the rotating propeller of No2 engine on his hand and back.
18-Oct-17	Spain	BOEING 737	78220	Approach	0	TURB	Injury to cabin crew while flying through an area of turbulence, after having responded to a TCAS RA during descent to Alicante airport.
27-Oct-17	United Kingdom	SUPERMARINE SPITFIRE	3976	Landing	0	ARC	While flaring to land on a grass runway at Goodwood Aerodrome, the aircraft rolled left and the left wing tip and the pitot mast made ground contact before the pilot made an appropriate correction and completed the landing.
29-Oct-17	Germany	CESSNA 550 CITATION II	6849	Landing	0	RE	Aircraft overrun the RWY to the left when it was landing at Bremen airport.
06-Nov-17	Russian Federation	ANTONOV AN-2	5500	Take-off	1	CTOL	Impact with wooded terrain after takeoff from Ekimchan airport.
15-Nov-17	Russian Federation	LET L-410	6400	Approach	6	LOC-I	Un-commanded activation of the beta mode signalization of a propeller during the final approach to Khabarovsk airport, loss of control. See EASA AD: <a href="https://ad.easa.europa.eu/ad/2017-21">https://ad.easa.europa.eu/ad/2017-21</a>
16-Nov-17	France	EMBRAER ERJ-170	38790	Standing	0	RAMP	A passenger slipped while disembarking and was seriously injured.
23-Nov-17	Spain	PILATUS PC-6	2800	Approach	0	SCF-PP	Engine failure during the approach to Empuriabrava airport (Girona), off field landing.
27-Nov-17	France	EMBRAER LEGACY 500	17200	Landing	0	ARC	The right main landing gear damaged the wing during landing at Paris-Le Bourget airport.
01-Dec-17	United Kingdom	AIRBUS A319	75500	Standing	0	RAMP	Passenger fell down steps during disembarkation at Jersey airport.
14-Dec-17	Germany	CESSNA 510 CITATION	3921	Approach	3	LOC-I	During interception of the instrument approach ILS RWY 24 for a landing at Friedrichshafen Airport (EDNY) the airplane suddenly lost altitude, collided with trees, and crashed into a forest.
19-Dec-17	Russian Federation	ANTONOV TVS-2MS	5500	Take-off	4	LOC-I	Loss of control right after takeoff, collision with the ground.

## Glossary

ACI	Airport Council International
ANSP	Air Navigation Service Provider
ATCO	Air Traffic Controller
CANSO	Civil Air Navigation Services Organisation
CE	Critical Element
CFIT	Controlled Flight into Terrain
CTOL	Collision with Obstacle(s) During Takeoff and Landing
EASA	European Aviation Agency
EGPWS	Enhanced Ground Proximity Warning System
ENCASIA	European Network of Civil Aviation Safety Investigation Authorities
EPAS	European Plan for Aviation Safety
FAA	Federal Aviation Administration (USA)
FATA	Federal Air Transport Agency (Russian Federation)
GAQ	Gap Analysis Question
GASP	Global Aviation Safety Plan
IAC	Interstate Aviation Committee
IATA	International Air Transport Association
ICVM	ICAO Coordinated Validation Mission
IE-REST	ICAO-EUR Regional Expert Safety Team
IFALPA	International Federation of Air Line Pilots' Associations
IOSA	IATA Operational Safety Audit
ISRALPA	Israel Air Line Pilots Association
iSTARS	integrated Safety Trend Analysis and Reporting System
LOC-I	Loss of Control In-Flight
NCLB	No Country Left Behind
OJT	On-the-Job Training
PQ	Protocol Question
RASG-EUR	Regional Aviation Safety Group Europe
RMA	Regional Monitoring Agency
RMT	Rule Making Task
RPAS	Remotely Piloted Aircraft Systems
RST	Runway Safety Team
SEI	Safety Enhancement Initiatives
SSC	Significant Safety Concern
SSP	State Safety Programme
TAWS	Terrain Awareness Warning System
TCAS RA	Traffic Collision Avoidance System Resolution Advisory
UAS	Unmanned Aircraft System
UPRT	Upset Prevention and Recovery Training
USOAP CMA	Universal Safety Oversight Audit Programme Continuous Monitoring Approach

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