EASA
European Union Aviation Safety Agency

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Effective Aviation Safety Occurrence Reporting Systems: Implementation and Use in SSP/SMS

EU-Africa Safety in Aviation (EU-ASA) Project

Dates: 15–18 July

Online: Zoom

Pablo Hernández-Coronado Quintero

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An Agency of the European Union

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DAY 2 – PROTECTION, GOVERNANCE AND AUTHORITY COORDINATION

Module 5: Safeguards for Reporting

- Protection of safety data, safety information and related sources (authority and service providers)
- Legal provisions, confidentiality and institutional barriers
- Procedure to unprotect safety information in gross negligence and wilful misconduct cases
- Practical examples and case studies

Protection of safety data & information

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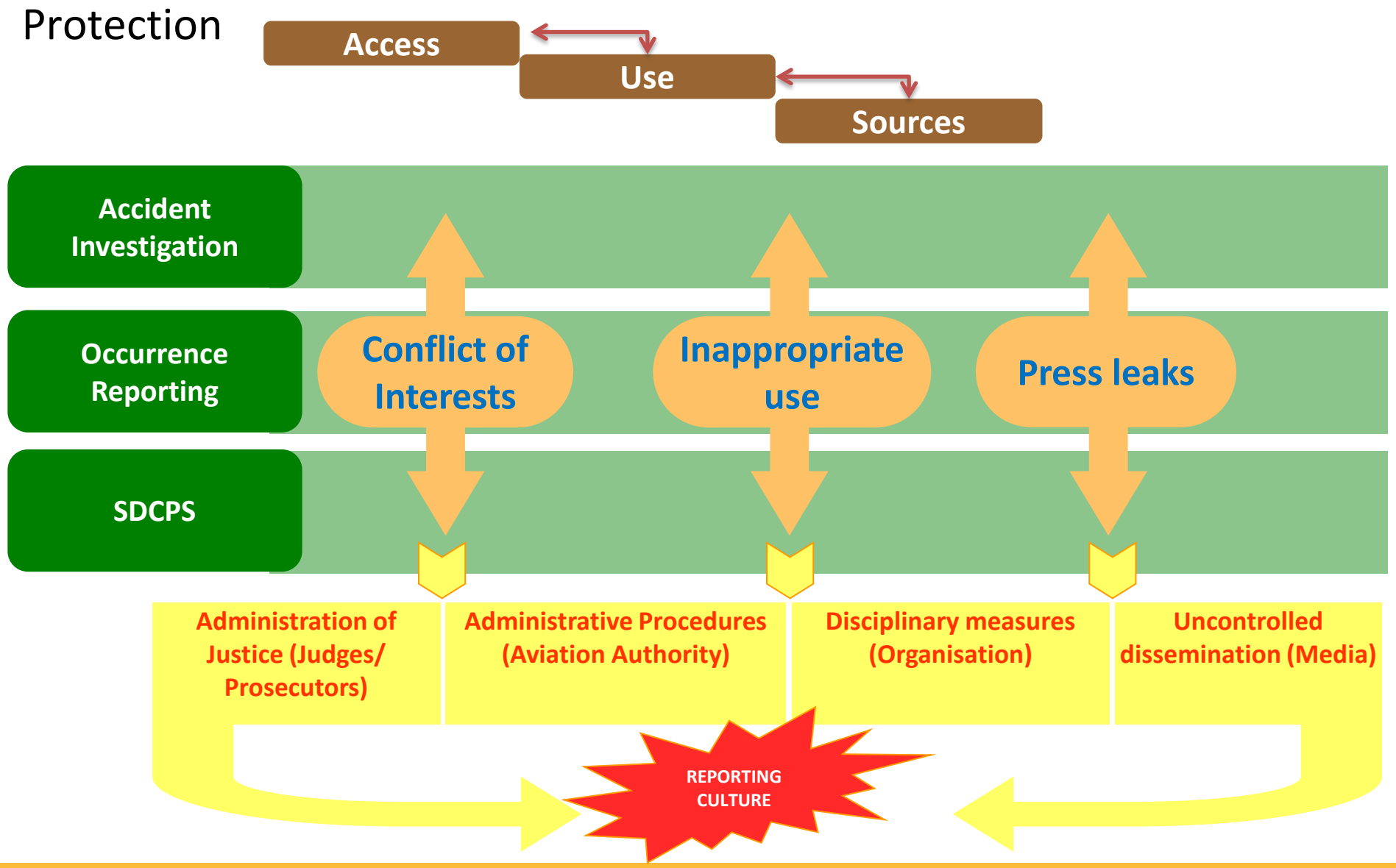

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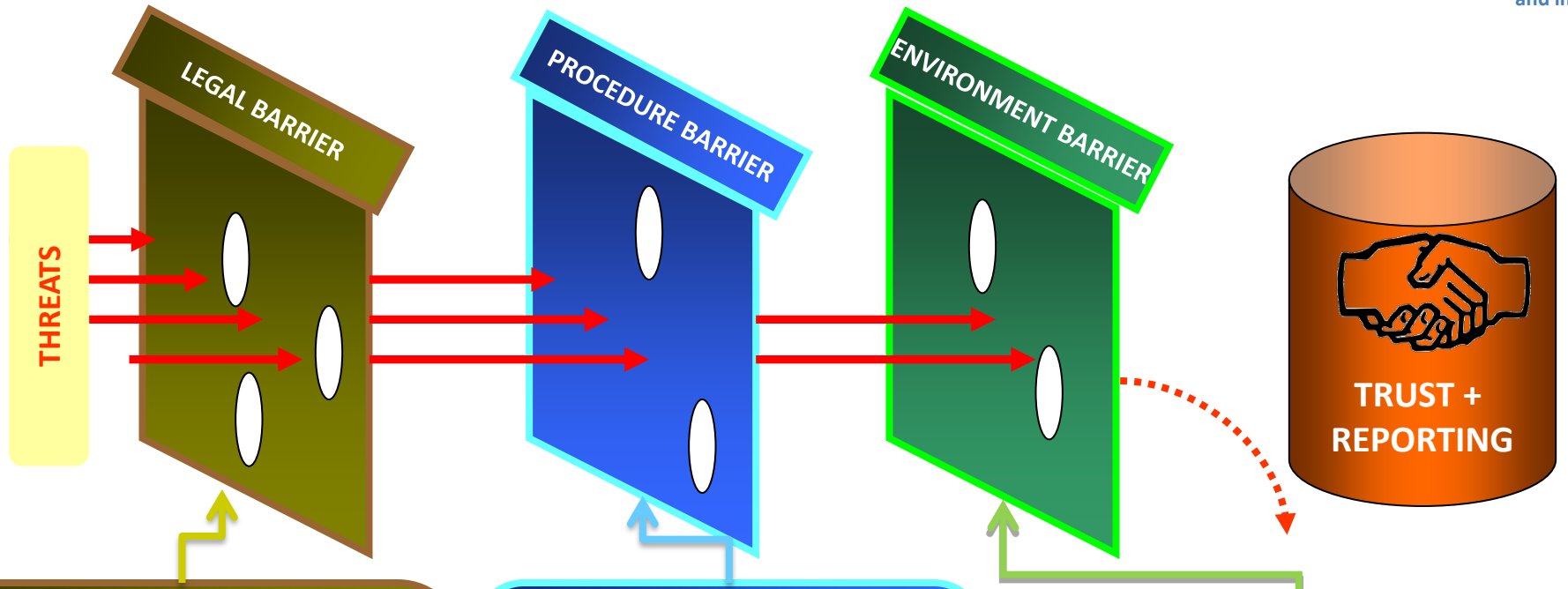

LEGAL

- Reporter Immunity (except willful act and/or gross negligence)
- Restricted dissemination of information
- Functional Independence between Report Management and the rest of the Departments

PROCEDURES

- De-identification before loading into database
- Reports shredding (every 15 days)

ENVIRONMENT

- Physical separation between facilities (reports management/AESA)
- Restricted LAN
- Encrypted Database

Protection of related sources

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Just Culture Principles in Organisations (Art.16.11)

- Organisations must **consult staff representatives** before adopting internal rules.
- **Internal rules** should describe the implementation of **'just culture' principles.**
- **Employees reporting occurrences are protected** from prejudice **except for** specific conditions: **willful misconduct and gross negligence.**

Legal provisions: Annex 19

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Chapter 5 Annex 19:

5.3 Safety data and safety information protection

5.3.1 States shall accord protection to safety data captured by, and safety information derived from, voluntary safety reporting systems and related sources in accordance with Appendix 3.

Note.— Sources include individuals and organizations.

5.3.2 **Recommendation**.— *States should extend the protection referred to in 5.3.1 to safety data captured by, and safety information derived from, mandatory safety reporting system and related sources.*

Note 1.— A reporting environment where employees and operational personnel may trust that their actions or omissions that are commensurate with their training and experience will not be punished is fundamental to safety reporting.

Note 2.— Guidance related to both mandatory and voluntary safety reporting systems is contained in the Safety Management Manual (SMM) *(Doc 9859).*

Legal provisions: Annex 19

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Question to the audience:

In your State, is the protection of the reporter (as per ICAO Annex 19, §5.3) applied only to the voluntary safety reporting system, or is it also extended to the mandatory reporting system?
Please answer: Yes (if the protection also applies to the mandatory system) or No (if it is limited to voluntary reporting only).

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Annex 19

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Chapter 5 Annex 19:

5.3.3 Subject to 5.3.1 and 5.3.2, States shall not make available or use safety data or safety information collected, stored or analysed in accordance with 5.1 or 5.2 for purposes other than maintaining or improving safety, unless the competent authority determines, in accordance with Appendix 3, that a principle of exception applies.

5.3.4 Notwithstanding 5.3.3, States shall not be prevented from using safety data or safety information to take any preventive, corrective or remedial action that is necessary to maintain or improve aviation safety.

Note.— Specific provision aimed at ensuring that there is no overlap with the protection of investigation records in Annex 13 is contained in Appendix 3, 1.2.

5.3.5 States shall take necessary measures, including the promotion of a positive safety culture, to encourage safety reporting through the systems referred to in 5.1.2 and 5.1.3.

Note. — Guidance related to positive safety culture is contained in the Safety Management Manual (SMM) *(Doc 9859.)*

Annex 19

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Chapter 5 Annex 19:

5.3.6 **Recommendation**.— *States should facilitate and promote safety reporting by adjusting their applicable laws, regulations and policies, as necessary.*

5.3.7 **Recommendation**.— *In support of the determination referred to in 5.3.3, States should institute and make use of appropriate advance arrangements between their authorities and State bodies entrusted with aviation safety and those entrusted with the administration of justice. Such arrangements should take into account the principles specified in Appendix 3.*

Note.— These arrangements may be formalized through legislation, protocols, agreements or memoranda of understanding.

Legal provisions: Annex 19

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Chapter 5 Annex 19:

5.3 Safety data and safety information protection

Appendix 3 Annex 19:

APPENDIX 3. PRINCIPLES FOR THE PROTECTION OF SAFETY DATA, SAFETY INFORMATION AND RELATED SOURCES

(See Chapter 5, 5.3)

Annex 19

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APPENDIX 3. PRINCIPLES FOR THE PROTECTION OF SAFETY DATA, SAFETY INFORMATION AND RELATED SOURCES

(*See Chapter 5, 5.3*)

Appendix 3 Annex 19:

Amendments to Annex 19

(2nd Edition)

2 March 2016
11 July 2016
7 November 2019

Note 1.— The protection of safety data, safety information and related sources is essential to ensure their continued availability, since the use of safety data and safety information for purposes other than maintaining or improving safety may inhibit the future availability of such data and information, with a significant adverse effect on safety.

Note 2.— In view of their different legal systems, States have the flexibility to draft their laws and regulations in accordance with their policies and practices.

Note 3.— The principles contained in this appendix are aimed at assisting States to enact and adopt national laws, regulations and policies to protect safety data and safety information gathered from safety data collection and processing systems (SDCPS), as well as related sources, while allowing for the proper administration of justice and necessary actions for maintaining or improving aviation safety.

Note 4.— The objective is to ensure the continued availability of safety data and safety information by restricting their use for purposes other than maintaining or improving aviation safety.

Annex 19

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APPENDIX 3. PRINCIPLES FOR THE PROTECTION OF SAFETY DATA, SAFETY INFORMATION AND RELATED SOURCES

(*See Chapter 5, 5.3*)

Appendix 3 Annex 19:

1. General principles

1.1 States shall, through national laws, regulations and policies protecting safety data, safety information and related sources, ensure that:

a) a balance is struck between the need for the protection of safety data, safety information and related sources to maintain or improve aviation safety, and the need for the proper administration of justice;

b) safety data, safety information and related sources are protected in accordance with this appendix;

c) the conditions under which safety data, safety information and related sources qualify for protection are specified; and

d) safety data and safety information remain available for the purpose of maintaining or improving aviation safety.

Note.— The protection of safety data, safety information and related sources is not intended to interfere with the proper administration of justice or with maintaining or improving safety.

1.2 When an investigation under Annex 13 has been instituted, accident and incident investigation records listed in 5.12 of Annex 13 shall be subject to the protections accorded therein instead of the protections accorded by this Annex.

Annex 19

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2. Principles of protection

2.1 States shall ensure that safety data or safety information is not used for:

a) disciplinary, civil, administrative and criminal proceedings against employees, operational personnel or organizations;

b) disclosure to the public; or

c) any purposes other than maintaining or improving safety;

unless a principle of exception applies.

2.2 States shall accord protection to safety data, safety information and related sources by ensuring that:

a) the protection is specified based on the nature of safety data and safety information;

b) a formal procedure to provide protection to safety data, safety information and related sources is established;

c) safety data and safety information will not be used in a way different from the purposes for which they were collected, unless a principle of exception applies; and

d) to the extent that a principle of exception applies, the use of safety data and safety information in disciplinary, civil, administrative and criminal proceedings will be carried out only under authoritative safeguards.

Note 1.— The formal procedure may include that any person seeking disclosure of safety data or safety information will provide the justification for its release.

Note 2.— Authoritative safeguards include legal limitations or restrictions such as protective orders, closed proceedings, in-camera review, and de-identification of data for the use or disclosure of safety information in judicial or administrative proceedings.

Annex 19

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3. Principles of exception

Exceptions to the protection of safety data, safety information and related sources shall only be granted when the competent authority:

a) determines that there are facts and circumstances reasonably indicating that the occurrence may have been caused by an act or omission considered, in accordance with national laws, to be conduct constituting gross negligence, wilful misconduct or criminal activity;

b) after reviewing the safety data or safety information, determines that its release is necessary for the proper administration of justice, and that the benefits of its release outweigh the adverse domestic and international impact such release is likely to have on the future collection and availability of safety data and safety information; or

c) after reviewing the safety data or safety information, determines that its release is necessary for maintaining or improving safety, and that the benefits of its release outweigh the adverse domestic and international impact such release is likely to have on the future collection and availability of safety data and safety information.

Note 1.— In administering the decision, the competent authority takes into account the consent of the source of the safety data and safety information.

Note 2.— Different competent authorities may be designated for different circumstances. The competent authority could include, but is not limited to, judicial authorities or those otherwise entrusted with aviation responsibilities designated in accordance with national law.

Annex 19

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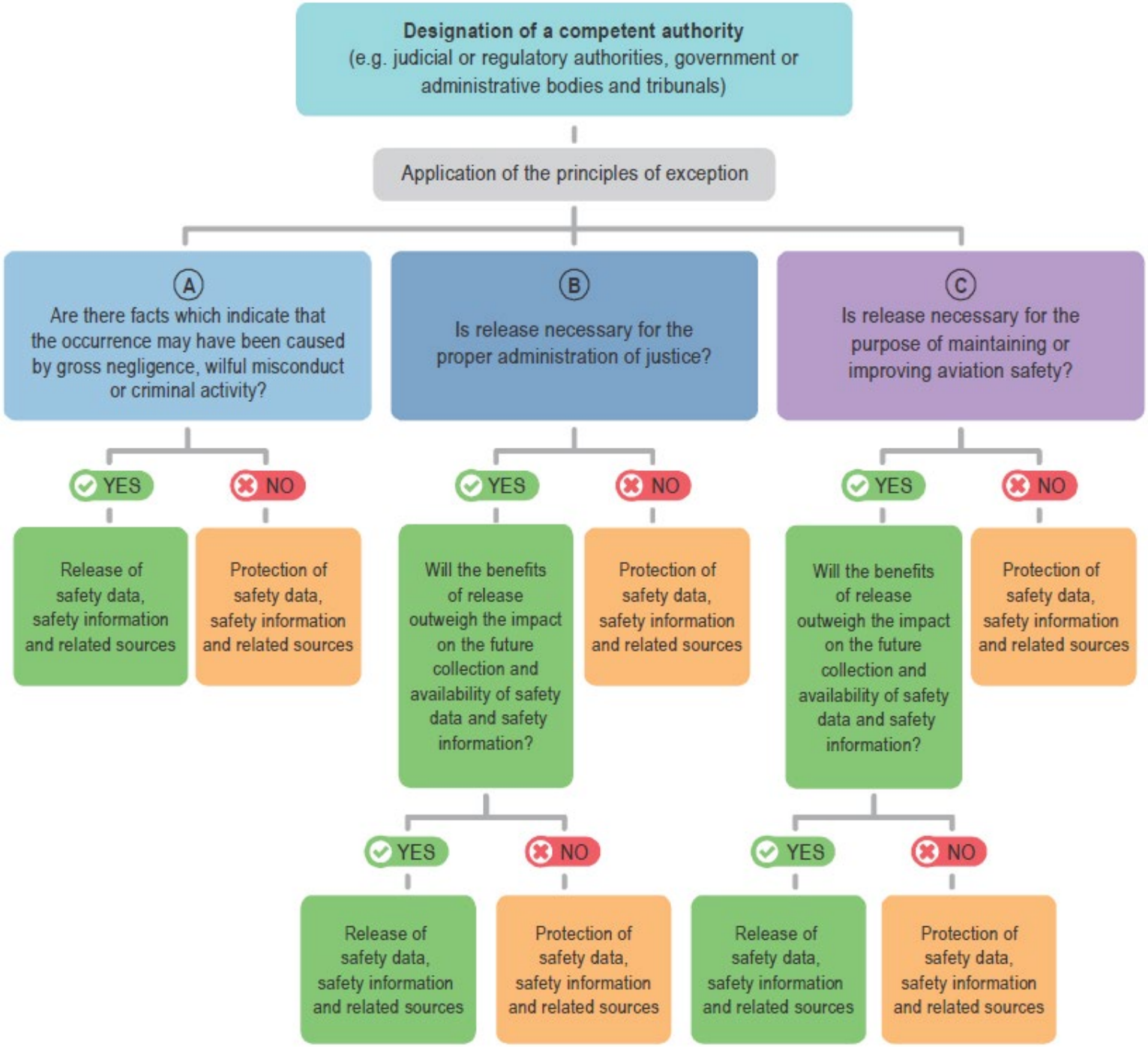

Annex 19

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4. Public disclosure

4.1 States that have right-to-know laws shall, in the context of requests made for public disclosure, create exceptions from public disclosure to ensure the continued confidentiality of voluntarily supplied safety data and safety information.

Note.— Laws, regulations and policies commonly referred to as right-to-know laws (freedom-of-information, open records, or sunshine laws) allow for public access to information held by the State.

4.2 Where disclosure is made in accordance with section 3, States shall ensure that:

a) public disclosure of relevant personal information included in the safety data or safety information complies with applicable privacy laws; or

b) public disclosure of the safety data or safety information is made in a de-identified, summarized or aggregate form.

5. Responsibility of the custodian of safety data and safety information

States shall ensure that each SDCPS has a designated custodian to apply the protection to safety data and safety information in accordance with applicable provisions of this appendix.

Note.— The "custodian" may refer to an individual or organization.

Annex 19

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6. Protection of recorded data

Note 1.— Ambient workplace recordings required by national laws, for example, cockpit voice recorders (CVRs) or recordings of background communication and the aural environment at air traffic controller work stations, may be perceived as constituting an invasion of privacy for operational personnel that other professions are not exposed to.

Note 2.— Provisions on the protection of flight recorder recordings and recordings from air traffic control units during investigations instituted under Annex 13 are contained therein. Provisions on the protection of flight recorder recordings during normal operations are contained in Annex 6.

6.1 States shall, through national laws and regulations, provide specific measures of protection regarding the confidentiality and access by the public to ambient workplace recordings.

6.2 States shall, through national laws and regulations, treat ambient workplace recordings required by national laws and regulations as privileged protected data subject to the principles of protection and exception as provided for in this appendix.

ICAO Guidance Material Doc 9859

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ICAO Guidance Material Doc 9859

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3.1 INTRODUCTION

3.1.1 A safety culture is the natural consequence of having humans in the aviation system. Safety culture has been described as "how people behave in relation to safety and risk when no one is watching". It is an expression of how safety is perceived, valued and prioritized by management and employees in an organization, and is reflected in the extent to which individuals and groups are:

a) aware of the risks and known hazards faced by the organization and its activities;

b) continuously behaving to preserve and enhance safety;

c) able to access the resources required for safe operations;

d) willing and able to adapt when facing safety issues;

e) willing to communicate safety issues; and

f) consistently assessing the safety related behaviours throughout the organization.

3.1.2 Annex 19 requires that both States and service providers promote a positive safety culture with the aim of fostering effective safety management implementation through the SSP/SMS. This chapter provides guidance on the promotion of a positive safety culture.

ICAO Guidance Material Doc 9859

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Understanding Safety Culture

Multiple Safety Cultures:

- Organisations contain different “safety cultures” across groups, shaped by unique roles and responsibilities.

Impact on Safety Performance:

- Safety culture affects the implementation and success of safety management systems (SSP/SMS).
- A weak safety culture can lead to shortcuts and unsafe practices.

ICAO Guidance Material Doc 9859

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The Role of Management in Safety Culture

Positive Safety Culture:

- Strong, visible support from upper management fosters shared responsibility among all staff.
- Active involvement from all levels supports a continuously improving safety culture.

Building Trust and Respect:

- Trust and respect between personnel and management are critical to a positive safety culture.
- Leadership reinforcement and consistent safe practices help establish safety as the norm.

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Effective Safety Reporting Systems

Confidential and Non-Punitive Reporting:

- Safety reporting should be confidential to encourage openness without fear of punishment.
- Such systems promote trust and empower personnel to report safety issues.

Importance of Safety Data Protection:

- Confidentiality is essential for sustaining voluntary safety reporting, allowing management to collect vital safety insights.

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Cultural Diversity and Its Impact on Safety

Influence of Cultural Backgrounds:

- Safety culture is shaped by diverse national and professional cultures within the workforce.
- Managers must promote a common understanding of safety that transcends cultural differences.

Effective Communication and Teamwork:

- Managing safety requires cohesive teams where all members share a common safety mindset, regardless of cultural backgrounds.

ICAO Guidance Material Doc 9859

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Safety Culture During Organisational Change

Impact of Change on Safety:

- Changes in workload, job security, and training access during transitions can negatively affect safety culture.
- Employee involvement and clear communication are essential for maintaining safety culture through change.

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Characteristics of a Positive Safety Culture

Key Features of a Positive Safety Culture:

- Commitment to safety by both management and employees.
- Openness to feedback, continuous improvement, and shared understanding of risks.

Enablers and Disablers:

- Actions from management and employees can either strengthen or weaken safety culture.
- Focusing on enablers helps promote a positive, proactive safety environment.

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Monitoring and Assessing Safety Culture

Tools for Assessing Safety Culture:

- Use surveys, interviews, observations, and document reviews to evaluate safety culture maturity.

Challenges in Assessment:

- Safety culture assessments can be subjective, and a focus on scoring can sometimes overshadow genuine improvement.
- Aim to understand and enhance safety culture rather than simply achieving high assessment scores.

Legal provisions: Regulation 376/2014

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Article 15 — Confidentiality and appropriate use of information

- EASA, MMSS and organisations: **confidentiality** of occurrence data + **processing of personal data** to the extent necessary.
- **Data only for the purposes for which they were collected**: not to determine fault or liability or for purposes other than maintaining or improving safety.

- MMSS & Org.: confidentiality and **restrict its use to safety-related obligations** (without attributing blame or liability).
- NCAs: **Advance administrative arrangements** between ORS authority and Justice Administration. Balance of objectives.

Regulation 376/2014

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Article 15

Confidentiality and appropriate use of information

1. Member States and organisations, in accordance with their national law, and the Agency shall take the necessary measures to ensure the appropriate confidentiality of the details of occurrences received by them pursuant to Articles 4, 5 and 10.

Each Member State, each organisation established in a Member State, or the Agency shall process personal data only to the extent necessary for the purposes of this Regulation and without prejudice to national legal acts implementing Directive 95/46/EC.

2. Without prejudice to the provisions relating to the protection of safety information in Articles 12, 14 and 15 of Regulation (EU) No 996/2010, information derived from occurrence reports shall be used only for the purpose for which it has been collected.

Member States, the Agency and organisations shall not make available or use the information on occurrences:

(a) in order to attribute blame or liability; or

(b) for any purpose other than the maintenance or improvement of aviation safety.

Regulation 376/2014

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3. The Commission, the Agency and the competent authorities of the Member States, when discharging their obligations under Article 14 in relation to the information contained in the European Central Repository, shall:

(a) ensure the confidentiality of the information; and

(b) limit the use of the information to what is strictly necessary in order to discharge their safety-related obligations without attributing blame or liability; in this respect, the information shall be used in particular for risk management and for analysis of safety trends which may lead to safety recommendations or actions, addressing actual or potential safety deficiencies.

4. Member States shall ensure that their competent authorities referred to in Article 6(3) and their competent authorities for the administration of justice cooperate with each other through advance administrative arrangements. These advance administrative arrangements shall seek to ensure the correct balance between the need for proper administration of justice, on the one hand, and the necessary continued availability of safety information, on the other.

Regulation 376/2014

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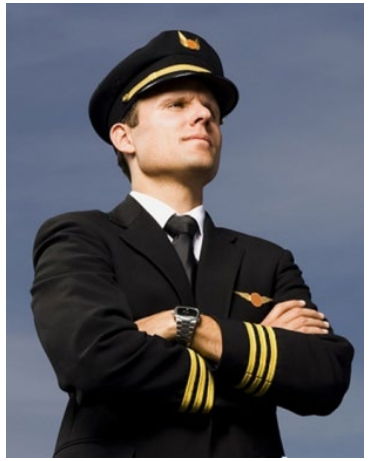

Article 16 Protection of the information source

- Organisations: **personal data, only those responsible for the ORS** unless necessary.
- **De-identified information is disclosed**.
- MMSS **will not record personal data in the national database.**

- MMSS/EASA may take **measures to maintain or improve safety**.
- **Except under criminal law**, **MMSS will refrain from initiating prosecutions** for reported unpremeditated infringements, **except for exceptions para. 10**, and even without exceptions if the MMSS so determines.
- **Administrative or disciplinary proceedings** under national law: no information contained in the occurrences will be used against the notifier or persons mentioned, except for exceptions para. 10.
- Possible extension to civil or criminal proceedings.

Regulation 376/2014

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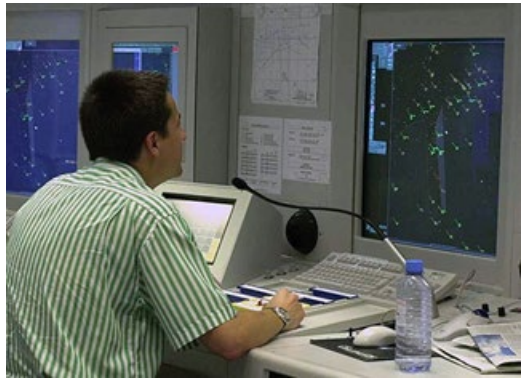
- MMSS: have the **possibility of adopting more protective legislative provisions**.
- Subject to the exceptions in point 10, **workers shall not suffer retaliation from their employer** for the information communicated by the reporter.



EXCEPTIONS

10. The protection under paragraphs 6, 7 [illegible] shall not apply to any of the following situations:

(a) in cases of wilful misconduct;

Willful misconduct

(b) where there has been a manifest, severe and serious disregard of an obvious risk and profound failure of professional responsibility to take such care as is evidently required in the circumstances, causing foreseeable damage to a person or property, or which seriously compromises the level of aviation safety.

Gross negligence

Regulation 376/2014

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"a culture in which front-line operators or other persons are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, wilful violations and destructive acts are not tolerated"

EXCEPTIONS

10. The protection under paragraphs 6, 7 and 9 of this Article shall not apply to any of the following situations:

(a) in cases of wilful misconduct;

(b) where there has been a manifest, severe and serious disregard of an obvious risk and profound failure of professional responsibility to take such care as is evidently required in the circumstances, causing foreseeable damage to a person or property, or which seriously compromises the level of aviation safety.

Willful misconduct

Gross negligence

Regulation 376/2014

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Article 16

Protection of the information source

1. For the purposes of this Article, 'personal details' includes in particular names or addresses of natural persons.

2. Each organisation established in a Member State shall ensure that all personal details are made available to staff of that organisation other than persons designated in accordance with Article 6(1) only where absolutely necessary in order to investigate occurrences with a view to enhancing aviation safety.

