Attachment A

EUR
Regional Aviation Safety Plan

2018–2022

Draft

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1 Introduction

1.1 Objectives and principles

The main objective of this Regional Aviation Safety Plan (hereafter Regional Plan) is to create a common focus on regional aviation safety issues as a continuation of the European work to improve aviation safety and to comply with ICAO standards. This approach complements the existing system of developing safety regulations, complying with them and investigating accidents and serious incidents when they occur.

The Regional Plan tries to add a proactive element to the current system by closing the safety management cycle and connecting the safety issues at regional level with the action plans and initiatives launched to mitigate the underlying risks.

The Regional Plan establishes the first layer of priorities which is further complemented at national level by national safety plans and programmes. It builds a network for action, thus coordination and close collaboration are key to keeping it up to date and effective.

The first regional plan covers the five-year period between 2018 and 2022 and will be updated on a yearly basis to cover subsequent 5 year periods. It is a rolling 5-year plan.

The planning activity will be followed up by a reporting activity, in which progress on the actions is evaluated and also documented. This feedback loop ensures that the process to manage risks continuously improves.

1.2 The global aviation safety plan (GASP)

The regional plan implements the objectives and global priorities identified in the GASP.

The universal safety oversight audit programme (USOAP) audits have identified that States' inability to effectively oversee aviation operations remains a global safety concern. For that reason, the GASP objectives call for States to put in place robust and sustainable safety oversight systems and to progressively evolve them into more sophisticated means of managing safety. These objectives are aligned with ICAO's requirements for the implementation of the SSPs by States and safety management systems (SMS) by service providers. The GASP objectives are addressed in section 4.1.1. Safety management.

In addition to the GASP objectives, ICAO has identified high-risk accident categories (global priorities). These categories were initially determined based on an analysis of accident data, for scheduled CAT operations, covering the 2006–2011 time period. Feedback from the regional aviation safety groups (RASGs) indicates that these priorities still applied during the development of the 2017–2019 GASP edition.

Runway safety events were identified as one of the main high-risk accident categories. Runway safety-related events include but are not limited to: abnormal runway contact, bird strikes, ground collisions, events related to damage from ground handling operations, REs, runway incursions (RIs), loss of control on the ground, collision with obstacle(s), and undershoots and overshoots. These safety issues are addressed in sections 4.2.2. Runway safety and 4.2.5. Ground safety.

Loss of control in-flight (LOC-I) and Controlled flight into terrain (CFIT) were identified as the other two high-risk accident categories. These types of accidents 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. These safety issues are addressed in sections 4.2.1. Aircraft upset in flight (LOC-I) and 4.2.6. Terrain conflict.

1.3 The European Aviation Safety Programme (EASP) and Plan (EPAS)

In October 2011, the EC addressed a communication[1] to the Council and the European Parliament called 'Setting up an Aviation Safety Management System for Europe'. The communication set the strategy for aviation safety in Europe for the following years and supported the aim, set out in the Transport White Paper[2], 'to raise the EU aviation safety performance to a level that matches or exceeds the best world standard'.

According to the communication, this is achieved by adding a proactive element to the current EU aviation safety system and publishing annual updates to EPAS detailing progress made in addressing identified safety risks at EU level.

This communication is accompanied by a Commission Staff Working Paper[3] describing the current aviation safety framework at European level prepared jointly by the EC and the Agency: the European Aviation Safety Programme (EASP).

In December 2015, the EC issued a report[4] with the second edition of the European Aviation Safety Programme[5] annexed to it. This new edition takes into consideration the legislative changes occurred since 2011 as well as the evolution of safety management in all areas. In addition, it strengthens safety promotion at EU level and describes the process to update and develop EPAS, giving it a truly European dimension.

This sub-regional safety planning management mechanism of the European Union (EU) and states and the experience gained during its development and implementation are at the core of the draft EUR/NAT Regional Plan for Aviation Safety

1.4 Content and structure of the document

Chapter 1 provides and introduction and defines the objectives of the Regional Plan as well as its relationship with the GASP and EPAS.

Chapter 2 contains the strategic safety priorities, based on the EASA's Strategic Plan and Risk Portfolios

Chapter 3 contains the safety metrics and targets agreed for the EUR region

Chapter 4 presents the safety actions. It is divided in three issue categories, each one addressing the main safety areas and presented in the following sections:

- Section 4.1 addresses **systemic issues.** These issues affect the aviation system as a whole. They play a role in accident and incident causation, underlying operational issues; thus their improvement has an implicit effect on operational causes.
- Section 4.2 addresses **operational issues**. These issues are closely related to the events that are reported during operation. The relationship between this type of issues and the final outcomes or end states can be supported by data.
- Section 4.3 addresses **emerging issues**. This area gives some consideration to safety issues derived from operations or regulations that have not been fully deployed and where data is not always available.

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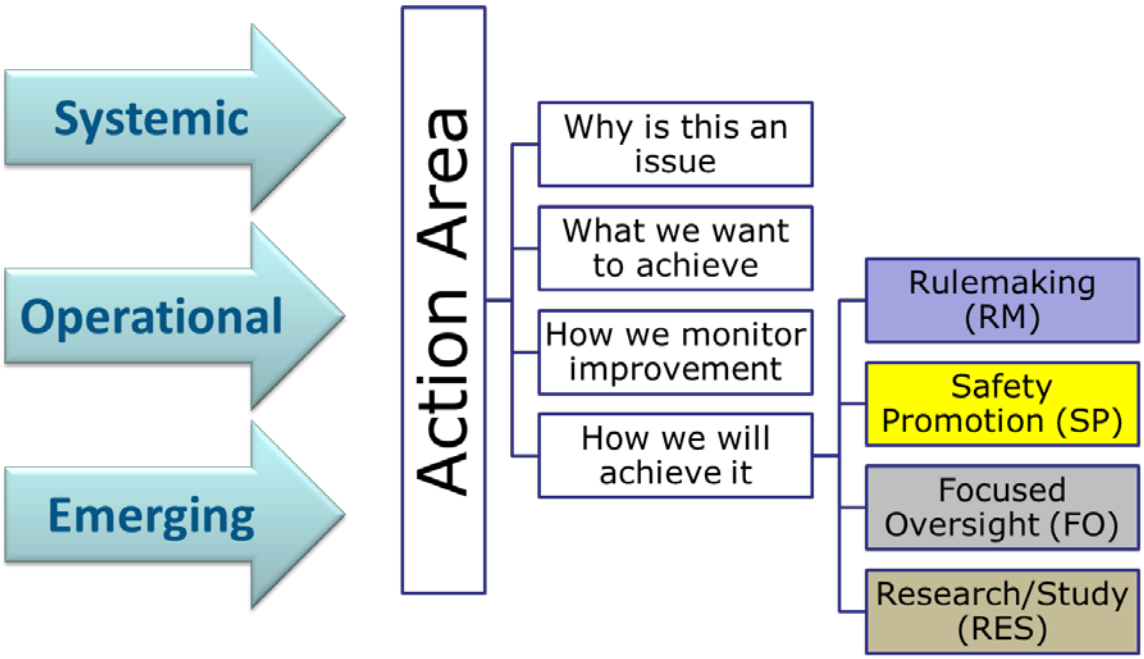
1 COM(2011) 670 final of 25.10.2011 — Setting up an Aviation Safety Management System for Europe.
2 COM(2011) 144 - WHITE PAPER - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system
3 SEC(2011) 1261 final of 25.10.2011 – The European Aviation Safety Programme
4 COM(2015) 599 final of 7.12.2015 – The European Aviation Safety Programme
5 COM(2015)599 final of 7.12.2015 ANNEX 1 – The European Aviation Safety Programme Document 2nd edition

Within each section, the following information is provided:

- rationale behind the safety issue (why it has been identified as an issue);
- what it is to be achieved (objective);
- how we intend to monitor improvement in the future; and
- how we intend to achieve the objective; here, the various actions contributing to mitigate the identified risk in that area are described. The actions include:
    - issuing new or amending existing regulations (RMT)
    - focused oversight activities (FOT)
    - safety promotion (SPT); or
    - launching a research or a study (RES) as depicted below:



The Regional Plan contains also tasks for the Member States to take on-board through their SSPs. These are identified as 'MST' tasks.

