EASA
European Union Aviation Safety Agency

THE ANNUAL SAFETY REVIEW SUMMARY REPORT 2019

Foreword

The aviation community must continue to work relentlessly and tirelessly to improve our safety level globally. We can never afford to be complacent.

2018 offered us a stark reminder of this. Following the "safest year, ever" for commercial aviation in 2017, last year's operations resulted in 586 fatalities out of a total of 4.3 billion passengers transported. For European air carriers alone, the results were more positive, with no fatal accidents and over 1.1 billion passengers.

The aviation industry has put together a systematic and comprehensive safety reporting scheme, which enables us to learn from accidents, but also from incidents where loss of life was avoided. The advent of big data analysis, such as the EASA Data4Safety (D4S) project, means we can go one step further and identify trends even before they generate potentially unsafe conditions.

This year's safety review has been structured in a way that identifies the key areas of risks and proposed improvements that can increase the level of safety for each type activity. In the area of aerodromes and ground handling, for example, "aircraft movement under its own power" has been identified as the biggest contributor to the risk of collisions on the ground. This issue is now being analysed with a view to developing safety actions that can be published in the European Plan for Aviation Safety.

These reviews are important as they allow the setting of safety actions and priorities, not only for EASA, but for all the different actors of the aviation supply chain. Because aviation safety is not the responsibility of only one actor, it is the duty of all.

Patrick Ky
Executive Director

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Sharing the facts about the aviation safety performance

EASA's mission is to ensure the highest common level of safety protection for EU citizens. We achieve this by working hand-in-hand with the aviation community to create safer environments both in the air and on the ground.

As well as being responsible for your continued safety, our duty is to provide you with a detailed breakdown of European safety performance, year-on-year. This is the very purpose of this document.

Who is this summary for?

This summary is designed to provide an overall view of the current safety picture. In other words, it is a high-level view of the aviation safety performance achieved for the year 2018 and what this means for the overall current aviation safety risk picture.

The document provides an overview of European safety performance across all the operational domains in aviation. In addition, it takes a more detailed look at the Commercial Aeroplanes domain, which covers Airline and Air Taxi operations, and also provides additional intelligence reports for the ATM/ANS domain. A new addition is the review of the implementation of safety regulations in EASA Member States.

How does EASA build the Risk Picture of the Aviation Safety Performance?

In this summary document, EASA brings together safety intelligence from the following sources:

(i) the Annual Safety Review (ASR), which is a reflection of the safety reports or occurrences,

(ii) the Annual Safety Recommendations Review (ASRR), which is a review of the Safety Recommendations issued by the Safety Investigation Authorities,

(iii) other available information to measure aviation safety performance achieved by EASA Member States (MS) including standardisation activity.

A collaborative effort with the safety partners

The overall intelligence picture is a result of the combined efforts of various collaborative groups and activities coordinated by the Agency. These groups are made up of:

- the Network of Analysts, which provides a way to coordinate with all the EASA MS authorities.
- a variety of domain Collaborative Analysis Groups (CAGs).

Together, the different groups have reviewed and analysed thousands of occurrences coming from EASA's occurrence database and from the European Central Repository (ECR). This analysis activity has helped to create a consolidated risk picture that identifies the safety priorities and associated safety issues for each of the aviation domains.

This collaborative analysis work is a key part of the Safety Risk Management process (that is, in simple words, a Safety Management System at European level). The information and results feed directly into the European Plan for Aviation Safety (EPAS). The EPAS then identifies the most important mitigations to help manage the risk associated with the safety priorities.

AN OVERVIEW OF AVIATION SAFETY PERFORMANCE IN 2018

Cross Domain Safety Performance Overview

The differing risks and operational environments in each aviation domain can make it difficult to compare safety risks meaningfully. In order to review the safety performance of each aviation domain, the annual safety review provides a high-level, cross-domain overview of fatal accidents and fatalities involving EASA MS aviation.

For the aircraft chapters (aeroplanes, rotorcraft, balloons and gliders), the definition relates to aircraft operated by an EASA member state AOC holder or registered in an EASA Member State.

The comparison shows mixed results in 2018, with domains such as CAT aeroplanes and offshore helicopters having lower than average figures but non-commercial aeroplane operations, NCC business operations and on-shore helicopters all higher than average.

In 2018, the highest number of fatal accidents and fatalities occurred in non-commercial aeroplanes (General Aviation). There were no fatalities or fatal accidents involving EASA MS-operated or registered aircraft in the domains of CAT Aeroplanes, Offshore Helicopters and Balloons.

Table 1 *Cross domain comparison of EASA MS aircraft fatal accidents and fatalities, 2008-2018*

AIRCRAFT DOMAIN	Fatal Accidents 2018	Fatal Accidents 2008-2017 Mean	Fatalities 2018	Fatalities 2008-2017 Mean	Fatalities 2008-2017 Median
AEROPLANES					
CAT Airlines	0	0.8	0	66.1	4.0
NCC Business	1	0.4	1	0.9	0
Specialised Operations	6	6.8	7	13.8	13.0
Non-commercial Operations	49	47.1	95	86.0	82.0
HELICOPTERS					
Offshore CAT	0	0.4	0	3.6	0
Onshore CAT	2	1.6	8	5.2	6.0
Specialised Operations	2	3.8	2	7.1	6.5
Non-commercial Operations	6	5.5	15	11.8	10.5
BALLOONS	0	1.3	0	2.2	1.0
SAILPLANES	16	24.9	17	28.6	29.0

Table 1 shows the number of fatal accidents and fatalities in 2018 compared with the yearly mean and median averages for the previous 10 years (2008-2017).

A separate table has been used for aerodromes and ground handling and ATM/ANS, reflecting the fact that the definition here is different: it includes all fatal accidents and fatalities that happened at aerodromes or in airspace in an EASA member state. Therefore the infrastructure table not only counts fatal accidents and fatalities that are already in the table for the aircraft domains, but also some that involve operators or aircraft registered outside of a member state.

