EASA
European Aviation Safety Agency

THE
EUROPEAN
PLAN
for AVIATION
SAFETY

EPAS 2016-2020

The European Plan for Aviation Safety

What is the European Plan for Aviation Safety and why do we need it?

Despite Europe's excellent aviation safety record, recent events remind us of the need to always remain vigilant and constantly search for system weaknesses before they can manifest in an accident. One of the best tools for this preventive approach is the European Plan for Aviation Safety (EPAS).

The EPAS seeks to further improve aviation safety throughout Europe. The Plan looks at aviation safety in a systemic manner by analysing data on accidents and incidents. It considers not only the direct reasons, but also the underlying or hidden causes behind an accident or incident. Moreover, the Plan takes a longer term view into the future.

The EPAS is a key component of our integrated Safety Management System at the European level, and it is constantly being reviewed and improved. As an integral part of the European Aviation Safety Agency (EASA)'s work programme, the Plan is developed by EASA in consultation with the EASA Member States and industry. It is implemented by the EASA Member States on a voluntary basis through their State Programmes and Plans. The current EPAS edition covers the 5-year period from 2016 to 2020.

The 3 key issue categories addressed in the EPAS are:

• **Systemic issues:** system-wide problems that affect aviation as a whole and play a role in accidents and incidents. As they underlie operational issues, improvements can have an implicit effect on operational causes. **Example of a systemic issue:** potential dangers can occur if tasks and responsibilities are not properly distributed among staff of an operator.

• **Operational issues:** issues closely related to events reported during operation and brought to light by data analysis. **Example of an operational issue:** lack of pilot exposure to loss of control in flight scenarios during training, or a high number of runway excursion accidents and serious incidents.

• **Emerging issues:** problems that are to be expected or anticipated in the future. **Example of an emerging issue:** new cybersecurity threats or risks associated with flying over armed conflict zones.

The risk area of Human factors and Human Performance is integrated within the three other categories. These factors have to always be considered in risk mitigation.

The table below provides an overview of the action areas in the EPAS 2016-2020.

Driver	Issue Category	Action Area	
Safety	Systemic issues	Safety Management	
		Aviation Personnel	
		Aircraft tracking, rescue operation and accident investigations*	
	Operational issues	**Commercial Air Transport by Aeroplanes**	Loss of control in-flight
			Design and Maintenance Improvements*
			Mid-air collisions
			Runway safety
			Ground Safety*
			Controlled flight into terrain
			Fire, smokes and fumes
		Helicopter Operations	
		General Aviation	
	Emerging issues	New products, systems, technologies and operations	
		Regulatory and oversight considerations	
		New Business Models*	

* New actions added in 2015

What are the priorities within each issue category?

Systemic issues

Safety Management

Systematic and proactive safety management enables authorities and organisations to address potential hazards before aviation accidents occur, as detailed in ICAO Annex 19, which took effect in November 2013.

Key Actions:
• Incorporate safety management requirements in initial and continuing airworthiness;
• Support States in implementing State Safety Programmes;
• Develop a European Risk Classification Scheme;
• Encourage international harmonisation of Safety Management Systems (SMS) implementation, and human factors principles;
• Support the implementation of flight data monitoring (FDM) programmes.

Aviation Personnel

As novel technologies emerge on the market and the aviation system grows more complex, the right competencies must be in place, and training methods must be adapted to cope with new challenges. In addition, aviation personnel must take advantage of the safety opportunities presented by these new technologies.

Key Actions:
• Introduce evidence and competency-based training into all licenses and ratings;
• Update fatigue management provisions for both Flight Crew and Air Traffic Controllers;
• Improve the fidelity of Flight Simulators;
• Support Competent Authorities with training and expertise to attract suitably qualified staff.

Aircraft tracking, rescue operations and accident investigation

Improvements are needed in the data collection in order to support safety investigations – in particular, a requirement for light aircraft to carry flight recorders, and the updating of installation specifications for flight recorders in large aircraft.

Key Actions:
- Implement regular aircraft tracking;
- Improve the availability and quality of data recorded by flight recorders;
- Assess whether in-flight recording should be required for light aircraft.

Operational issues

Commercial Air Transport by Aeroplanes

Loss of control in flight

This risk area is the biggest source of fatal accidents, both in Europe and worldwide.