2 Strategic priorities

The following strategic priorities are based on the Commissions' Aviation strategy, the EASA strategic plan and the newly developed European Safety Risk Portfolios available in the Annual Safety Review 2017. They highlight those areas of the Regional Plan with higher strategic relevance.

2.1 Safety performance

The EASA Annual Safety Review measures safety performance using 2 specific types of safety performance indicators (SPIs). Firstly, at Tier 1, the overall performance is measured across the different operational domains by considering the number of fatal accidents and fatalities in the previous year against the 10-year average. For 2016, this information is provided below and subdivided in three major domains CAT Aeroplanes, CAT Helicopters and Non-Commercial (General Aviation) activities.

Domain	Fatal Accidents 2016	Fatal Accidents Annual 10 Year Mean	Fatalities 2016	Fatalities Annual 10 Year Mean	Fatalities Annual 10 Year Median
CAT Aeroplanes					
Airline (Passenger/Cargo)	1	0.8	2	66.0	5.0
Other	0	1.4	0	6.4	2.0
SPO Aeroplanes	6	10.7	12	18.6	16.5
CAT Helicopters					
Offshore	1	0.4	13	3.0	0.0
Other	2	0.9	8	2.8	3.5
SPO Helicopters	0	4.1	0	7.4	6.0
Non-Commercial and Other					
NCO Aeroplanes	46	51.4	78	94.4	95.5
NCO Helicopters	9	10.0	11	17.5	17.0
Balloons*	1	2.2	1	4.0	3.0
Gliders	19	26.5	20	31.1	31.0
RPAS	0	0.0	0	0.0	0.0

*Balloon data compares 2016 with the average for the five year period 2011-2015.

One of only two domains with an increase in fatalities in 2016 was Offshore Helicopters, where there was one accident with 13 fatalities. This is the first year that a fatal accident has been recorded in this domain since 2013. The second domain recording an increase was Other CAT Helicopters, where there were 2 HEMS accidents that resulted in 8 fatalities. For the other domains, there has been a reduction in both the number of fatal accidents and fatalities. Due to the low number of fatal accidents in CAT Aeroplanes, the median average is introduced to highlight that while the mean average number of fatalities is high, this is largely due to a small number of large accidents.

The top 5 operational domains in terms of the annual average of the number of fatalities for the past 10 years (2007-2016) are: Non-Commercial Aeroplanes, CAT Aeroplanes Airline (Passenger/Cargo), Gliders/ Sailplanes, SPO Aeroplanes and NCO Helicopters.

The second measure of Tier 2 SPIs monitor safety at an individual domain level. It captures both the Key Risk Areas (Outcomes), helping thus to identify the main areas of focus in each domain, and also identifies the main Safety Issues. More details can be found on the Annual Safety Review 2017

2.2 Systemic safety enablers

Safety management implementation

Management of safety in a systematic and proactive way enables authorities and organisations to set up management systems that take into consideration potential hazards and associated risks before aviation accidents occur. This global move is at the core of ICAO Annex 19, which entered into force in November 2013. Following the entry into force of Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation[6], this safety area will also enable further work to improve reporting processes, occurrence investigation at organisational level and also the continued development of integrated data collection taxonomies. **See Section 4.1.1.**

Human factors and competence of personnel

As new technologies emerge on the market and the complexity of the system continues increasing, it is of key importance to have the right competencies and adapt training methods to cope with new challenges. It is equally important for aviation personnel to take advantage of the safety opportunities presented by new technologies.

The safety actions related to aviation personnel are aimed at introducing competency-based training in all licences and ratings, updating fatigue requirements, and facilitating the availability of adequate personnel in competent authorities (CAs). These actions will contribute to mitigating related safety issues, which play a role in improving safety across all aviation domains. Training and education are considered key enablers. The new strategy for technical training takes this into account in the strategic objective B: Continuously improve the technical competence of Agency staff and manage the harmonisation of training standards for aviation authority staff within the EASA system. **See Section 4.1.2.**

[6] Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007 (OJ L 122, 24.4.2014, p. 18).

2.3 Operational safety

Commercial Air Transport Aeroplanes

The only fatal accident in CAT aeroplane airline operations in 2016 that involved an EASA MS operator was the accident of a Bombardier CRJ-200 performing a cargo flight on 8 January 2016. From the analysis, it can be observed that there was a lower number of non‑fatal accidents involving EASA MS operators in 2016 than the 10-year average, with 16 accidents compared to the average of 23.1 over the previous 10 years. At the same time, there was a 36% increase in the number of serious incidents over the same period resulting in a total of 106 serious incidents compared with the average of 78.2. In terms of fatalities, the single fatal accident resulted in 2 fatalities (the flight crew, the only occupants of the aeroplane), which is much lower than the 10 year average.

This operational domain is the greatest focus of the EASA safety activities and the reorganisation of the collaborative analysis groups (CAGs) and Advisory Bodies will help EASA to learn more about the safety challenges faced by airlines and manufacturers.[7]

The European Safety Risk Management process identified the following as the most important risk areas for CAT Aeroplanes:

— *aircraft upset in flight (Loss of Control)*

  Aircraft upset or loss of control is the most common accident outcome for fatal accidents in CAT aeroplanes operations, accounting for 75% of them. It includes uncontrolled collisions with terrain, but also occurrences where the aircraft deviated from the intended flight path or aircraft flight parameters, regardless of whether the flight crew realised the deviation and whether it was possible to recover or not. **See Section 4.2.1.**

— *runway excursions and collisions*

  Runway excursions account for 13% of the fatal accidents in CAT aeroplane operations involving airline/cargo operations in the past decade. This includes materialised runway excursions, both high and low speed and occurrences where the flight crew had difficulties maintaining the directional control of the aircraft or of the braking action during landing, where the landing occurred long, fast, off-centred or hard, or where the aircraft had technical problems with the landing gear (not locked, not extended or collapsed) during landing. Runway collisions have been the outcome in 1% of fatal accidents in the past decade. Despite the low percentage, the risk of the reported occurrence demonstrated to be very real. **See Section 4.2.2.**

Safety in rotorcraft operations

This area includes both CAT and offshore operations as well as aerial work performed by helicopters. In the offshore helicopter domain, there was one fatal accident, which involved the loss of an Airbus Helicopters EC225 Super Puma in Norway on 29 April 2016. The CAT helicopters domain mainly covers business aviation and helicopter emergency medical services (HEMS), where there was an increase in fatal accidents in 2016 – 1 fatal accident occurred in Slovakia, and 1 in Moldova, which involved an EU operator. Both accidents involved HEMS flights and both had 4 fatalities each. In the aerial work domain there were no fatal accidents in 2016. The European Safety Risk Management process has identified opportunities to improve risk controls in the following areas so that accident numbers will not increase.

[7] Extract from the EASA Annual Safety Review 2016.