Table 2 *Cross domain comparison of EASA MS infrastructure fatal accidents and fatalities, 2008-2018*

INFRASTRUCTURE DOMAIN	Fatal Accidents 2018	Fatal Accidents 2008-2017 Mean	Fatalities 2018	Fatalities 2008-2017 Mean	Fatalities 2008-2017 Median
AERODROME AND GROUND HANDLING	0	0.7	0	1.7	0.5
AIR TRAFFIC MANAGEMENT & AIR NAVIGATION SERVICES	2	0.7	12	2.4	0.5

WORLDWIDE COMMERCIAL AIR TRANSPORT

Airlines, Cargo and Air Taxi

European citizens fly all over the world and with airlines from many different countries. The Agency therefore monitors global airline safety annually and also uses this monitoring to put its performance in context.

At global level there were 14 fatal accidents and 586 fatalities in 2018. This is compared with an average of 512 fatalities per year over the preceding decade (2008-2017). In 2018, there were no fatal accidents[1] involving an airline from the EASA Member States (MS).

The graphs in Figure 1 show the number of fatal accidents over the past 11 years (left) and the number of fatalities (right). The graphs also highlight those that involve an operator from the EASA MS. An 11-year time span is chosen to cover the current year and the previous 10 years to enable comparison with the 10-year average.

[1] There were 20 fatalities in the crash of a Junker-52 crash (August 4th 2018). It is not included in these statistics as the aircraft type is not EASA-certified as it falls into the scope of Annex I of Regulation 2018/1139. The flight was also designated as a sightseeing flight and not an airline or air taxi operation.

Figure 1 *Number of fatal accidents and fatalities involving large aeroplane passenger and cargo operations, EASA MS and rest of the world, 2008-2018*

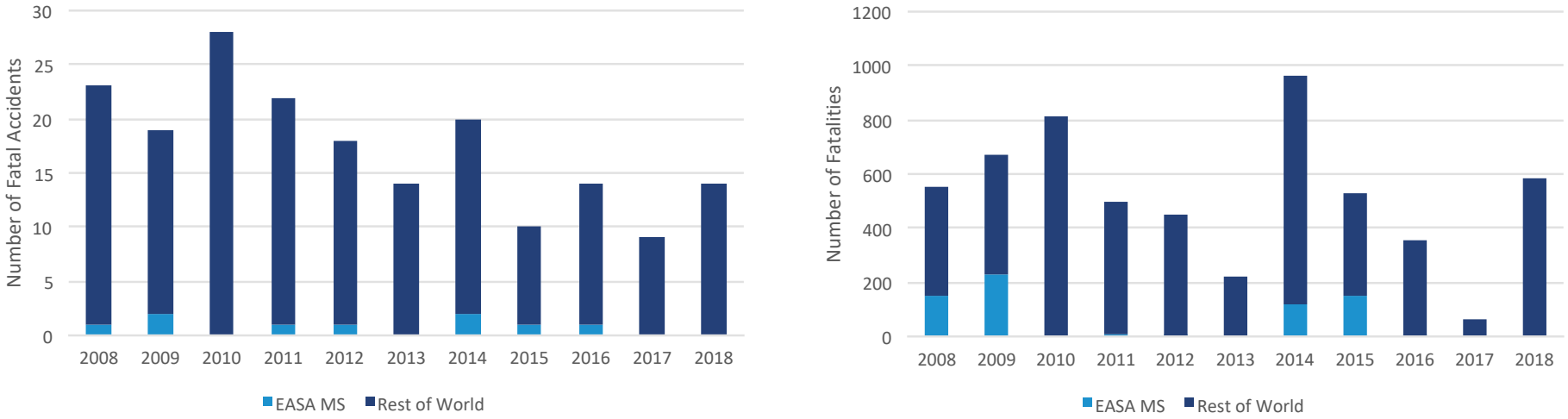
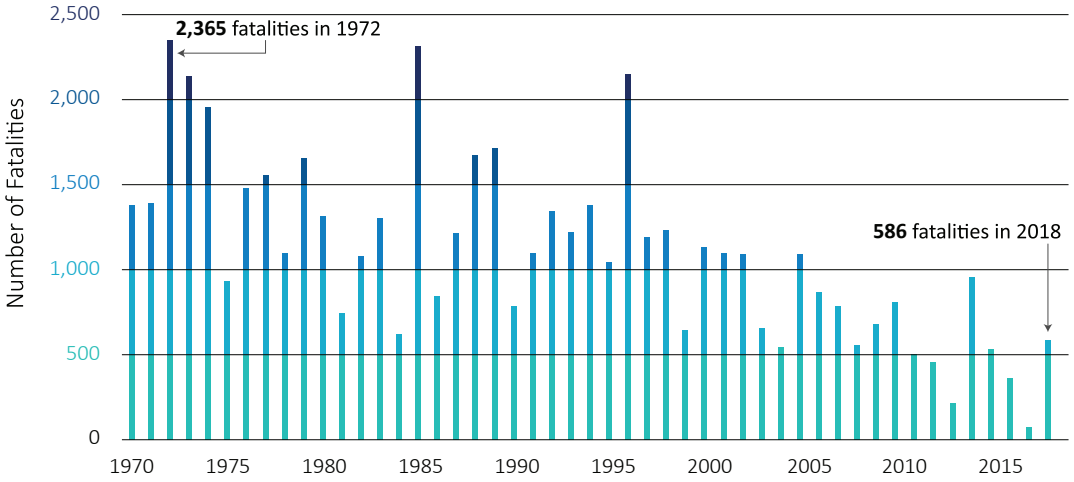


Figure 2 *Number of fatalities involving large aeroplane passenger and cargo operations worldwide, 1970-2018*



While the number of fatalities is higher than the past few years, the Figure 2 shows the long-term improvement in aviation safety since the 1970s. The number of fatalities in 2018 is less than a quarter of the level in 1972.

COMMERCIAL AIR TRANSPORT

Airlines, Cargo and Air Taxi

The report now focusses on the intelligence picture for EASA MS Operators of airline passenger/cargo and Air-Taxi with aeroplanes that have a maximum take-off weight above 5700 kg.