Disidentified information shall be disseminated within the organisation as appropriate.

3. Each Member State shall ensure that no personal details are ever recorded in the national database referred to in Article 6(6). Such disidentified information shall be made available to all relevant parties, for example to allow them to discharge their obligations in relation to aviation safety improvement.

4. The Agency shall ensure that no personal details are ever recorded in the Agency database referred to in Article 6(8). Such disidentified information shall be made available to all relevant parties, for example to allow them to discharge their obligations in relation to aviation safety improvement.

Regulation 376/2014

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5. Member States and the Agency shall not be prevented from taking any action necessary for maintaining or improving aviation safety.

6. Without prejudice to applicable national criminal law, Member States shall refrain from instituting proceedings in respect of unpremeditated or inadvertent infringements of the law which come to their attention only because they have been reported pursuant to Articles 4 and 5.

The first subparagraph shall not apply in the cases referred to in paragraph 10. Member States may retain or adopt measures to strengthen the protection of reporters or persons mentioned in occurrence reports. Member States may in particular apply this rule without the exceptions referred to in paragraph 10.

7. If disciplinary or administrative proceedings are instituted under national law, information contained in occurrence reports shall not be used against:

(a) the reporters; or

(b) the persons mentioned in occurrence reports.

The first subparagraph shall not apply in the cases referred to in paragraph 10.

Member States may retain or adopt measures to strengthen the protection of reporters or persons mentioned in occurrence reports. Member States may in particular extend that protection to civil or criminal proceedings.

Regulation 376/2014

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8. Member States may adopt or maintain in force legislative provisions ensuring a higher level of protection for reporters or for persons mentioned in occurrence reports than those established in this Regulation.

9. Except where paragraph 10 applies, employees and contracted personnel who report or are mentioned in occurrence reports collected in accordance with Articles 4 and 5 shall not be subject to any prejudice by their employer or by the organisation for which the services are provided on the basis of the information supplied by the reporter.

10. The protection under paragraphs 6, 7 and 9 of this Article shall not apply to any of the following situations:

(a) in cases of wilful misconduct;

(b) where there has been a manifest, severe and serious disregard of an obvious risk and profound failure of professional responsibility to take such care as is evidently required in the circumstances, causing foreseeable damage to a person or property, or which seriously compromises the level of aviation safety.

Regulation 376/2014

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- **Organisations** should adopt **"internal rules"** to implement principles of **just culture.**
- **MMSS should designate a body** in charge of:
  - ✓ Possible review of internal rules of organisations
  - ✓ Reception and mediation of breaches of internal regulations
  - ✓ Advise state authorities on sanctions and remedies
  - ✓ 15/05/2019 inform EC + every 5 years thereafter

Regulation 376/2014

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11. Each organisation established in a Member State shall, after consulting its staff representatives, adopt internal rules describing how 'just culture' principles, in particular the principle referred to in paragraph 9, are guaranteed and implemented within that organisation.

The body designated pursuant to paragraph 12 may ask to review the internal rules of the organisations established in its Member State before those internal rules are implemented.

Regulation 376/2014

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12. Each Member State shall designate a body responsible for the implementation of paragraphs 6, 9 and 11.

Employees and contracted personnel may report to that body alleged infringements of the rules established by this Article. Employees and contracted personnel shall not be penalised for reporting alleged infringements. Employees and contracted personnel may inform the Commission about such alleged infringements.

Where appropriate, the designated body shall advise the relevant authorities of its Member State concerning remedies or penalties in application of Article 21.

13. On 15 May 2019 and every five years thereafter, each Member State shall send the Commission a report on the application of this Article, and in particular on the activities of the body designated pursuant to paragraph 12. The report shall not contain any personal data.

Legal provisions: National Regulations; Spain

Aviation Safety Act

LAW 1/11 OF 4 MARCH

State Safety Programme (SSP)

- Obligation to implement SSP (PESO) according to ICAO/EU.
- What it consists of.
- How it is approved, modified, revised.
- Basic principle: **protection of safety information** so that it **is not used inappropriately** and to ensure its continued availability.
- Responsible executive responsible for driving it forward.
- Obliged by the Programme; public sector.
- Enables development by Regulation.
- Service Providers Obligations:
  - ✓ Provide the information requested from them.
  - ✓ Implement SMS in accordance with current regulations or equivalent mechanisms.
  - ✓ Service Providers linked to SSP (PESO).
- AESA coordinates the SSP (PESO) and prepares an annual safety report.

National Regulations; Spain

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DATA PROTECTION. EXPERIENCE IN SPAIN. SSP

- **Principles of information protection**

- ✈ SSP collected information is gathered **for the sole purpose of improving safety**
- ✈ The Law **prevents inappropriate use**

Aviation Safety Act

- ✈ Law **protects the source of safety information** against misuse by both **public organisations** obliged by the Programme and the **employer**
  - cannot be used as evidence valid for any type of administrative procedure, and
  - cannot be disclosed to the general public.
- ✈ However, this provision contains **two exceptions**:
  - **Intentional conduct** or **gross negligence**
  - **Article 19**

By the mere act of reporting, an employee cannot suffer adverse action from his/her employer, unless it is proved that there has been bad faith by the employee: annulment of any decision taken by the employer

National Regulations; Spain

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Aviation Safety Act

Exceptions to the protection (Art. 19)

Access to Information by the Judiciary:

- The court may take any measures to protect the information; in particular, it may prohibit any publication or communication.

Access to information by research parliamentary committees:

- AESA may request that the meetings of these committees be declared secret

Transfer of information by the aviation safety agency or the accidents investigation board in compliance with legal obligations of collaboration:

- In case of a legal obligation to cooperate; although in the case of the SSP it is subject to reciprocal arrangements for confidentiality

Transfer of information in case of safety issues:

- With the sole purpose of accidents prevention

National Regulations; Spain

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SSP Regulation

ROYAL DECREE 995/13 DEVELOPING THE SSP

- Providers of aeronautical services and products linked by the Programme (civil and military) and their obligations.
- Enforcement policy
- Coordination and implementation of the PESO
- Role of AESA in the Programme
- Role of the responsible executive (appointed by the Council of Ministers)
- Monitoring of the Programme and approval of the SSP (PESO)

Agreement of the Council of Ministers of 23 January 2015 (now 15 Dec 2020):

- State Safety Policy and Objectives
- Unified State Safety Programme Document (AESA)
- National Aviation Safety Plan-NASP (AESA)

National Regulations; Spain

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SSP Regulation

ROYAL DECREE 995/13 DEVELOPING THE SSP

Enforcement Policy (article 16)

- The public supervisory body shall decide on the appropriate coercive or punitive measures (SSP obligations).

- Coercive or punitive measures shall not be applied when:
  - Safety performance targets are not met, and it is established that the service provider has made available the means to achieve these targets.

  - In the event of safety deviations, managed internally under the framework of the Safety Management System, where there is no:
    - ✓ Wilful or gross negligence
    - ✓ Repetition of the conduct
    - ✓ Complaints by third parties or noticed in aeronautical inspection actions.

    However, in such a case, information provided in the framework of the Programme may not be incorporated into the proceedings.

Procedure to unprotect safety inf.

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PROTECTION OF SOURCES OF INFORMATION

Hazards to sources

- **Civil Litigation**
- **Regulatory sanctions**
- **Criminal Proceedings**
- **Company disciplinary actions**
- **Public disclosure**

Principles of protection

- **Information from reporting and recording processes at SSP/SMS will not be used as evidence for enforcement action**

- **Safety information must not be used for purposes other than the purposes for which it was collected *(ICAO Assembly Resolutions 35/17, 36/9 y 37/3)***

➢ ***Legal SARPS in ICAO Annex 19, Appendix 3***

Disclosure of Information

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→ Europe

→ Regulation (EU) No 376/2014, Article 16(6), (7), (9) and (10):

10. The protection under paragraphs 6, 7 and 9 of this Article shall not apply to any of the following situations:

(a) in cases of wilful misconduct;

(b) where there has been a manifest, severe and serious disregard of an obvious risk and profound failure of professional responsibility to take such care as is evidently required in the circumstances, causing foreseeable damage to a person or property, or which seriously compromises the level of aviation safety.

Disclosure of Information

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→ National Regulation (Air Safety Act-ASA)

- → Art. 11, ASA: safety information provided voluntarily and **without intent or gross negligence** may not be used as valid evidence in any administrative proceedings, [...]
- → Art. 12.1, ASA: 1.b information provided by aeronautical professionals and providers of aeronautical services and products in the framework of the Programme **may not be used to take any adverse action** as a consequence of such information **or to incorporate it in proceedings already initiated**, **unless** it is manifestly established that the actions taken have been carried out **with intent or gross negligence**.

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→ National (Royal Decree 995/2013)

- → RD 995/2013, article 8, second paragraph: provides that the measures for the protection of information provided in the framework of the Programme **shall not apply to information or safety data that reveal actions in which intent or gross negligence can be detected**, in accordance with the provisions of articles 11 and 12 of Law 21/2003, of 7 July.
- → RD 995/2013, article 16, third paragraph, establishes that **the public supervisory bodies shall refrain from adopting coercive or punitive measures in the event of safety deviations notified by the provider**, when the provider complies with the provisions of article 11, **unless** any of the following circumstances apply:
  - → a) It must be clearly established **that the deviation has been committed** with **intent or gross negligence**.
  - → b) **Gross negligence is established** as a consequence of the **repetition of the conduct**.

Disclosure of Information

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→ Conclusion

- It is necessary to clarify in which cases information provided under the ORS may be considered by public supervisory bodies to **involve wilful or grossly negligent conduct** and therefore subject to being used to take any adverse action against the individual as a result of such information or to be incorporated into proceedings already initiated.

Disclosure of Information

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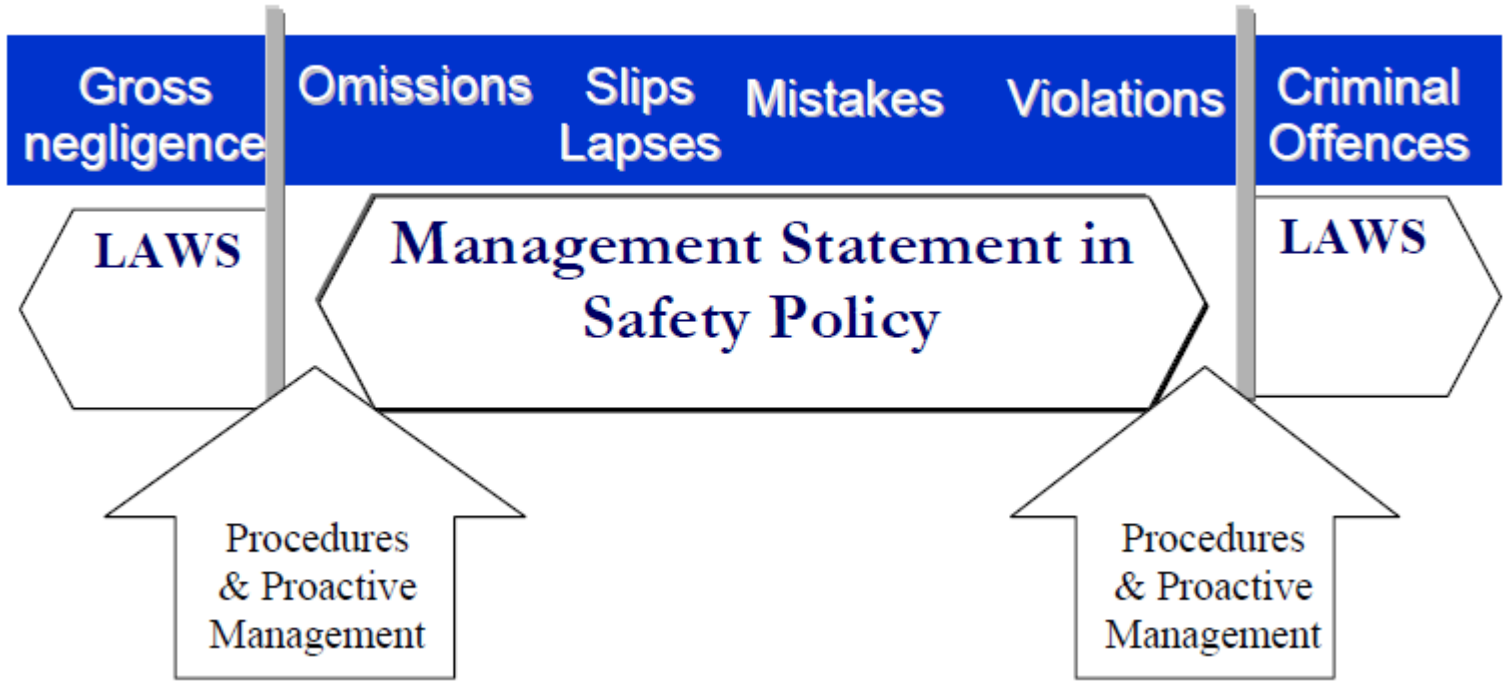
BUT WHO DRAWS THE LINE ?



Disclosure of Information

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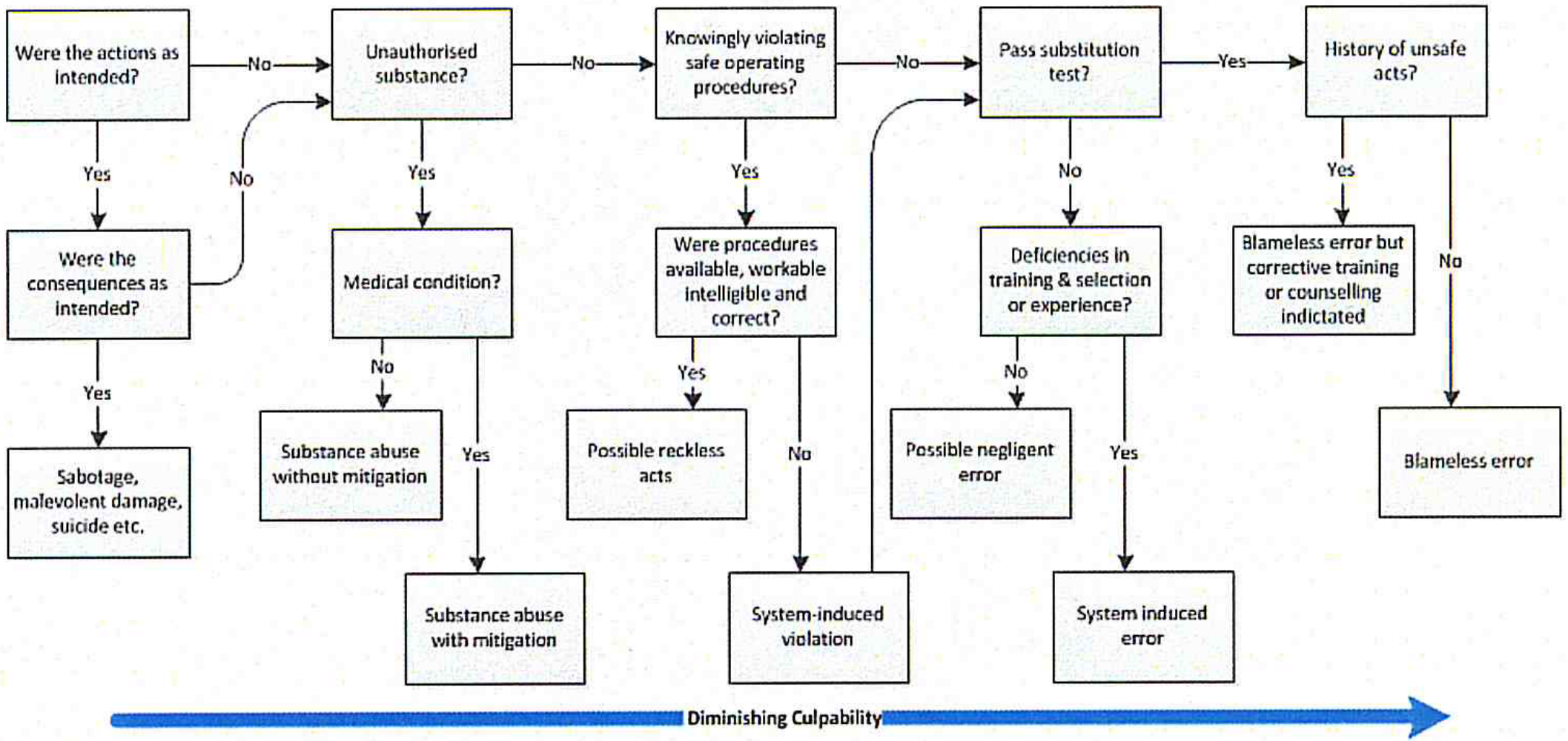

Disclosure of Information (AESA)

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- Characteristics:
  - Any Unit within the authority can request to remove the protection of the information if there are indications of wilful misconduct or gross negligence.
  - The indication of wilful misconduct or gross negligence will be determined from a technical point of view based on the scheme developed for this purpose and a report will be sent to the DGSPV (SSP Directorate).
  - Once initiated, a common evaluation will be carried out by an official from the Safety Evaluation Coordination (under DGSPV), another from the Legal Department and another from the Competent Unit (technical section) within 1 month.
  - The information will only be disclosed if the wilful misconduct or gross negligence assessments are unanimous.

Disclosure of Information (AESA)

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DIAGRAM FOR TECHNICAL DETERMINATION OF GROSS NEGLIGENCE OR WILFUL MISCONDUCT

Disclosure of Information

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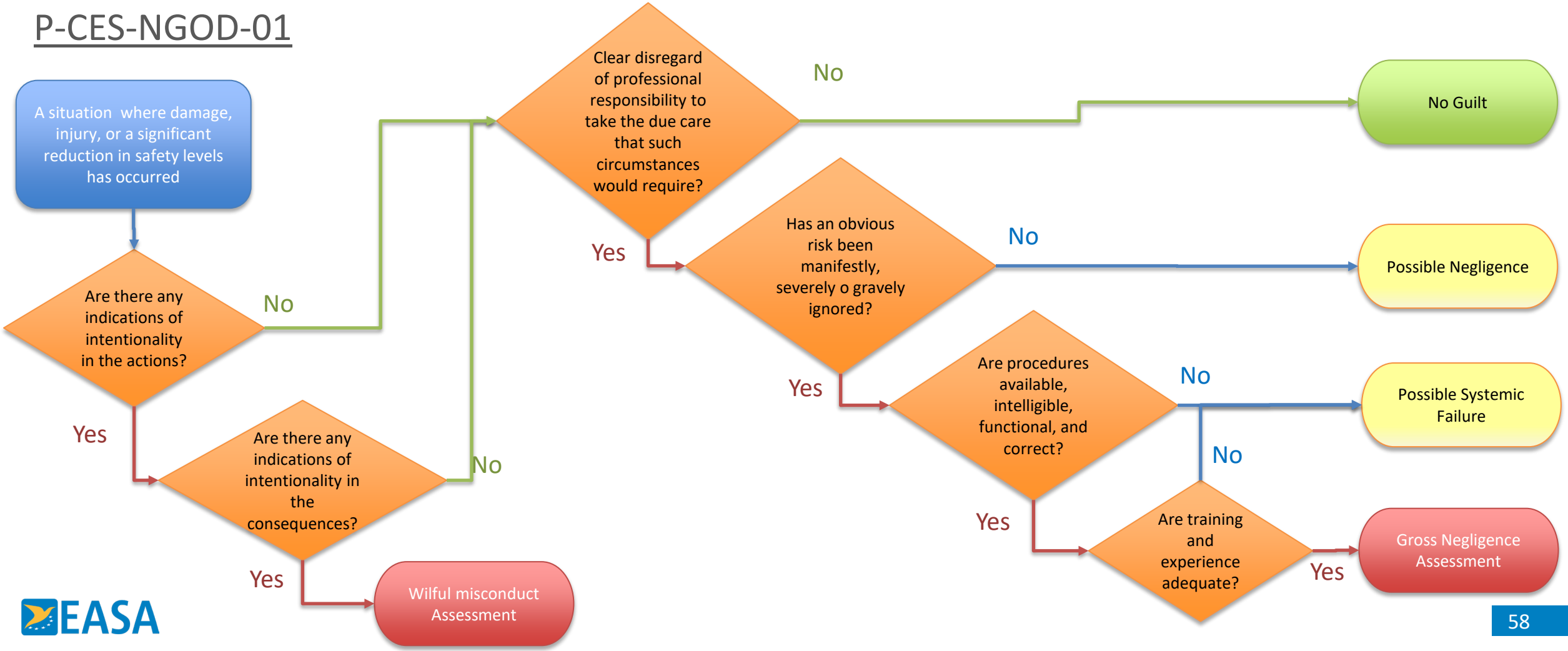
AESA's Internal procedure when Wilful Misconduct or Gross Negligence is suspected: P-CES-NGOD-01



Overview and Discussion

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Practical examples and case studies

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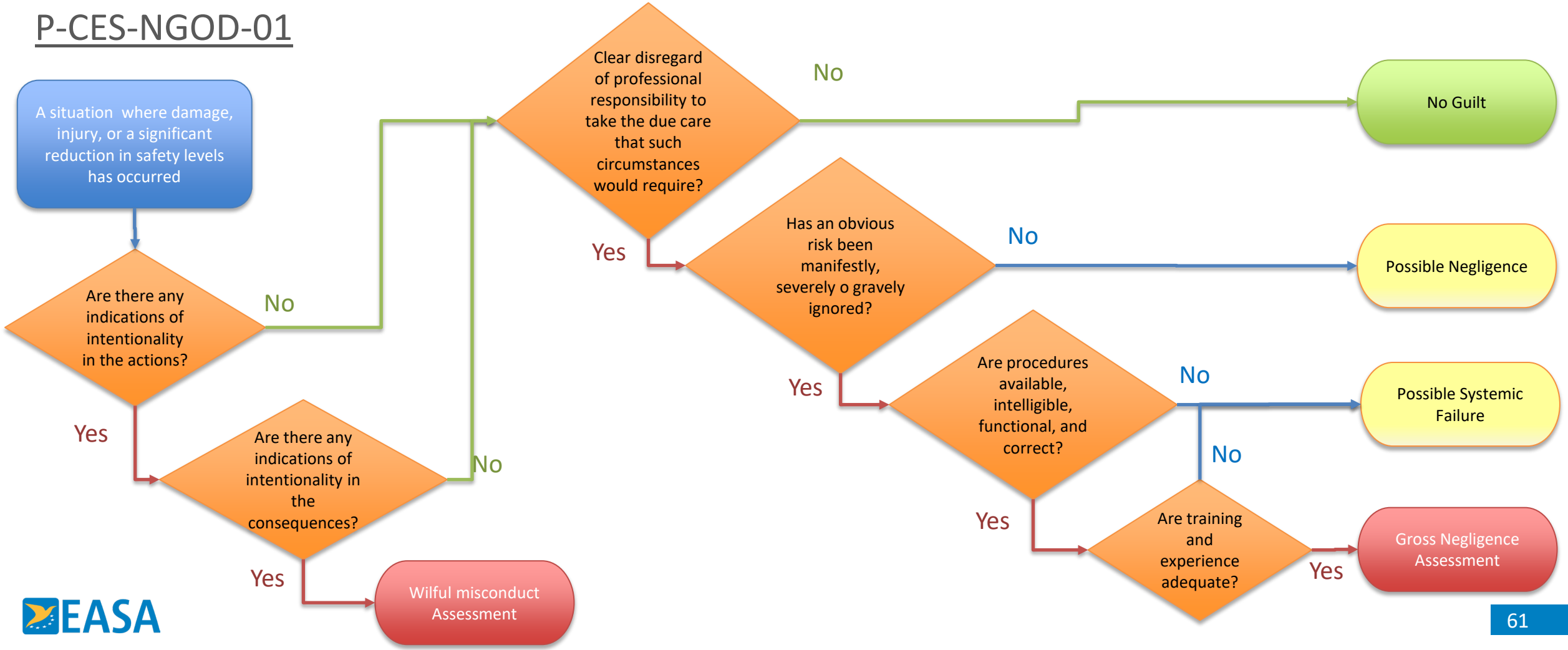
AESA's Internal procedure when Wilful Misconduct or Gross Negligence is suspected:
P-CES-NGOD-01



Case studies (1)

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Student Narrative

When doing the walkaround we noticed that we didn't have a spring whose function is to prevent carbon monoxide in the cockpit. We took off as normally, and once we were flying the carbon indicator were getting more obscure and we flew with the canopy open (coming back to the airport). No incidence occurs at any moment and we landed as normal.

Instructor narrative

The carbon monoxide detector became darker after being established in cruise. We knew the aircraft had 1 spring missing as discovered in the preflight inspection. We took the decision to take off as we had the detector installed and kept an eye on the detector at all times. I have asked if there were any maintenance available and was told that there was not. Later, I tried to contact OPS to ask about maintenance in XXX, but there was no one in OPS. I received later an answer from OPS saying that there is no maintenance available in XXX either.

As a measure, we have opened the canopy partially in flight and then the detector restored its original colour. There was never any symptomatology related to the carbon monoxide poisoning felt by me or the student as we noticed very fast the change to a darker colour and we took action. After we got the fresh air in, the colour restored and we decided to continue the flight and monitor the development of the situation as everything was controlled. The detector colour maintained as prior to flight during the whole time after & there were no other incidents related to this issue. We took all precautions & continued the flight mission.

This is a common issue with all the P2002. The previous day I took another plane from maintenance that had the same issue. Many of my colleagues verbally reported this problem as well.

Case studies (1)

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A situation where damage, injury, or a significant reduction in safety levels has occurred: YES

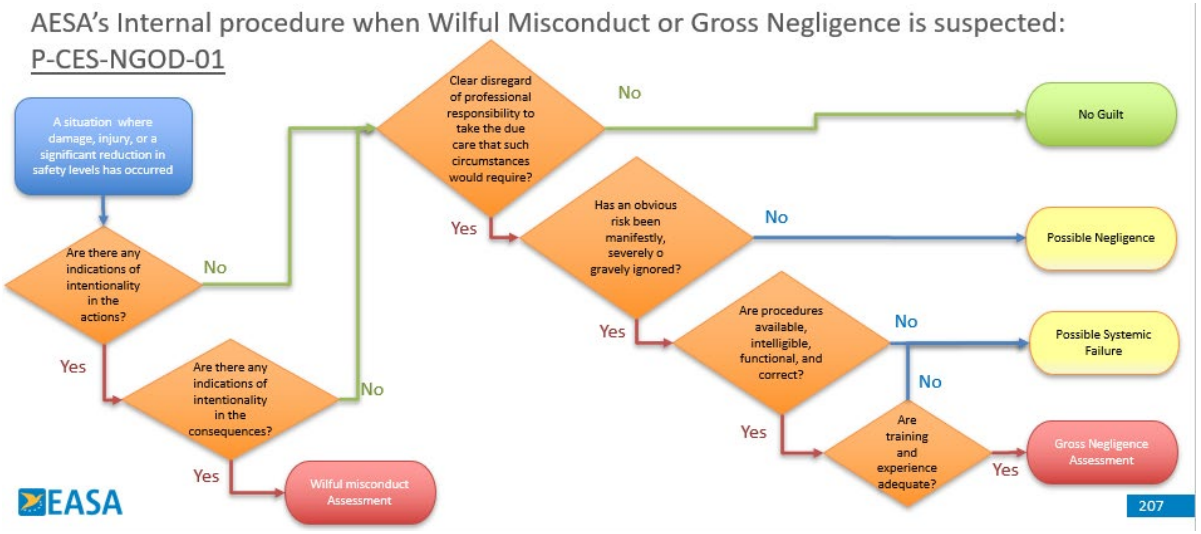
There has been a significant reduction in safety levels, based on the fact that a flight was made knowing that a safety device to prevent the entry of carbon monoxide into the cabin was not functioning correctly.

Are there any indications of intentionality in the actions? YES

According to the pilot himself, he is aware that the device does not work, that carbon monoxide could enter the cockpit, and yet he decides to go ahead with the flight.

Are there any indications of intentionality in the consequences? NO

There is no evidence that carbon monoxide poisoning was intended, as the pilot himself says that the carbon monoxide detector will be monitored at all times during the flight.