— *helicopter upset (Loss of Control)*

This is key risk area with the highest priority in offshore and CAT helicopter operations (7 fatal accidents in the past 10 years). Loss of control for offshore helicopters generally falls into two scenarios, technical failure that renders the aircraft uncontrollable or human factors. In addition it is the second most common accident outcome for aerial work operations (9 fatal accidents in the past 10 years).

— *terrain and obstacle collision*

This is the second priority key risk area for offshore helicopter operations, although equipment is now fitted to helicopters in this domain that will significantly mitigate the risk of this outcome. Obstacle collisions is the second most common accident outcome in the CAT helicopters domain (4 fatal accidents in the past 10 years). This highlights the challenges of HEMS operations and their limited selection and planning for landing sites. It is the most common outcome for aerial work operations (11 fatal accidents in the past 10 years)

Address safety risks in GA in a proportionate and effective manner

In the last years, accidents involving recreational aeroplanes have led to an average of nearly 80 fatalities per year in Europe (excluding fatal accidents involving microlight airplanes), which makes it one of the sectors of aviation with the highest yearly number of fatalities. Furthermore, in 2016, there were 78 fatalities in non-commercial operations with aeroplanes (highest number) and 20 in the domain of glider/sailplane operations (2nd highest number). These two areas present the highest numbers of fatal accidents in 2016. The General Aviation Road Map is key to the EASA strategy in this domain.

Although it is difficult to precisely measure the evolution of safety performance in GA due to lack of consolidated data (e.g. accumulated flight hours), it is reasonable to assume that step changes in the existing safety level are not being achieved at European level, despite all initiatives and efforts.

Therefore, in 2016 EASA decided to organise a workshop on GA safety to share knowledge and agree on the safety actions that will contribute to improve safety in this domain. A key element of discussions is the appropriate assessment of risks, taking into account the specificities of GA leisure flying with different risk profile and minimal risk for uninvolved third parties. The following strategic safety areas were identified during the workshop: Preventing mid-air collisions, coping with weather, staying in control, and managing the flight.

Ensure the safe operation of drones

The number of drones within the EU has multiplied over the last 2 years. Available evidence demonstrates an increase of drones coming into close proximity with manned aviation (both aeroplanes and helicopters) and the need to mitigate the associated risk (15 non-fatal accidents were included in the European Central Repository in 2016).

Furthermore, the lack of harmonised rules at EU level makes unmanned aircraft systems (UAS) operations dependent on an individual authorisation by every MS, which is a burdensome administrative process that stifles business development and innovation. In order to remove restrictions on UAS operations at EU level, so that all companies can make best use of the UAS technologies to create jobs and growth while maintaining a high and uniform level of safety, EASA is engaged in developing the relevant regulatory material.

As the technology advances, consistent requirements and expectations in already crowded airspace will help manufacturers design for all conditions and ease compliance with requirements by operators. JARUS facilitates harmonisation of standards within the EU Member States and other participating authorities.

Address current and future safety risks arising from new and emerging business models

Due to the increased complexity of the aviation industry, the number of interfaces between organisations, their contracted services and regulators has increased. CAs should work better together (cooperative oversight) and EASA should evaluate whether the existing safety regulatory system adequately addresses current and future safety risks arising from new and emerging business models.

Impact of security on safety

Cybersecurity

Citizens travelling by air are more and more exposed to cybersecurity threats. In order for the new generation of aircraft to have their systems connected to the ground in real time, ATM technologies require internet and wireless connections between the various ground centres and the aircraft. The multiplication of network connections increases the vulnerability of the whole system. It is essential that the aviation industry shares knowledge and learns from experiences to ensure systems are secure from individuals/organisations with malicious intent.

EASA signed on 10 February 2017 a Memorandum of Cooperation with the Computer Emergency Response Team (CERT-EU) of the EU Institutions. EASA and CERT-EU will cooperate in the establishment of a European Centre for Cyber Security in Aviation (ECCSA). ECCSA's mission is to provide information and assistance to European aviation manufacturers, airlines, maintenance organizations, air navigation service providers, etc. in order to protect the critical elements of the system such as aircraft, navigation and surveillance systems, datalinks, airports, etc. ECCSA will cover the full spectrum of aviation.

Conflict zones

Since the tragic event of the downing of Malaysian Airlines flight MH17 there is a general consensus that States shall share their information about possible risks and threats in conflict zones. Numerous initiatives have been taken to inform the airlines about the risks on their international flights.

At global level, ICAO has launched since April 2015 a central repository w here a voluntary basis its information about a particular risk in conflict zones.

In Europe, Member States are cooperating with the European Institutions, EASA and other aviation stakeholders to share and distribute intelligence information on risks arising from conflict zones.

In the aftermath of the B777 MH17 accident, an EU high-level task force was set up with the aim to define further actions to be taken at European level in order to provide common information on risks arising from conflict zones. The Task Force handed over its final report to Mrs Violeta Bulc, European Commissioner for Transport on 17 March 2016. It contains recommendations to be taken by various stakeholders and a proposal to set-up a Conflict Zone Alerting System at European Level, through cooperation between Member States, European institutions, EASA and other aviation stakeholders.

The objective of the alerting system is to join up available intelligence sources and conflict zone risk assessment capabilities, in order to enable the publication in a timely manner of information and recommendations on conflict zone risks, for the benefit of all European Member States, operators and passengers. It complements national infrastructure mechanisms when they exist, by adding, when possible, a European level common risk picture and corresponding recommendations.

EASA acts as coordinating entity for activities not directly under Member States or European Commission responsibility and initiates the drafting, consultation and publication of Conflict Zone Information Bulletins both in cases of availability and unavailability of a common EU risk assessment.

2.4 Research

Today, Europe plays a leading role in the aviation sector thanks to its powerful innovation and technology development environment. Particularly in this field, systematic attention, integrated approach and coordination/correlation of the technological innovation with the re-assessment of the aviation safety standards and certification processes are crucial in order not to put the medium and long term European innovation system at risk and to remain competitive in the fast-moving global environment.

The EASA Research Strategy[8] (endorsed by the EASA MB on 25 February 2015) proposes four strategic objectives on research, catering for an integrated/integrative and pro-active approach:

1. Enable Urgent Aviation Safety Research Actions: enable reactivity after accidents or identification of imminent safety issues;
2. Get Ready for the Global Context: ensure that EU has the means to play a leading role in all emerging and future technologies;
3. Reduce Time-to-Market: support the industry upstream, ensure that regulations' framework is not an impediment to innovation;
4. Cohesive Research Planning and Monitoring: ensure synergies, avoid duplication and dispersion of research efforts.

A common strategy allows Member States, the industry and aviation research community to better coordinate and consolidate the EU agenda. (Organised consultation with the industry).

2.5 International Cooperation

Aviation safety can be better managed at regional level. The role of RSOOs and ICAO is crucial to make the region a stronger global actor. National, regional and international organisations need to work together to enhance global aviation safety and support the free movement of products and services.

In this perspective, the strategic priorities internationally are to:

Promote safety and environmental protection for European passengers beyond Europe's borders

- Contribute to improving global safety and environmental protection
- Support the resolution of safety deficiencies through technical assistance
- Promote regional integration wherever effective

Support European industry interests

- Promote fair and open competition and remove barriers to market access.
- Enable efficient oversight between international partners
- Promote EU aviation standards around the world

Enable the European approach

- Coordinate common positions at ICAO
- Centralise international oversight actions and intelligence
- Bring together different European actors in technical assistance

[8] WP05 – EASA Research Strategy endorsed by the EASA MB on 25 February 2015.