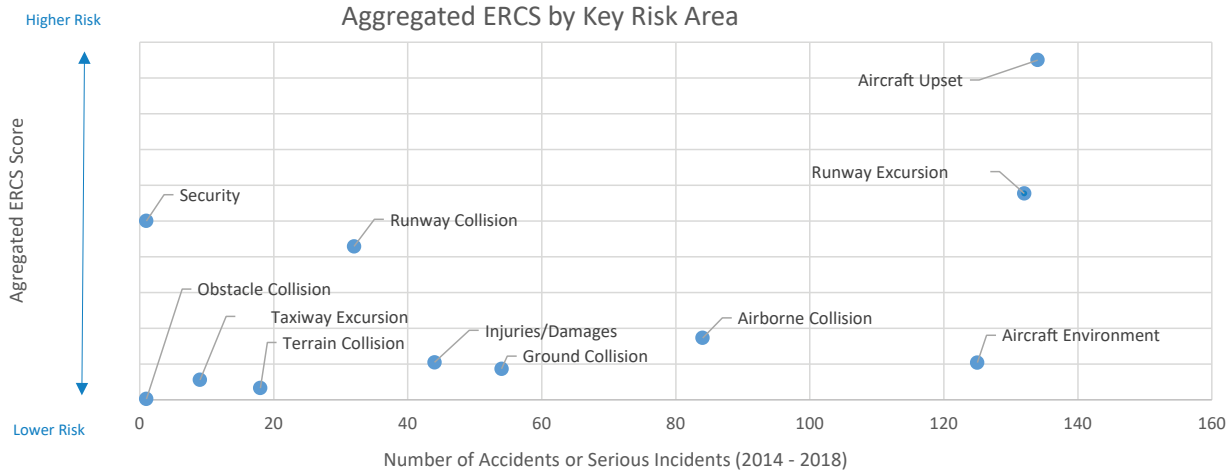
Safety Priorities for CAT Aeroplane Operations

Analysis of the real or potential outcomes from all accidents and serious incidents that occurred between 2014 and 2018 (past 5 years) has identified the Key Risk Areas that are the strategic priorities for our safety efforts at European Level. These priorities are established using the European Risk Classification Scheme (ERCS) score for each occurrence that identifies the potential severity if the occurrence were to escalate to an accident situation and then how close the occurrence was to that accident.

In order to reduce the risk of accidents in all the Key Risk Areas, further analysis is carried out to identify the most important causal and contributory factors. This analysis integrates information from accidents and serious incidents as well other occurrences collected under Regulation (EU) 376/2014, safety recommendations, standardisation activities and expert input from the Network of Analysts (NoA) with the member states and then Collaborative Analysis Groups (CAGs) that involve industry and national authorities.

- **Aircraft Upset (Loss of Control)**
- **Runway Excursion**
- **Security**
- **Runway Collision**
- **Airborne Collision**
- **Injuries/Damage**
- **Aircraft Environment**
- **Ground Collision**

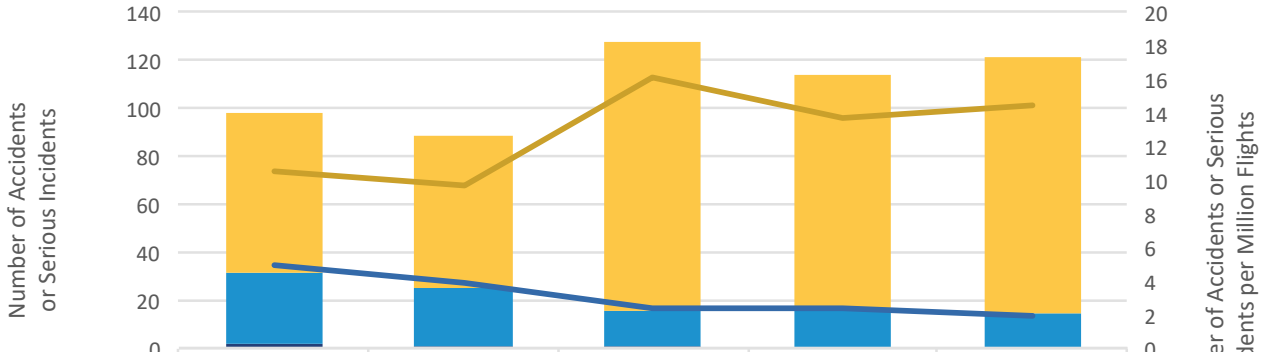
Figure 3 *Number of CAT airline and air taxi accidents and serious incidents by key risk area, compared to aggregated risk, 2014-2018*



Rates of accidents and serious incidents

It is important to use the rates of accidents and serious incidents to compare with the number of flights that have been made each year. The rate of accidents has decreased continually since 2014, while the rate of serious incidents has stabilised after a peak in 2016. This peak is the result of the more stringent classification of separation minima infringements by the Safety Investigation Authorities over recent years.

Figure 4 *Distribution of CAT airline and air taxi accidents and serious incidents, and their rates for the period 2014 – 2018*

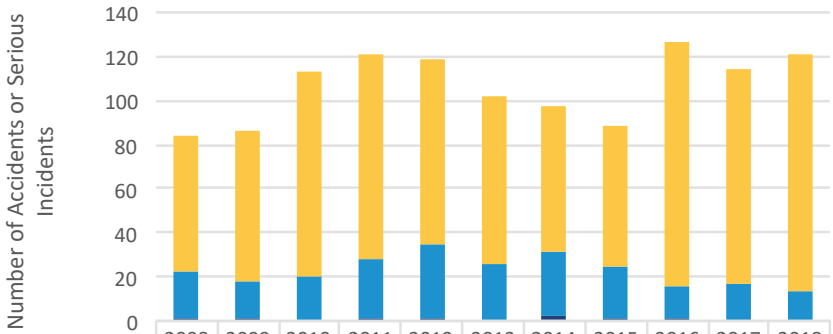


	2014	2015	2016	2017	2018
Serious Incident	67	63	111	97	107
Non-Fatal Accident	29	24	15	17	14
Fatal Accident	2	1	1	0	0
Serious Incident Rate	10,54	9,66	16,09	13,61	14,47
Accident Rate	4,88	3,83	2,32	2,38	1,89

Key Statistics

In 2018, there were no fatal accidents involving a European CAT AOC holder and the number of non-fatal accidents was lower than the average of the previous 10-year period. In 2018, there was an increase in serious incidents in comparison with the average of the previous 10-year period.

