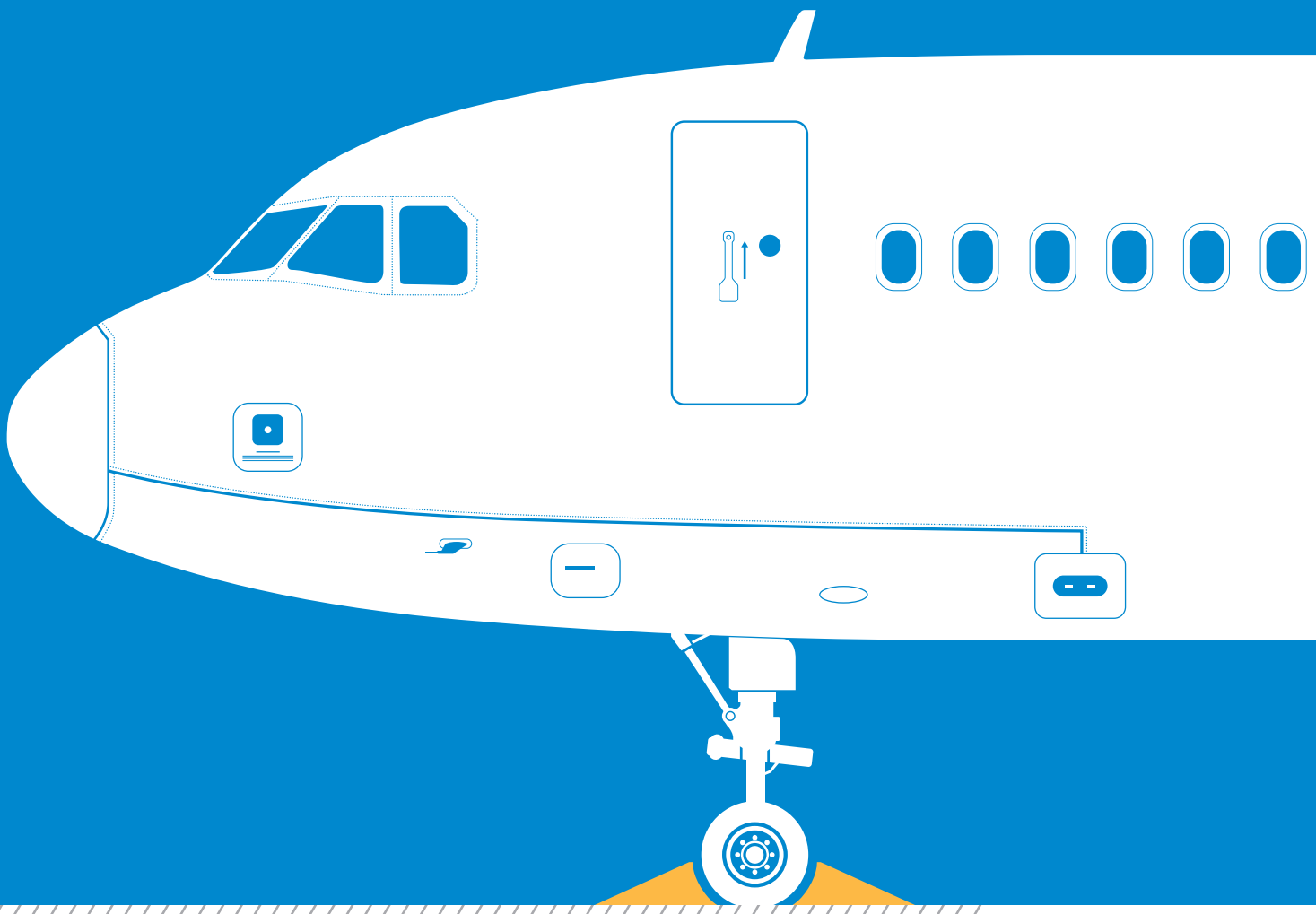
EASA
European Aviation Safety Agency

THE EUROPEAN PLAN *for* AVIATION SAFETY

Strategic Priorities



EPAS 2017-2021

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. The European Plan for Aviation Safety (EPAS) is the tool to manage preventive actions for aviation safety.