2.6 Technical Training

Aviation is a very dynamic sector with rapidly innovating new technologies and business models, and constantly improving efficiency and productivity. At the same time, it is confronted with evolving new risk scenarios in terms of both safety and security. These rapid changes are a challenge for the staff of aviation authorities, as well as for aviation organisations, to keep abreast with new developments and to update their knowledge and competencies to discharge their responsibilities.

Pooling and sharing of technical resources between the National aviation authorities and EASA is one way to keep up with the challenges. The implementation of this new approach requires a stronger harmonisation of the description of job profiles as well as of training and assessment standards of aviation personnel.

To address these challenges and to better contribute to the enhancement of safety and efficiency, EASA has adopted a new training strategy with the following four strategic objectives:

A | Become the worldwide centre of excellence for training on European aviation rules and oversight activities;

B | Continuously improve the technical competence of Agency staff and manage the harmonisation of training standards for aviation authority staff within the EASA system;

C | Extend services for harmonised knowledge training and assessments of licenced aviation personnel (ECQB);

D | Strengthen safety promotion activities through innovative training solutions.

The new aviation strategy is particularly focused on providing services to aviation authorities. As far as training on European aviation rules is concerned, EASA will better align their competency-based training offers with the EPAS priorities and make them better accessible for the personnel of aviation authorities.

For the continuous development of technical competencies of authority staff, the Agency will closely work together with the Common Training Initiative Group (CTIG) which is composed of training managers from the Member States and additional ECAC countries. This group adopted in its last meeting new Terms of References with the aim to evolve to pro-active group for developing common training and assessment standards for aviation personnel.

In the area of ECQB, the training-related services are solely provided to Member States. Also in this area, the development of the syllabus for pilot training as well as the development and review of questions in the databank for examinations will duly take into account EPAS priorities where relevant for the training of pilot competencies.

Last but not least, the Agency will contribute with training solutions to safety promotion actions aligned with the implementation of the EPAS priorities.

2.7 Oversight

Regulatory frameworks are now being reviewed to strengthen the oversight requirements and introduce the concept of risk-based and cooperative oversight. Yet, the implementations of such concepts must be accompanied.

To support States, the regional plan will include tasks identifying focused oversight areas. It will also includes an action to develop and test a concept, share best practices and develop enforcement strategies to enable the performance of audits by States taking into account the risk-based oversight concept.

On cooperative oversight, EASA will continue to support NAAs in the practical implementation of cooperative oversight, e.g. existing trial projects, as well as via exchange of best practice and guidance

3 EUR Safety Metrics and Targets

	Metric	Target
ST1 – Accident rate in commercial air transport	Moving five-year regional average accident rate (*for aircraft of a maximum certificated mass of over 2250 kg in scheduled operations*)	Reduce by end 2017 compared with the average regional accident rate for the 2009-2013 period
ST2 – CAA resources	Yearly regional average EIs for PQs related to the financial and human resources of the CAAs (CE-3)	Increase by end 2017 compared with the average regional EI level for these PQs for 2013
ST3 – Certification, surveillance and resolution of safety concerns	Yearly regional average EIs for PQs related to CE-6, CE-7 and CE-8 in the PEL, OPS, AIR, ANS and AGA areas	Increase by end 2017 compared with the average regional EI level for these PQs for 2013
ST4 – SSC resolution	Percentage of resolved SSCs in the Region / number of new SSCs	All SSCs resolved by end 2014 and no new SSC
ST5 – SSP implementation	Yearly results from State's SSP gap analysis – using tool published by ICAO on the ISTARS SPACE website	All States to have implemented SSPs by end 2017 (*as per information uploaded by States on ICAO ISTARS SPACE website, with the pre-requisite that the State should have an average EI above 60%*)
ST6 – Accident investigations/ serious incident investigations[9]	Yearly regional rate of accidents and serious incidents, as reported to ICAO, in commercial air transport for which an investigation has been launched by the State of occurrence according, or delegated by that State to another State or to a Regional Accident Investigation Organisation	Improve by end 2017 compared with the regional rate for 2013

[9] During the fifth meeting of the European Regional Aviation Safety Group Coordination Group (RCOG/05) agreed that the scope of ST6 should be reduced to accidents investigation only due to absence of validated data to support monitoring of serious incident investigations in the region.

Table: Safety metrics and targets as defined by RASG-EUR.

4 Safety Actions

The actions in this section are driven principally by the need to maintain or increase the current level of safety in the EUR region.

4.1 Systemic enablers

This area addresses system-wide problems that affect aviation as a whole. In most scenarios, these problems become evident by triggering factors and play a significant role in the final outcome of a safety event. They often relate to deficiencies in organisational processes and procedures.

4.1.1 Safety management

Issue/rationale

Safety management is a strategic priority. Management of safety in a systematic and proactive way enables authorities and organisations to set up management systems that take into consideration potential hazards and associated risks before aviation accidents occur. This global move is at the core of ICAO Annex 19, which entered into force in November 2013. Following the entry into force of Regulation (EU) No 376/2014, this safety area will also enable further work to improve reporting processes, occurrence investigation at organisational level, and also the continued development of integrated data collection taxonomies.

What we want to achieve

Work with authorities and organisations to implement safety management.

How we monitor improvement

Regulatory framework requiring safety management is in place across all aviation domains, and organisations and authorities are able to demonstrate compliance (a cross-domain SMS assessment tool now available).

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Align regulatory system with ICAO Annex 19**
Address relevant elements of ICAO Annex 19 considering the latest revision status of the document and ensure appropriate horizontal harmonisation of the requirements across different domains taking on board lessons learned.

Safety Promotion

MST.XYZ **States to give priority to the work on SSPs**
Make SSPs consistently available in the region in compliance with the GASP objectives.

SPT.XYZ **SMS international cooperation**
Promote the common understanding of SMS and human factors principles and requirements in different countries, share lessons learned and encourage progress and harmonisation.

4.1.2 Human factors and competence of personnel

Issue/rationale

Human factors and competence of personnel is a strategic priority. As new technologies emerge on the market and the complexity of the system continues increasing, it is of key importance to have the right competencies and adapt training methods to cope with new challenges. It is equally important for aviation personnel to take advantage of the safety opportunities presented by new technologies.

The safety actions related to aviation personnel are aimed at introducing competency-based training in all licences and ratings, updating fatigue requirements and facilitating the availability of adequate personnel in CAs. These actions will contribute to mitigating safety issues such as personal readiness, flight crew perception or CRM and communication, which play a role in improving safety across all aviation domains.

What we want to achieve

Ensure continuous improvement of aviation personnel competence.

How we monitor improvement

Measurable improvement in aviation personnel competence at all levels (flight crews, ATCOs and CAs).

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Identify maintenance certifying staff type rating training already at the type certification stage**

The main objective is to improve the level of safety by requiring the applicant for a type certificate (TC) or restricted TC for an aircraft to identify the minimum syllabus of maintenance certifying staff type rating training, including the determination of type rating.

Safety Promotion

SPT.XYZ **Crew resource management (CRM) training best practices**

The EASA Safety Risk Management process has identified CRM as the second most important human factors issue in the domain of CAT Aeroplanes. New AMC/GM on CRM Training were adopted in 2015 and entered into force in October 2016. An in-depth assessment of the safety issue concluded that additional actions in the area of safety promotion were needed, which led EASA to organise a workshop on the subject. On 8 November 2016, 80 delegates representing operators, CAs, professional associations and training providers met to share experience and best practices on CRM practical implementation. The workshop was an excellent opportunity for the practitioners to discuss how this important safety net should work in practice. The purpose of this safety promotion task is to take stock of and disseminate the best practices discussed during the workshop.