Case studies (1)

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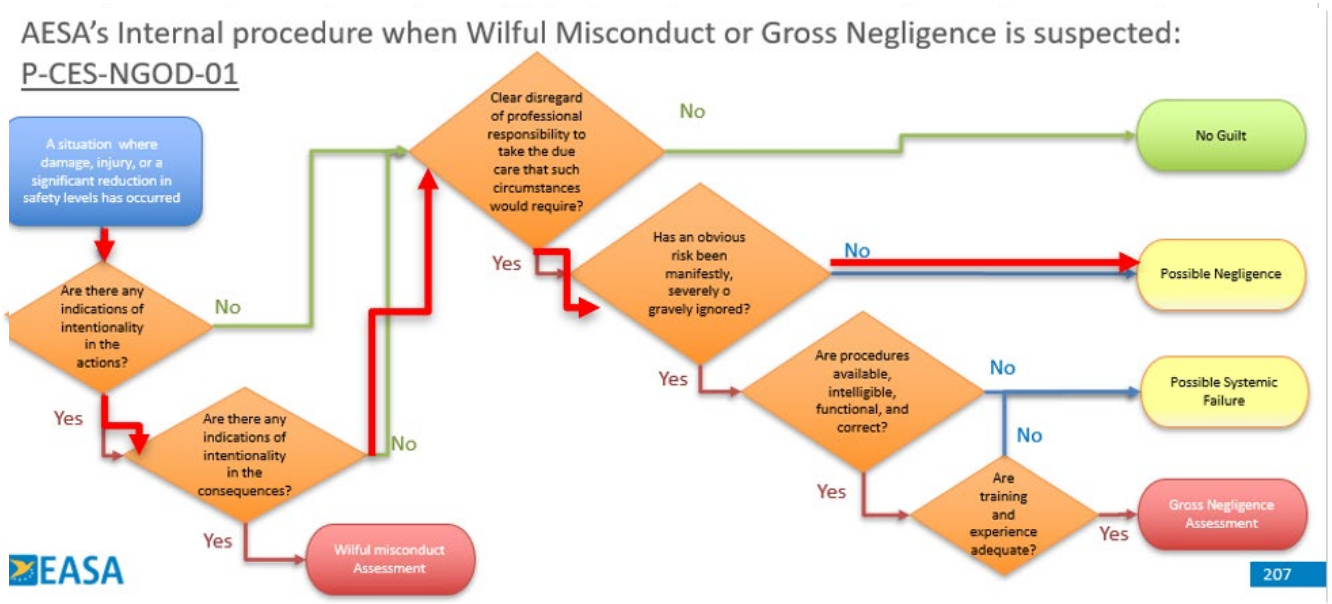
Clear disregard of professional responsibility to take the due care that such circumstances would require? YES

It is understood that another pilot in the same situation with the risk of carbon monoxide poisoning would not have proceeded with the flight.

Has an obvious risk been manifestly, severely o gravely ignored? NO

The pilot himself stated in his report that he was aware of the actions he was taking but, according to his version, they did not affect the reduction of the safety margins as he was watching the carbon monoxide indicator at all times and therefore considered that the risk was under control and that he could make the flight safely.



Case studies (2)

This project is funded by the European Union and implemented by EASA

Determine, with the help of the disclosure of information test for the determination of evidence of willful misconduct or gross negligence, whether any of these circumstances may have been present in the following situations:

→ Aircraft 1 flew over the Madrid TMA [Class A airspace] above VFR altitudes without clearance. This aircraft did not maintain radio contact with any frequency during its overflight of the TMA and did not listen to the emergency frequency.

Case studies (2)

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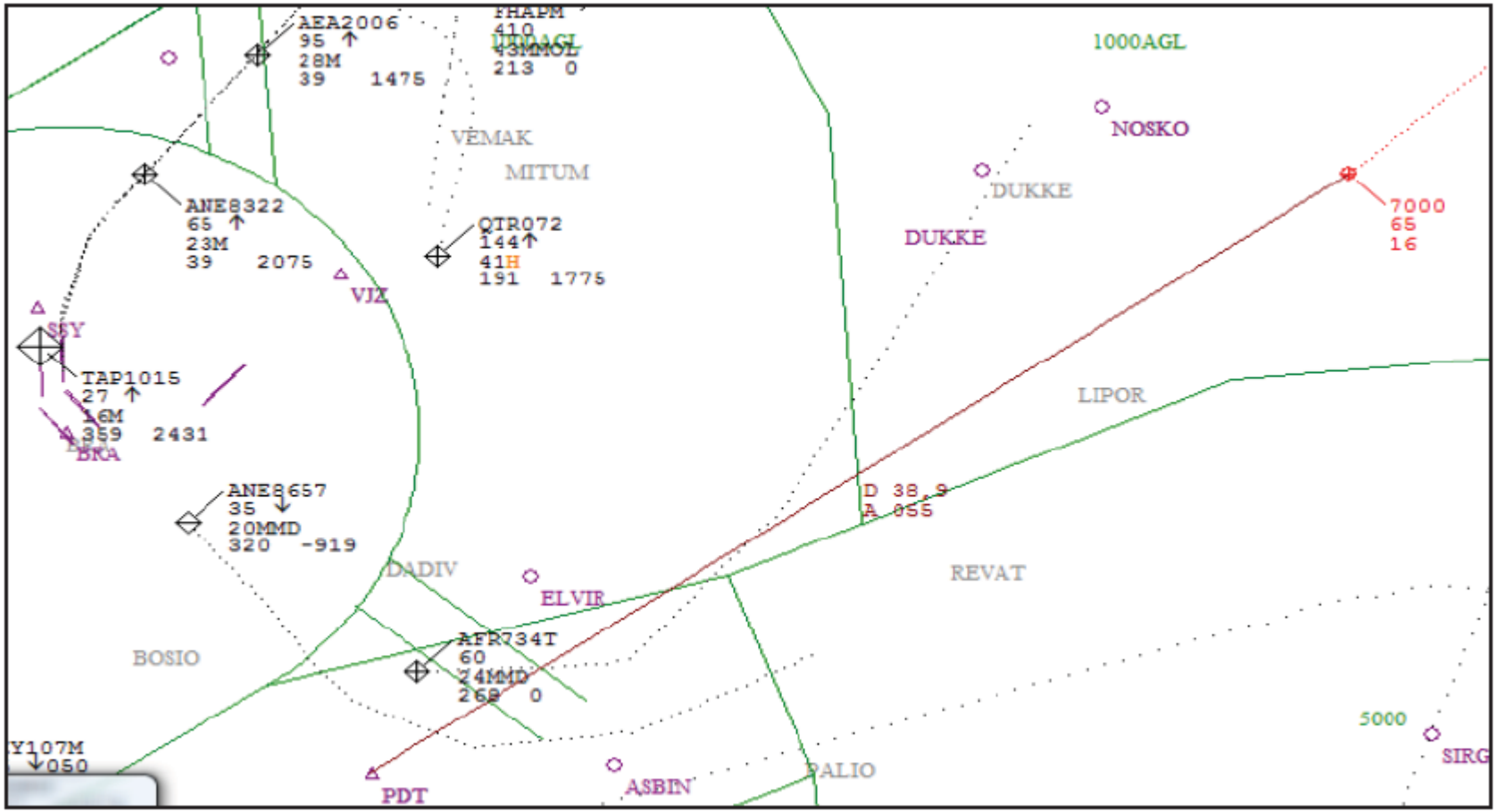

Fig. 1 –Posición de las aeronaves a las 13:52:39

The image shows aircraft 1 on course to the VOR/DME PDT established at 6500 ft. [The maximum permitted altitude for VFR flight in this airspace is 4800 ft].

Case studies (2)

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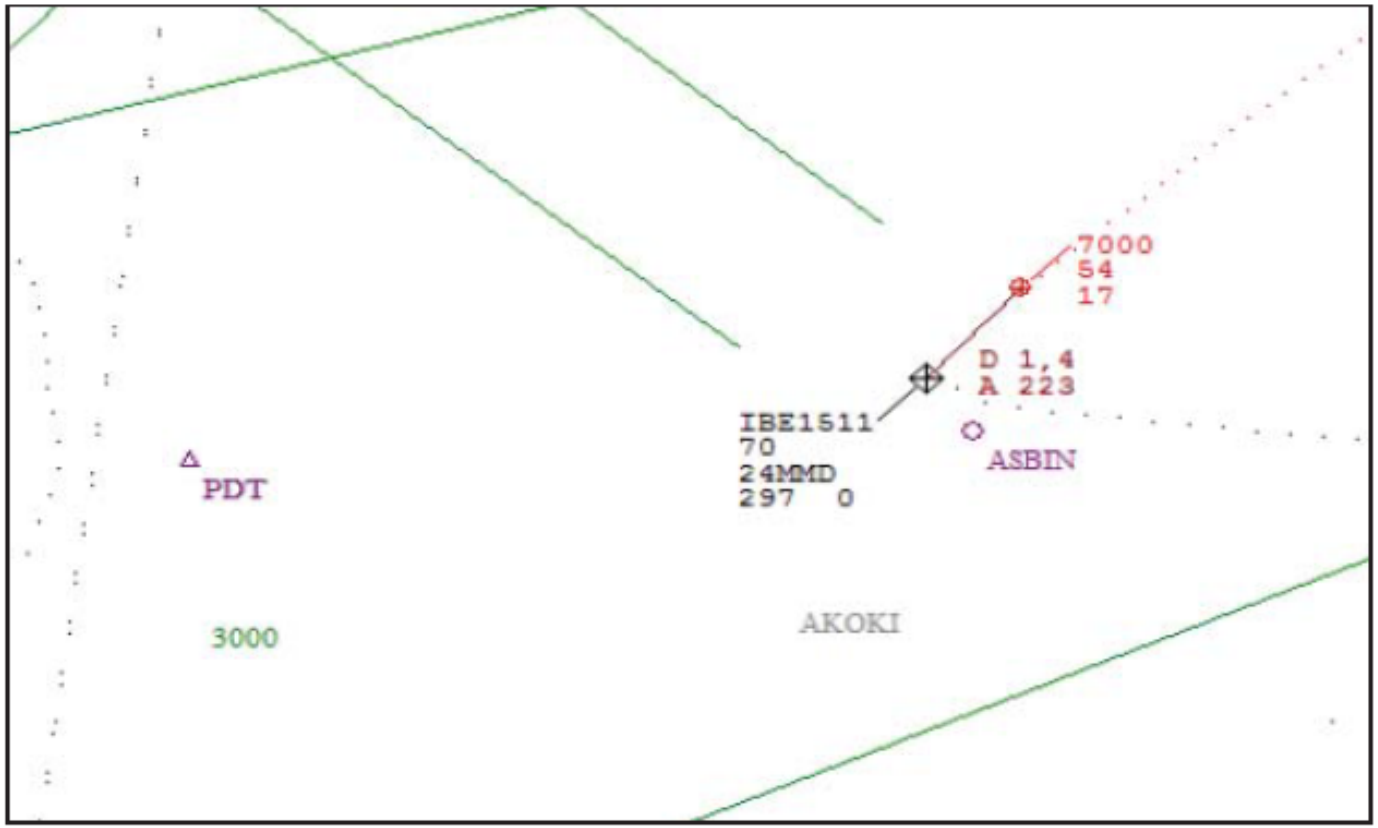

Fig. 2 –Posición de las aeronaves a las 14:04:09

The image shows aircraft 1 maintaining HDG 230º and established at 5400 ft [The maximum permitted altitude for VFR flight in this airspace is 3000 ft], crossing with another aircraft not involved in the incident, which is maintaining HDG 320º and 7000 ft].

Case studies (2)

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Determine, with the help of the disclosure of information test for the determination of evidence of wilful misconduct or gross negligence, whether any of these circumstances may have been present in the following situations:

→ The captain of Aircraft 1 stated in his report that his flight was bound for LEMT (Casarrubios) and that he tried to contact the LEMD approach on frequency 127.1 MHz, without success, in addition to not listening to the emergency frequency.

Case studies (3)

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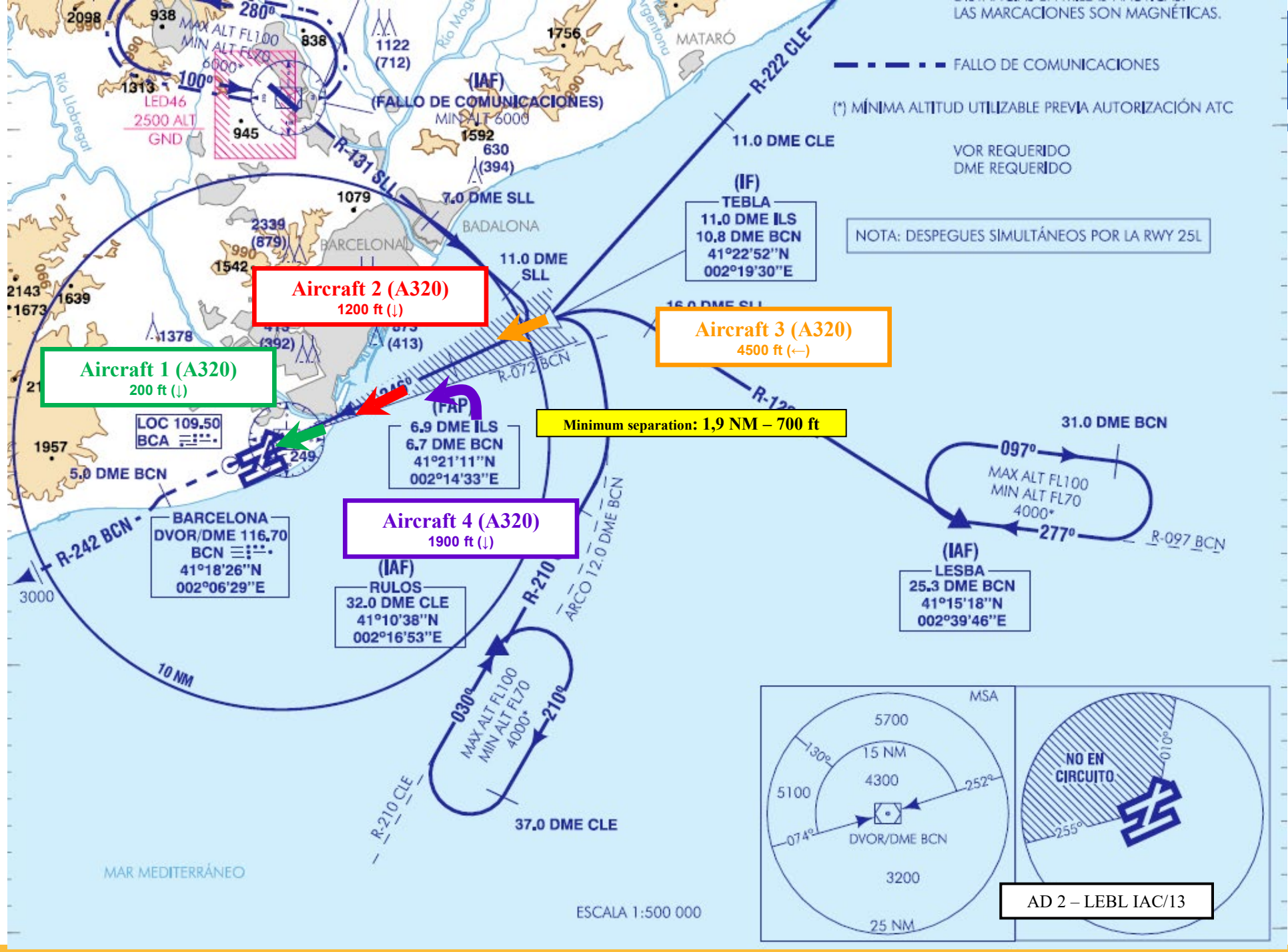
Determine, with the help of AESA's procedure for the determination of evidence of wilful misconduct or gross negligence, whether any of these circumstances may have been present in the following situations:

- Aircraft 1 was descending at 2300 ft through 4000 ft on course for the IF TEBLA on a heading NW on approach to RWY 25R LEBL with turn one in the approach sequence of the traffic involved.
- Aircraft 2 was flying on an onward approach to IAF RUBLOS behind aircraft 1 on the approach sequence to RWY 25R LEBL.
- Aircraft 3 was flying with HDG 040° descending to 4000 ft through 7000 ft on approach to RWY 25R at LEBL.
- Aircraft 4 was flying on approach to LEBL RWY 25R on course for the RUBLOS IAF behind aircraft 2.



AD 2 – LEBL IAC/13

Case studies (3)

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- ACC Barcelona Sector F25 clears aircraft 3 to descend to 2300 ft and instructs it to turn to HDG 035º. Aircraft 3 reads back the course and reports its refusal to descend until its approach sequence is known.
- Sector F25 instructs aircraft 3 to turn to HDG 030º and advises that it has number five in the approach sequence. Aircraft 3 notifies that it will then maintain 4000 ft. Sector F25 then authorises it to maintain 4500 ft.

Case studies (3)

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- Due to a lack of cooperation by aircraft 3, Sector F25 changed the approach sequence and excessively shortened the manoeuvre of aircraft 4 to intercept the LOC of RWY 25R. This, together with the late reduction in speed by aircraft 4 and inadequate monitoring of the difference in speed between it and aircraft 2, which was preceding it on the approach to the same runway, caused the approach between them.
- Sector F25 instructed aircraft 4 to exit the approach sequence without being able to avoid the violation of the prescribed minimum distances between the aircraft.
- **The ACC Barcelona Sector F25 controller planner's report** indicates that the executive controller decided to change the order of the approach sequence as a consequence of the refusal by aircraft 3 to descend. He coordinated the change in the approach sequence with the feeder sectors.
- **The commander of aircraft 4 states in his report** that, in his opinion, ATC miscalculated when he instructed him by vectors to intercept the LOC of RWY 25R from LEBL and had a loss of separation with the preceding traffic. ATC then instructed him to turn left and leave the LOC, in visual contact with the ground.

Case studies (3)

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- The commander of aircraft 3 states in his report that when instructed by ATC to turn to HDG 030º and descend to 2300 ft, he read back the heading and elected to maintain 5000 ft, having been informed by the previous Sector controller of the volume of traffic on approach and expecting a diversion of 20 NM or more.
- He subsequently informed ATC that he would maintain 4000 ft and that he was going to reduce his speed to 180 kt, when ATC advised that his number in the approach sequence was five.
- After departing more than 20 NM from the runway threshold, ATC instructed him with an approach vector. Other traffic had to make a missed approach as a result of its speed and proximity to preceding traffic.

Module 6: SDCPS-Data Governance

- → Sources of safety data
- → Data structure and format
- → Storage, quality, integration and fusion
- → Governance models and roles

Data Management and Governance

This project is funded by the European Union and implemented by EASA

Objectives of this section

The objectives of "data management and governance" are simple and have two aspects

a) provide the basic information that regulators or service providers need to know in order to draw on expertise and ask appropriate questions of IT experts, and

b) support the appropriate IT procurement decisions needed to support safety performance management activities.

Data Management and Governance

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Data management

- **Introduction**
  - ✓Safety management is a **data-driven effort**, which **depends on effective data management**.
  - ✓Data management is the ongoing development and maintenance of procedures to **ensure that an organisation has the data it needs** and that it is organised, reliable, and adequate.
  - ✓When managing data, an organisation must define **what information is needed and plan how it will be used** within its processes.

Data Management and Governance

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Data management

- **For effective data management, an organisation must:**

✓ **Define the data needed** to achieve the desired goals;

✓ **Design data architectures** and database structures, **based on the intended use** of the data;

✓ **Define data standards and formats**, including the **frequency** required for data **collection**;

✓ Develop a process to **ensure that the data collected conforms to defined standards and formats** ;

✓ Develop **data collection tools**, taking into account the need for the data to be collected and their use;

Data Management and Governance

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Sources of safety data

- **For effective data management, an organisation must:**

✓ Define **the data that needs to be aggregated** from multiple sources;

✓ **Integrate safety data with other** correlated data that may be relevant;

✓ **Ensure proper user access** to data;

✓ Consider **data protection issues**;

✓ Consider **sharing and exchanging data** with entities inside and outside the organisation; and

✓ **Manage** data **throughout its lifecycle**.

Data sources

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Warnings

Data relevance

- ✓There is a natural tendency to use available data without trying to obtain the kind of data needed to assess certain safety risks or safety performance at the regulator level.
- ✓**Rather than asking what can be measured with the data available to it, the regulator should identify what it intends to measure or assess**, and based on the answer to this question, should identify sources of safety data that could be useful.
- ✓In the exercise of trying to identify the appropriate sources of safety data, some imagination may be necessary when a particular type of data is not available, in order to identify other sources of safety data that are closely related to the issue under discussion.

Data Management and Governance

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Sources of safety data

- **Data collection planning**

✓ Before collecting data, an organisation must **identify what information it needs**.

✓ To obtain this data, the organisation needs to develop a **plan for collecting such data**.

✓ Once the data to be collected has been identified, the organisation must **determine the source of the data**, as well as the **collection and storage processes**.

✓ You need **to consider the data quality attributes** and determine if the source will be able to provide that level of detail.

Data sources

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Data sources available to the regulator

- ✓ **Safety investigations.** The civil aviation safety system is partially based on information and lessons learned from accidents and incidents.
- ✓ **Mandatory and voluntary occurrence reporting.** According to the SARPs set out in Annex 19 of the Chicago Convention, States shall establish a mandatory and voluntary occurrence reporting systems.
- ✓ **Information generated by the regulator.** The results of audits and inspections represent valuable information available to the regulator.
- ✓ **Information available through the internal audit system**
- ✓ **Information generated by other regulators.** States may carry out inspections and audits of aircraft flying to or from an airport on their territory.
- ✓ **Programmes for the exchange of information on safety with industry**. These programs try to collect objective information that is relevant to measure the "safety temperature" of the State aviation system.

Data sources

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Question to the audience:

Which of the following data sources are currently used by your organisation or authority for safety oversight and risk management?
(Select all that apply)

https://app.sli.do/event/vg6ryybYfAGiUzDaD9cBsj
#4111194

Data sources

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Mandatory and voluntary event reporting

- ✓It is imperative that regulators encourage their industry to report safety events and information.
- ✓To do this, it is key to provide feedback to those who report as a way to show that their efforts are not in vain.

Data Management and Governance

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Data structure and format

- **Data standardisation**

✓ The **standardisation** of content **has a direct impact on the use** of data.

✓ Data needs to be standardised **so that data from different sources can be compared, aggregated, and combined**.

✓ In order **to link data from different sources**, it is necessary to develop and maintain standards for **common taxonomies or to be able to convert** or translate **between different taxonomies**.

✓ Taxonomies allow data to be identified and **stored using the same nomenclature**.

"737-200" or "Boeing 737-200" or "732"

Data Management and Governance

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Data structure and format

- **Examples of standards**

✓Aircraft model: The organisation can build a database with all models certified to operate.

✓Airport: The organisation may use the International Civil Aviation Organization (ICAO) or International Air Transport Association (IATA) codes to identify airports.

✓Type of event: The organisation may use the taxonomies developed by ICAO (ADREP) and other international organisations to classify events.

✓Due to legacy issues, sometimes there may not be common taxonomies across multiple databases. In such a case, data **mapping must be created** to enable **equivalence-based data standardization**.

"737-200" = "Boeing 737-200" = "732"

Data Management and Governance

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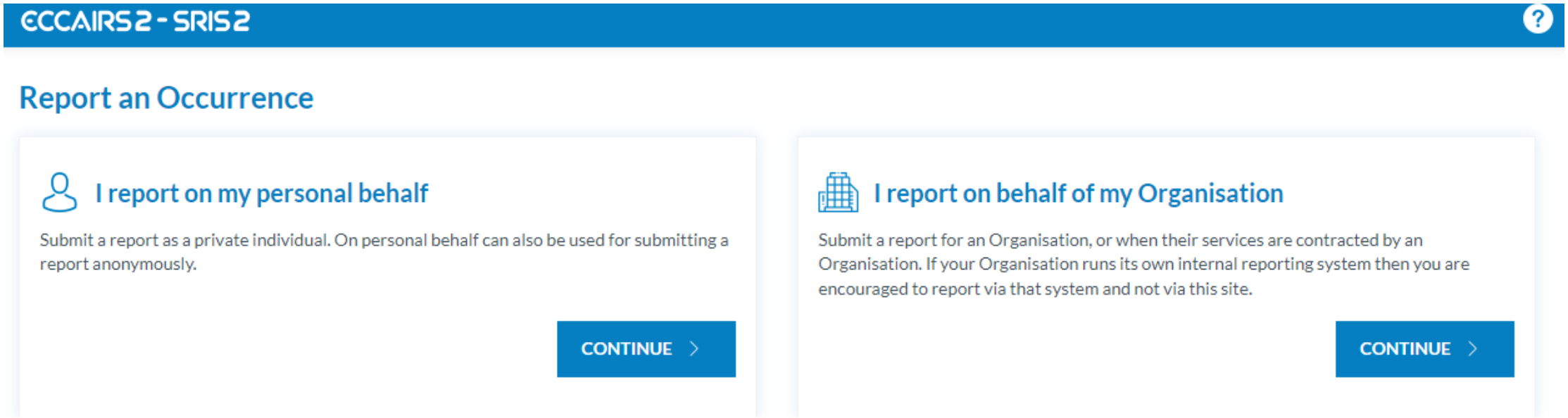
Data structure and format

- Data standardisation

https://e2.aviationreporting.eu/reporting



Data Management and Governance

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Data structure and format

- **Data structure and format**

✓Once the organisation has decided how to collect the data, the next step is to **define the structure of the data** to be collected.

✓It will also be necessary to consider **where the data will reside**.

✓If the data are combined with **existing databases, the same structure** as the data already collected should be used.

✓All **common fields** between systems must be in the **same format**.

✓Another possible strategy to allow the **combination of data** with different structures or formats is the use of **data transformation**.

Data Management and Governance

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Storage, quality, integration and fusion

- **Issues to consider in data collection tools**

✓**Ease of access**. The notification system must be available in an environment that is easy to find and access.

✓Access should **block unauthorised persons**, but it should be easily accessible to the intended users.

✓**Ease of reporting**. When filling out the report, the user should use as little effort as possible to enter the information.

✓**Absence of redundant information**. Information already available to the organisation should not be collected again.

✓**Entrance control**. Format constraints can be designed so that the information is obtained in the desired format.

Data Management and Governance

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Storage, quality, integration and fusion

- **Data storage and database maintenance**

✓Once the data is collected, it must be stored in what is sometimes referred to as a “**safety library**".

✓One of the considerations for data storage is to ensure that there is adequate **storage capacity** for the data being collected.

✓It may be necessary to update or **delete certain data after a certain period**.

✓**Databases** containing this data **must be maintained** to **ensure that valid and reliable data is available** when needed.

✓Your storage plan should consider the need for **redundant storage locations** to ensure data availability.

Data Management and Governance

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Storage, quality, integration and fusion

- **Data Access and Availability**

✓**The data needs of the database users** must be identified, as well as the tools needed to access the data

✓In addition, the **need to restrict access should be assessed** and reviewed regularly.

✓A data management plan should take into account **data management responsibilities across the organisation**, such as controlling access to stored data, determining adequate bandwidth to support the volume of intended users, and determining appropriate redundancy.

Data quality

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Data quality

- ✓ Safety performance monitoring **should be based on the best available data**, whether qualitative or quantitative.
- ✓ **The SSP/SMS safety team should identify the relevant internal and external data and information** available to them and determine what additional information they might need.
- ✓ In the case of **quantitative operational data, quality is an important element** in ensuring that the data can be properly integrated and used for analytical purposes.
- ✓ It may be necessary **to measure the same system in a variety of ways** to get a more accurate picture of the actual level of safety performance.

Data quality

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Data attributes

- **Data validity: garbage in, garbage out (GIGO)**
  - ✓ The results of a given analysis are only as valid as the validity of the input data that feeds that analysis.
  - ✓ It refers to the correctness and reasonableness of the data, as well as the guarantee that the data collected measure what was intended.
  - ✓ This means that the data includes all the necessary digits and correct spelling.
  - ✓ Data validity errors are often caused by incorrect data entry when a large volume of data is created in a database or when different databases with different data structures are merged.

Data quality (exercise 1)

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PHC Airport wants to use its reporting rate expressed in reported events per 100,000 operations as part of the SPIs to be used in the framework of its SMS. They have been collecting data for 3 years. The person responsible for the SMS has been asked to define a goal (SPT) by December of the following year.

Unfortunately, whoever collected the data made three mistakes when dumping the information into the database.

