ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Nineth Meeting of the Africa-Indian Ocean Regional Aviation Safety Group (RASG-AFI/9)

9 November 2023

Agenda Item 4: Status of implementation of the GASP safety goals, targets and indicators including the priorities set in the regional safety plan

4.3. Other Safety initiatives

Safety Intelligence to support decision-making

(Presented by the Secretariat)

EXECUTIVE SUMMARY

The proposed Annex 19 – *Safety Management*, Amendment 2, introduced a new recommended practice to highlight the importance of developing safety intelligence as a business capability and the need for organizational commitment to make progress in this area.

This working paper discusses the benefits of implementing a safety intelligence strategy and the need for a coordinated approach when establishing a Safety Data Collection and Processing System (SDCPS).

Action: The action by the Meeting is in **paragraph 3**

References:	• SL AN 8/3-23/18 - Proposed Amendment 2 to Annex 19
Strategic Objectives:	***A - Safety***

1. INTRODUCTION

1.1 The proposed amendment 2 to Annex 19, call upon States to establish a strategy for the development of safety intelligence that supports the management of safety, the decision-making and continuously contributes for the effectiveness of the State Safety Program. This strategy will enable more proactive, data-informed and integrated decision-making.

1.2 This working paper highlights the importance of implementing a safety intelligence strategy to enhance safety performance, reduce safety risks and continuously improve the effectiveness of the State Safety Programme (SSP). The paper also discusses the need to establish standardized taxonomies for Safety Data Collection and Processing Systems (SDCPS) across aviation stakeholders to foster collaboration and information sharing.

2. DISCUSSION

2.1. As the complexity of the aviation system increases, the development of safety intelligence as a core business capability is not just an option but also a necessity. Safety intelligence refers to a more systematic structured approach for collection, analysis, and use of safety-related data and information to identify, understand, and proactively manage safety risks. Safety intelligence is an outcome of analysing safety data and information, which provides the knowledge and skills to support decision-making processes.

2.2. The strategy will empower stakeholders to make consistent informed decisions by providing relevant, timely and accurate information on the current and emerging risks, trends, and best practices. It will enable the early detection of safety risks and hazards by aggregating data from various sources, which in turn allows for a more proactive risk mitigation. An effective safety intelligence strategy enables the aviation authorities and other stakeholders within a state to attain their safety objectives and enhance overall safety performance.

2.3. To make safety intelligence a core business capability, it is essential to develop and implement the appropriate data governance, data management and associate framework with roles, responsibilities, policies, processes, and technology for managing and using data. For the effective implementation of these initiatives, it is important to establish an Action Plan with clear goals, milestones, deadlines, methods, and the appropriate resource allocation.

2.4. Another key enabler for an effective safety intelligence strategy is the establishment of a Safety Data Collection and Processing System (SDCPS) with standardized and harmonized aviation taxonomies across the stakeholders. A standardized taxonomy is a system of classification that uses common terms and definitions to organize and categorize data ensuring uniformity and consistency across diverse aviation stakeholders. The adoption of standardized taxonomies contributes not only to enhancing the quality and accuracy of safety data but also facilitates the integration of safety data from different sources and streamlines the information and data sharing and exchange among aviation stakeholders.

2.5. Some examples of standardized taxonomies used in SDCPS include:

- ICAO accident data reporting (ADREP): a common taxonomy that is part of ICAO's accident and incident reporting system. It is also used by numerous occurrence reporting systems worldwide.

- CAST-ICAO Common Taxonomy Team (CICTT) Hazard taxonomy: a high-level categorization of hazard types to aid in the identification, analysis, and coding of hazards.

2.6. To support the development and implementation of the safety intelligence strategy provisions, proposed in Annex 19 Amendment 2, ICAO in coordination with expert groups is working on the publication of the new ICAO Doc 10159 — *Safety Intelligence Manual*.

2.7. Additionally, ICAO has been providing workshops on Safety Intelligence and Safety Performance Management to assist the State with the essential knowledge and tools required for the implementation. The workshop provided the participants with knowledge and practical skills on the importance and use of data for managing safety and making decisions, the development of a safety intelligence strategy; and the monitoring and managing of safety performance. Moreover, the workshop emphasised the importance of

the involvement and commitment of all aviation stakeholders to maintain highest levels of safety through the integration of safety intelligence principles into practices.

2.8. Furthermore, ICAO also provides tools and sources of data that States can use to feed States' Safety Data Management systems. **Appendix A** contains details of referred tools and sources.

3. ACTION BY THE MEETING

The Meeting is hereby invited to:

a. Take note the information presented in this working paper.
b. Urge States to commit to the establishment of a safety Intelligence strategy and develop and implement an Action Plan for the implementation of safety data governance, data management and associated framework; and
c. Encourage States to adopt a coordinated approach with stakeholders when establishing the Safety Data Collection and Processing systems and promote the use of standardized aviation taxonomies.

Appendix A - ICAO Safety Intelligence Tools and Sources

- **Integrated Safety Trend Analysis and Reporting System (iSTARS)**
  The iSTARS is a web-based system on the ICAO Secure Portal, which provides a quick and convenient interface to a collection of safety and efficiency datasets and web applications to build aviation safety intelligence. Some safety management-related apps are residing on iSTARS.

- **Safety Information Monitoring System (SIMS)**
  SIMS is a web-based safety data and information system comprised of different applications, which generate indicators in support of State Safety Programmes (SSP) and Safety Management Systems (SMS). The list of such indicators may vary from State to State based on the availability of necessary safety data. Each indicator requires specific data points to be calculated through the applications in SIMS.

- **ICAO Indicator Catalogue**
  This catalogue provides a framework for a harmonized approach to the development of safety and air navigation indicators. The indicators within the catalogue support the effective implementation of State Safety Programme (SSP) and Safety Management System (SMS) in States and industry and can be used as safety performance indicators (SPI), as per the requirements outlined in Annex 19 — Safety Management (Chapter 3 and Appendix 2).

- **OPS Tools**
  The OPS Tools provide a variety of databases and web-based tools to support aviation operations, including Designators and Indicators, Data Network for Aviation and Other tools.

- **ICAO Reporting Portal and ADREP System**
  This system collects the global accident/incident reports submitted to ICAO by Member States according to Annex 13.

- **ICAO Annual Safety Report**
  This report provides a summary of safety initiatives to improve aviation safety and updates on some safety performance indicators (SPIs), including accident statistics and related risk factors.

- **The USOAP CMA) Online Framework (OLF)**
  The USOAP CMA OLF provides comprehensive information related to USOAP CMA.

- **ICAO-NET on the ICAO Secure Portal**
  The repository of all ICAO Annexes, documents and WPs.