Focused Oversight

FOT.XYZ **Unavailability of adequate personnel in competent authorities**

Support Civil Aviation Authorities in defining the right competences needed to properly discharge their safety oversight responsibilities; and in providing training to their staff.

Research

RES.XYZ **Effectiveness of flight time limitations (FTL)**

The objective is to develop and demonstrate the due process for the assessment of the effectiveness of the FTL and fatigue risk management (FRM) provisions. Particular emphasis will be put on the establishment and qualification of the appropriate metrics with a view to ascertaining the necessity for their update towards

improving flight safety by better mitigating the possibly associated risks.

4.1.3 Aircraft tracking, rescue operations and accident investigation

Issue/rationale

Safety investigation authorities have frequently raised the issue of lack of data to support investigations of light aircraft accidents. This is also related to the fact that light aircraft are not required to carry a flight recorder. As regards large aircraft, the advent of new technologies, as well as findings during safety investigations highlight the need to update the installation specifications for flight recorders.

The safety actions in this area are aimed at introducing normal tracking of large aircraft, improving the availability and quality of data recorded by flight recorders, assessing the need for in-flight recording for light aircraft and the need to introduce data link recording for in-service large aircraft..

What we want to achieve

Increase safety by facilitating the recovery of information by safety investigation authorities and thus helping to avoid future accidents.

How we monitor improvement

Number of investigated accidents or serious incidents in which flight data is not recovered

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Improve availability and quality of data recorded by flight recorders**

The general objective of this RMT is to improve the availability and quality of data recorded by flight recorders in order to better support safety investigation authorities in the investigation of accidents and incidents. More specifically, this RMT is aimed at modernising and enhancing the specifications for flight recorder installation on board large aeroplanes and large rotorcraft.

4.2 CAT by aeroplane

The only fatal accident in CAT aeroplane airline operations in 2016 that involved an EASA MS operator was the accident of a Bombardier CRJ-200 performing a cargo flight on 8 January 2016. From the analysis, it can be observed that there was a lower number of non‑fatal accidents involving EASA MS operators in 2016 than the 10-year average, with 16 accidents compared to the average of 23.1 over the previous 10 years. At the same time, there was a 36% increase in the number of serious incidents over the same period resulting in a total of 106 serious incidents compared with the average of 78.2. In terms of fatalities, the single fatal accident resulted in 2 fatalities (the flight crew, the only occupants of the aeroplane), which is much lower than the 10 year average.

This operational domain is the greatest focus of the EASA safety activities and the reorganisation of the collaborative analysis groups (CAGs) and Advisory Bodies will help EASA to learn more about the safety challenges faced by airlines and manufacturers[10].

4.2.1 Aircraft upset in flight (LOC-I)

Issue/rationale

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

Aircraft upset or loss of control is the most common accident outcome for fatal accidents in CAT aeroplanes operations, accounting for 75% of them. It includes uncontrolled collisions with terrain, but also occurrences where the aircraft deviated from the intended flight path or aircraft flight parameters, regardless of whether the flight crew realised the deviation and whether it was possible to recover or not.

What we want to achieve

Continuously assess and improve risk controls to mitigate the risk of loss of control.

How we monitor improvement

Continuous monitoring of safety issues identified in the Commercial Air Transport Fixed Wing Portfolio (ref: Annual Safety Review 2017)

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Loss of control prevention and recovery training**

Review of the provisions for initial and recurrent training in order to address upset prevention and recovery training (UPRT). The review will also address the implementation of the ICAO documents and several safety recommendations. Other aspects to be covered are manual aircraft handling of approach to stall and stall recovery (including at high altitude), the training of aircraft configuration laws, the recurrent training on flight mechanics, and training scenarios (including the effect of surprise).

Safety Promotion

MST.XYZ **Include loss of control in flight in national SSPs**

LOC-I shall be addressed by the MS on their SSPs. This will include as a minimum agreeing a set of actions and measuring their effectiveness.

SPT.XYZ **Promote the provisions on pilot training**

The objective is to complement the new regulatory package on UPRT with relevant safety promotion material.

[10] Extract from the EASA Annual Safety Review 2016.

4.2.2 Runway safety

Issue/rationale

This section deals both with Runway Excursions and Runway Collisions and is a strategic priority.

According to the definition provided by ICAO, an RE is a veer or overrun off the runway surface. RE events can happen during take-off or landing.. They account for 13% of the fatal accidents in CAT aeroplane operations involving airline/cargo operations in the past decade. This includes materialised runway excursions, both high and low speed and occurrences where the flight crew had difficulties maintaining the directional control of the aircraft or of the braking action during landing, where the landing occurred long, fast, off-centred or hard, or where the aircraft had technical problems with the landing gear (not locked, not extended or collapsed) during landing.

An Runway Incursions refers to the incorrect presence of an aircraft, vehicle or person on an active runway or in its areas of protection. Their accident outcome, runway collisions have been the outcome in 1% of fatal accidents in the past decade. Despite the low percentage, the risk of the reported occurrence demonstrated to be very real..

What we want to achieve

Continuously assess and improve risk controls to mitigate the risk of REs and RIs.

How we monitor improvement

Continuous monitoring of safety issues identified in the ATM and Aerodrome risk portfolio (currently under development)

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Reduction of runway excursions through new technological solutions**

The objective of this task is to increase the level of safety by reducing the number of REs through mandating existing technologies on aeroplane that allow to measure remaining runway left and thus support pilot-decision-making.

RMT.XYZ **Runway surface condition assessment and reporting**

Revision and update of Regulations, AMC and GM in order to include the changes in Annex 14 and PANS Aerodromes.

Safety Promotion

MST.XYZ **Include runway excursions in national SSPs**

REs should be addressed by the MS on their SSPs in close cooperation with the aircraft operators, air traffic control, airport operators and pilot representatives. This will include as a minimum agreeing a set of actions and measuring their effectiveness. MS should implement actions suggested by the European Action Plan for the Prevention of Runway Excursions (EAPPRE) and monitor effectiveness.

4.2.3 Airborne conflict (Mid-air collisions)

Issue/rationale

Airborne conflict refers to the potential collision of two aircraft in the air. It includes direct precursors such as separation minima infringements, genuine TCAS resolution advisories or airspace infringements. Although there have been no CAT aeroplane airborne collision accidents in recent years within the EASA MS, this key risk area has been raised by a number of MS at the Network of Analysts (NoA) and also by some airlines, specifically in the context of the collision risk with aircraft without transponders in uncontrolled airspace. This is one specific safety issue that is a main priority in this key risk area. The risk scoring of accident and serious incidents highlights the continued risk of this type of accident..

What we want to achieve

Continuously assess and improve risk controls to mitigate the risk of mid-air collisions.

How we monitor improvement

Continuous monitoring of safety issues identified in the Commercial Air Transport Fixed Wing Portfolio (ref: Annual Safety Review 2017[11])

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Technical requirements and operating procedures to support the implementation of PBN**

Basically, the scope of the task is to establish the requirements for the design of flight procedures and ATS routes, to support the implementation of PBN operations and evaluate the need for extension to other airspace structures and flight procedure design. This will include an analysis of the need to include procedures for airspace design in the ATM/ANS certification scheme.

Safety Promotion

MST.XYZ **Include MACs in national SSPs**

MACs shall be addressed by the MS on their SSPs. This will include as a minimum agreeing a set of actions and measuring their effectiveness. MS should implement actions of the European Action Plan for Airspace Infringement Risk Reduction.