Data quality (exercise 1)

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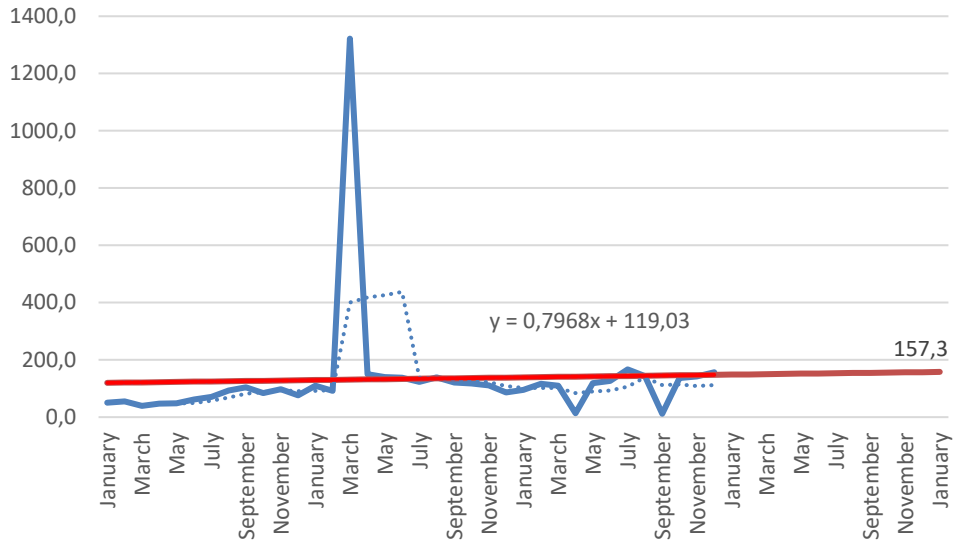

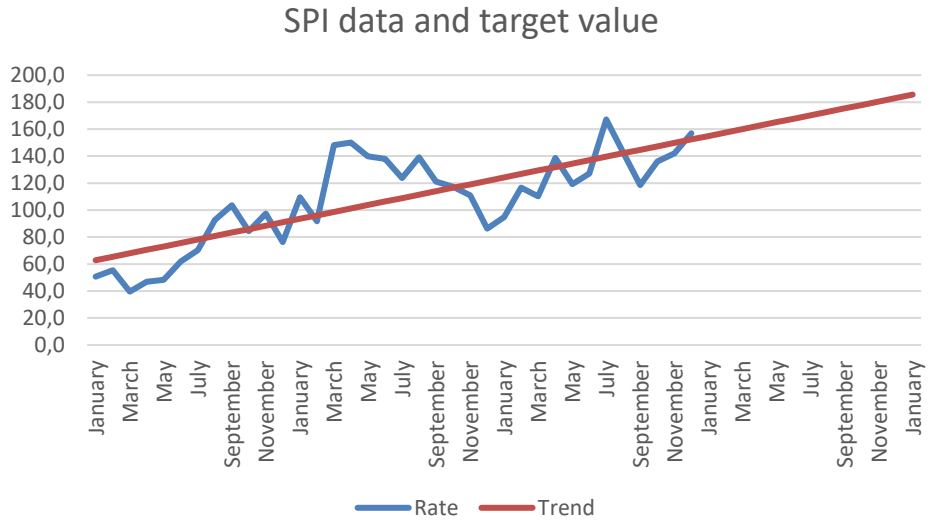

Data quality

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Data attributes

- **Data completeness**
  - ✓Completeness is a measure of the amount of data available compared to the amount of data required for a particular analysis.
  - ✓Before developing new analyses to support safety risk-based decision-making, the minimum data needed must be defined.
  - ✓The greater the volume of data needed, the more resources (e.g., time, human resources, tools) will be needed to obtain the data and ensure its quality. This should be taken into account when designing data collection systems.
  - ✓Completeness requirements should also be commensurate with the information available.

Data quality

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Data attributes

- **Timeliness of data**
  - ✓Although current events are determined by user expectations, the best data is usually the most recent.
  - ✓Historically, technological and process constraints tended to preclude the possibility of providing real-time data.
  - ✓With the advent of computers and networking technology, the barriers to the availability of real-time data continue to decrease.
  - ✓An organisation should strive to gain real-time access to safety data, to the greatest extent possible.

Data quality

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Data attributes

- **Data availability**
  - ✓Data availability refers to the extent to which data is available when it is needed.
  - ✓There are a variety of techniques to maximise data availability, including redundancy of storage locations and data access methods.
  - ✓Data availability can be measured, among other means, in terms of how often data is available (e.g., 99.9% availability) and how much data can flow at once.

Data quality

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Data attributes

- **Data Precision (Accuracy)**
  - ✓Data accuracy is the degree to which data correctly reflects a real-world object or event being described.
  - ✓There are several causes of data inaccuracy. The most common is initial data entry, where the user enters an erroneous value or typos are made.
  - ✓This can be overcome by ensuring that the people entering the data possess the necessary skills and are properly trained.
  - ✓It can also be overcome by having programs in the app to detect typos (e.g., spelling checks) or other methods to ensure the accuracy of the data, such as providing lists of possible values.

Data quality

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Data attributes

- **Summary**
  - ✓Proposing a requirement that all service providers must ensure that all data used fully complies with the attributes described above (complete, real-time, redundant, accurate, etc.) would be unrealistic.
  - ✓Therefore, each attribute of the data should be addressed as much as possible from a practical point of view.
  - ✓The bottom line is that an organisation's trust in data is not achieved by a single attribute. On the contrary, trust in data is a layered concept, which is achieved layer by layer. Each time one more layer is added, the trust factor in the data increases.

Data Management and Governance

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Storage, quality, integration and fusion

- **Data Integration/Fusion**

✓The tools available today allow for **data integration** and synthesis of new databases **with enriched data from a collection of existing databases**.

✓Technology has overcome impediments to the integration of databases with systems, **allowing links to be established between** aviation databases.

✓Regulatory **authorities** need **to advance data sharing**, beyond the capacity of a single aviation sector, through data aggregation and integration.

✓ **Outliers**, anomalies, and excesses can become **apparent** in computer graphics generated **from data integration**.

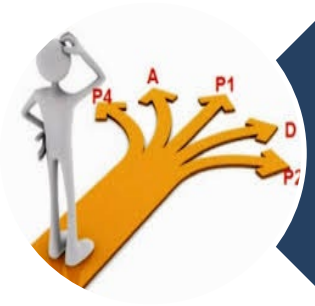
Data4Safety

This project is funded by the European Union and implemented by EASA

Data4Safety

This project is funded by the European Union and implemented by EASA

Collaborative work with experts from Industry and States



Identify safety priorities

Connect safety intelligence with actions

EASA

Data4Safety

This project is funded by the European Union and implemented by EASA

Search for precursors of accidents

"See it coming"

Need for intelligence, assembly of data and serious analytical capacity

Risk Based Oversight

"Know where to look"

Data4Safety

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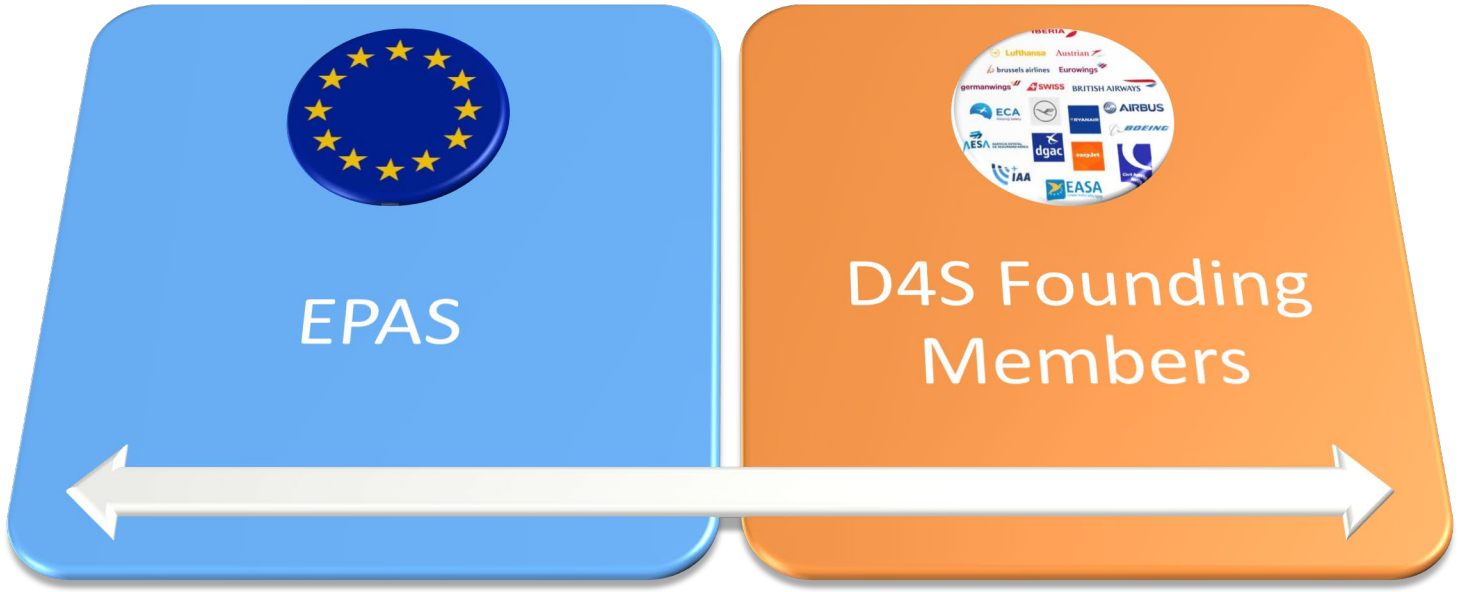

Data4Safety

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A **voluntary** and **collaborative** partnership amongst all stakeholders

Independent governance to reflect the partnership and collaborative approach (dual management authorities/industry)

Data Processing Organisation to manage the Big Data solution

Outcome shared for the benefit of the whole community (Risk identification and analysis)

Linked with other international initiatives (US, Asia-Pacific, IATA,…)

Data4Safety

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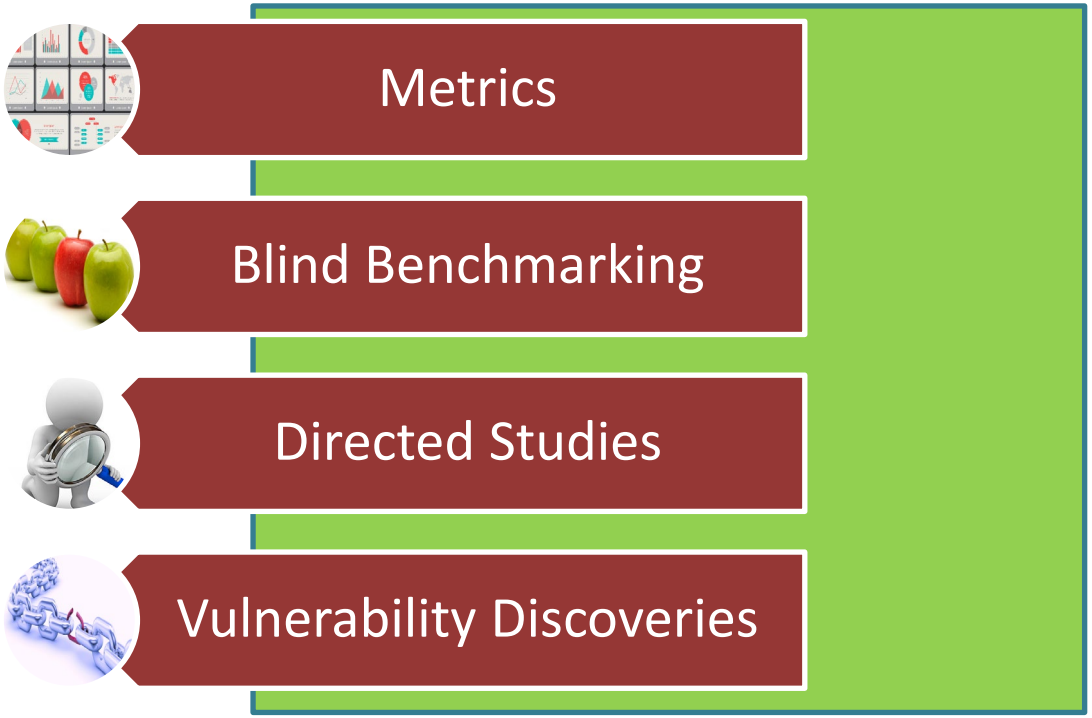

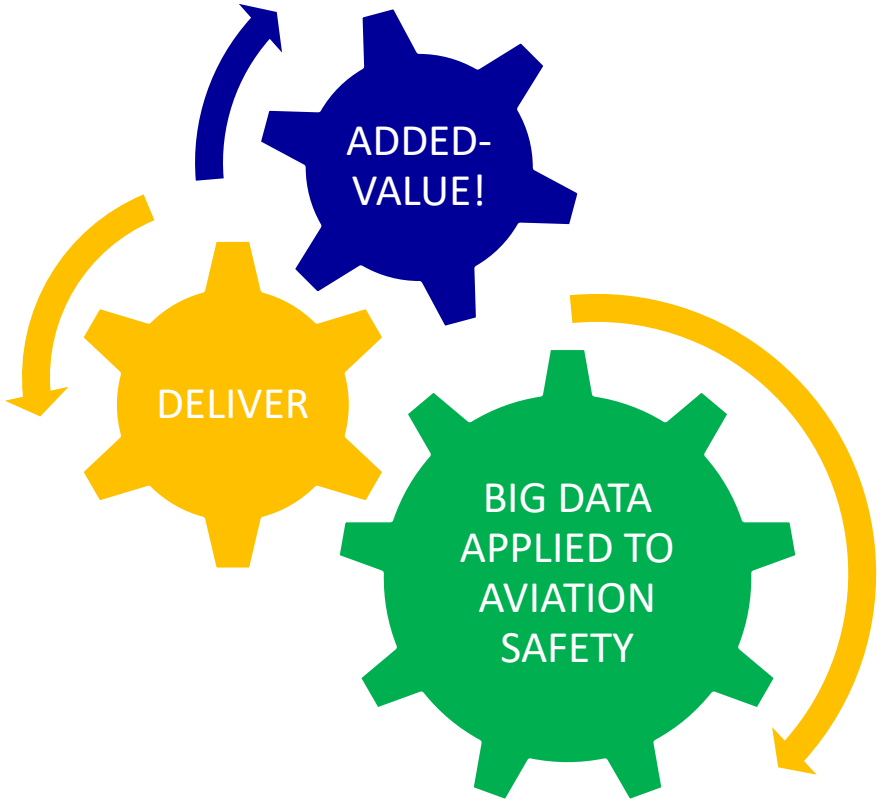

Data4Safety

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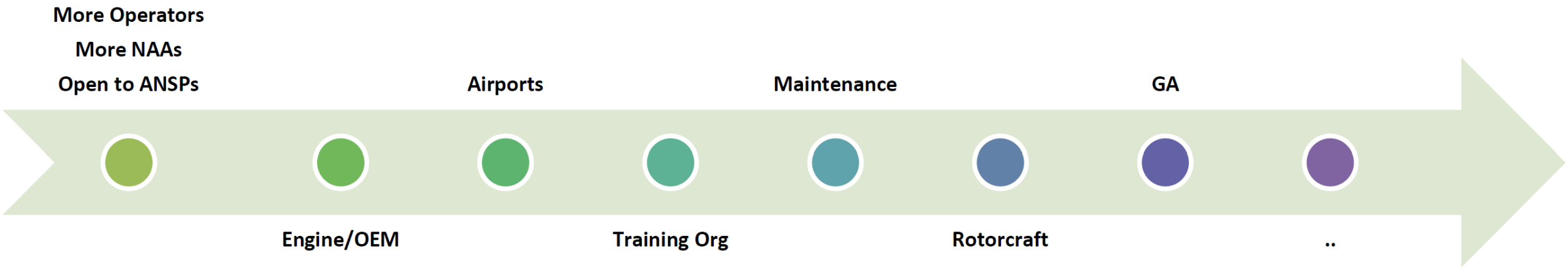

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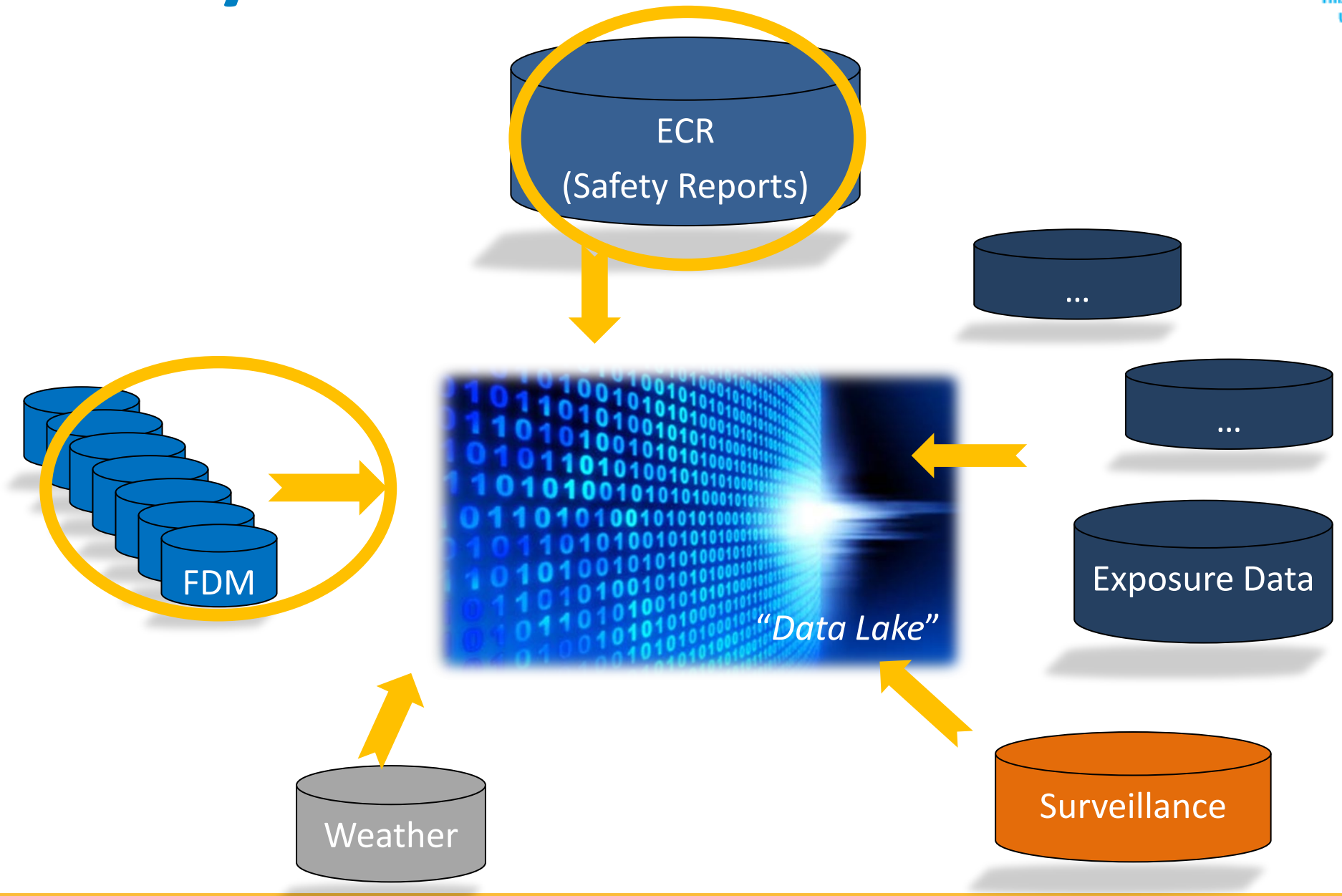

Data4Safety

This project is funded by the European Union and implemented by EASA

Members (Airlines, ECA Manufacturers EASA NAA) and Data Scientists

Analysis Platform

Aviation Experts and Data Scientists

Data Management

Define Use Cases

Setup and monitor Task teams

Design algorithms

Data Processing and Protecting Organisation

Data Collection and Processing Platform

Extract, Transform, Load, Secure

Setup Infrastructure

Visualisation Tools

Set up software platform

Data4Safety

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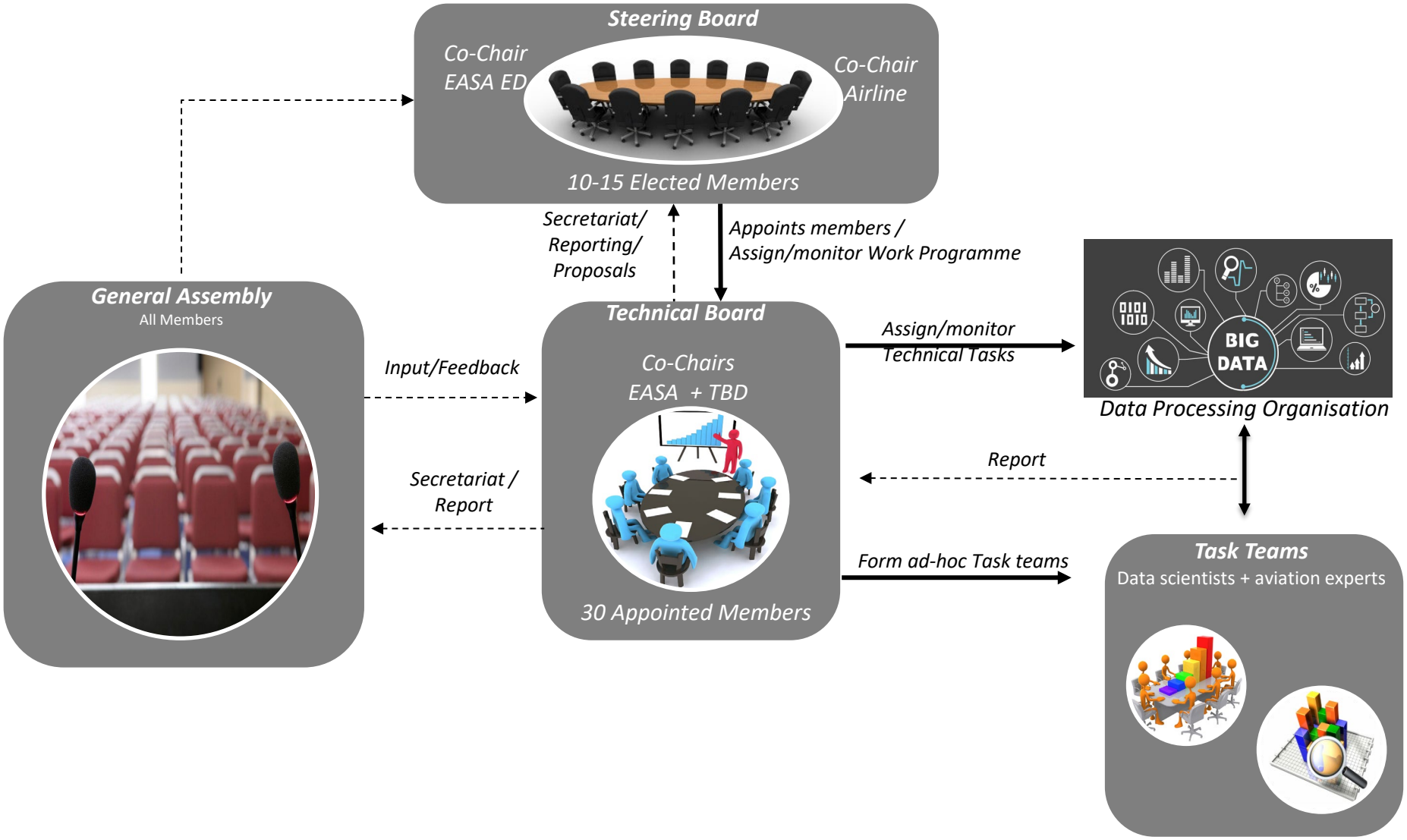


Data4Safety

This project is funded by the European Union and implemented by EASA

Current phase

Feasibility Study

2015 to 2016

Proof of Concept Phase

2017 to 2022

- Focusing on safety
- Limited to founding members

Development Phase

2022 to 2025

- Membership expansion: all Member States, more Airlines, new Members (starting with ANSPs, Airports)
- Safety, Sustainable Aviation, (Cyber) Security
- Definition of a public/private partnership for the Operational phase

Operational Phase

2026 onwards

Data Management and Governance

This project is funded by the European Union and implemented by EASA

Storage, quality, integration and fusion

- **Other Data Management Considerations**

✓Data **security** means ensuring that data is safe and secure from any loss. It is necessary to consider how safety data is handled, processed and communicated within the aviation system.

✓Data **corruption** introduced by human error, hardware failures, and software processing errors can compromise data integrity and lead to invalid data and analysis results. End-to-end integrity checks should be used.

✓Data **deterioration** can result in inaccurate data. Many data values that are accurate can become inaccurate over time (i.e., data decay).

Data Management and Governance

This project is funded by the European Union and implemented by EASA

Data management

- **Conclusion**
  - ✓**Safety data is the lifeblood of SMS/SSP development**. Without safety data, it is not possible to define safety objectives, SPIs and SPTs, and therefore it is not possible to manage safety.
  - ✓It is not enough to collect safety data, but it **must be managed appropriately and consistently.**
  - ✓**Effective safety management depends on the effectiveness of safety data collection, analysis, and overall management capabilities.** It is necessary to develop an understanding of the basic premises of data management.
  - ✓**Information technology (IT) is an important factor in achieving data management.** Both SSP and SMS are data-driven management systems, and you can't overestimate the availability of the computing resources needed to ensure that data is available in time for the organisation's decision-making.

Governance Models & Roles

This project is funded by the European Union and implemented by EASA

Governance Models: Why It Matters

- **Effective governance ensures that:**

✓ Safety data is collected, processed, and used **responsibly and consistently**.

✓ Roles and responsibilities are **clearly defined** across organisations.

✓ Data integrity, confidentiality, and security are **protected** throughout the lifecycle.

- **Types of Governance Models:**

✓ **Centralised**: A single entity (e.g., EASA or a national authority) controls data standards, access, and decisions.

✓ **Federated**: Shared responsibilities between stakeholders **under a common framework**. **Each participant retains control of their data** under a common regulatory and technical framework.

✓ **Decentralised**: Individual organisations manage data independently but must comply with shared rules. No central governance or coordination body. No technical harmonisation

- **Example**:
  The **Data4Safety** programme uses a **federated governance model** involving NAAs, airlines, manufacturers, and data scientists—coordinated through task teams and St./Tech. boards.

Governance Models & Roles

This project is funded by the European Union and implemented by EASA

Governance Models: Key Roles & Responsibilities

Data Owner	Defines what data is collected, why, and who can access it
Data Steward	Ensures data quality, consistency, and compliance with policies
Domain Expert	Provides contextual interpretation of data in relation to operations/safety
Data Analyst/Scientist	Processes and interprets data, applies models, detects trends and insights
Governance Authority (e.g. SSP office)	Sets policies, monitors compliance, coordinates stakeholders
IT/Data Infrastructure Team	Builds and maintains secure, reliable data systems

Best Practice:

Establish a Data Governance Board (within the SSP or CAA) to oversee policy implementation, resolve data conflicts, and ensure transparency and accountability.

Module 7: Occurrence Reporting System

- → Mandatory occurrence reporting systems (notification, sector-specific forms)
- → Voluntary occurrence reporting systems
- → Confidential Safety Reporting System

Mandatory Occurrence Reporting System

This project is funded by the European Union
and implemented by EASA

Safety reporting systems

Frontline employees have a better understanding of the actual performance of the system than senior management

- Mandatory reporting system
- Voluntary reporting systems
- Confidential reporting systems

– The requirements of safety reporting systems may vary among States

Mandatory Occurrence Reporting System

This project is funded by the European Union
and implemented by EASA

- Typical qualities of successful safety reporting systems
  - Reports easy to make
  - No disciplinary actions as a result of reports
  - Reports are confidential
  - Feedback is rapid, accessible and informative

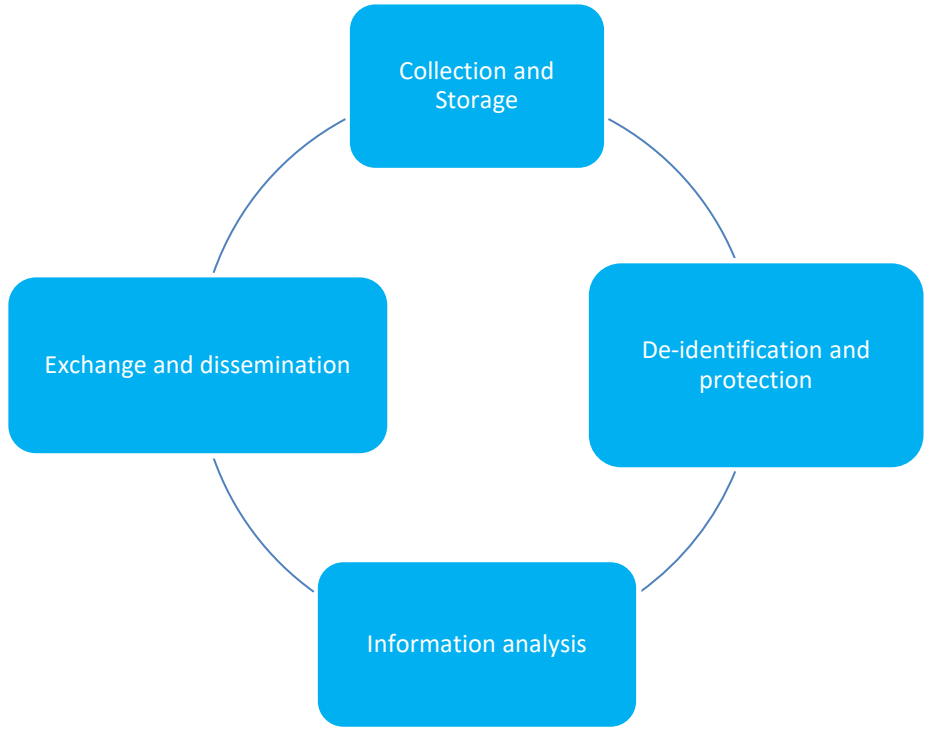
Mandatory Occurrence Reporting System

This project is funded by the European Union and implemented by EASA

Regulation (EU) 376/2014

→ **ORS – Occurrence Reporting System**

- → **Organisational** occurrence reporting system.
- → Objective: **promotion** and **improvement of safety.**
- → **Protection** to ensure confidentiality, and to prevent its use for purposes other than the improvement of aviation safety.
- → **Just culture**: reported information shall not be used for disciplinary or sanctioning purposes, except in cases of wilful misconduct or gross negligence.