Key Actions:
• Review and promote training provisions on recovery from upset scenarios;
• Improve mitigation of loss of control during go-around;
• Research the best training methods to mitigate the impact of surprise and startle effect;
• Member States to address loss of control in flight by taking actions at the national level and measuring their effectiveness.

Mid-air collisions

No major mid-air collisions have occurred in Europe in recent years, yet loss of separation related occurrences are the 2nd most critical cause of all non-fatal accidents and serious incidents in Europe.

Key Actions:
• Regulate carriage of collision avoidance equipment on small aircraft;
• Promote and support the Europe-wide deployment of ground- and airborne-based safety nets;
• Member States to address mid-air collisions by taking actions at the national level and measuring their effectiveness.

Design and maintenance improvements

Design improvements can limit the probability of technical failures, which are the leading cause of accidents and serious incidents in Europe, and the 2nd highest cause of fatal accidents (after post-crash fires).

Key Actions:
• Better assess and coordinate the responsibilities of continuing airworthiness organisations;
• Improve requirements for engine bird ingestions, seat crashworthiness, and tyre pressure monitoring systems for large aeroplanes.

Runway safety

Runway excursions, often preceded by abnormal runway contact, represent the most critical risk area for non-fatal accidents in the EASA Member States. Runway incursions are the 6th most frequent cause of all accidents and serious incidents in Europe.

Key Actions:
• Require on-board technology to reduce runway excursions;
• Improve aircraft performance in Commercial Air Transport operations;
• Assess the need to install and use predictive wind shear systems;
• Promote the European Action Plan for the Prevention of Runway Excursions (EAPPRE);
• Member States to address runway safety by taking actions at the national level and measuring their effectiveness.

Ground safety

Ground safety includes both ground collisions and ground handling. Ground handling occurrences are the 4th most common cause of fatal accidents. They also cause significant damage to aircraft and equipment.

Key Actions:
• Introduce aircraft weight and balance systems;
• Analyse the impact of on-ground wings contamination on take-off performance;
• Member States to address ground safety by taking actions at the national level and measuring their effectiveness.

Controlled flight into terrain

Controlled flight into terrain describes accidents that occur when airworthy aircraft under pilots' complete control are inadvertently flown into terrain, water or an obstacle. While the installation of ground proximity warning systems (GPWS) has greatly reduced the risk, these accidents still remain a threat. Pilots are generally unaware of the danger until it is too late.

Key Actions:
• Incorporate terrain awareness warning systems in small turbine-powered aeroplanes;
• Member States to address controlled flight into terrain by taking actions at the national level and measuring their effectiveness.

Fire, smokes and fumes

Uncontrolled fire on board an aircraft, whether in-flight or on the ground, is one of the most severe hazards in aviation: the former can ultimately lead to loss of control as a result of structural or control system failure, or due to crew incapacitation; the latter can lead to major casualties if evacuation and emergency responses are not swift enough.

Key Actions:
• Introduce requirements to lower the risk of flame penetration and propagation in larger aircraft;
• Raise passenger awareness on the risks of transporting lithium batteries and research possible mitigation measures;
•   Member States to address fire, smokes and fumes by taking actions at the national level and measuring their effectiveness.

Helicopter Operations

HE Operations

The main causes of accidents and serious incidents in Commercial Air Transport by helicopters, which are most commonly flown at low altitudes to perform their operations, are loss of control in flight, system component failures, and collisions during conventional take-off and landing.

Key Actions:
• Strengthen the existing requirements for rotor drive system lubrication;
• Enhance post-ditching and water impact standards;
• Improve helicopter safety in Europe through risk awareness and safety promotion.

General Aviation Safety

GA Safety

The main categories of accidents in general aviation are abnormal runway contacts (hard and long landings), runway excursions, loss of control in flight, and system component failure. Risk awareness, airmanship and safety promotion can help mitigate each of these categories.