4.2.4 Design and maintenance improvements

Issue/rationale

Design and maintenance improvements may limit the probability of technical failures. Many fatal accidents involve some sort of technical failure, thus making it a precursor of other types of accident[12]. Specific analysis work is ongoing to identify the systemic, safety issues that may be present in the domains of airworthiness, maintenance and production.

What we want to achieve

Continuously assess and improve risk controls related to design and maintenance

How we monitor improvement

Continuous monitoring of safety issues identified in the Commercial Air Transport Fixed Wing Portfolio (ref: Annual Safety Review 2017)

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Engine bird ingestion standards**

Improve the bird ingestion requirements for engine design.

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[11] See link in Executive Summary above.

[12] This statement is coming from our Annual Safety Review 2016. It does not necessarily mean that the technical failure was the direct cause of the accidents, but that a system component failure was identified in the sequence of events of 1 of the 5 fatal accidents in CAT Aeroplanes during the past 10 years (out of a total of 11). This could be an engine failure, an avionics system failure or some other recoverable technical failure. The cause of the accident is usually the result of a combination of circumstances and events that can only be understood after reading the investigation report. Specific analysis work is ongoing to identify the systemic safety issues that may be present in the domains of airworthiness, maintenance and production. Non-accident data will be used for the analysis.

4.2.5 Ground safety

Issue/rationale

Ground collisions and ground damage occur on the ramp. This risk area refers to the collision of the aircraft with other aircraft, obstacles or vehicles while the aircraft is moving on the ground, either under its own power or being towed. It also includes all ground-handling-related issues (aircraft loading, refuelling, etc.). It does not include collisions on the runway. While it was not the accident outcome for any fatal accidents in the past years, the risk score warrants its inclusion as a key risk area in this domain.

What we want to achieve

Continuously assess and improve risk controls to mitigate the risk of ground safety.

How we monitor improvement

Continuous monitoring of safety issues identified in the Commercial Air Transport Fixed Wing Portfolio (ref: Annual Safety Review 2017) for this particular risk area.

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Real weight and balance of an aircraft**

The objective of this task is to propose an amendment of CS for large aeroplanes (CS-25) to require the aeroplane being equipped with a weight and centre of gravity measuring system. What is also envisaged is a proposal for a retroactive requirement for such system to be installed on already type-certified large aeroplanes (using a Part-26/CS-26 rule). Finally, this task will investigate the safety benefit which could be gained by requiring such system to be installed on CS-23 commuter aeroplanes; in case of a positive answer, a CS-23 amendment for commuters will be proposed.
The rulemaking should consider the minimum operational performance specification (MOPS) which will be produced by the European Organisation for Civil Aviation Equipment (EUROCAE) WG-88.

Safety Promotion

MST.XYZ **Include ground safety in national SSPs**

This safety issue shall be addressed by the MS on their SSPs. This will include as a minimum agreeing a set of actions and measuring their effectiveness.

4.2.6 Terrain conflict

Issue/rationale

This risk area includes the controlled collision with terrain together with undershoot or overshoot of the runway during approach and landing phases. It comprises those situations where the aircraft collides or nearly collides with terrain while the flight crew has control of the aircraft. It also includes occurrences which are the direct precursors of the fatal outcome, such as descending below weather minima, undue clearance below radar minima, etc.

What we want to achieve

Continuously assess and improve risk controls to mitigate the risk of controlled flight into terrain.

How we monitor improvement

Continuous monitoring of safety issues identified in the Commercial Air Transport Fixed Wing Portfolio (ref: Annual Safety Review 2017) for this particular risk area.

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **TAWS operation in IFR and VFR and TAWS for turbine-powered aeroplanes under 5 700 kg MTOM able to carry six to nine passengers**

Develop a regulatory framework for:

- mitigation of the risks of accidents categorised as CFIT in turbine-powered aeroplanes having a maximum certified take-off mass (MCTOM) below 5 700 kg or a maximum operational passenger seating configuration (MOPSC) of more than five and not more than nine; and
- improvement of the terrain awareness warning system (TAWS) efficiency in reducing CFIT accidents.

Safety Promotion

MST.XYZ **Include CFIT in national SSPs**

Controlled flight into terrain shall be addressed by the MS on their SSPs. This will include as a minimum agreeing a set of actions and measuring their effectiveness.

4.2.7 Fire, smoke and fumes

Issue/rationale

Uncontrolled fire on board an aircraft, especially when in flight, represents one of the most severe hazards in aviation. Post-crash fire is also addressed in this section.

In-flight fire can ultimately lead to loss of control, either as a result of structural or control system failure, or again as a result of crew incapacitation. Fire on the ground can take hold rapidly and lead to significant casualties if evacuation and emergency response is not swift enough. Smoke or fumes, whether they are associated with fire or not, can lead to passenger and crew incapacitation and will certainly raise concern and invite a response. Even when they do not give rise to a safety impact, they can give rise to concerns and need to be addressed.

While there were no fatal accidents involving EASA MS operators in the last years involving fires, there have been occurrences in other parts of the world that make it an area of concern within the Regional Plan.

What we want to achieve

Continuously assess and improve risk controls to mitigate the risk of fire, smoke and fumes.

How we monitor improvement

Continuous monitoring of safety issues identified in the Commercial Air Transport Fixed Wing Portfolio (ref: Annual Safety Review 2017) for this particular risk area.

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Airworthiness specifications for operations on thermal/acoustic insulation material**

The general objective of this RMT is to reduce the safety risks due to flame penetration and propagation in the fuselage by introducing retroactive specifications based on CS 25.856(a) and (b), applicable to already type-certified large aeroplanes.

Safety Promotion

MST.XYZ **Include fire, smoke and fumes in national SSPs**

This safety issue shall be addressed by the MS on their SSPs. This will include as a minimum agreeing a set of actions and measuring their effectiveness.

Research

RES.XYZ **Transport of lithium battery by air**

Develop mitigating measures for the transport of lithium metal and lithium ion batteries on board an aircraft.

This would include, at least:

— Find out for on air transport, what is the maximum amount that can be shipped in a safe manner in a cargo compartment. Including recommendation on the safe quantities in the cabin as well (brought by passengers).

— Determination of standards for an appropriate packaging (both for lithium metal and lithium ion batteries).

— Evaluation of effective firefighting measures and new suppression systems that could substitute halon.

— Propose new measures to mitigate thermal runaway and propagation of the fire and determine appropriate conditions of air transport.

This must take into consideration the specific operational conditions of air transport (vibrations, changes of temperature, pressure, etc.) that might impact the stability of lithium battery.

4.3 Rotorcraft operations

Issue/rationale

This area includes both CAT and offshore operations as well as aerial work performed by helicopters. In the offshore helicopter domain, there was one fatal accident, which involved the loss of an Airbus Helicopters EC225 Super Puma in Norway on 29 April 2016. The CAT helicopters domain mainly covers business aviation and helicopter emergency medical services (HEMS), where there was an increase in fatal accidents in 2016 – 1 fatal accident occurred in Slovakia, and 1 in Moldova, which involved an EU operator. Both accidents involved HEMS flights and both had 4 fatalities each. In the aerial work domain there were no fatal accidents in 2016.