Mandatory Occurrence Reporting System

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→ Who is obliged to notify?

- Airport safety management personnel
- Captain
- Personnel who sign certificates of release to service
- Air navigation systems installation or maintenance personnel
- Aircraft design, manufacture, maintenance or modification personnel
- Personnel of an air traffic service provider
- Aircraft handling personnel

→ What do I have to notify?

- Type of event included in the list of mandatory reportable events?
- Type of event included in priority areas identified by SMS organisation?
- Is the event considered relevant to aviation safety?

Regulation (UE) 1018/2015

→ How do I notify?

ECCAIRS

COMMON TAXONOMY TEAM

Mandatory Occurrence Reporting System

This project is funded by the European Union and implemented by EASA

❑ WHO MUST NOTIFY?

OPERATIONS	the **pilot in command**, or, in cases where the pilot in command is unable to report the occurrence, any other crew member next in the chain of command of an aircraft registered in a Member State or an aircraft registered outside the Union but used by an operator for which a Member State ensures oversight of operations or an operator established in the Union;
DESIGN/MANUFACTURING/ AIRWORTHINESS/MAINTENANCE	a **person engaged in designing**, **manufacturing**, **continuous airworthiness monitoring**, **maintaining** or **modifying** an **aircraft, or any equipment or part thereof,** under the oversight of a Member State or of the Agency;
	a person who signs an airworthiness review certificate, or a release to service in respect of an aircraft or any equipment or part thereof, under the oversight of a Member State or of the Agency;
AIR NAVIGATION	**a person who performs** a function which requires him or her to be **authorised by a Member State as a staff member of an air traffic service provider** entrusted with responsibilities related to air navigation services or as a flight information service officer;
	a **person who performs** a function connected with the **installation, modification, maintenance, repair, overhaul, flight-checking or inspection of air navigation facilities** for which a Member State ensures the oversight;
AIRPORT ENVIRONMENT	a **person who performs** a function connected with the **safety management of an airport** to which Regulation (EC) No 1008/2008 of the European Parliament and of the Council (1) applies;
	a **person who performs** a function connected with the **ground handling** of aircraft, including fuelling, loadsheet preparation, loading, de-icing and towing at an airport covered by Regulation (EC) No 1008/2008.

Mandatory Occurrence Reporting System

This project is funded by the European Union and implemented by EASA

MANDATORY REPORTING SYSTEMS: WHAT MUST BE REPORTED?

- Depending on the field of activity, there is a list of occurrences that are expected to be reported by the notifier.

COMMISSION IMPLEMENTING REGULATION (EU) 2015/1018

of 29 June 2015

laying down a list classifying occurrences in civil aviation to be mandatorily reported according to Regulation (EU) No 376/2014 of the European Parliament and of the Council

- 5 annexes.

Mandatory Occurrence Reporting System

This project is funded by the European Union and implemented by EASA

Type of reporter	Occurrences to be reported
Pilot in command - Art.4(6)(a) (for detailed definition see question 2) - when flying on complex motor-powered aircraft	Occurrences related to the operation of the aircraft - Annex I of Regulation 2015/1018
Manufacturing staff members - Art.4(6)(b) (for detailed definition see question 2)	Occurrences related to manufacturing - Annex II.1 of Regulation 2015/1018
Design staff members - Art.4(6)(b) (for detailed definition see question 2)	Occurrences related to design - Annex II.2 of Regulation 2015/1018
Maintenance staff members - Art.4(6)(b) (for detailed definition see question 2)	Occurrences related to maintenance and continuing airworthiness management - Annex II.3 of Regulation 2015/1018
Airworthiness certificate reviewers - Art.4(6)(c) (for detailed definition see question 2)	Occurrences related to maintenance and continuing airworthiness management - Annex II.3 of Regulation 2015/1018
Air traffic controllers and flight information service officer - Art.4(6)(d) (for detailed definition see question 2)	Occurrences related to related to air navigation services and facilities - Annex III of Regulation 2015/1018

Mandatory Occurrence Reporting System

This project is funded by the European Union and implemented by EASA

Type of reporter	Occurrences to be reported
Safety manager of an aerodrome - Art.4(6)(e) (for detailed definition see question 2)	Occurrences related to aerodromes and ground services - Annex IV.1 of Regulation 2015/1018
Air navigation facilities personnel - Art.4(6)(f) (for detailed definition see question 2)	Occurrences related to related to air navigation services and facilities - Annex III of Regulation 2015/1018
Ground handling personnel - Art.4(6)(f) (for detailed definition see question 2)	Occurrences related to related to aerodromes and ground services - Annex IV.2 of Regulation 2015/1018
Pilot in command - Art.4(6)(a) (for detailed definition see question 2) - when flying on aircraft other than complex motor-powered aircraft	Occurrences related to related to operation of the aircraft - Annex V of Regulation 2015/1018

Examples of MORS

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COMMISSION IMPLEMENTING REGULATION (EU) 2015/1018

ANNEX I

OCCURRENCES RELATED TO THE OPERATION OF THE AIRCRAFT

1. AIR OPERATIONS

1.3. **Take-off and landing**

(1) Taxiway or runway excursion.

5. EXTERNAL ENVIRONMENT AND METEOROLOGY

(2) ACAS RA (Airborne Collision Avoidance System, Resolution Advisory).

ANNEX II

OCCURRENCES RELATED TO TECHNICAL CONDITIONS, MAINTENANCE AND REPAIR OF THE AIRCRAFT

3. MAINTENANCE AND CONTINUING AIRWORTHINESS MANAGEMENT

(3) Failure or malfunction of any part of an engine or powerplant and/or transmission resulting in any one or more of the following:

(a) non-containment of components/debris;

(b) failure of the engine mount structure.

Examples of MORS

This project is funded by the European Union and implemented by EASA

COMMISSION IMPLEMENTING REGULATION (EU) 2015/1018

ANNEX III

OCCURRENCES RELATED TO AIR NAVIGATION SERVICES AND FACILITIES

1. AIRCRAFT-RELATED OCCURRENCES

(5) Wildlife strike including bird strike.

2. DEGRADATION OR TOTAL LOSS OF SERVICES OR FUNCTIONS

(4) Failure of surveillance service.

Examples of MORS

This project is funded by the European Union and implemented by EASA

COMMISSION IMPLEMENTING REGULATION (EU) 2015/1018

ANNEX IV

OCCURRENCES RELATED TO AERODROMES AND GROUND SERVICES

1.1. **Aircraft- and obstacle-related occurrences**

(7) Foreign object on the aerodrome movement area which has or could have endangered the aircraft, its occupants or any other person.

2. GROUND HANDLING OF AN AIRCRAFT

2.1. **Aircraft- and aerodrome-related occurrences**

(5) Push-back, power-back or taxi interference by vehicle, equipment or person.

Examples of MORS

This project is funded by the European Union and implemented by EASA

COMMISSION IMPLEMENTING REGULATION (EU) 2015/1018

ANNEX V

OCCURRENCES RELATED TO AIRCRAFT OTHER THAN COMPLEX MOTOR-POWERED AIRCRAFT, INCLUDING SAILPLANES AND LIGHTER-THAN-AIR VEHICLES

2. SAILPLANES (GLIDERS)

2.1. **Air operations**

(2) An occurrence where the sailplane pilot was unable to release either the winch cable or the aerotow rope and had to do so using emergency procedures.

Mandatory Occurrence Reporting System

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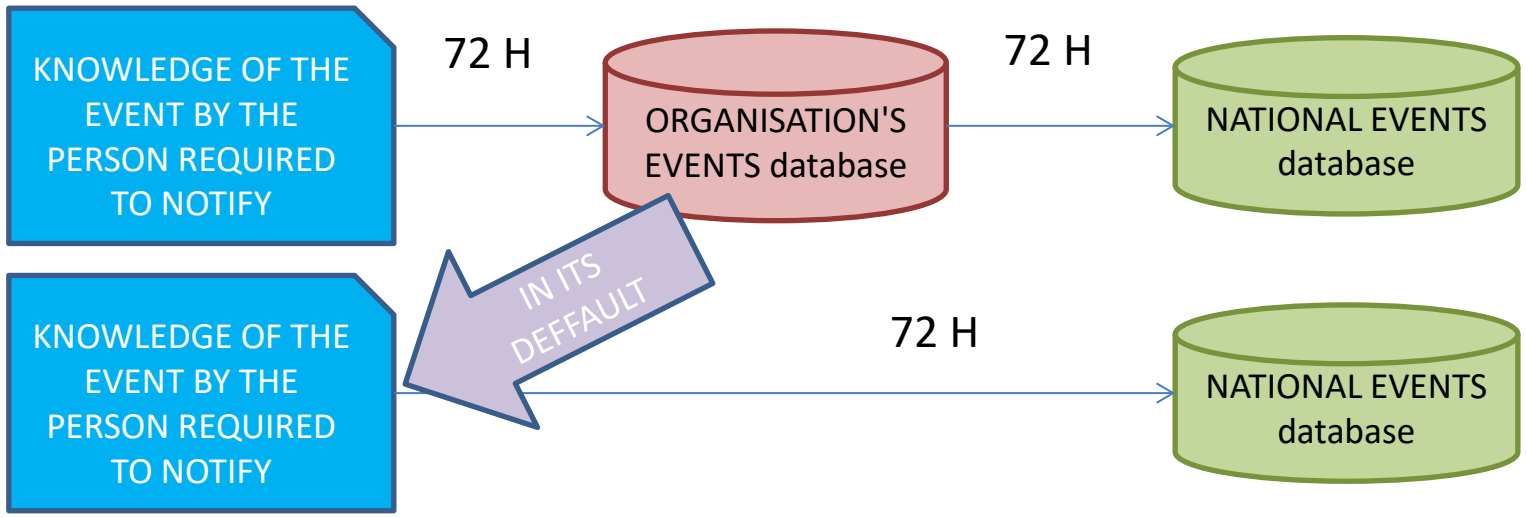
DEADLINES



FROM THE TIME OF BECOMING AWARE OF THE OCCURRENCE OF THE EVENT

Mandatory Occurrence Reporting System

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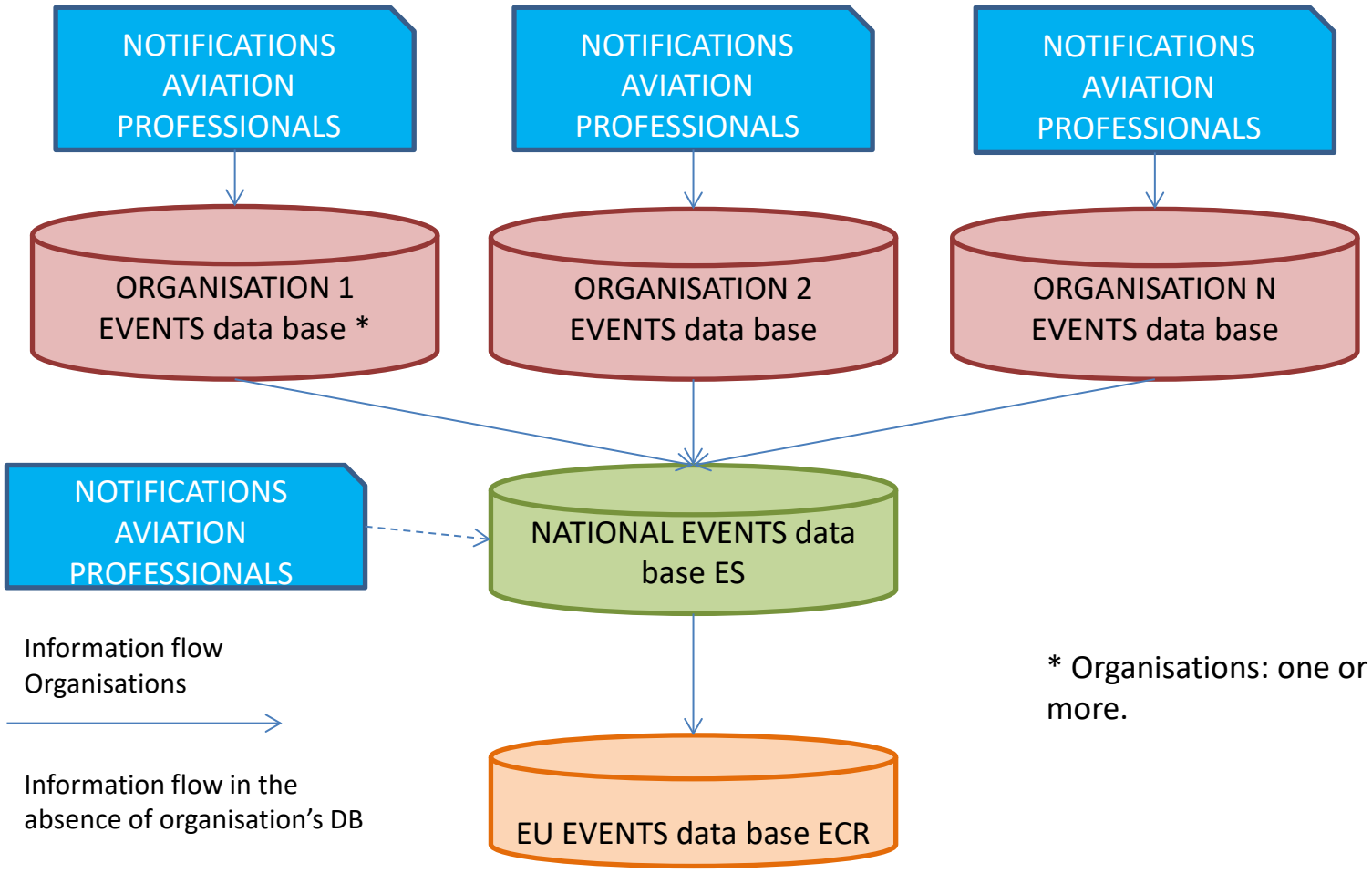
NOTIFICATION FLOW



Mandatory Occurrence Reporting System

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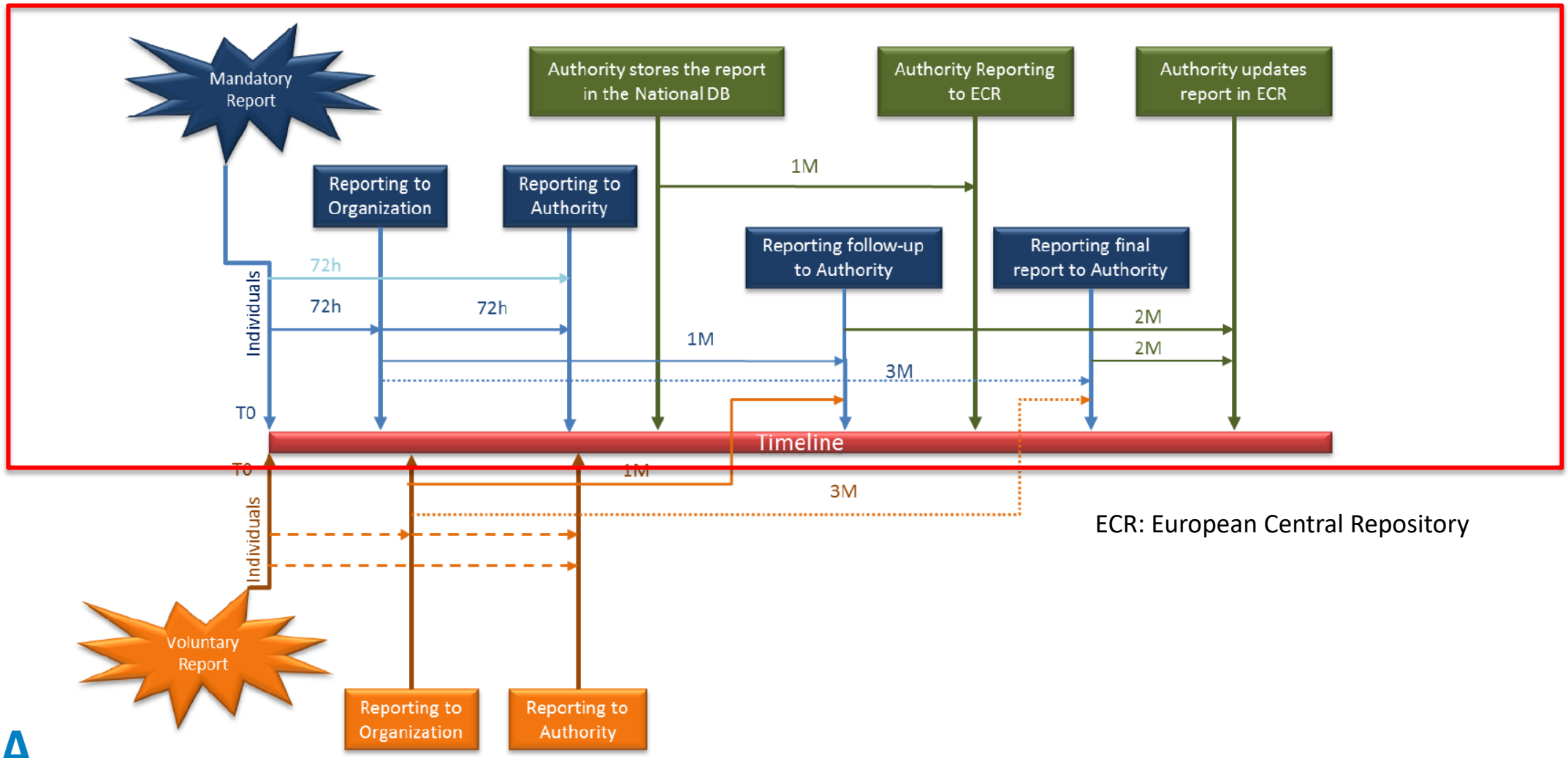
❑ NOTIFICATION FLOW



ECR: European Central Repository

Mandatory Occurrence Reporting System

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Is it a complaint or a claim?

The reporter is informed of the channels to which to address it, but it is not processed

Preliminary medium-high risk classification?

Priority is given to their processing

Added to the processing sequence

Occurrence processing

- Duplicates control
- Event coding
- Risk classification
- Setting up actions

Request additional information

Occurrence closure and storage in National Database

Follow-up of relevant Occurrences

Activation of the alert mechanism

Initiation of the procedure for disclosure of info. in cases of wilful misconduct or gross negligence

RISK ANALYSIS AND ASSESSMENT SYSTEMS

- Identification, follow-up and monitoring of Priority Areas at the state level
- Monitoring of safety performance at the state level
- Safety Assessment and Risk Profile at sectoral level
- SRBS: Safety Risk Based Surveillance

Mandatory Occurrence Reporting System

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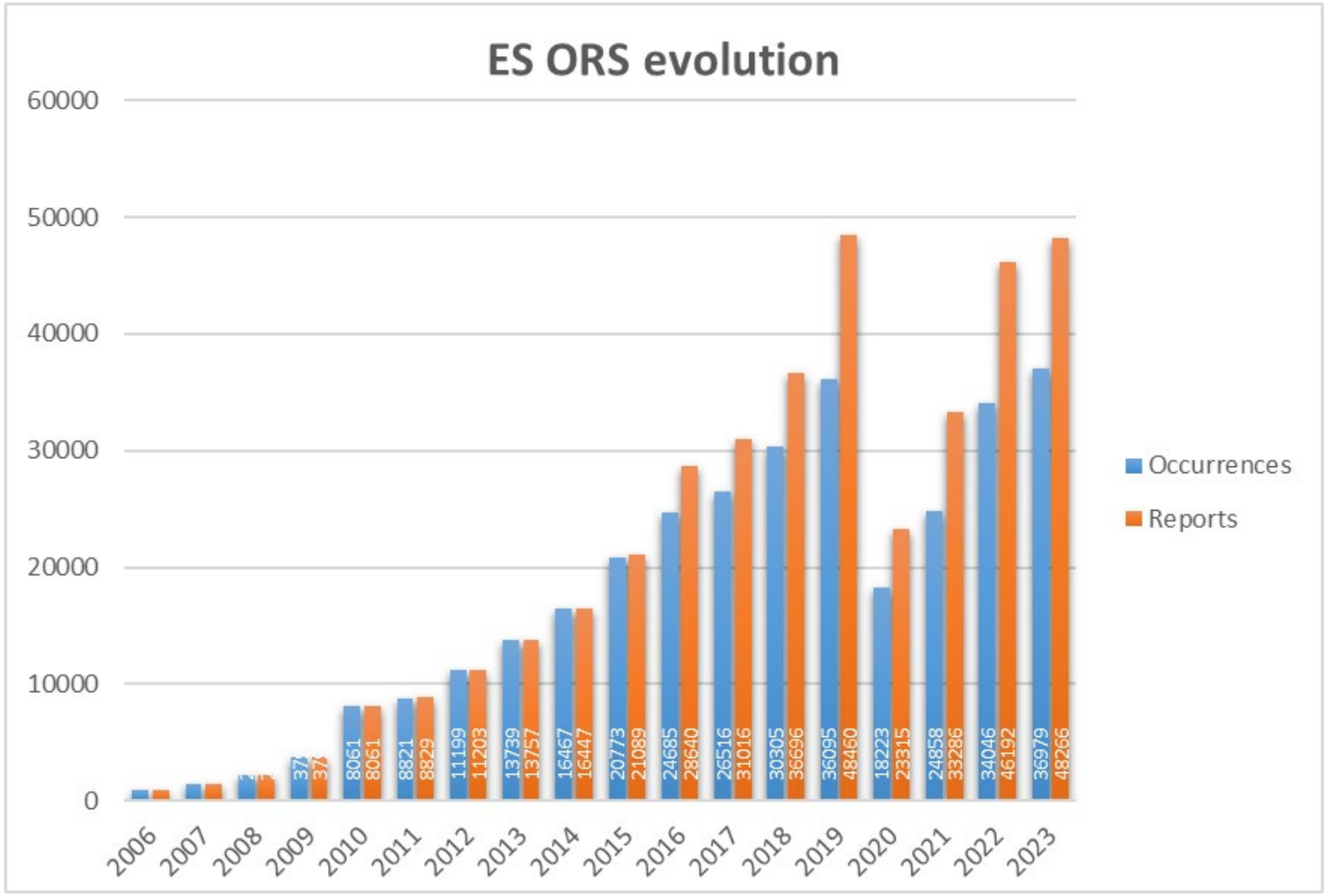

Voluntary reporting: People and Safety

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Causes and consequences of operational errors are not linear in their magnitude

Neither the error nor the magnitude of its consequences should be the focus of the subsequent investigation.

Rather, it **is the individual's underlying conduct at the time the error** was committed that is the proper subject of the review

Understanding Human Error

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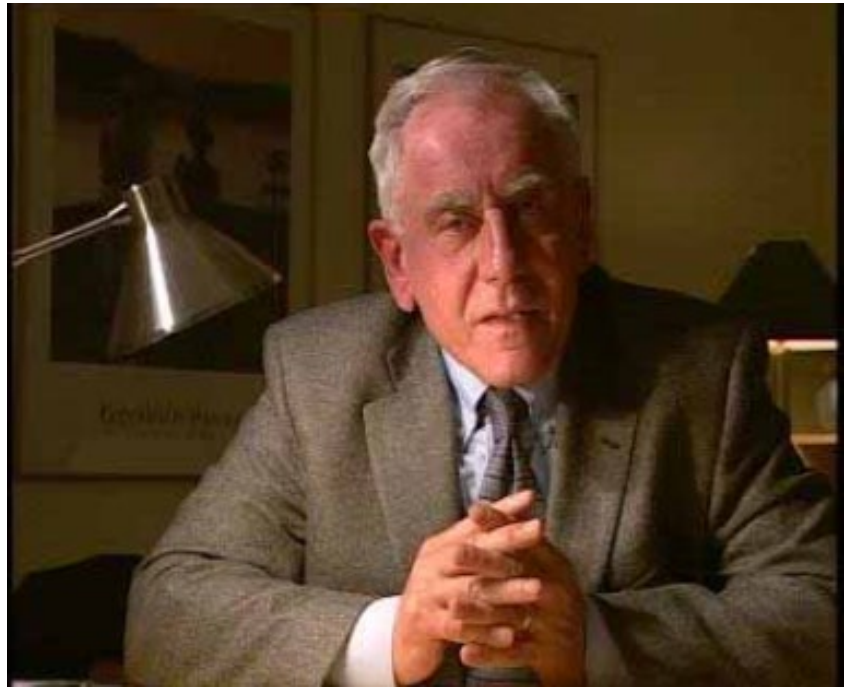
and implemented by EASA

"Making errors is about as normal as breathing oxygen"

James Reason



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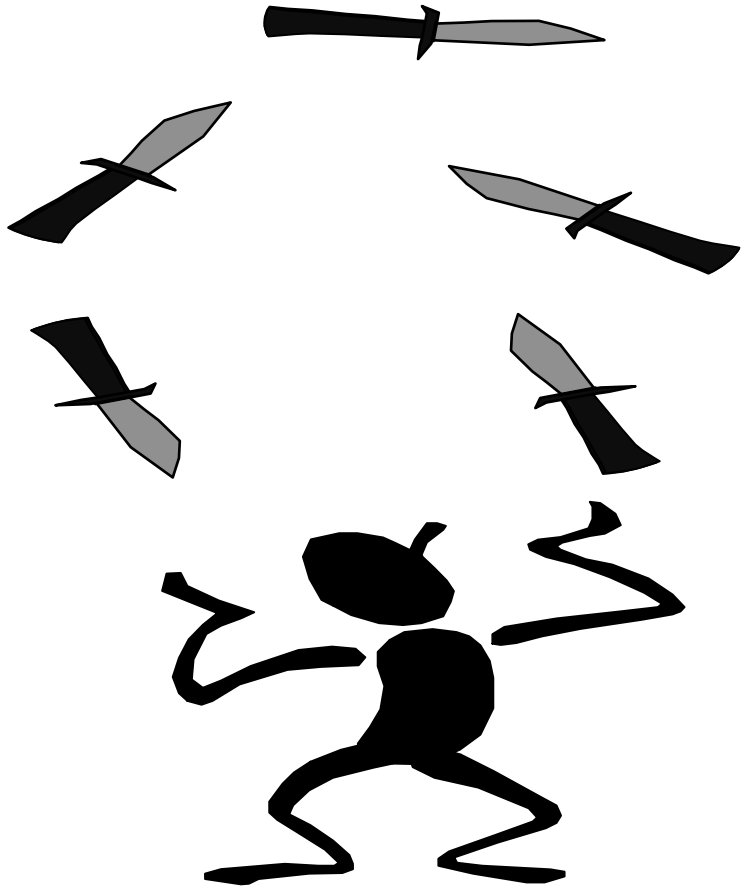

- Human error is considered a contributing factor in most aviation occurrences.
- Even competent personnel commit errors.
- **Errors must be accepted as a normal component** of any system where humans and technology interact.