Key Actions:
• Improve risk awareness, sharing of good practices and safety promotion within Europe's general aviation community;
• Member States to play a leading role in implementing measures to reduce airspace infringement risk.
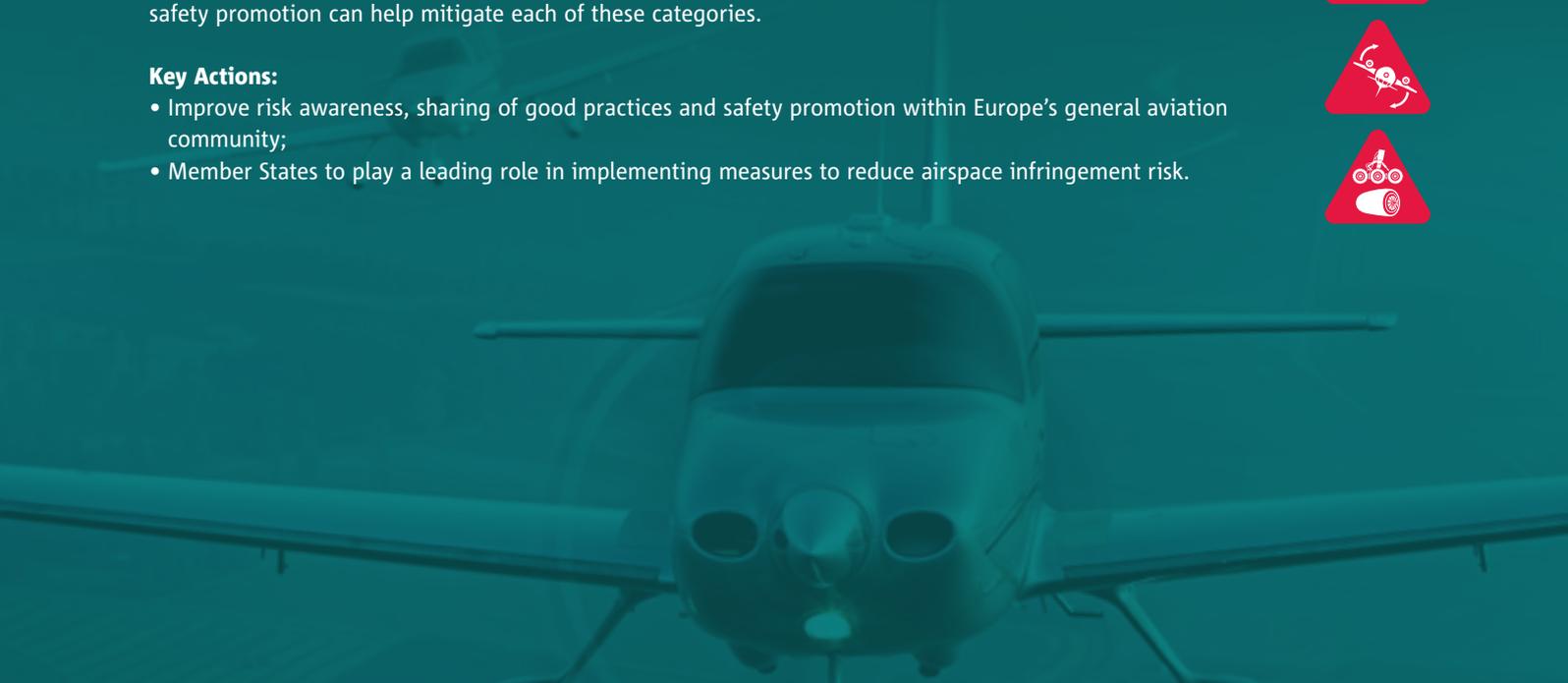
Emerging issues

New products, systems, technologies and operations

In the years to come, regulatory updates will be needed to manage the introduction of new products, systems, technologies, types of operations and associated trends, as well as to mitigate their risks on aviation safety.

Key Actions:
- Develop implementing rules on Remote Piloted Aircraft Systems (RPAS);
- Develop and implement a cybersecurity roadmap;
- Disseminate information to operators in order to mitigate the risk associated with overflying conflict zones.

Regulatory and oversight considerations

EASA's new, strict oversight requirements for Member States, developed under the Agency's 1st and 2nd extension, have introduced the concept of risk-based and cooperative oversight, which must now be supported through implementation.