Figure 5 *CAT airline and air taxi fatal accidents, accidents and serious incidents for the period 2008 - 2018*



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Serious Incident	61	68	93	93	84	76	67	63	111	97	107
Non-Fatal Accident	22	17	20	27	34	26	29	24	15	17	14
Fatal Accident	1	1	0	1	1	0	2	1	1	0	0

CAUSES AND ACTIONS TO REDUCE THE RISK OF AIRCRAFT UPSET/LOSS OF CONTROL

Key Risk Area: Aircraft Upset

Otherwise known as Loss of Control, Aircraft upset is a situation when an aircraft leaves its intended flightpath in a way that the flight crew are not able to manage the situation to ensure a safe flight.

This includes situations where:

- control is briefly lost and then recovered
- the aircraft's protection systems prevent an actual loss of control
- there was the potential for such an upset to occur

Priority Safety Issues that are Pre-Cursors to Aircraft Upset/Loss of Control

The analysis and risk assessment of the causes and pre-cursors to Aircraft Upset and Loss of Control occurrences identify a number of priority Safety Issues which are the focus of our safety efforts at European-level. These are:

- Monitoring of flight parameters and automation modes
- Icing in flight
- Convective weather
- Handling of technical failures
- Crew resource management
- Entry of aircraft performance data
- Bird and wildlife strikes
- Wake vortex
- Flight planning and preparation/Flight Plan Deviations and Missed Approach Procedures
- Icing on Ground

Actions Ongoing to Reduce the Risk of Aircraft Upset/Loss of Control

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here. Additionally, EASA and our safety partners across the aviation community also perform continual analysis to identify if there is need for further actions.

- Review and promotion of training provisions on recovery from upset scenarios (RMT.0196, 0581 and SPT.012).
- Unintended or inappropriate rudder usage – rudder reversals (RMT.0397 – now complete).
- Modernise the European pilot training system and improve the supply of competent flight instructors (RMT.0194).
- Introduce evidence and competency evidence-based training (RMT.0599 and SPT.012).
- Ice crystal detection and icing hazards of super cooled large droplets (RES.010 and RES.017).
- Effectiveness of flight time limitations (FTL) (RES.006).
- Evaluation on effectiveness of the provisions for support programmes, the psychological assessment of flight crew and the testing of psychoactive substances (EVT.0011).
- EASA MS to address loss of control by taking actions at national level and measuring their effectiveness (MST.028).

CAUSES AND ACTIONS TO REDUCE THE RISK OF RUNWAY EXCURSIONS

Key Risk Area: Runway Excursion

A Runway Excursion happens when an aircraft either veers off the side of the runway or overruns the end of the runway surface. This can occur during both take-off and landing. This includes situations where there is a risk that an excursion may occur but the pilot in control manages to keep the aircraft on the runway.

It involves a range of pre-cursor events that are associated with excursions such as bounced or hard landings as well as the incorrect entry of aircraft performance data.

Priority Safety Issues that are Pre-Cursors to Runway Excursions

The analysis and risk assessment of the causes and pre-cursors to Runway Excursion occurrences identify a number of priority Safety Issues which are the focus of our safety efforts at European-level. These are:

- Aircraft braking and steering
- Handling of technical failures
- Experience, training and competence of flight crews
- Flight planning and preparation
- Inappropriate flight control inputs
- Crew resource management
- Runway surface conditions and provision of weather information
- Convective weather
- Entry of aircraft performance data
- Excessive taxi speeds in manoeuvring areas
- Monitoring of flight parameters and automation modes

Actions Ongoing to Reduce the Risk of Runway Excursions

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here. Additionally, EASA and our safety partners across the aviation community also perform continual analysis to identify if there is need for further actions.

- Require on-board technology to reduce runway excursions (RMT.0570).
- Improve safety in relation to runway surface condition reporting and in-flight assessment of landing performance (RMT.0296 – Opinion 02/2019 published on 22/02/2019).
- Promote and implement the European Action Plan for the Prevention of Runway Excursions (EAPPRE) (RMT.0703).
- Provision of aeronautical data by Aerodrome operators (RMT.0722).
- EASA MS to address loss of control by taking actions at national level and measuring their effectiveness (MST.028).

CAUSES AND ACTIONS TO REDUCE THE RISK OF SECURITY RELATED EVENTS

Key Risk Area: Security

Security covers those criminal or other security-related acts that might result in accidents or incidents. This includes such events as:

- hijacking and/or aircraft theft, interference with a crew member (e.g., unruly passengers), flight control interference, ramp/runway/taxiway security, sabotage, suicide, cyber security situations and acts of war.

This Key Risk Area is very wide-ranging and extends beyond the normal boundaries of the aviation safety regulatory system.

Priority Safety Issues that are Pre-Cursors to Security Related Events

The analysis and risk assessment of the causes and pre-cursors to Security related occurrences identify a number of priority Safety Issues which are the focus of our safety efforts at European level. These are:

- State of wellbeing and fitness for duties
- Cyber security
- Conflict zone risks
- Disruptive/unruly passengers
- Unauthorised drone activity

Actions Ongoing to Reduce the Risk of Security Related Events

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here.

In terms of **cyber security**, EASA signed a Memorandum of Cooperation with the Computer Emergency Response Team (CERT-EU) of the EU institutions on 10 February 2017. EASA and CERT-EU are cooperating in the establishment of a European Centre for Cyber Security in Aviation (ECCSA). Additionally, EASA and our safety partners across the aviation community also perform continual analysis to identify if there is need for further actions.

For **conflict zones**, since the downing of Malaysian Airlines flight MH17, there is a general consensus that States share their information about possible risks and threats in conflict zones. Numerous initiatives have been taken to inform the airlines about risks on their international flights. EASA acts as coordinating entity for activities not falling directly under National or the European Commission's responsibility and initiates the drafting, consultation and publication of Conflict Zone Information Bulletin, based on common EU risk assessment.

After the event at Gatwick/Heathrow Airport in December 2018 involving **unauthorised drone activity** at and around aerodromes, an EASA Counter Drone Task Force was established that proposes the Agency acts as the European coordinator of a roadmap to be developed and implemented with all involved stakeholders.

- Aircraft cyber security and a strategy for cyber security in aviation (RMT.048 and SPT.071).
- Management of information security risks (RMT.0720).
- Cyber security common aeronautical vulnerabilities database (RES.012).
- Safety promotion on disruptive and unruly passengers – #notonmyflight (SPT.100).