Understanding Human Error

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Errors and safety – A non-linear relationship

Understanding Human Error

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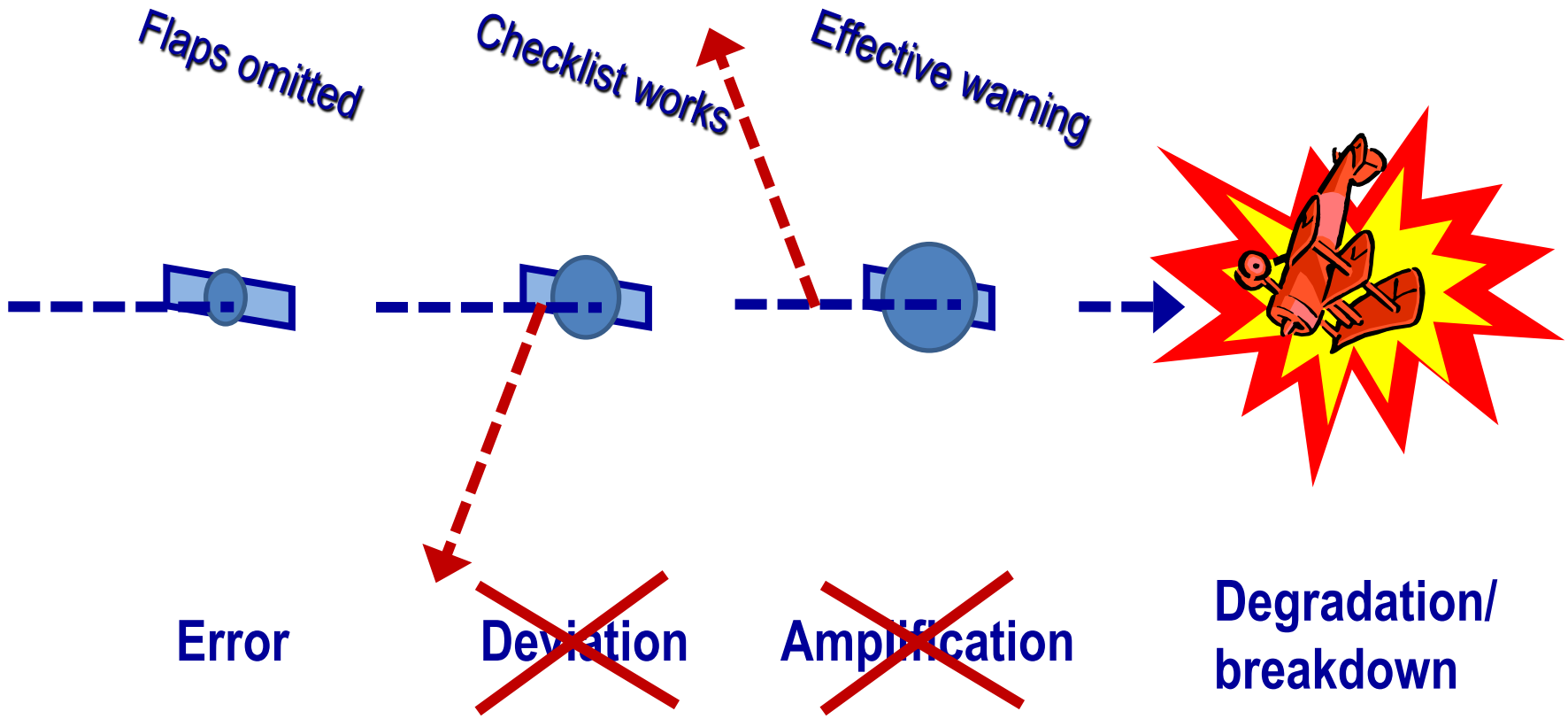
Safety management – On almost every flight



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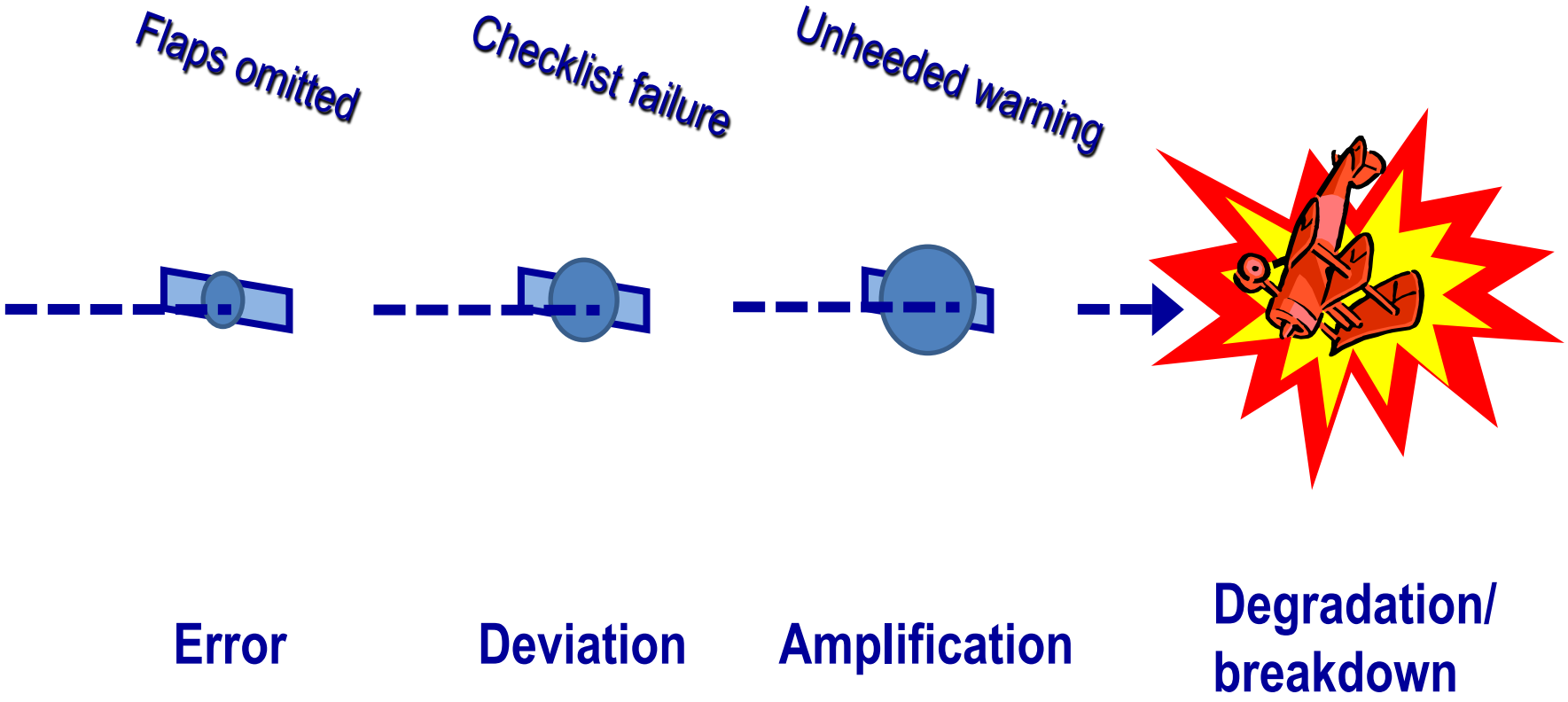
Accident investigation – Once in a 10 million flights



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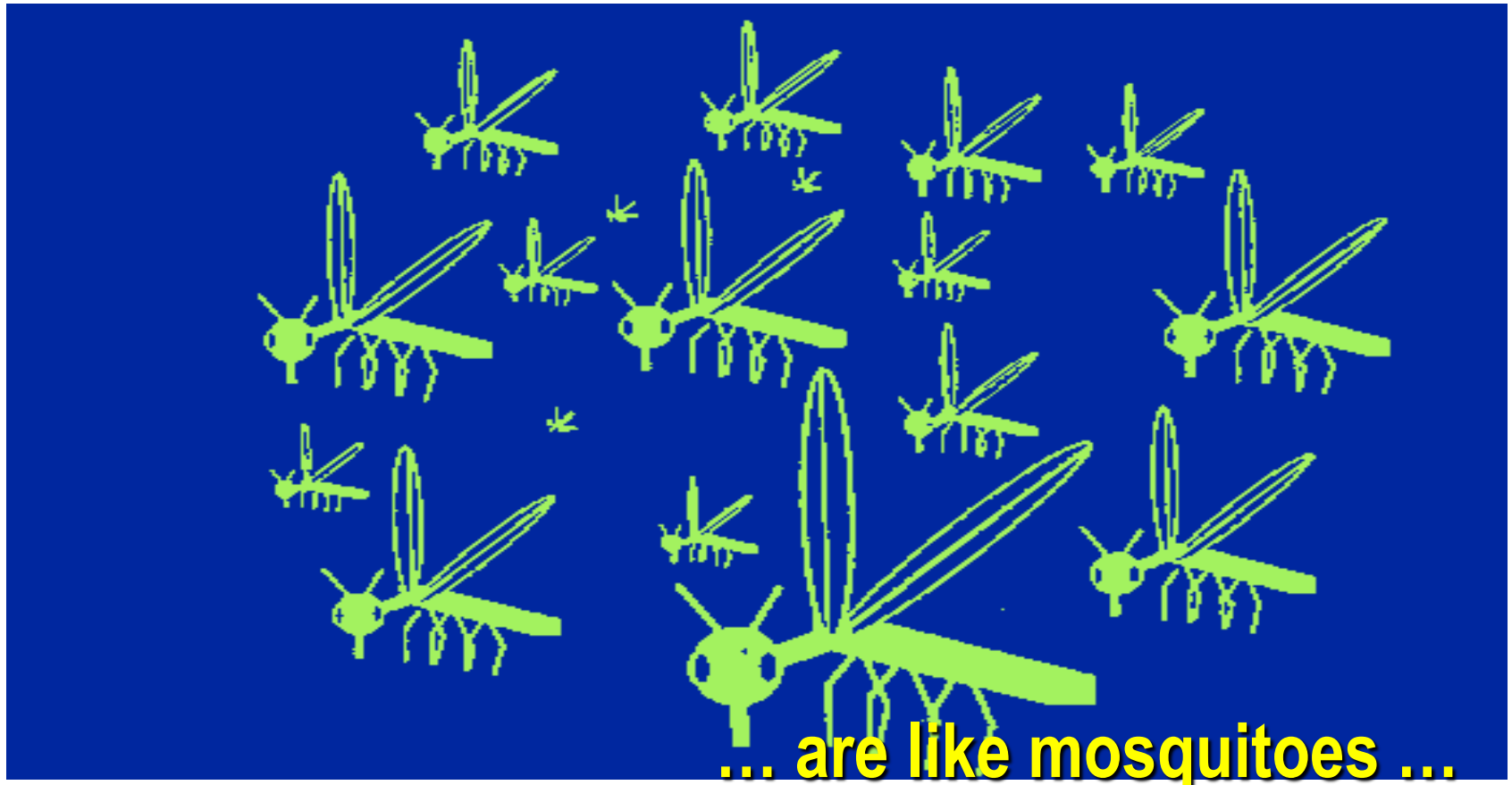
Errors ...



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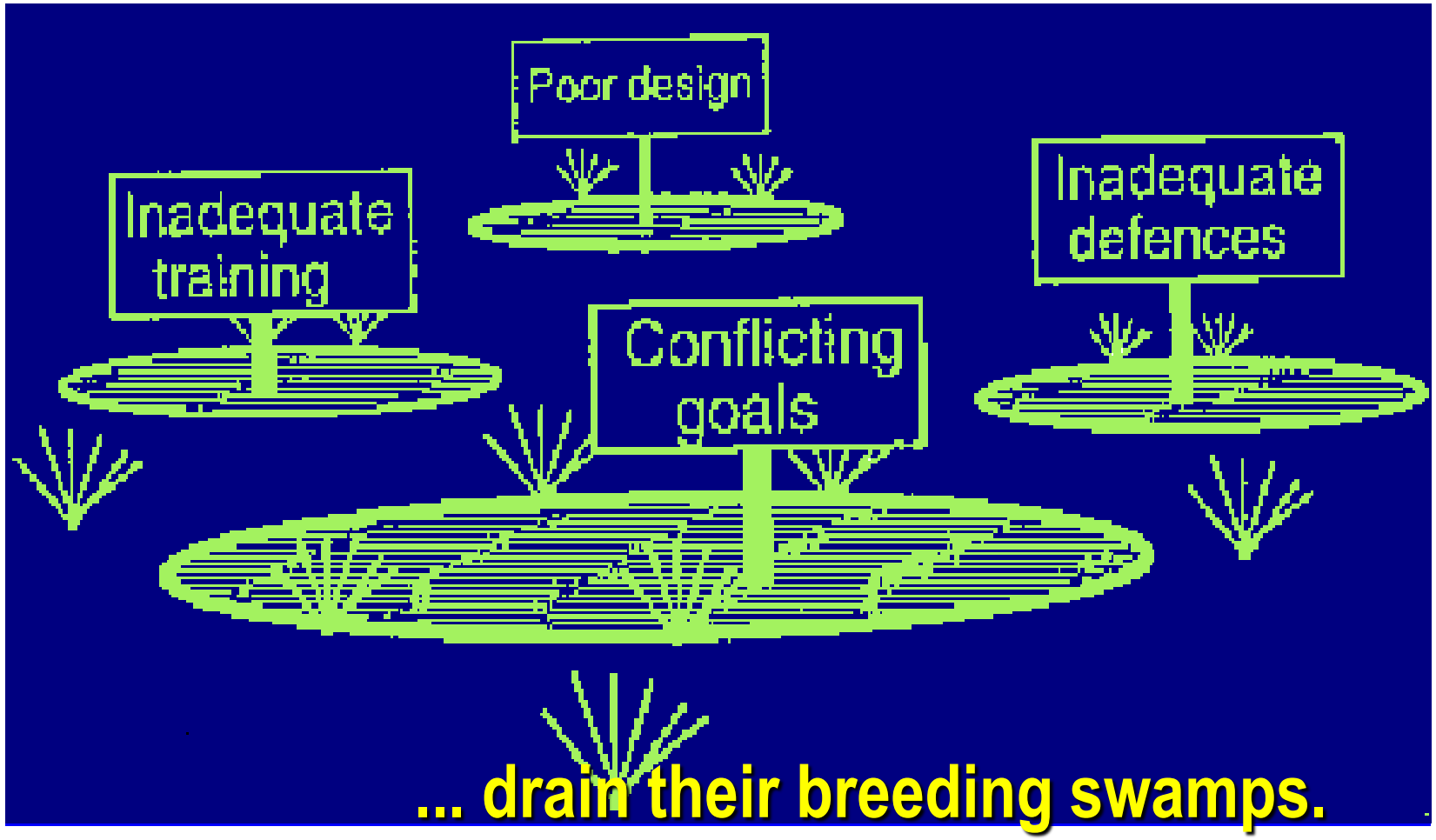
To fight them…



Understanding Human Error

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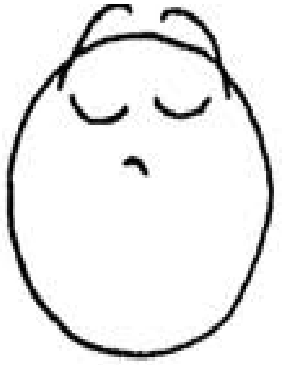
- WHICH ARE THE BIG THREE ENEMIES OF SAFETY?

IGNORANCE

COMPLACENCY

ARROGANCE



Understanding Human Error

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and implemented by EASA

Three strategies for the control of human error

- Error **prevention** strategies intervene at the source of the error by reducing or eliminating the contributing factors.
  - *Human-centred design*
  - *Ergonomic factors*
  - *Training*
  - *…*

Understanding Human Error

This project is funded by the European Union and implemented by EASA

Error prevention strategies

ERROR PREVENTION	SAMPLE STRATEGIES
Reinforce the stringent use of checklists to combat memory limitations	» Establish 'non-negotiable' policy that states checklists, not memory, always to be used » Regular use of industry-based examples via safety alerts demonstrating the perishable nature of memory and potential outcomes
Standardise and simplify procedures	» Establish a technical committee that meets regularly to identify opportunities to rationalise procedures » Ensure corrective actions from safety investigations do not always rely on procedural changes
Identify jobs and tasks that are at risk of fatigue and introduce fatigue proofing strategies	» Focused fatigue countermeasures (e.g. breaks, staff backup, supervisor monitoring etc.) on those jobs that are safety-critical » Proactively identify fatigue producing rosters through staff feedback
Use hazard or near-miss reporting systems to identify error management lessons	» Establish formal policy statement: 'a failure to report is a violation' » Regular feedback to staff via newsletter of near miss examples reported
Decrease reliance on personal vigilance via the strategic use of automation/technology	» Regular industry benchmarking to identify 'smart technology' to complement human operator

Source: CASA Australia

Understanding Human Error

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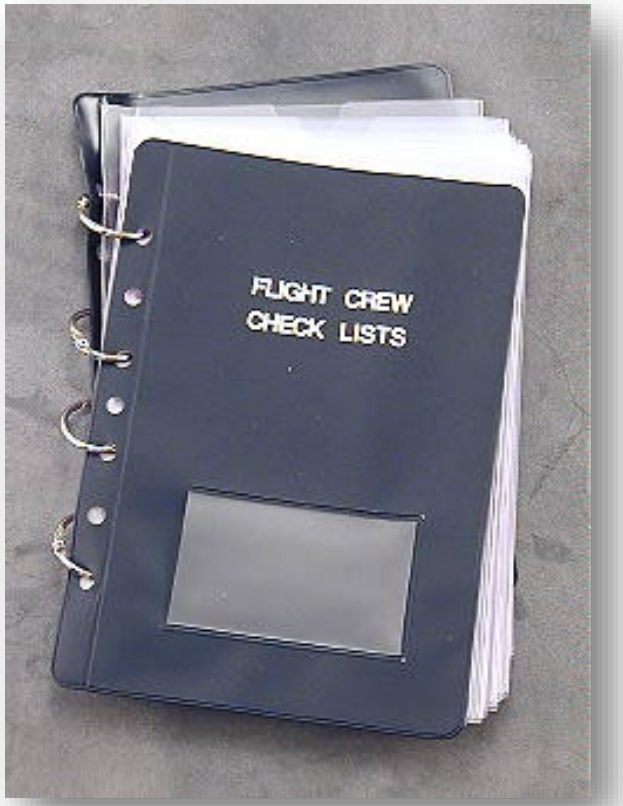
Three strategies for the control of human error



- Error **containment** strategies intervene once the error has already been made, capturing the error before it generates adverse consequences.
  - *Checklists*
  - *Task cards*
  - *Flight strips*
  - *…*

Understanding Human Error

This project is funded by the European Union and implemented by EASA

Error containment strategies

ERROR CONTAINMENT	SAMPLE STRATEGIES
Formalise acknowledgement that errors are 'normal'	» Policy signed by the CEO stating the importance of reporting errors » Safety investigation procedures acknowledging difference between intentional and unintentional errors
Conduct regular systemic analysis to identify common errors and build stronger defences	» Periodic staff discussion groups to identify errors and ways to manage them » Task analysis to identify error potential and effectiveness of current controls
Identify risk of potential errors through normal operations behavioural observation programs	» Independent peer-on-peer confidential observation program » Safety mentoring and coaching program to identify task-specific potential errors
Identify potential single-point failures (high risk) and build stronger defences	» Road testing of procedures to identify ease of comprehension prior to roll out » Ensure critical job roles have backup to avoid over-reliance on individuals
Include the concept of shared mental models in team-based training initiatives	» Focus on good operational examples of situational awareness and threat and error management in recurrent CRM training » Focus on good examples of error capture at shift handover at regular toolbox talks. » Use shift handover as an opportunity for team problem solving, where the incoming shift, with fresh eyes, may help to resolve any issues which have occurred during the outgoing shift.

Source: CASA Australia

Understanding Human Error

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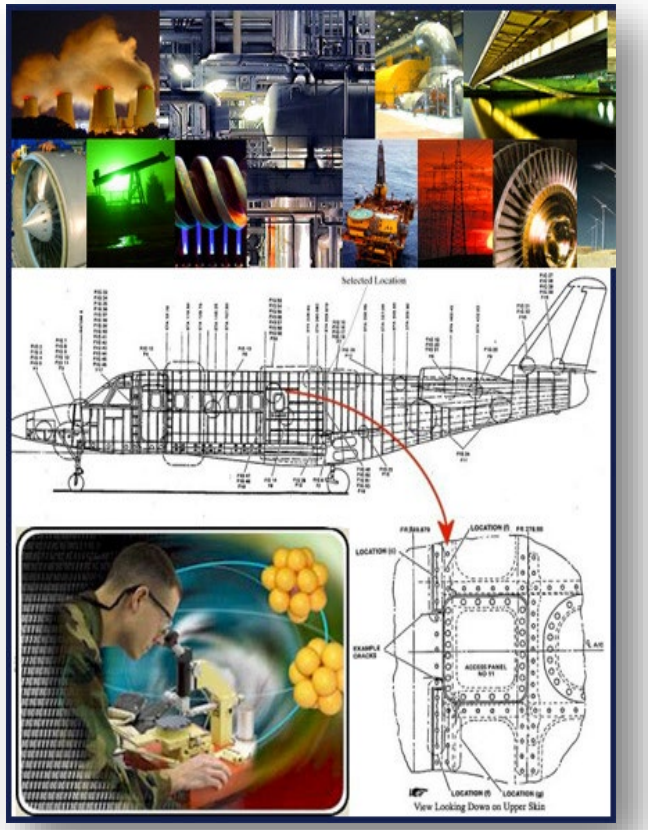
Three strategies for the control of human error



- Error **tolerance** strategies intervene to increase the ability of a system to accept errors without serious consequence.
  - *System redundancies*
  - *Structural inspections*
  - *…*

Understanding Errors and Violations

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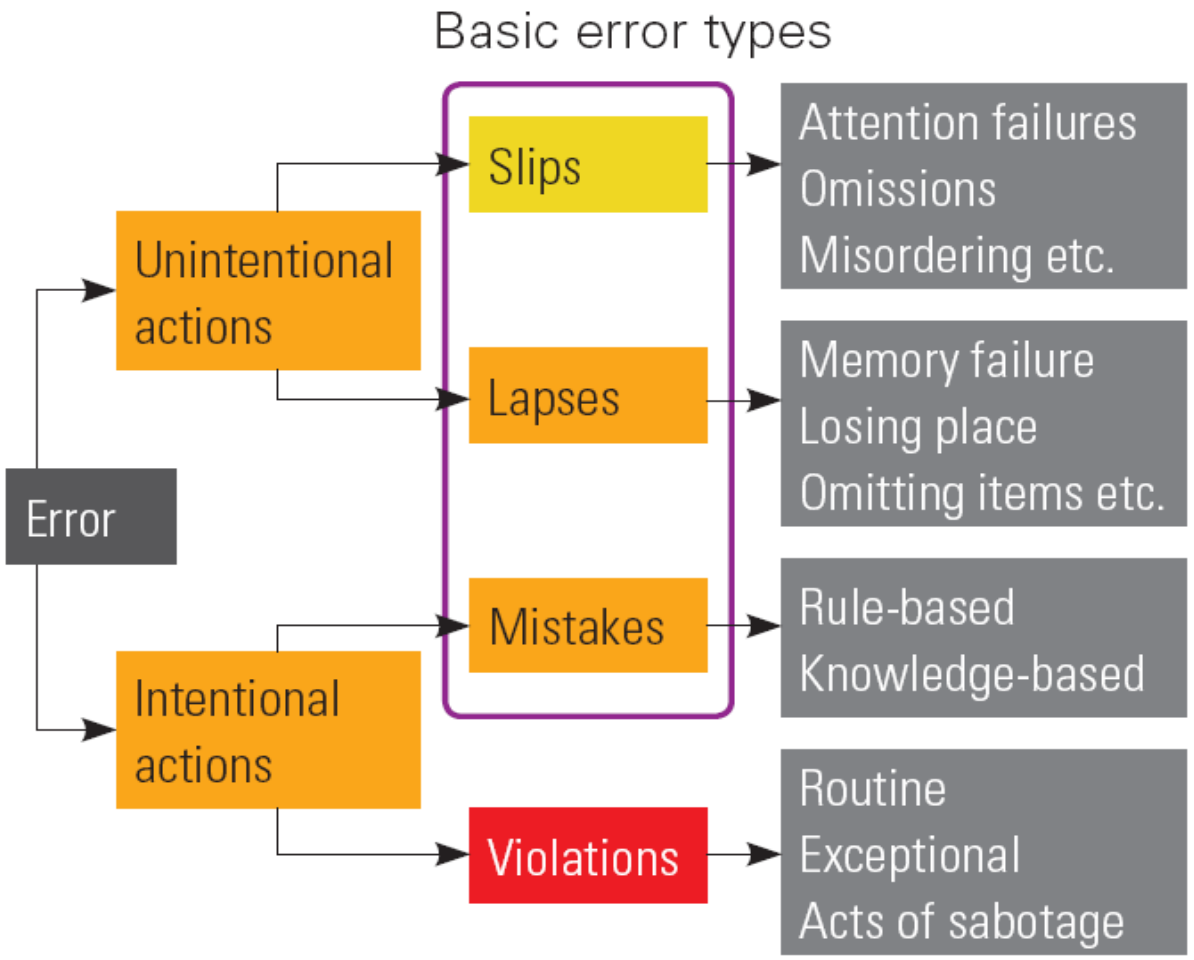

Source: CASA Australia

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Understanding Errors and Violations

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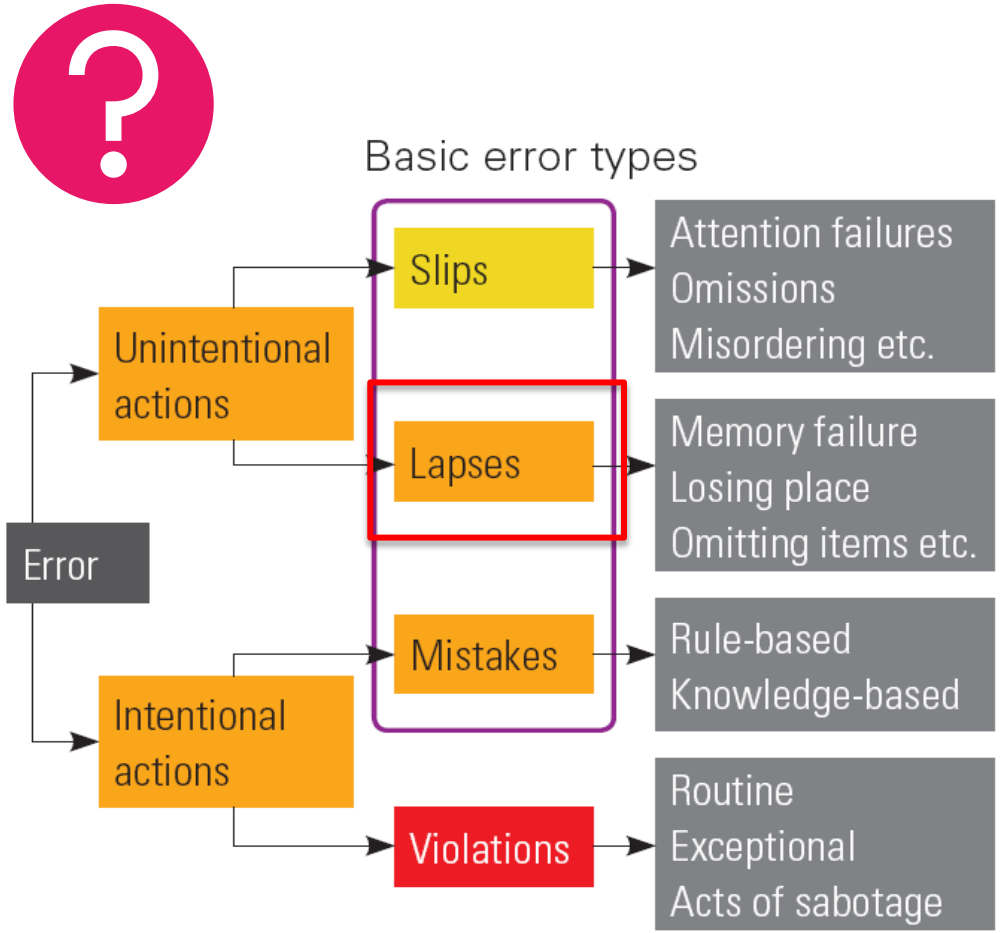

Forgetting to latch fan cowl door | case study

On 20 January 2000, as an Airbus A-320 aircraft rotated on take-off from London's Gatwick Airport, both fan cowl doors detached from the No. 1 engine and struck the aircraft. The doors were destroyed and localised damage resulted to the No. 1 engine and its pylon, the left wing, the left flaps and slats, the fuselage and the fin. It is likely that the doors had been closed following maintenance, but not securely latched before the accident. When the doors are closed, there are no conspicuous cues to indicate they are unlatched and no indication on the flight deck. Similar incidents have occurred on at least seven other occasions worldwide.

(Ref. UK AAIB Bulletin 7/2000)

Source: CASA Australia

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Understanding Errors and Violations

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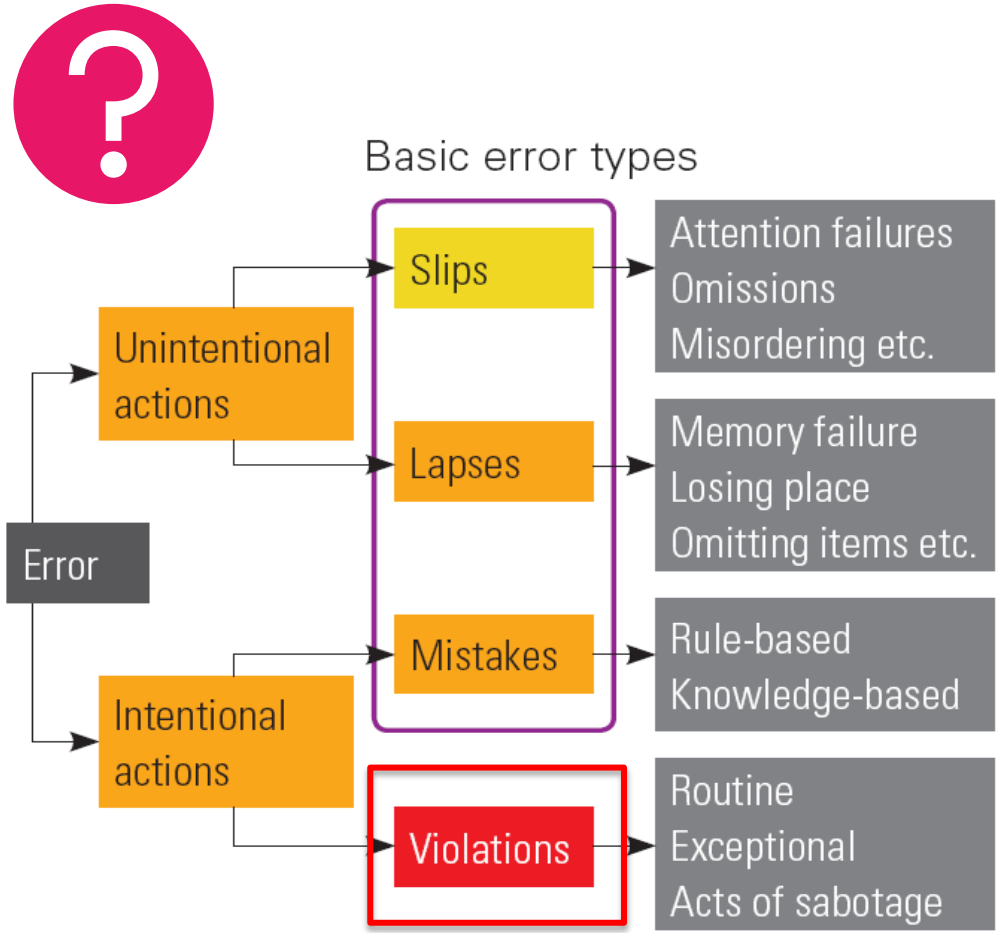

Lost? Just land and ask directions | case study

A pilot of a Cherokee Six became lost on a flight from Uluru to Alice Springs. He decided to land on a gravel road to ask passing traffic where he was. On final approach, it became evident the area of road selected was unsuitable, but the pilot persisted with the landing. After touching down, the aircraft struck trees on the side of the road and crashed.