The EPAS seeks to further improve aviation safety throughout Europe. The Plan looks at aviation safety in a systemic manner based on available evidence. It addresses not only the direct reasons, but also the underlying or hidden causes behind accidents and incidents. Moreover, the Plan addresses emerging safety issues in order to ensure our high level of safety also in the future.

The EPAS is a key component of our integrated Safety Management System at the European level, and 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. The EASA Member States have committed to implement it through their State Programmes and Plans. The current EPAS edition covers the 5-year period from 2017 to 2021.

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.

Strategic priorities

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[1], 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.

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.

1 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).

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.

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;
- Disseminate best practices in Crew Resource Management

EASA developed the strategic priorities based on the **Commissions' Aviation strategy**, the EASA strategic plan and the newly developed European Safety Risk Portfolios in the **Annual Safety Review 2016**. The strategic priorities were consulted with industry and States in April and May 2016.

Operational safety

Commercial Air Transport Aeroplanes

In 2015, the domain with the highest number of fatalities was CAT Aeroplanes. This involved a single fatal accident, which was the Germanwings accident that occurred on 24 March 2015. In 2014, there were 2 fatal accidents and there have not been more than 2 fatal accidents in CAT Aeroplanes since 2005. 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.[2]

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)

64 % of fatal accidents in the last ten years (EASA MS) involved loss of control. Events such as a deviation from flight path, abnormal airspeed or triggering of stall protections when not dealt with properly can lead to fatal consequences involving many fatalities. Technical failures as well as ground handling safety issues can be also a precursor to this type of scenarios.

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.

Runway excursions and incursions

Hard landings, high-speed landing, and landings following an unstabilised approach are direct precursors to runway excursions (REs). This risk area represents 30 % of non-fatal accidents within the EASA MS. A runway incursion (RI) occurs when there is an incorrect presence of an aircraft, vehicle or person on an active runway or in its areas of protection. In the last 10 years, 18 % of fatal accidents within the EASA MS involve RIs.

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 and implement the European Action Plan for the Prevention of Runway Incursions (EAPPRI) and Excursions (EAPPRE);
- Member States to address runway safety by taking actions at the national level and measuring their effectiveness.

2 Extract from the EASA Annual Safety Review 2016.

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Safety in rotorcraft operations

This area includes both CAT and offshore operations as well as aerial work performed by helicopters. In 2015, there were 4 fatalities in CAT Helicopters, 4 fatalities in Aerial Work/Part-SPO Helicopters and no-fatalities in offshore operations. The European Safety Risk Management process has identified opportunities to improve risk controls in the following areas so that accident numbers will not increase.

Aircraft upset in flight (Loss of Control)

In the last 5 years, loss of control played a role in 2 out of the 4 fatal accidents for offshore helicopter operators and 4 out of 17 for aerial work.

Key Actions:

- Improvements in the certification specifications and standards relating to the certification of rotorcraft hoists

Terrain and obstacle conflict

In the last 5 years, terrain/obstacle conflict played a part in 3 out of the 17 fatal accidents for aerial work operations with helicopters. It has also been identified as a key risk area for CAT operations.

Key Actions:

- Introducing requirements for helicopter terrain avoidance warning systems

System/technical failure

In the last 5 years, system/technical failures contributed to 2 out of the 4 fatal accidents for offshore helicopter operators and 1 out of the 3 in CAT operations.

Key Actions:

- Strengthen the existing requirements for rotor drive system lubrication;
- Improve specifications on the use of vibration health monitoring (VHM) systems to detect imminent failures of critical rotor and rotor drive components

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Address safety risks in GA in a proportionate and effective manner

In the last 5 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 2015, there were 65 fatalities in non-commercial operations with aeroplanes (2nd highest number) and 27 in the domain of glider/sailplane operations (3rd 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.

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, 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.