CAUSES AND ACTIONS TO REDUCE THE RISK OF RUNWAY COLLISIONS

Key Risk Area: Runway Collision

Runway Collisions are situations where there is an actual or risk of collision between an aircraft and either a) another aircraft or a vehicle or b) other object on the runway itself. This does not include the risk posed by birds, wildlife and other natural phenomena. However, it does include:

- a wide range of pre-cursor situations where an aircraft, vehicle or other object enters an active runway without clearance, regardless of whether an aircraft is taking off or landing at the time.

Priority Safety Issues that are Pre-Cursors to Runway Collisions

The analysis and risk assessment of the causes and pre-cursors to Runway Collision occurrences identify a number of priority Safety Issues which are the focus of our safety efforts at European-level. These are:

- Undetected occupied runway
- High energy runway conflict
- Crew resource management
- Alignment with wrong runway
- Handling of technical failures
- Experience, training and competence of flight crews
- False ILS signal capture
- Communication errors

Actions Ongoing to Reduce the Risk of Runway Collisions

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here. Additionally, EASA and our safety partners across the aviation community also perform continual analysis to identify if there is need for further actions.

- Introduce evidence and competency evidence-based training (RMT.0599 and SPT.012).
- Promote and implement the European Action Plan for the Prevention of Runway Incursions (EAPPRI) (RMT.0703).
- Provision of aeronautical data by Aerodrome operators (RMT.0722).
- EASA MS to address loss of control by taking actions at national level and measuring their effectiveness (MST.028).
- Implementation of SESAR runway safety solutions (MST.029)

CAUSES AND ACTIONS TO REDUCE THE RISK OF AIRBORNE COLLISIONS

Key Risk Area: Airborne Collisions

Airborne Collisions are situations where there is an actual or potential risk of an aircraft colliding with another aircraft or other air vehicle whilst airborne. This includes situations such as:

- airspace infringements, separation-related occurrences caused by either air traffic control or cockpit crew, AIRPROX reports, genuine TCAS/ACAS alerts.

This doesn't include false TCAS/ACAS alerts and collisions with birds and other wildlife whilst the aircraft is airborne.

Potential collisions between aircraft and drones are also included in this Key Risk Area in situations where the drone operation wasn't malicious in nature. Malicious drone activity is covered under the Key Risk Area: Security.

Priority Safety Issues that are Pre-Cursors to Airborne Collisions

The analysis and risk assessment of the causes and pre-cursors to Airborne Collision occurrences identify a number of priority Safety Issues which are the focus of our safety efforts at European level. These are:

- Crew resource management
- Deconfliction between IFR and VFR traffic – specifically between commercial aircraft and general aviation/gliders and other air traffic
- Flight Plan Deviations
- Wake Vortex Encounters
- Aircraft separation from drones
- Aircraft infringements
- Handling of technical failures – particularly transponder failures
- Flight planning and preparation
- TCAS/ACAS RA not followed
- Handling and execution of go-arounds
- Provision of supporting information to front line aviation personnel

Actions Ongoing to Reduce the Risk of Airborne Collisions

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here. Additionally, EASA and our safety partners across the aviation community are currently finalising Safety Issue Assessments (SIAs) and future actions proposals for deconfliction between IFR and VFR traffic and TCAS/ACAS RA not followed.

- Anti-collision and traffic awareness systems for aircraft with a mass less than 5,700 kg or less than 19 passengers (RMT.0376).
- Loss of separation between civil and military aircraft (MST.024).
- Implementation of SESAR solutions aiming to reduce the risk of airborne collisions (RMT.0397 Unintended or inappropriate rudder usage — rudder reversals (now complete).
- SESAR 2020 research projects aiming to prevent airborne collisions (RES.021).
- Develop new safety promotion material on high-profile commercial flight operations safety issues (SPT.101).

CAUSES AND ACTIONS TO REDUCE THE RISK OF INJURIES OR DAMAGE

Key Risk Area: Injuries or Damage

All the Key Risk Areas involve the potential for injuries to people or damage to aircraft or other objects. This category covers situations where there is the risk of injuries or damage without any other accident outcome. In flight, this includes:

- injuries that could occur to passengers or crew during turbulence.
- very rare situations where parts of the aircraft, such as loose panels, might damage the aircraft in flight or pose a risk to people on the ground.

On the ground, this Key Risk Area covers:

- situations where aviation personnel or passengers could be injured on the ground during embarkation or other ground activities such as maintenance or ground handling.

This also covers the potential injuries that might occur during emergency evacuations.

Priority Safety Issues that are Pre-Cursors to Injuries/Damage

The analysis and risk assessment of the causes and pre-cursors to Injuries/Damage identify a number of priority Safety Issues which are the focus of our safety efforts at European-level. These are:

- Convective weather
- Flight planning and preparation
- Clear Air Turbulence
- Control and coordination of turnarounds
- Aircraft maintenance
- Emergency evacuation
- Transport and carriage of lithium batteries
- Experience, training and competence of flight crews

Actions Ongoing to Reduce the Risk of Injuries/Damage

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here. The Key Risk Area of Injuries and Damage is fairly new and therefore some of the safety issues are still undergoing a Safety Issue Assessment (SIA) to identify where future actions are needed.

EASA integrated the 'Weather Information to Pilots' project within the 'All Weather Operations' (AWO) activities (RMT.0379). A project team put together in April 2016 – involving representatives from international organisations, associations and industry – was tasked with an assessment of the situation and this resulted in the 'Weather Information to Pilots Strategy Paper '39 issued in January 2018. The EASA Strategy Paper focuses on the weather phenomena that introduce risk to aviation, describes the current mitigation measures, the deficiencies and how to overcome them.

The main actions already in place within the EPAS are:

- All weather operations and provision of weather information to pilots (RMT.0379).
- Development of requirements for ground handling (RMT.0728).
- Develop new safety promotion material on high-profile commercial flight operations safety issues – to raise awareness with passengers about the carriage of Lithium Batteries and particularly the charging of devices using powerbanks when not in sight (SPT.101).
- Safety promotion on unruly passengers to cover evacuations with cabin baggage (SPT.100).