The aircraft was damaged beyond repair but the six occupants escaped unhurt. There was no pressing reason why the pilot had to land so hastily - the weather was good, the day was young and he had at least three hours of fuel remaining. The pilot could have climbed to a higher altitude to help him establish his position, or used the road as a navigation aid.

Source: CASA Australia

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Understanding Errors and Violations

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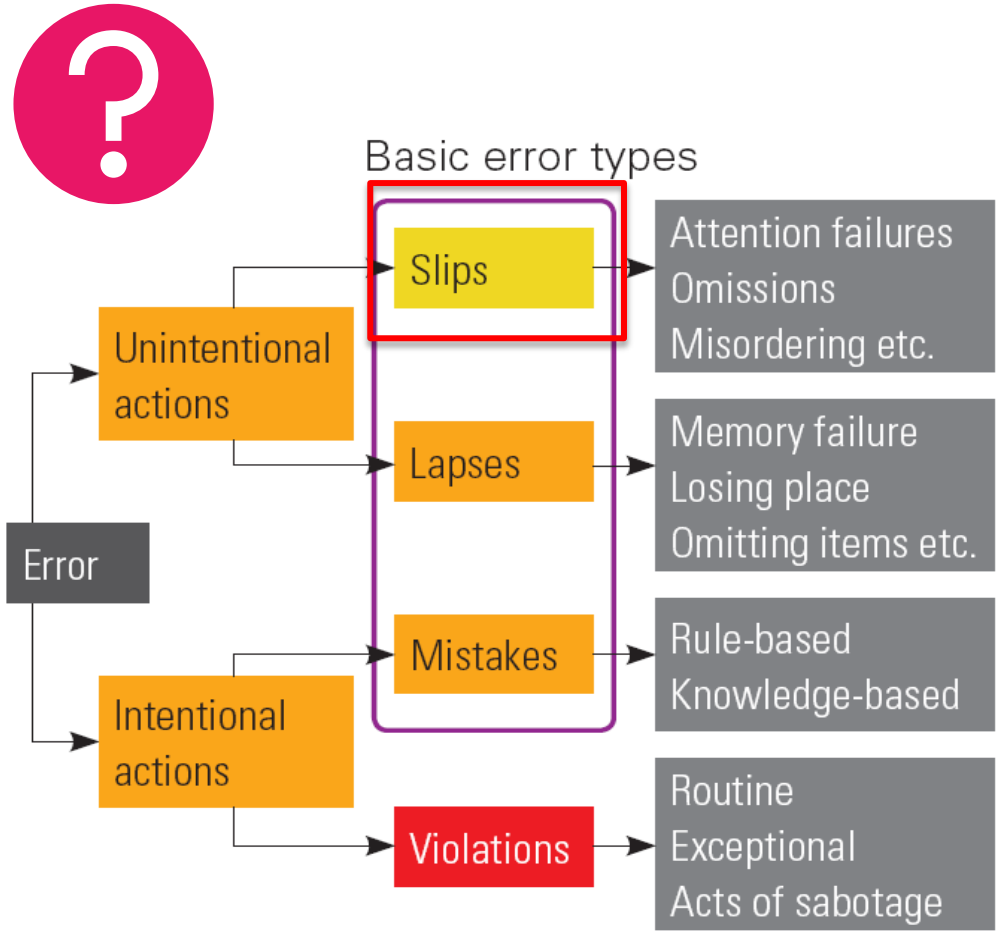

Slip on ladder | case study

A maintenance engineer was supervising aileron repair work when he lost his balance as he attempted to climb down a ladder.
The engineer's foot slipped as he stepped on the top rung of the ladder, trapping his foot between the platform and ladder rung. His leg then acted as an anchor as he fell, taking the full force of the fall. A workmate standing beside the engineer managed to rescue him before he could fall to the ground below.
The engineer was wearing safety footwear and the platform surface was in a dry and clean condition. The platform had no handhold to assist a person ascending or descending the ladder, and the guard rails were not erected correctly. The engineer was distracted by the presence of another worker nearby and was not paying attention to where he placed his foot on the ladder rung.

Source: CASA Australia

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Understanding Violations

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Would you cross this bridge?

Understanding Violations

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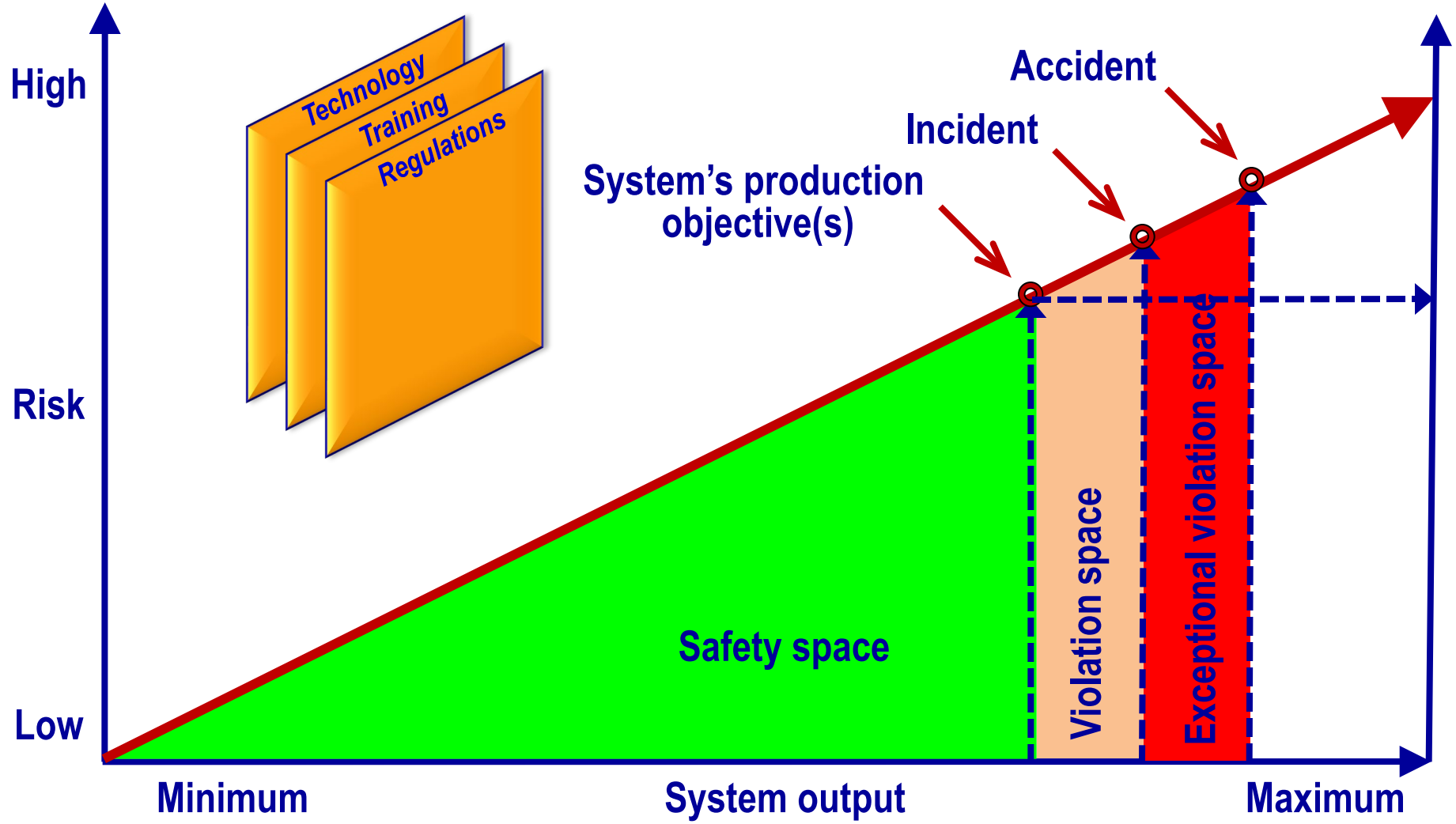

Understanding Violations

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VIOLATION TYPE	DEFINITION	MAIN CAUSES
Routine For example, relying on memory to perform a checklist	Frequent, known and often condoned	» We think the rules are unnecessary or too rigid » We are poorly supervised
Situational For example, not using the proper work stand or light during wing inspection, as wing stand is broken and time is short	Adapting to the problems in the workplace	» We don't have enough help to do the job, or there is not enough time due to poor planning » We find that the procedures are too complicated or onerous
Optimising (personal or organisational) » personal – for example, doing a cursory examination of the aircraft to get out of the cold weather » organisational – not following all the required procedural steps for expediency turnaround in aircraft	Self before safety (personal) Thrill-seeking (personal) Trying to achieve production goals (organisational)	» We break a rule because it is more convenient for us » We are bored, or the job is monotonous so we look for things to do » We want to please the customer or get the job done for the boss or organisation
Exceptional For example, ignoring the pre-landing checklist on final approach to take evasive action due to traffic conflict	Rare, one-off acts in novel or unfamiliar situations	» There is a lack of a thorough, risk-based approach to training anticipating safety-critical scenarios » We are under extreme pressure to perform
Act of sabotage For example, not tightening a bolt so as to cause structural failure	Malevolent behaviour	» We fully intend to cause harm to life and/or property

Source: CASA Australia

Understanding Violations

This project is funded by the European Union and implemented by EASA

Management strategies by violation type

VIOLATION TYPE	MANAGEMENT TOOLS
Routine	» Regularly rationalise/simplify rules e.g., do we really need it? » Reward compliance with procedures
Situational	» Make procedures realistic for the task » Involve employees in developing rules » Improve the level of supervision and resources
Organisational optimising violation	» Make rules easier to follow through aggressive simplification
Personal optimising violation	» Consider discipline through 'fair and just culture 'program
Exceptional	» Train employees for the unexpected, to avoid surprises » Regular training about what 'good' situational awareness and critical decision-making skills look like
Act of sabotage	» Performance management » Disciplinary action » Prosecution
All violations	» 'Fair and just culture' program

Source: CASA Australia

Understanding Violations

This project is funded by the European Union
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Case 1:

- ✓ A technician is assigned to inspect for cracks in an aircraft's fuselage.
- ✓ It is night and the aircraft is parked on the runway.
- ✓ Following the airline's policy, the technician wheels out a work stand to bring him close to the skin and obtains bright lights to illuminate the work.
- ✓ Despite these measures, it is later found that a crack in the fuselage was not discovered, seriously endangering the aircraft and its occupants.

Understanding Violations

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Case 2:

- ✓ The second scenario has the same outcome: a crack is missed.
- ✓ But, this time, the technician conducted his inspection by merely walking beneath the aircraft using a hand-held flashlight to illuminate the rivets, some 2 metres away.

In neither case were the consequences intended. But, in the latter case, there is little doubt that the cursory and distant examination greatly increased the probability of a fuselage crack being missed.

Voluntary Occurrence Reporting System

This project is funded by the European Union and implemented by EASA

Article 5

Voluntary reporting

4. The voluntary reporting systems shall be used to facilitate the collection of details of occurrences and safety-related information:

(a) not subject to mandatory reporting pursuant to Article 4(1);

(b) reported by persons who are not listed in Article 4(6).

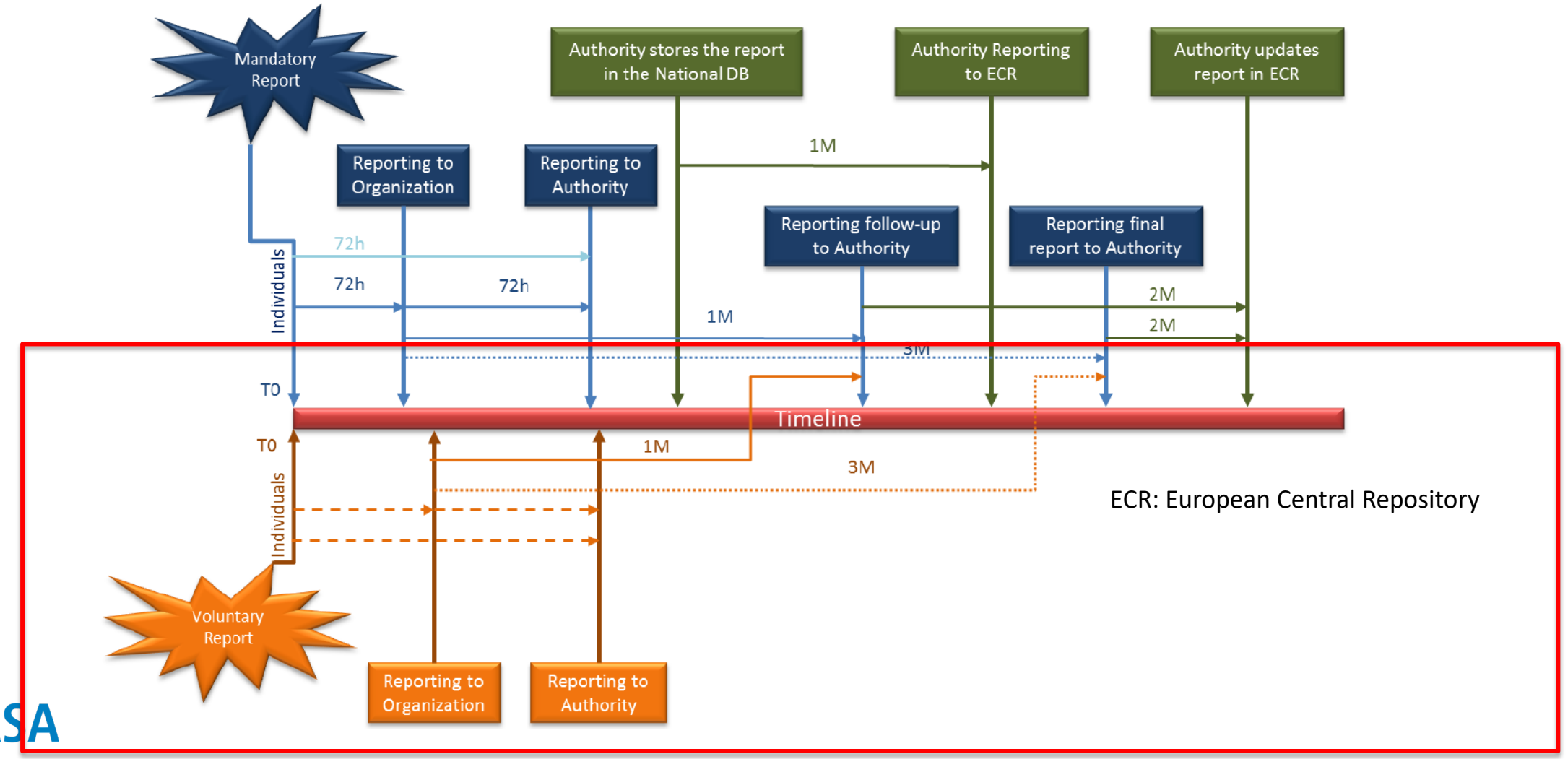
What?

Who?

Voluntary Occurrence Reporting System

This project is funded by the European Union and implemented by EASA

❑ NOTIFICATION FLOW



Example of VORS

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Who?

Examples:

A crew member may report a runway excursion through voluntary occurrence reporting systems.

A pilot in command may report occurrences outside those listed in Annex I of Regulation 2015/1018 through voluntary occurrence reporting systems.

What?

ICAO vs Regulation (EU) 376/2014

This project is funded by the European Union and implemented by EASA

Article 5

Voluntary reporting

4. The voluntary reporting systems shall be used to facilitate the collection of details of occurrences and safety-related information:

(a) not subject to mandatory reporting pursuant to Article 4(1);

(b) reported by persons who are not listed in Article 4(6).

What?

Who?

5.1.2 States shall establish a mandatory safety reporting system that includes the reporting of incidents.

5.1.3 States shall establish a voluntary safety reporting system to collect safety data and safety information not captured by mandatory safety reporting systems.

5.3 Safety data and safety information protection

5.3.1 States shall accord protection to safety data captured by, and safety information derived from, voluntary safety reporting systems and related sources in accordance with Appendix 3.

Note.— Sources include individuals and organizations.

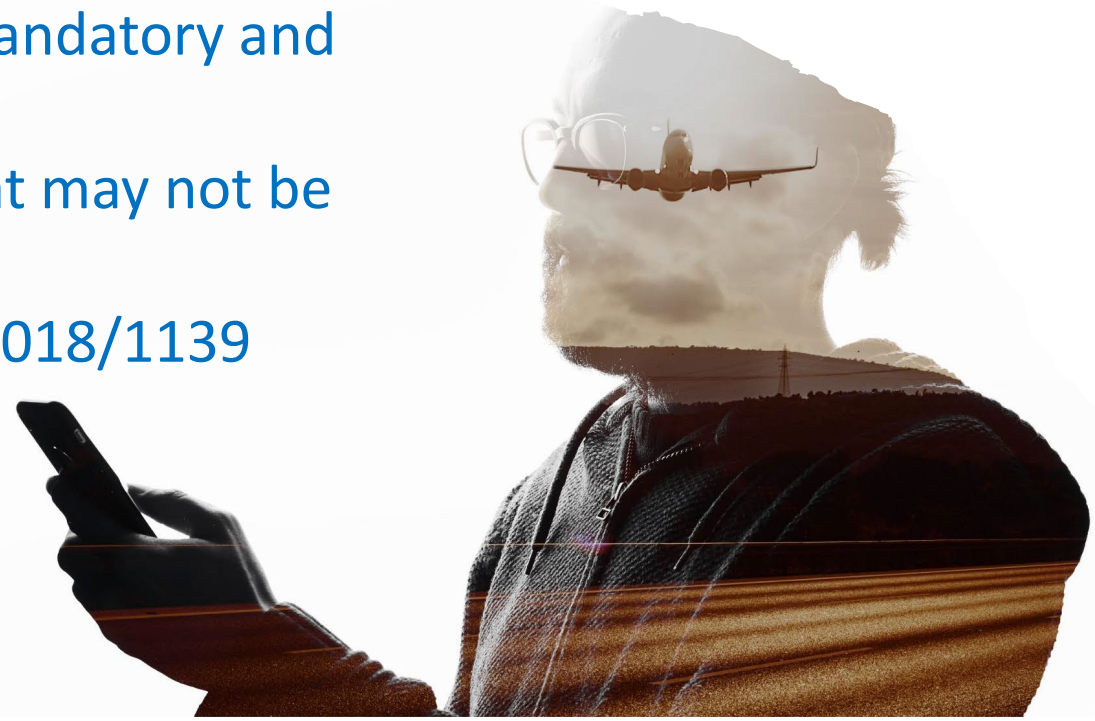
5.3.2 **Recommendation**.— *States should extend the protection referred to in 5.3.1 to safety data captured by, and safety information derived from, mandatory safety reporting system and related sources.*

Confidential Safety Reporting System

This project is funded by the European Union and implemented by EASA

What is the Confidential Safety Reporting System (CSR)?

- CSR is a system designed to collect safety-relevant information confidentially, beyond mandatory and voluntary occurrence reporting.
- It aims to capture safety concerns that may not be reported through standard channels.
- Origin: Article 72 of Regulation (EU) 2018/1139 (Basic Regulation)



Confidential Safety Reporting System

This project is funded by the European Union and implemented by EASA

Legal Foundations of CSR

- **Regulation (EU) 2018/1139 – Article 72:**

EASA shall coordinate at Union level the gathering, exchange and analysis of safety-related information, including **operational flight data**, in a **confidential environment**.

- **Regulation (EU) 2018/1139 – Article 73:**

The **source of information must be protected** when provided voluntarily, especially by natural persons.

Confidential Safety Reporting System

This project is funded by the European Union and implemented by EASA

CSR vs Regulation (EU) 376/2014Regulation (EU)

Regulation 376/2014	**Confidential Safety Reporting (CSR)**
Focused on **occurrences**	Covers **any safety matter** within aviation
Mandatory & voluntary reporting	Voluntary and **fully confidential**
Handled by CAs, EASA, and organisations	May involve **external entities or associations**
Subject to ‘Just Culture’ principles	Subject to **strict confidentiality** (Article 73)

Confidential Safety Reporting System

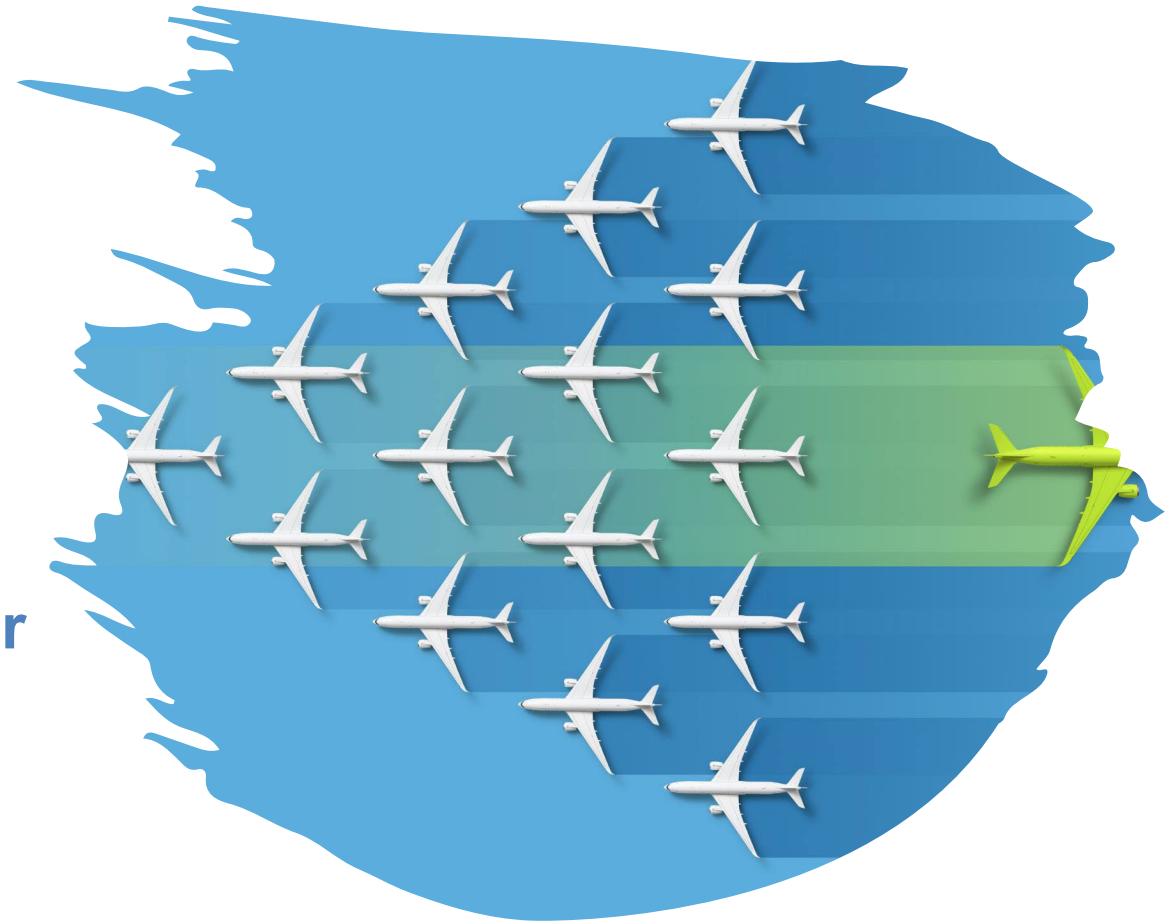
This project is funded by the European Union and implemented by EASA

Legal Complementarity

CSR must respect:

- Regulation (EU) 996/2010 on accident investigation
- Regulation (EU) 376/2014 on occurrence reporting

CSR provides an additional layer for safety monitoring



Confidential Safety Reporting System

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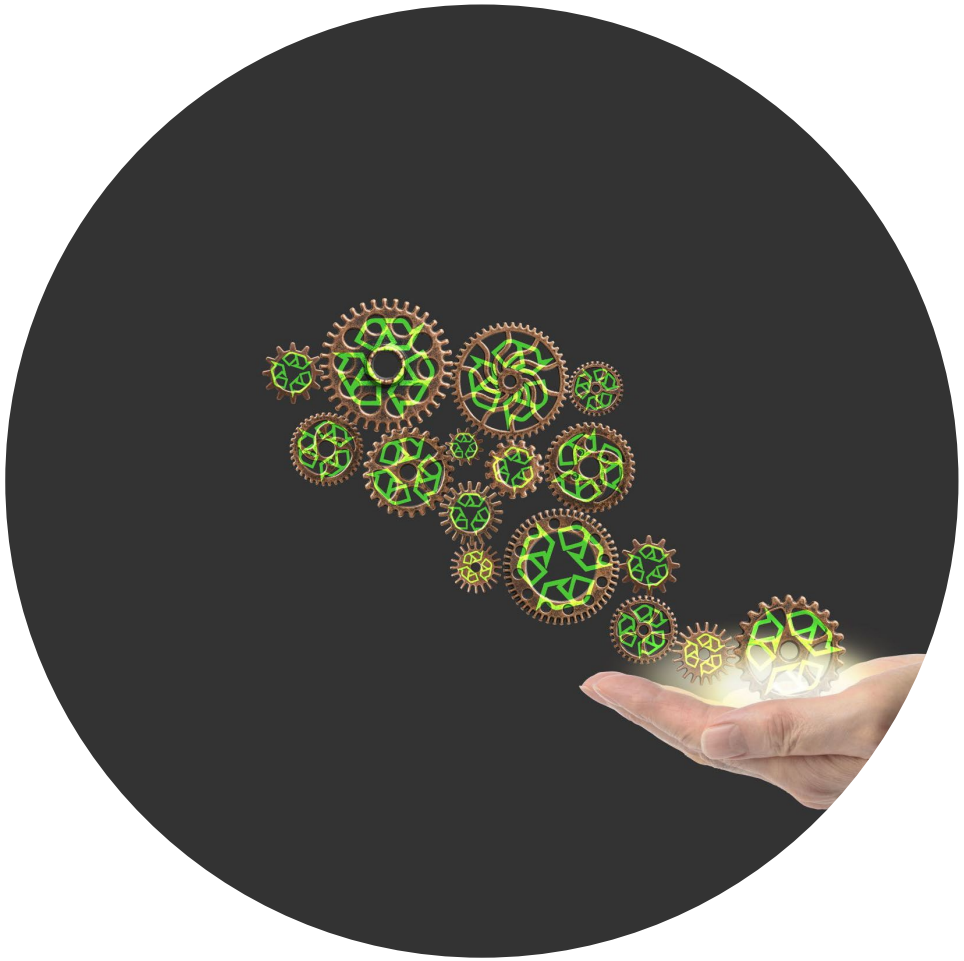


Interaction with Whistleblower Legislation

- **Directive (EU) 2019/1937** and **Spanish Law 2/2023** create broader protective frameworks.
- They cover reports on **irregularities, breaches, or corruption**, also within aviation.
- CSR mechanisms should be **aligned** with whistleblower protection standards.