The European Safety Risk Management process has identified opportunities to improve risk controls in the following areas so that accident numbers will not increase.. Through the Offshore Helicopter Collaborative Analysis Group (CAG) there has been specific work in this area of helicopter operations that has identified both some additional work to existing actions as well as a small number of specific actions within this domain. These are identified within each action. The strategic priorities for helicopter operations are:

— helicopter upset in flight (Loss of Control)

  This is key risk area with the highest priority in offshore and CAT helicopter operations (7 fatal accidents in the past 10 years). Loss of control for offshore helicopters generally falls into two scenarios, technical failure that renders the aircraft uncontrollable or human factors. In addition it is the second most common accident outcome for aerial work operations (9 fatal accidents in the past 10 years). The following actions contribute to mitigate risks in this area: RMT.0127, RMT.0709, RMT.0711 and RMT.0608

— terrain and obstacle conflict

  This is the second priority key risk area for offshore helicopter operations, although equipment is now fitted to helicopters in this domain that will significantly mitigate the risk of this outcome. Obstacle collisions is the second most common accident outcome in the CAT helicopters domain (4 fatal accidents in the past 10 years). This highlights the challenges of HEMS operations and their limited selection and planning for landing sites. It is the most common outcome for aerial work operations (11 fatal accidents in the past 10 years). The following actions contribute to mitigate risks in this area: RMT.0708

What we want to achieve

Continuously assess and improve risk controls in the above areas.

How we monitor improvement

Continuous monitoring of safety issues identified in the Helicopter Safety Risk Portfolios (ref: Annual Safety Review 2017)

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Controlled flight into terrain (CFIT) prevention with helicopter terrain avoidance warning systems (HTAWS)**
Mandating HTAWS is expected to prevent between 8.5 and 11.5 CFIT accidents with fatalities or severe injuries within 10 years (medium safety improvement). This RMT will consider mandating the installation of HTAWS on board the helicopter for certain operations. The RMT should only mandate HTAWS to be retrofitted to the current fleet if HTAWS standards are improved. An appropriate impact assessment for retrofit will need to be further developed. Based on the preliminary cost effectiveness analysis, HTAWS for the following operations are not to be considered: NCO, SPO, and CAT with small helicopters in VFR operations. For offshore helicopter operations, this also includes the involvement of the EASA Certification Directorate working with the UK CAA on the evaluation of updated HTAWS algorithms and software.

RMT.XYZ **Reduction in human-factors-caused rotorcraft accidents that are attributed to the rotorcraft design**

It is widely recognised that human factors contribute either directly or indirectly to a majority of aircraft accidents and incidents and that the design of the flight deck and systems can strongly influence the crew performance and the potential for crew errors.

Currently, the certification specifications for rotorcraft do not contain any specific requirements for a human factor assessment to be carried out. Large transport aircraft have benefited from human factor assessments of the design of the flight deck and associated systems. New generation helicopters are characterised by having a high level of integration of cockpit equipment, displays and controls. It is also likely that the future rotorcraft projects, embodying fly-by-wire technology flying controls, will pose new and additional challenges from a human factors perspective.

The development of certification specifications for human factors in the design of rotorcraft cockpits would mitigate the probability of human factors and pilot workload issues that could lead to an accident.

Safety Promotion

SPT.XYZ **Support the development and implementation of FCOM for offshore helicopter operations**

To provide support to manufacturers, if needed, in the development of FCOM for different helicopter types and support/encourage operators in their implementation.

4.4 General Aviation: Fixed-wing leisure flying

In the last years, accidents involving recreational aeroplanes have led to an average of nearly 80 fatalities per year in Europe (excluding fatal accidents involving microlight airplanes), which makes it one of the sectors of aviation with the highest yearly number of fatalities. Furthermore, in 2016, there were 78 fatalities in non-commercial operations with aeroplanes (2nd highest number) and 20 in the domain of glider/sailplane operations (2nd highest number). These two areas present the highest numbers of fatal accidents in 2015. The General Aviation Road Map is key to the EASA strategy in this domain. This area is a strategic priority.

Although it is difficult to measure precisely the evolution of safety performance in GA due to lack of consolidated data (e.g. accumulated flight hours), it is reasonable to assume that step changes in the existing safety level are not being achieved at European level, despite all initiatives and efforts.

Therefore, EASA organised a workshop (5–6 October 2016) on general aviation safety to share knowledge and agree on the safety actions that will contribute to improving safety in this domain. The below strategic safety areas and related actions were identified and discussed during the workshop.

4.4.1 Systemic enablers

Issue/rationale

This section addresses system-wide or transversal issues that affect GA as a whole and are common to several safety risk areas. In combination with triggering factors, transversal factors can play a significant role in incidents and accidents. Conversely, they also offer opportunities for improving safety across risk domains.

What we want to achieve

Reduce the number of fatalities in GA through the implementation of systemic enablers.

How we monitor improvement

Continuous monitoring of safety issues identified in the GA-related portfolios (ref: Annual Safety Review 2016).

How we want to achieve it: example actions

Safety Promotion

MST.XYZ **Improve the dissemination of safety messages**

Improve the dissemination of Safety Promotion and training material by authorities, associations, flying clubs, insurance companies targeting flight instructors and/or pilots through means such as safety workshops and safety days/evenings.

4.4.2 Staying in control

Issue/rationale

This section addresses subjects such as flying skills, pilot awareness and the management of upset or stall at take-off, in flight, or during approach and landing, flight preparation, aborting take-off and going around. Staying in control prevents loss of control accidents. Loss of control usually occurs because the aeroplane enters a flight regime outside its normal envelope, thereby introducing an element of surprise for the flight crew involved. Loss of control accidents are both frequent and severe. With 47 %, aircraft upset including loss of control is the most common type of fatal accidents in the last 10 years for EASA MS non-commercial operations with aeroplanes.

What we want to achieve

Reduce the risk of Loss of Control accidents.

How we monitor improvement

Continuous monitoring of safety issues identified in the GA-related portfolios (ref: Annual Safety Review 2016).

How we want to achieve it: example actions

Safety Promotion

SPT.XYZ **Campaign on staying in control**
Launch a campaign on staying in control covering topics such as aircraft performance, flight preparation and management, role of angle of attack, Threat and error management (TEM), upset and stall avoidance and recovery, and startle and surprise management.

4.4.3 Coping with weather

Issue/rationale

This section addresses subjects such as entering IMC, icing conditions, carburettor icing, and poor weather conditions. Weather is an important contributing factor to GA accidents, often related to pilots underestimating the risks of changing weather conditions prior to take‑off and during the flight, as weather deteriorates. Dealing with poor weather may increase pilot workload and affect situation awareness and aircraft handling. Decision-making can also be impaired, as a plan continuation bias may lead pilots to press on to the planned destination despite threatening weather conditions.

What we want to achieve

Reduce the number of weather-related accidents.

How we monitor improvement

Continuous monitoring of safety issues identified in the GA-related portfolios (ref: Annual Safety Review 2016).

How we want to achieve it: example actions

Safety Promotion

SPT.XYZ **Launch a Safety Promotion campaign promoting instrument flying for GA pilots**
Promote easier access of GA pilots to instrument flight rules (IFR) flying in order to ensure that the safety and efficiency benefits materialise across Europe.

4.4.4 Preventing mid-air collisions

Issue/rationale

This section addresses subjects such as airspace complexity, airspace infringement and use of technology. Statistics show that MACs affect both novice and experienced pilots and can occur in all phases of flight and at all altitudes. However, the vast majority of them occur in daylight and in excellent meteorological conditions. A collision is more likely where aircraft are concentrated, especially close to aerodromes. Airspace infringements by GA aircraft into controlled airspace is an important related safety risk.

What we want to achieve

Reduce the risk of airspace infringement for GA.

How we monitor improvement

Continuous monitoring of safety issues identified in the GA-related portfolios (ref: Annual Safety Review 2016).

How we want to achieve it: example actions

SPT.XYZ **European Safety Promotion on Mid-air collisions and airspace infringement**

Develop and implement a pan-European Safety Promotion campaign on preventing airspace infringement and reducing the risk of MAC including awareness of airspace complexity and the use of technology such as ADS-B out.