CAUSES AND ACTIONS TO REDUCE THE RISK OF AIRCRAFT ENVIRONMENT EVENTS

Key Risk Area: Aircraft Environment Events

The Key Risk Area Aircraft Environment Events covers situations that affect the aircraft as an environment in itself. This includes:

- fire, smoke and fumes, as well as events that may affect the pressurised environment within the passenger cabin and crew compartments.
- fire due to a combustion from an accidental ignition source (e.g. electronic devices), aircraft cargo and passenger baggage as well as fire and smoke from aircraft system or component failures/malfunctions in the cockpit, passenger cabin, or cargo area.
- In terms of pressurisation issues, it involves any pre-cursor event that might lead to a depressurisation of the passenger cabin.

Priority Safety Issues that are Pre-Cursors to Aircraft Environment Events

The analysis and risk assessment of the causes and pre-cursors to Aircraft Environment occurrences identify a number of priority Safety Issues which are the focus of our safety efforts at European-level. These are:

- Handling of technical failures
- Fire and Smoke
- Aircraft maintenance
- Crew resource management
- Transport and carriage of lithium batteries
- Experience, training and competence of flight crews

Actions Ongoing to Reduce the Risk of Aircraft Environment Events

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here. Additionally, EASA and our safety partners across the aviation community also perform continual analysis to identify if there is need for further actions.

- Additional airworthiness specifications for operations: fire hazards in Class D Cargo Compartments (RMT.070).
- Rescue and firefighting services (RFFS) at aerodromes (RMT.0589).
- Fire risks caused by portable electronic devices on-board aircraft (RES.016).
- Transport of Lithium Batteries by air (RES.004).
- Research study on cabin and cockpit air quality (RES.003).
- Develop new safety promotion material on high-profile commercial flight operations safety issues – specifically in this case to raise awareness with passengers about the carriage of Lithium Batteries and particularly the charging of devices using powerbanks when not in sight (SPT.101).

CAUSES AND ACTIONS TO REDUCE THE RISK OF GROUND COLLISIONS

Key Risk Area: Ground Collisions

This Key Risk Area takes into account collisions involving an aircraft whilst it is on the ground, anywhere other than a runway that is being used for landing or take-off, which is covered under Runway Collisions. This includes:

- actual or potential collisions between one aircraft and either another aircraft, person, ground vehicle, obstacle, building, structure, etc.
- situations that involve ground handling activities whilst the aircraft is parked.

Priority Safety Issues that are Pre-Cursors to Ground Collisions

The analysis and risk assessment of the causes and pre-cursors to Ground Collisions occurrences identify a number of priority Safety Issues which are the focus of our safety efforts at European level. These are:

- Experience, training and competence of flight crews
- Excessive taxiing speed in manoeuvring areas
- Perception and situational awareness
- Positioning and securing of ground equipment
- Control and coordination of turnarounds
- Control of airside works
- Condition and serviceability of the aircraft operating environment
- Ground operations in adverse weather conditions
- CRM and operational communications

Actions Ongoing to Reduce the Risk of Ground Collisions

There are a number of EPAS actions in progress that cover the different Safety Issues outlined here. Additionally, EASA and our safety partners across the aviation community also perform continual analysis to identify if there is need for further actions.

- Development of requirements for ground handling (RMT.0728).
- Develop new safety promotion material on high-profile aerodrome and ground handling safety issues (SPT.102).

ATM/ANS SAFETY

In addition to the information on the different Key Risk Areas, it is important to provide an overview of the situation specifically for Air Traffic Management (ATM) and Air Navigation Service (ANS). Commercial Air Transport Operations almost exclusively fly in controlled airspace and always land at an airport with ATC provision. Therefore, understanding the key risks areas and Safety Issues is an important step in managing safety.

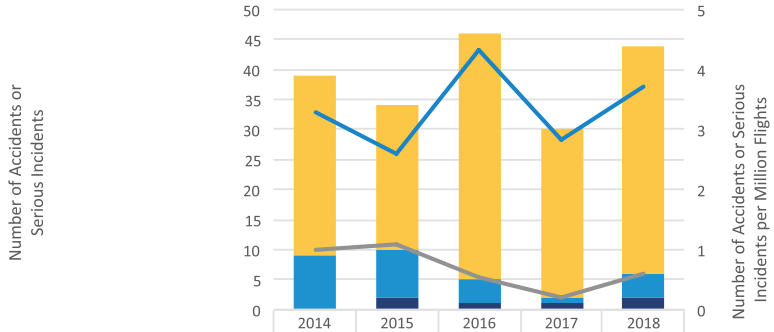
This section covers the situation related to the provision of Air Traffic Management and Air Navigation Services in the EASA MS. It specifically includes ATM/ANS-related intelligence that occurred within an EASA MS as State of Occurrence, involving at least one CAT aircraft, either a fixed wing airplane with MTOW of 2250 kg or above, or a small (CS-27) or large (CS-29) helicopter.

It is worth noting that the accidents and serious incidents mentioned in this section are those related to the provision of ATM/ANS services. This means that the ATM system may or may not have had a contribution to that, but this part of the aviation system has a role in preventing similar occurrences in the future. These are named as “ATM/ANS related”.

Key Statistics

In the last four years, fatal accidents with some relation to ATM/ANS have occurred. These accidents mainly involved helicopters and none of them had ATM/ANS contribution. The last accident with ATM relation that involved only CAT fix-wing aeroplanes occurred in 2012.