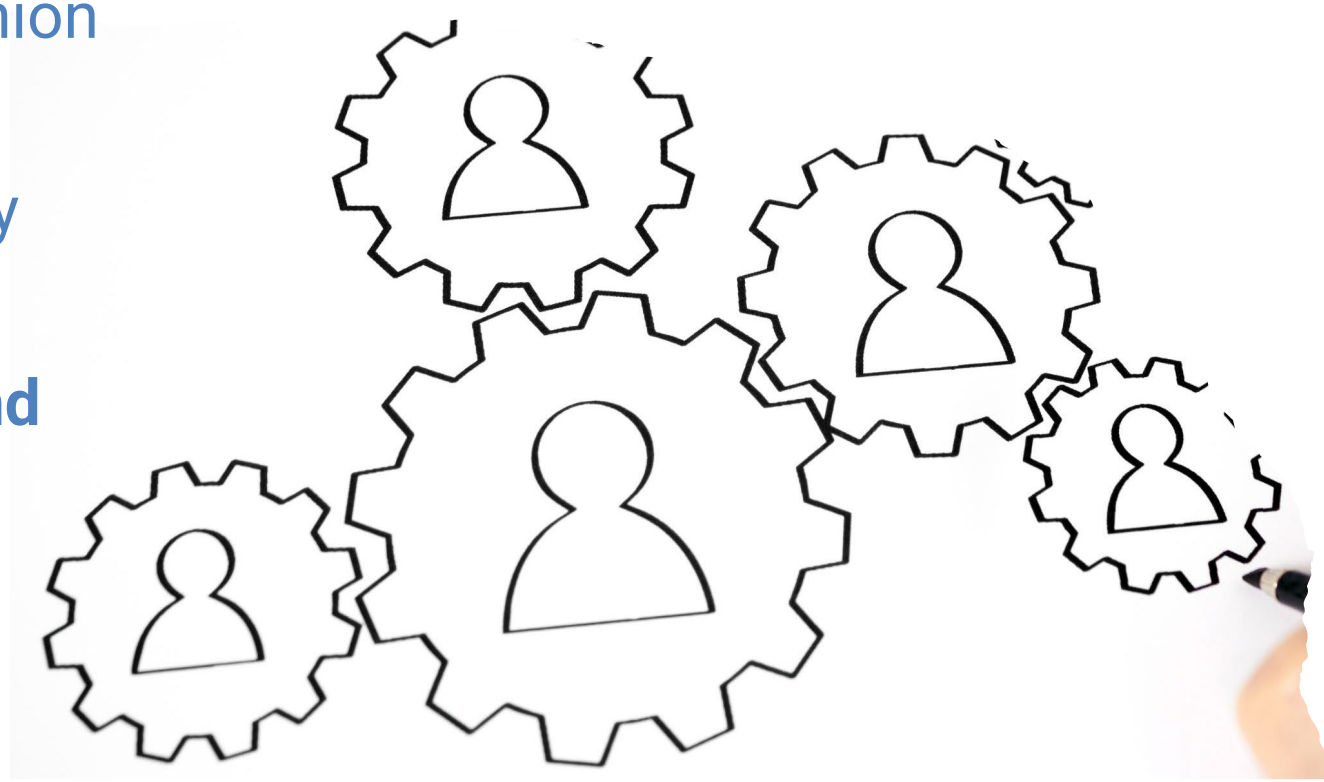
Confidential Safety Reporting System

This project is funded by the European Union and implemented by EASA

The Role of National Competent Authorities

Although EASA coordinates CSR at Union level, **NCAs**:

- May receive confidential safety information.
- Must ensure **confidentiality and source protection**.
- May be required to act on the information while **avoiding retaliation**.



Module 8: The Internal Organisation of the CAA & Coord. with the AIA (AIG)

- → Internal information flow within the CAA (Functions, processes and activities)
- → Personnel competencies (Data analyst/ Domain expert)
- → Coordination with the AIA

Internal information flow within the CAA

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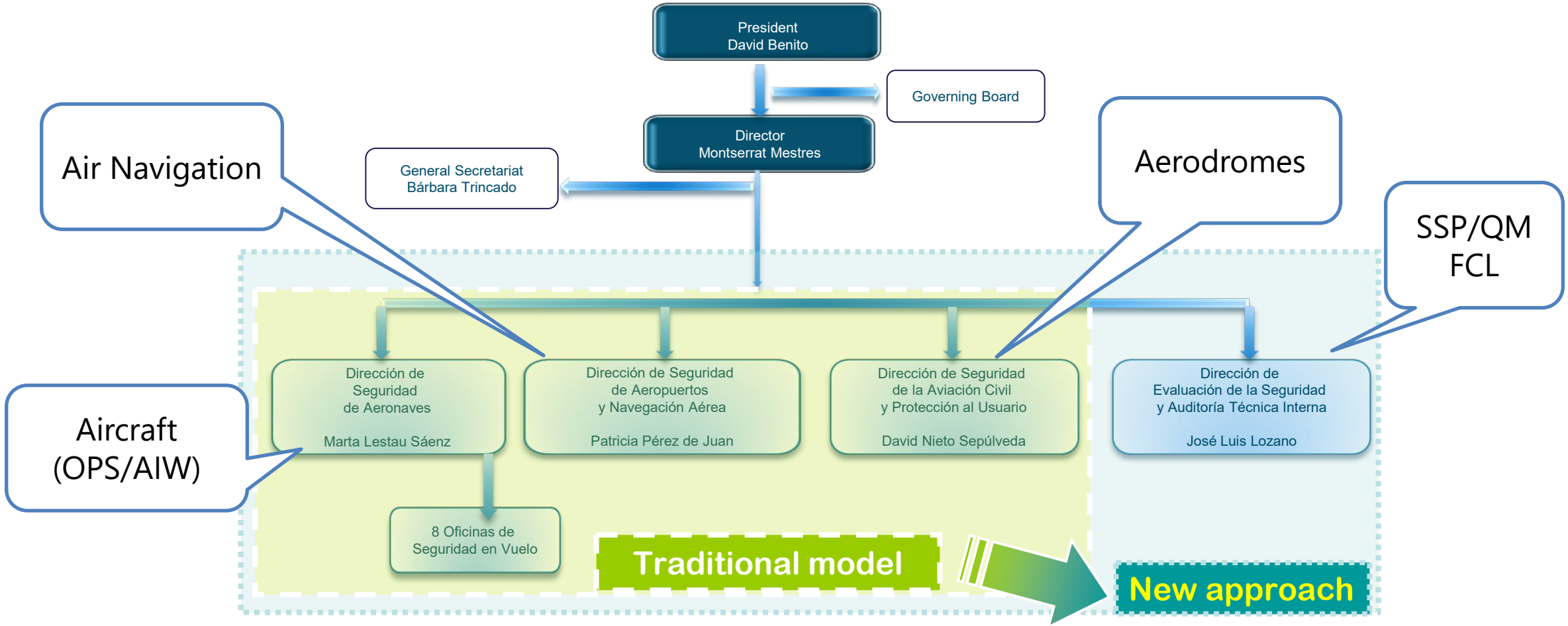

Internal information flow within the CAA

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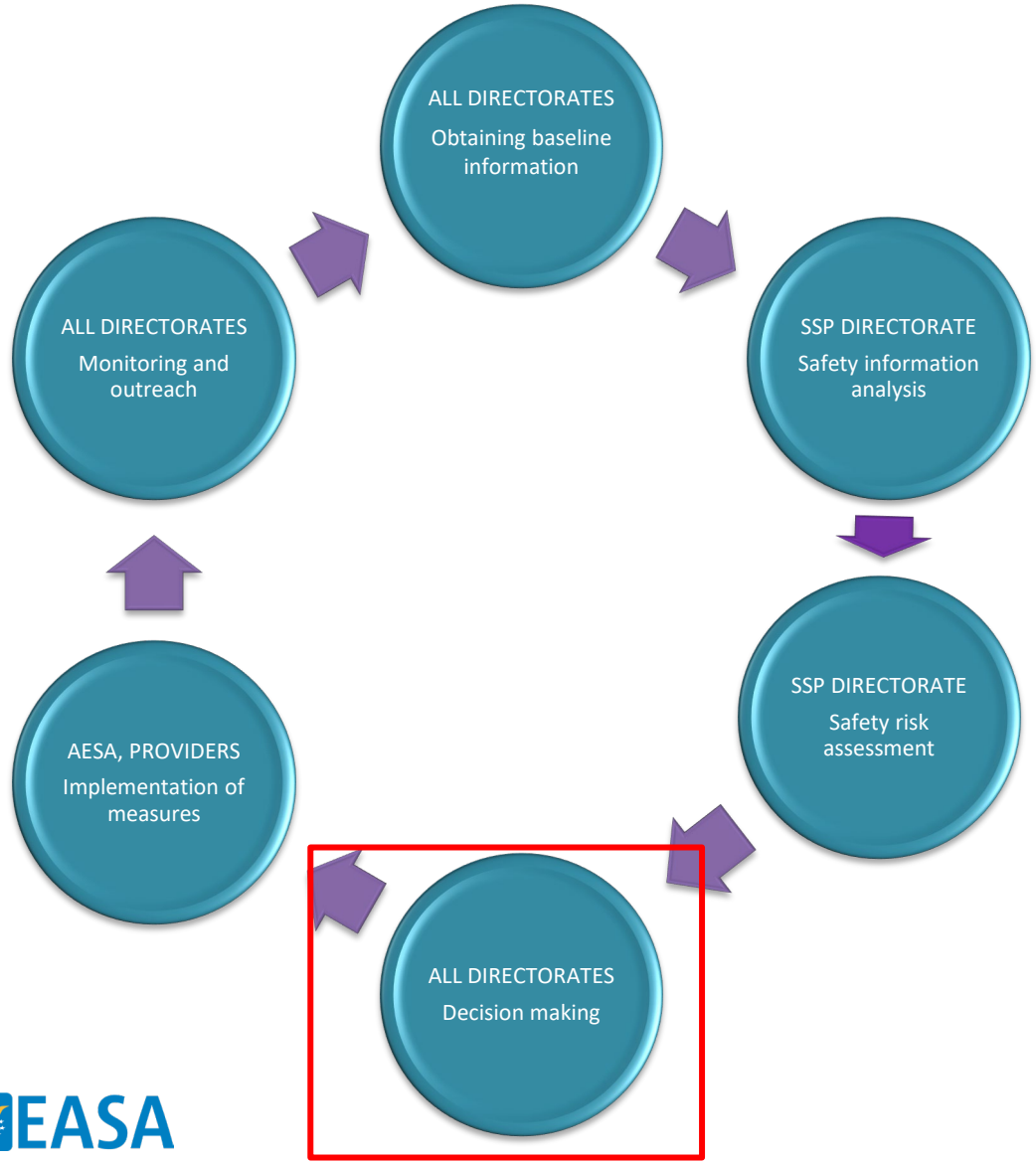

- **Three decision-making levels**

Internal information flow within the CAA

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→ Safety Committees

Safety Committee

Internal information flow within the CAA

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→ Coordination and decision making - Safety Committees

❖ Functions

- Validation of working methodologies for the prioritisation of actions
- Advice on establishing the safety strategy in each case
- Dealing with strategic level issues
- Discussion and decision making on issues that have not been resolved at the operational level
- Approval and modifications of the Annual Inspection Plan
- Review of priority areas: areas of major safety risk concern
- Dissemination of actions taken

Internal information flow within the CAA

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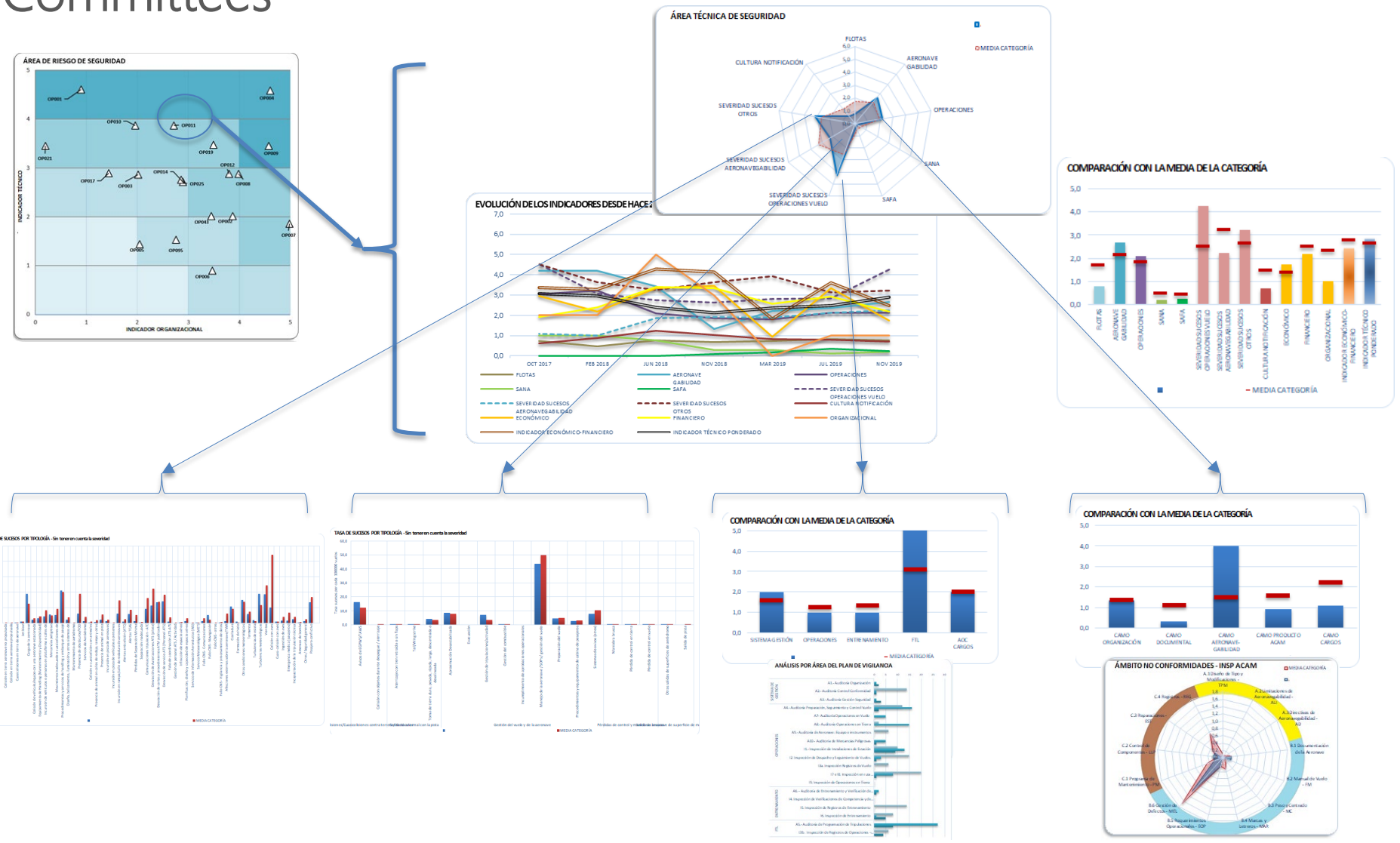
→ Safety Committees



Internal information flow within the CAA

This project is funded by the European Union and implemented by EASA

→ Coordination and decision making - Safety Committees

❖ Timing

Safety Committee - First semester

- Last year's sector review
- Review of the annual inspection plan
- Prioritisation of actions
- One-off actions

Safety Committee - Second semester

- Review of the evolution of the sector during the current year
- Approval of the Annual Inspection Plan for the following year
- Prioritisation of actions
- One-off actions

Internal information flow within the CAA

This project is funded by the European Union and implemented by EASA

→ Safety Committees - Actions

- Extraordinary inspections focused on specific areas
- Increase organisational supervision: reduction of SRBS cycles
- Proposal for the initiation of proceedings for the imposition of penalties or limitation/revocation certificate
- Study and analysis of an identified safety risk area
- Increase economic-financial supervision
- Technical meeting with the service provider to address an identified safety risk area
- High-level meeting with CEO of the organisation
- Revisions and modifications of safety risk evaluation methodologies
- Prioritisation of an organisation
- Harmonisation of inspection criteria
- Creation of internal working groups to improve safety oversight
- Approval of the Annual Inspection Plan
- Review and follow-up of safety risk priority areas
- …etc

Personnel Competencies

This project is funded by the European Union and implemented by EASA

Why New Competencies Matter

- Modern reporting systems generate large volumes of safety data.
- Analysis now requires skills beyond manual review methods.
- Authorities often lack necessary statistical and programming proficiency.
- SSP/SMS demand expertise in SQL, Python/R, and data visualisation.
- NLP, machine learning and AI contribute to actionable safety intelligence.
- Deep learning achieves over 68% accuracy in incident report classification.

Required Competencies for Data Analysts & Domain Experts

- Statistical Analysis: descriptive metrics and trend detection.
- Database Skills: mastering SQL and ETL pipelines.
- Programming: scripting in Python/R for report parsing.
- Domain Knowledge: familiarity with ICAO taxonomies.
- Visualization: using tools like Power BI for insights.

Personnel Competencies

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How to Acquire These Competencies

- Recruit data specialists with diverse backgrounds in data science and engineering.
- Offer incentives like aviation training and career development paths.
- Upskill existing teams through targeted training and workshops.
- Leverage MOOCs on analytics and data science for continuous learning.
- Adopt frameworks for measuring data analysis expertise.

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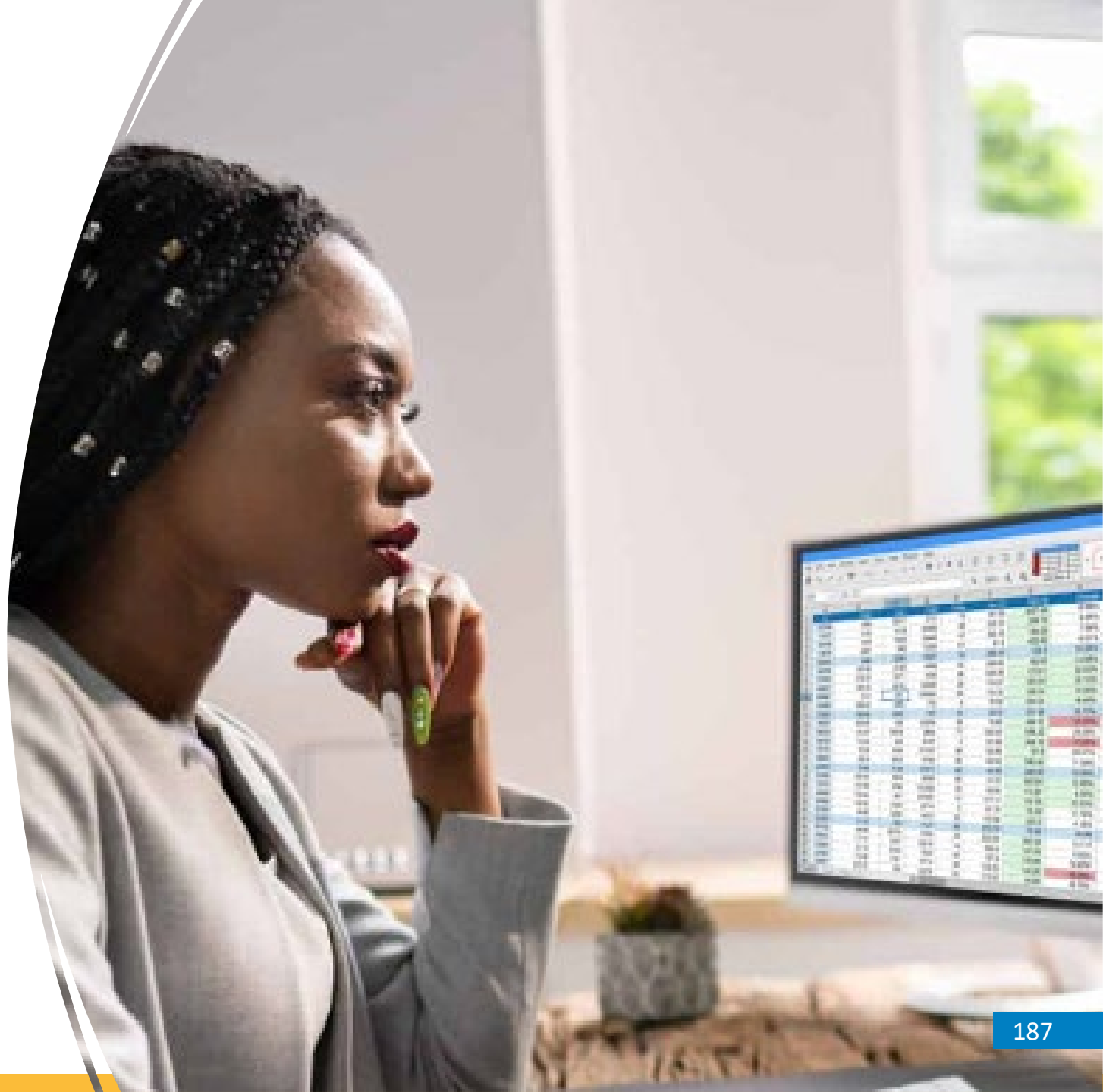
Organisational Strategy for Competency Development

- Embed data-driven roles within SSP/SMS functions.
- Define clear job profiles with technical and domain competencies.
- Utilise a training needs analysis to prioritise competency acquisition.
- Build cross-functional teams to integrate knowledge effectively.
- Encourage continuous learning through collaborative platforms.

Personnel Competencies

Summary & Key Takeaways

- Traditional oversight teams may lack necessary analytics skills.
- SSP/SMS performance relies on integrated competencies.
- Two strategic paths: recruit specialists or upskill internal staff.
- Develop competency frameworks for efficiency.
- Utilise structured evaluation tools for continuous improvement.



Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

→ Cooperation: More than one authority is present

As required by the regulation the authority which is responsible of sharing the information with the ECR must deploy a national information system for the rest of national authorities. In the case of Spain, there are 5 different authorities recognised:

DGAC: Formulation of regulatory proposals and strategic policy.

AESA: Supervision and inspection.

CIAIAC: Accident Investigation.

General Staff of the Air Force: Aeronautical authority for military aviation.

ANSMET: Supervision of meteorological supporting services for air navigation.

Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

Full Access to the ECR

- According to **Article 10(1)**, all **Safety Investigation Authorities (SIAs)** in the EU have **secure full online access** to the **European Central Repository (ECR)**.

Collection and Storage of Reports

- Under **Article 6(3)**, Member States may designate the **Safety Investigation Authority** as one of the competent bodies to:
  - ✓ **Collect, evaluate, process, analyse and store** occurrence reports.
  - ✓ Act independently and uphold **confidentiality** and the principles of **Just Culture**.
- If more than one body is designated, one must act as the **national point of contact** for information transfer to the ECR.

Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

→ Cooperation: More than one authority is present

- Maintenance of the occurrence database
- Sharing occurrences with the European Central Repository (ECR)

ECR authority

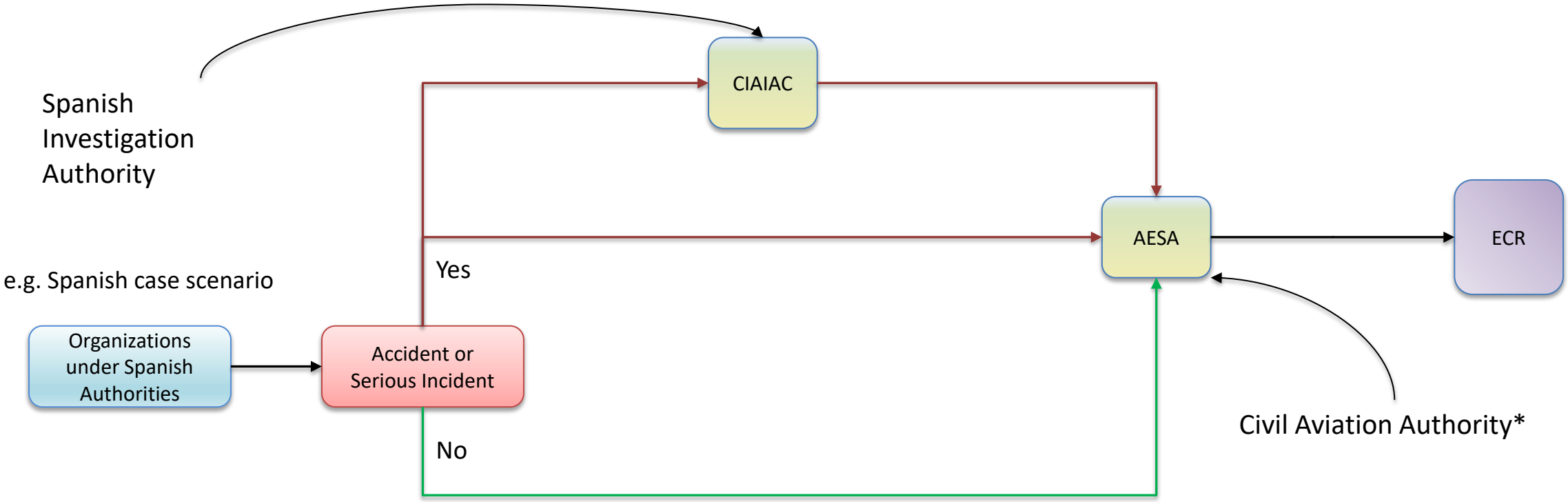
- Investigation of Accidents and Serious Incidents -> Generation of Safety Recommendations that are published

Non-ECR authority

Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

→ Applicable Regulation: Regulation (EU) No376/2014: Article 6



Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

→ Cooperation: More than one authority is present

The problem to solve here is to harmonise different repositories, with different working procedures managed by people with both different obligations and different backgrounds.

Terms to agree upon:

- → The coding guidelines of both authorities should be as compatible as possible.
- → It must be clear which authority has the responsibility to code a final version of the reports.

Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

→ Cooperation: More than one authority is present

Guidelines:

→ Sharing of information between authorities goes beyond what is mandatory, it is a clear benefit for all.

→ Predisposition to mutual understanding, the other side knows things we ignore and vice versa.

→ This is a final product for the benefit of air transport and its stakeholders, this is not an end in itself.

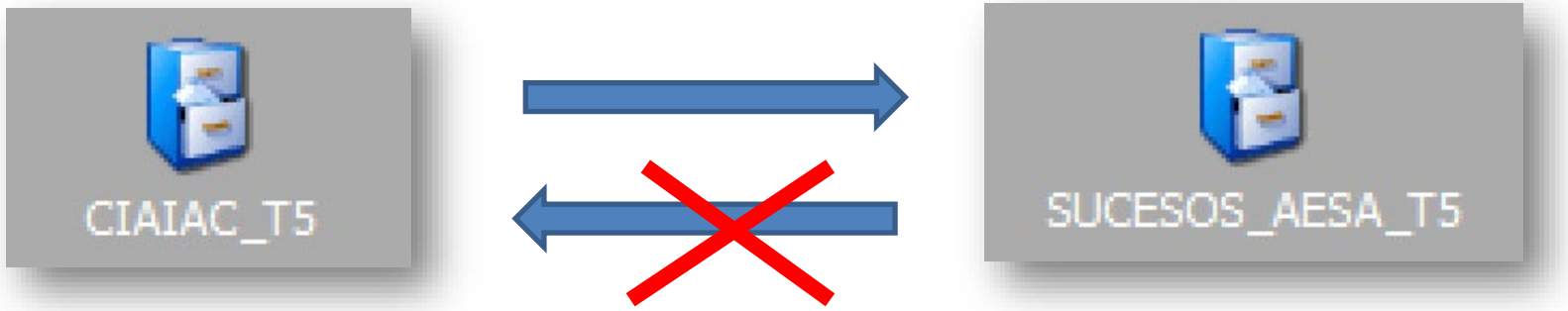
Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

→ Cooperation: More than one authority is present

Steps to reach a solution:

1. Creation of a coordination group between the authorities.
2. Agree on a regular meeting calendar for periodic communications.
3. For each occurrence coded by the Non-ECR authority, the coordination group must reach a common solution.
4. That version will remain in the database of the ECR authority.



Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

→ Cooperation: More than one authority is present

Result of the periodic meetings:

1. The Non-ECR sends to the ECR authority the occurrences as coded by them.
2. The ECR authority, as responsible for the quality checks, improves upon it if needed.
3. Confusing or conflicting points are reviewed in the meeting so the Non-ECR authority can clarify them from its expert point of view.
4. The result is saved in the database.

Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

AESA AGENCIA ESTATAL DE SEGURIDAD AÉREA

CIAIAC

PROTOCOLO ENTRE LA AGENCIA ESTATAL DE SEGURIDAD AÉREA Y LA COMISIÓN DE INVESTIGACIÓN DE ACCIDENTES E INCIDENTES DE AVIACIÓN CIVIL PARA LA COORDINACIÓN EN SUS RESPECTIVOS ÁMBITOS DE COMPETENCIA.

CLAUSES

FIRST – PURPOSE

This Protocol aims to establish the coordination mechanisms between AESA and CIAIAC in their respective fields of competence. The purpose is the coordination between AESA and the CIAIAC to prevent civil aviation incidents and accidents, thus contributing to improving air safety.

For this reason, the collaboration process to be followed between AESA and the CIAIAC is established, both in the investigation of accidents and serious incidents, and in the treatment and processing of the information to be handled and exchanged by both institutions in order to fulfil their functions and obligations, but always respecting the full functional independence of the CIAIAC with respect to the aeronautical authority during the investigation process.

Coord. with the Accident Inv. Authority

This project is funded by the European Union and implemented by EASA

AESA AGENCIA ESTATAL DE SEGURIDAD AÉREA

CIAIAC

PROTOCOLO ENTRE LA AGENCIA ESTATAL DE SEGURIDAD AÉREA Y LA COMISIÓN DE INVESTIGACIÓN DE ACCIDENTES E INCIDENTES DE AVIACIÓN CIVIL PARA LA COORDINACIÓN EN SUS RESPECTIVOS ÁMBITOS DE COMPETENCIA.

TABLE OF CONTENTS

EASA
European Union Aviation Safety Agency

This project is funded by the European Union
and implemented by EASA

Effective Aviation Safety Occurrence Reporting Systems: Implementation and Use in SSP/SMS

EU-Africa Safety in Aviation (EU-ASA) Project

Dates: 15–18 July
Online: Zoom

easa.europa.eu/connect

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