Focused Oversight

FOT.XYZ **Service provision to GA flights**

Raising the quality of support provided to GA flights by air navigation service providers (ANSPs) through focused oversight.

4.4.5 Managing the flight

Issue/rationale

This section addresses subjects such as navigation, fuel management, terrain and obstacle awareness, and forced landings. Most accidents are the result of the pilot's actions, including decisions made while preparing the flight or due to changing circumstances during the flight. Pilot decisions including their ability to prioritise workload affect safety and survival of the aircraft and its occupants.

What we want to achieve

Reduce the number of fatalities in GA.

How we monitor improvement

Continuous monitoring of safety issues identified in the GA-related portfolios (ref: Annual Safety Review 2016)

How we want to achieve it: example actions

Safety Promotion

SPT.XYZ **Fuel management for pilots**

Compile and disseminate to the community already available material on fuel management.

Research

RES.XYZ **Terrain and obstacle awareness for light aircraft**

Research the possibility of light TAWS (GNSS) for General Aviation.

4.5 Emerging issues

This section addresses already issues that have already emerged as well as issues that could potentially emerge in the immediate or near future. Giving consideration to safety issues derived from operations or regulations that have not been fully deployed, it incorporates a forward-looking element in Regional Plan.

4.5.1 Civil drones (Unmanned Aircraft Systems)

Issue/rationale

Most of EU Member States adopted national regulations to ensure *safe operations* of Unmanned Aircraft Systems (UAS) below MTOM of 150 kg. There are currently no harmonised rules at EU level, and UAS operations still depend on an individual authorisation from every MS, which is a burdensome administrative process that stifles business development and innovation. The proposal of the EU commission for a revision of the Basic Regulation extends the scope of the EU competence to regulate UAS even below the MTOM of 150 kg, also to allow free circulation of UAS throughout the EU.

This task has multiple drivers due to its very nature. There are also very strong efficiency and level playing field aspects.

What we want to achieve

To create a level playing field in all EU Member States, using an operation centric concept, which is proportionate and risk and performance-based, so that all companies can make best use of the UAS technologies to create jobs and growth while maintaining a high and uniform level of safety.

How we monitor improvement

In the latest edition of the EASA Annual Safety Review, a new safety risk portfolio for civil drones was created. This will be used to monitor the evolution of the safety issues in this area

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Introduction of a regulatory framework for the operation of drones**

Development of IRs for UAS based on EC communication COM(2015)613 and attached proposals to amend Regulation 216/2008/EC. There are three categories of UAS defined:

- Open category: Low-risk operation not requiring authorisation or declaration before flight
- Specific operation category: Medium-risk operation requiring authorisation or declaration before flight
- Certified category: High-risk operation requiring certification process

Safety Promotion

SPT.XYZ **European Safety Promotion on civil drones**

Coordinate European activities to promote safe operation of drones to the general public.

4.5.2 Safety and security

Issue/rationale

The safety actions in this area are aimed at mitigating the risks posed by cybersecurity. The impact of security in safety is a strategic priority.

What we want to achieve

Manage the impact of security on safety.

How we monitor improvement

Continuous assessment and mitigation of security threats.

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Aircraft cybersecurity**

The objective of this proposal is to mitigate the safety effects stemming from cybersecurity risks due to acts of unlawful interference with the aircraft on board electronic networks and systems.

Safety Promotion

SPT.XYZ **Cybersecurity road map**

Citizens travelling by air are more and more exposed to cybersecurity threats. The new generation of aircraft have their systems connected to the ground in real time. Air traffic management technologies require internet and wireless connections between the various ground centres and the aircraft. The multiplication of network connections increase the vulnerability of the whole system.
The concrete actions to be taken will be identified in a road map developed jointly by the European Commission and EASA in close cooperation with EU Member States and industry. This road map should be developed in order to avoid duplication and prevent jeopardising the effort already initiated by the industry. Furthermore, a cybersecurity strategy is being implemented in the EU for the protection of EU citizens against cybercrime. This strategy, together with the EU aviation strategy, will pave the way for a secure and safe air transport system.

SPT.XYZ **Disseminate information on conflict zones**

In the aftermath of the B777 MH17 accident, an EU high-level task force is working to define further actions to be taken at European level in order to provide common information on risks arising from conflict zones.

4.5.3 New business models

Issue/rationale

Due to the increased complexity of the aviation industry, the number of interfaces between organisations, their contracted services and regulators has increased. NAAs should work better together (cooperative oversight) and EASA should evaluate whether the existing safety regulatory system adequately addresses current and future safety risks arising from new and emerging business models. Upon the request of MS, EASA tasked a working group of NAAs to assess airlines' emerging 'new' business models and to identify related safety risks posed to the aviation system. This is a strategic priority.

What we want to achieve

Continuously assess and mitigate risks posed by the introduction of new business models.

How we monitor improvement

Significant increase in the number of MS making use of the cooperative oversight provisions for organisations/persons certified by the CA of another MS.

How we want to achieve it: example actions

Safety Promotion

MST.XYZ **Operator's management system**

Management systems of the operator should capture new hazards that are introduced by different employment models within an individual operator, increased mobility of pilots, safety-critical services provided by non-certified service providers and (long-term) leasing. MS will ensure this happens through oversight activities and provide SMS data to EASA

Focused Oversight

FOT.XYZ **Operator's management system**
EASA will ensure that the EASA standardisation inspections have due regard to the ability of CAs to evaluate and oversee the operator's management system, in particular as regards the consideration of specific safety risks, such as safety culture, the governance structure of the operator, and any other feature that may introduce new risks.

4.5.4 New products, systems, technologies and operations

Issue/rationale

This section addresses the introduction of new designs, technologies or types of operation for which regulatory updates are needed, and highlights some of the most relevant trends that will influence aviation in the years to come.

The safety actions in this area include the mitigation of the risks posed by flying over zones where an armed conflict exists.

What we want to achieve

Manage the introduction of new products, systems, technologies and operations.

How we monitor improvement

Continuous assessment and mitigation of security threats

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Operations and equipment for high-performance aircraft (HPA)**
Review of regulatory material in relation to the operation of HPA.

4.5.5 Regulatory oversight considerations

Issue/rationale

By introducing authority requirements, and in particular strict requirements for MS on oversight, the rules developed under the first and second extension of the EASA scope have significantly strengthened the oversight requirements. In terms of efficiency, such rules have also introduced the concept of risk-based and cooperative oversight.

The following actions focus on supporting the implementation of these new requirements by updating inspector qualifications and enabling the implementation of risk-based oversight.

What we want to achieve

Improve MS oversight capacities and capabilities.

How we monitor improvement

Significant increase in the number of EASA MS implementing risk-based oversight. Increase in the number of inspectors qualified to conduct risk-based oversight.

How we want to achieve it: example actions

Rulemaking

RMT.XYZ **Update of the rules on air operations to include risk based oversight principles**

- Improve the authority and organisational requirements of the Air OPS Regulation taking into account identified implementation issues;
- Better identify inspector qualifications;
- Take into account new business models, as appropriate;
- Take into account the development of any lessons learned from the implementation of SMS;
- Align with the Occurrence Reporting Regulation (Regulation (EU) No 376/2014);
- Ensure compliance with the ICAO Standards And Recommended Practices (SARPs);
- Address identified safety issues such as pax seating and briefing;

Focused Oversight

FOT.XYZ **Conduct of audits within risk-based oversight**

Develop and test a concept, share best practices and develop enforcement strategies to enable the performance of audits by NAAs taking into account the risk-based oversight concept.