Figure 6 *Rates of ATM/ANS related accidents and serious incidents per year, 2014-2018*



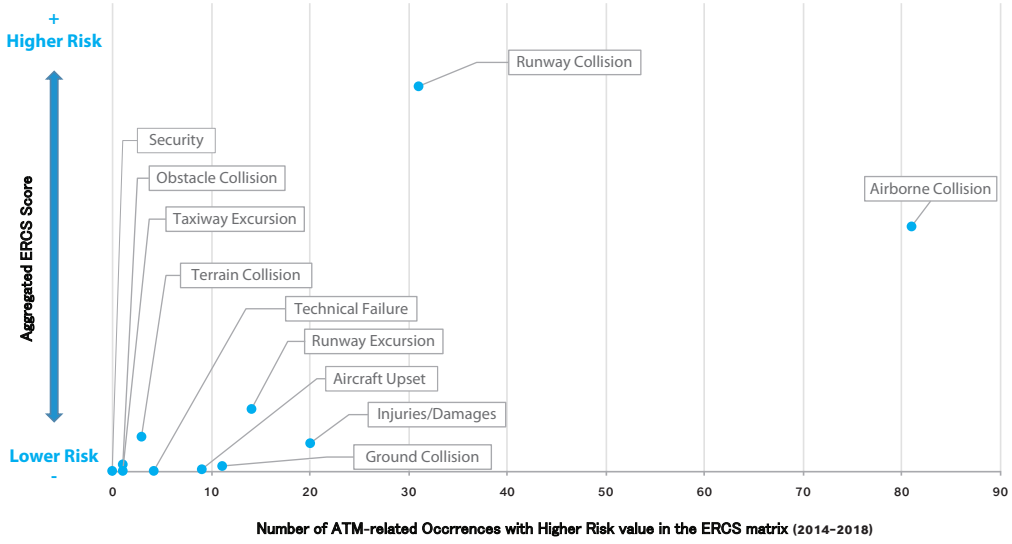
	2014	2015	2016	2017	2018
Serious Incident	30	24	41	28	38
Non-Fatal Accident	9	8	4	1	4
Fatal Accident	0	2	1	1	2
Serious Incident Rate Per Million Flights	3,29	2,60	4,31	2,84	3,72
Accident Rate per Million Flights	0,99	1,08	0,53	0,20	0,59

When looking at those occurrences with some level of contribution of the ATM/ANS services, no fatal accidents have occurred in the last decade, with one non-fatal accident in 2018, after two consecutive years without any accident. The number of serious incidents with ATM/ANS contribution has decreased to a minimum of four in the last decade.

Priority Key Risk Areas and Safety Issues for ATM/ANS

Following assessment of the ATM/ANS related accidents and serious incidents over the last 5 years – classified using the draft European Risk Classification Scheme (ERCS) – the key risk areas can be identified and are shown in Figure 7. The figure depicts the number of higher risk occurrences per key risk area in the x-axis and the aggregated ERCS risk score of those higher risk occurrences for each key risk area in the y-axis, which is used as a proxy of the safety risk associated.

Figure 7 *Number of ATM/ANS related accidents and serious incidents by key risk area, compared to aggregated risk, 2014-2018*



It shows that the top Key Risk Areas in the ATM/ANS domain are:

- Runway Collision
- Airborne Collision
- Runway Excursion
- Terrain Collision
- Injuries/Damage

The safety issues with higher risk scores identified are as follows:

- Undetected Occupied Runway
- Deconfliction IFR vs VFR flights
- Airspace Infringement
- High Energy Runway Conflict
- ACAS RA not Followed
- Provision of Weather Information

The top two safety issues, “undetected occupied runway” and “deconfliction of IFR and VFR flights” are considered to be a high priority from the perspective of both the CAT Aeroplane and the ATM/ANS communities. As such, they are being assessed and managed collaboratively, in order to ensure that the safety mitigations are addressed in the most effective way possible.

Summary of Standardisation Activities

Standardisation activities conducted by EASA rely on a system-oriented Continuous Monitoring Approach (CMA) to monitor the safety performance of the different competent authorities and ensure a harmonised performance. These activities consist of a monitoring part and an inspection part. The monitoring is performed by analysing data from multiple sources to assess the competent authorities' ability to discharge their oversight responsibilities. The inspections are carried out to directly verify the application of the rules on-site. Inspections are prioritised and planned according to a risk-based approach based on the Agency's assessment of the competent authorities.

This report summarizes the Standardisation activities conducted by the European Aviation Safety Agency (EASA) in 2018 in accordance with Commission Standardisation Regulation (EU) No 628/2013[2].

In 2018, EASA conducted 101 inspections, the same number as in the year before. These inspections covered all technical domains, including two new ones, Aerodromes (ADR) and Systemic Enablers for safety management (SYS). A total of 582 findings of non-conformity were raised, including 9 immediate safety concerns (ISCs).

In the domains where EASA has performed standardisation activities for many years, the number of findings reduced by 22%. This reflects an overall improvement in the level of compliance with the EU Aviation Safety Regulations. However, while the total number of findings is reduced, the number of immediate safety concerns has increased, as shown in the graph on the next page (see figures in red).

[2] Commission Implementing Regulation (EU) No 628/2013 of 28 June 2013 on working methods of the European Aviation Safety Agency for conducting Standardisation inspections and for monitoring the application of the rules of Regulation (EC) No 216/2008 of the European Parliament and of the Council and repealing Commission Regulation (EC) No 736/2006 (OJ L 179, 29.6.2013, p. 46).