Key Actions:
- Update the rules on Air Operations to improve inspector qualification requirements, so they can better assess the effectiveness of operators' management systems;
- Conduct audits within Risk-Based Oversight.
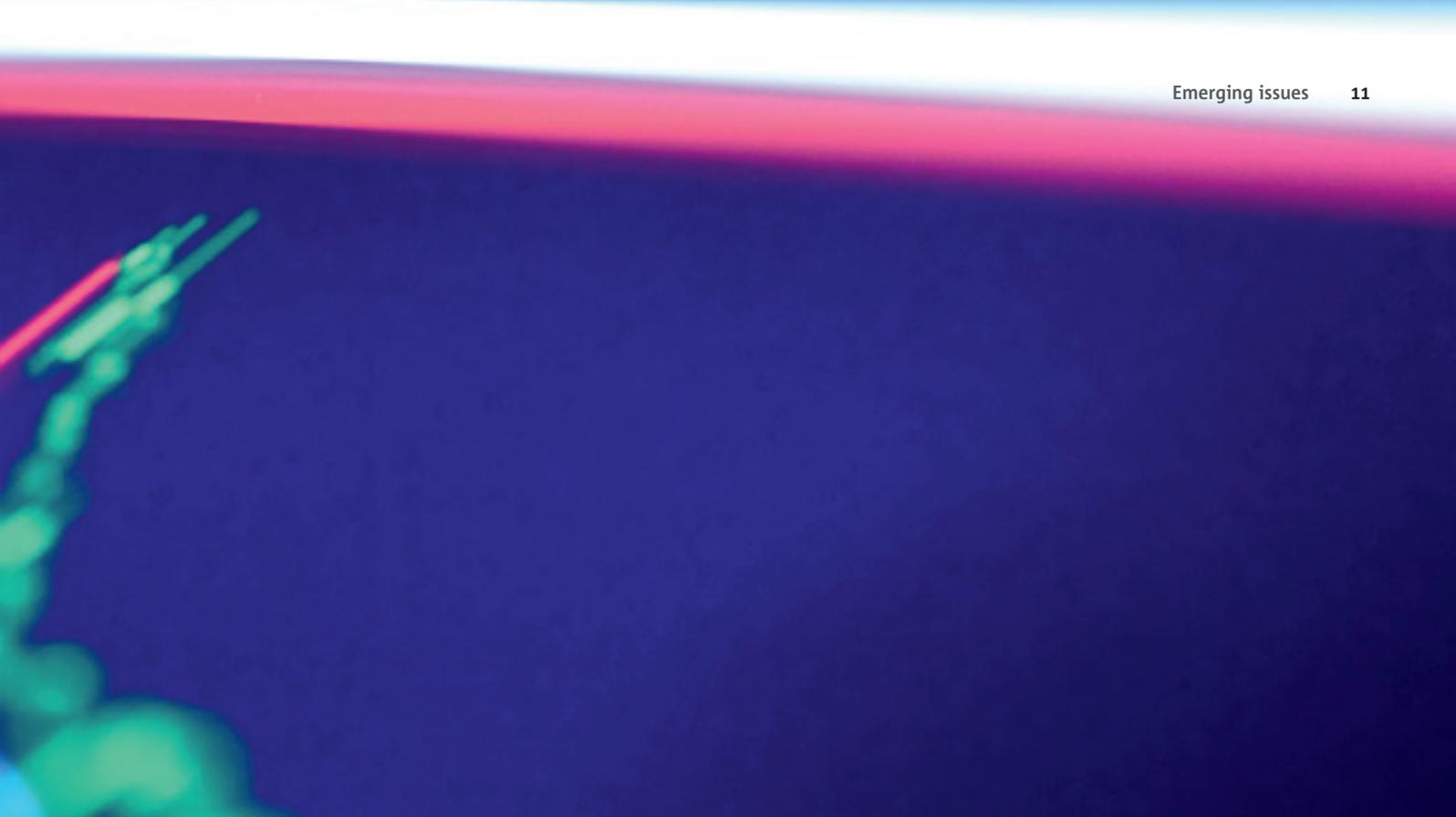
New business models

Due to the increased complexity of the aviation industry and the emergence of new business models, EASA Member States should participate in cooperative oversight, while EASA should evaluate whether the current regulatory system adequately addresses present and future safety risks.

Key Actions:
• Support NAAs (National Aviation Authorities) in the practical implementation of cooperative oversight;
• Support operators so that their management systems can capture new hazards introduced by different employment models;
• Improve the understanding of operators' governance structures;
• Obtain better EU-wide occurrence data from Member States in order to benchmark operators' safety culture.

Where can I find more information?

The core document and related materials can be found at **www.easa.europa.eu/sms**

The following Annexes complete the information presented in the EPAS:

- **Annex A** contains a detailed status report on the progress made on the Safety Plan;

- **Annex B** focuses on actions taken by the States and summarises the feedback provided throughout the year;

- **Annex C** contains the results of a State Safety Programme (SSP) Phase Implementation survey that highlights the progress of the States' SSP implementation.

Inquiries concerning the EPAS can be sent to: **easp@easa.europa.eu**