Key Actions

- Improve the dissemination of safety promotion and training material by authorities, associations, flying clubs, insurance companies targeting flight instructors and/or pilots;
- Encourage the installation and use of modern technology;
- Develop a video and launch a campaign to help pilots “stay in control”;
- Increase weather awareness for pilots;
- Address airspace infringement risks through an EU wide promotion campaign;

Emerging safety issues

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.

Furthermore, the lack of harmonised rules at EU level makes unmanned aircraft systems (UAS) operations dependent on an individual authorisation by every Member State, 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 (Joint Authorities for Rulemaking on Unmanned Systems) facilitates harmonisation of standards within the EU Member States and other participating authorities.

Key Actions:

- Introduction of a regulatory framework for the operation of drones;
- Coordinate European activities to promote safe operation of drones to the general public.

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. Authorities 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.

Key Actions:

- Support 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.

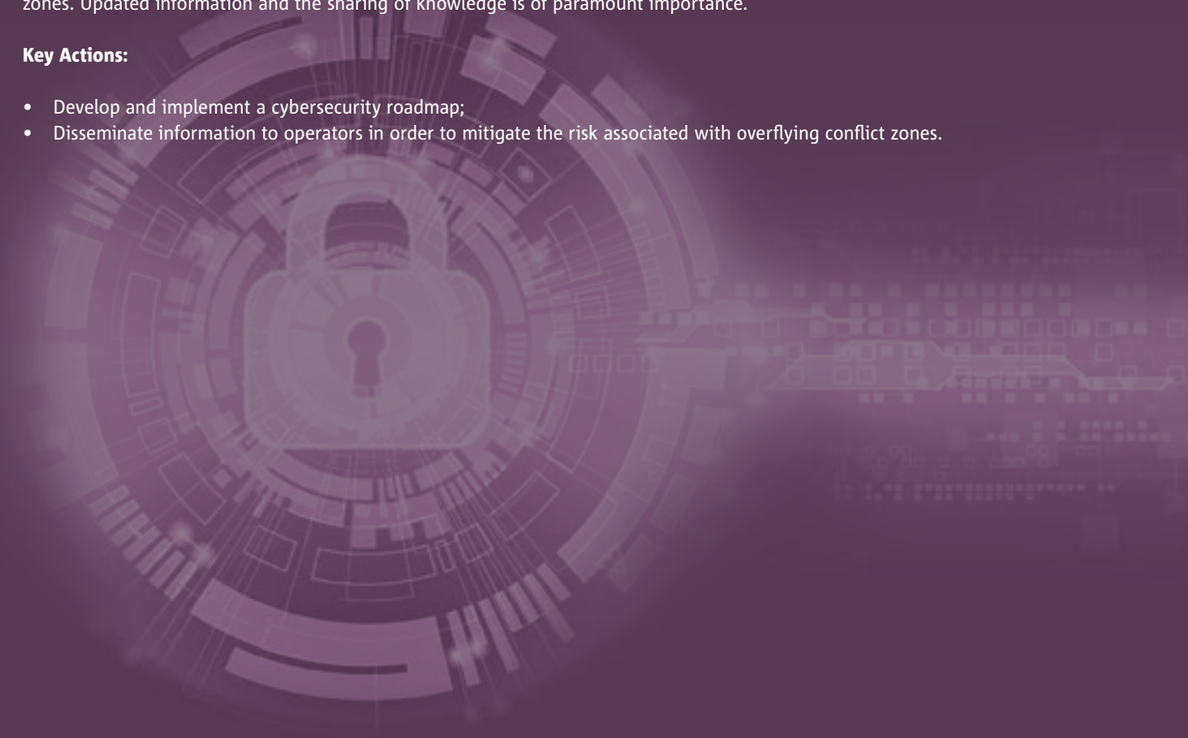
Impact of security on safety

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.

Furthermore, 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. Updated information and the sharing of knowledge is of paramount importance.

Key Actions:

- Develop and implement a cybersecurity roadmap;
- Disseminate information to operators in order to mitigate the risk associated with overflying conflict zones.



EASA
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Where can I find more information?

The full EPAS document and related materials can be found at **www.easa.europa.eu/sms**
Inquiries concerning the EPAS can be sent to:
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