Figure 8 *Number of standardisation findings, 2012 - 2018*

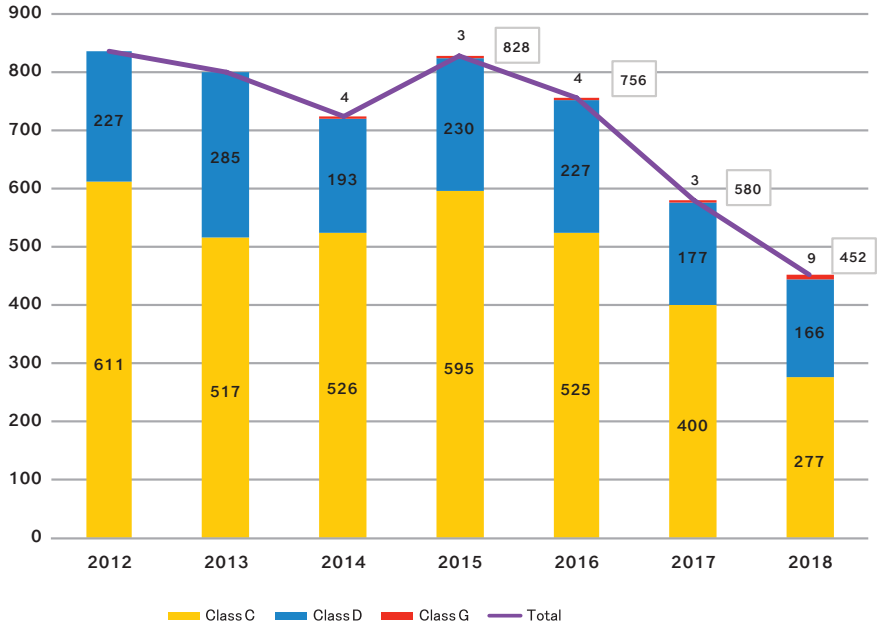
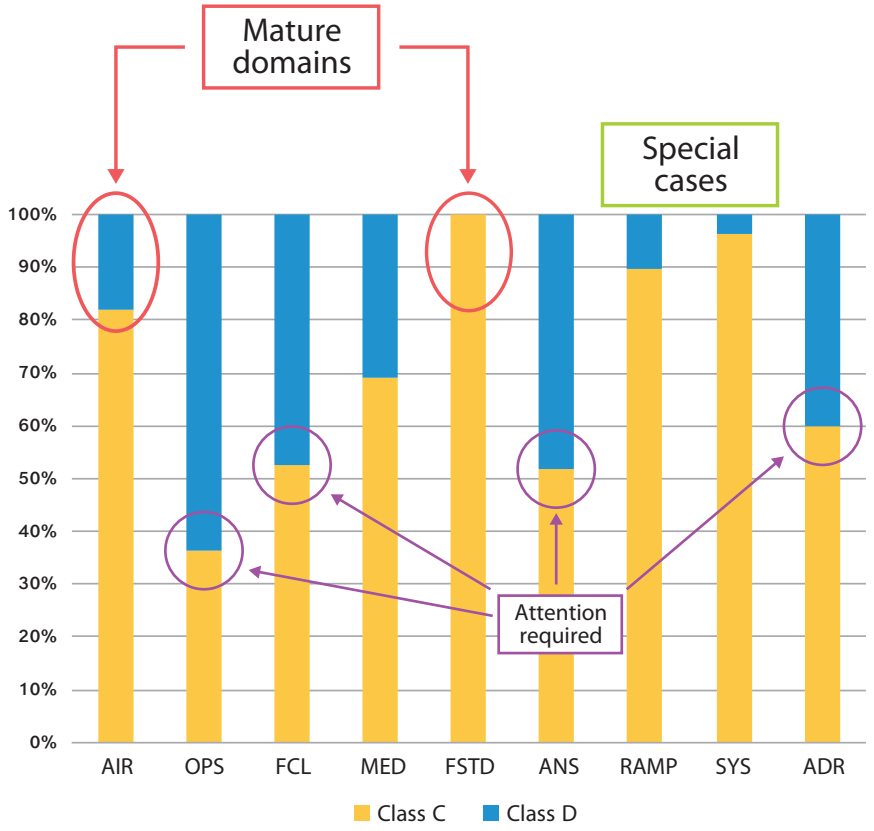


Figure 9 *Class C and D findings by domain*



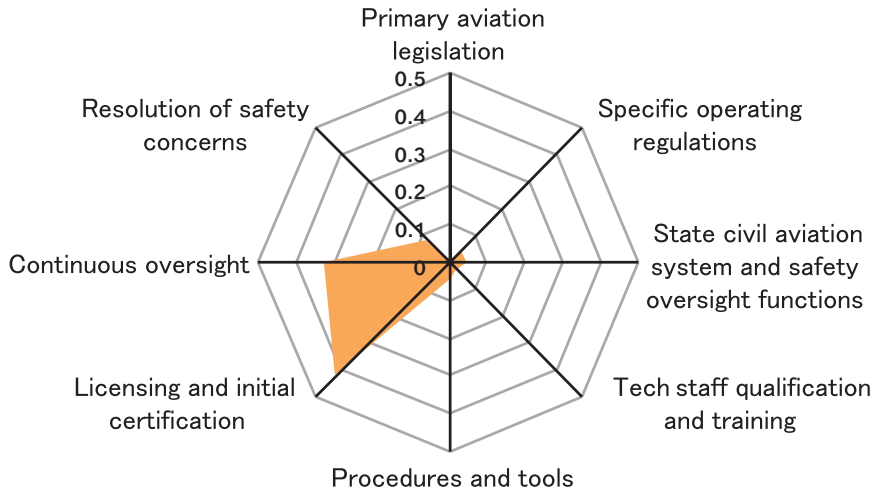
ATM/ANS continues to be among the domains raising concerns, with some Authorities not being able to perform their certification/authorisation tasks due to the lack of competences and resources. Given the fact that ANSPs in Europe, are stronger than the supervising authorities, the lack of competence of the latter could develop as an area of concern.

In the OPS domain, it is worth noting the 6 ISCs, raised in five States, which, even though they were immediately addressed by the Authorities, raise some concern. It is also worth mentioning that in the OPS domain, the number of class D findings is almost twice the amount of C findings, a trend which does not exist in any of the other domains. This may be explained by a higher maturity reached by both National Authorities and EASA, in which findings are less process-oriented but more substance-related.

Class D findings concentrate around a few areas; in particular, around 75% of them (CE-6, 42%; CE-7, 33%)[3] relate to the performance of oversight by the competent authorities, showing that this essential function remains the most challenging across almost all technical domains.

[3] ICAO Critical Elements CE-6: Licensing, certification, authorisation and approval obligations; 42%, and CE-7: Surveillance obligations; 33%

Figure 10 *Findings by area*



The picture that results from the above findings is not uniform, with regards to both Competent Authorities and technical domains. Some Competent Authorities have reached an acceptable level of maturity, while others continue to have difficulties in meeting the minimum standard in certification and oversight.

Therefore, it is important to continue standardisation efforts from a risk-based perspective and strive to overcome this polarisation in order to ensure the integrity of the European aviation system. Although progress has been noted in the functioning of the Authorities' Management Systems, the oversight of the Management Systems in the industry is still not meeting the expected standard. This slows down the progress towards a more risk- and performance-based oversight for the Competent Authorities.

The use of available data and intelligence to conduct a more effective and better targeted oversight is still sporadic and not widely spread Data analysis, if done, is frequently detached from the oversight performed and only some Authorities show a proactive attitude to mitigate risks. In future standardisation activities there is a need to develop and disseminate best practices in this area.

Finally, some pilot initiatives to provide Implementation Support are having a positive effect, although limited in scope. This may be considered for future developments.

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