International Civil Aviation Organization

MIDANPIRG/22 & RASG-MID/12 Meetings

(Doha, Qatar, 4 – 8 May 2025)

Agenda Item 4.2:   **Outcomes of the SEIG**

ADVANCING SAFETY THROUGH GLOBAL SAFETY INFORMATION EXCHANGE

(Presented by the United States)

SUMMARY

This paper promotes sharing of safety-related data, information, and intelligence between States to better identify existing and emerging risks in the aviation system, allowing for a more holistic analysis and aligned safety outcomes. By establishing a safety information exchange, States can directly support safety decision-making, proactive risk management, and effectively comply with their obligations under the Convention on International Civil Aviation and improve the overall level of aviation safety worldwide. This paper highlights the urgency and approach for strengthening safety data and information exchange internationally and recommends the Global Safety Information Management Exchange (GSIME) initiative to guide authorities and organizations in identifying opportunities for global engagement.

Action by the meeting is at paragraph 3.1

REFERENCES
- RASG-MID/11-IP/17 Collaborative Safety Teams (20/02/2024)
- AN-Conf/14-WP/101 Facilitating Safety Intelligence through global safety information management exchange (28/06/2024)
- AN-Conf/14-WP/105 Global Safety Information Management Exchange – Playbook (28/06/2024)

1.   INTRODUCTION

1.1   The collection and analysis of safety data is the cornerstone of a robust safety management system. Furthermore, when stakeholders across authorities and organizations collaborate to share safety data, information and intelligence for a more holistic analysis, the derived safety controls enhance safety. Two prominent examples of data-informed safety initiatives that have significantly enhanced aviation safety in the United States are the Commercial Aviation Safety Team (CAST) and Aviation Safety Information Analysis and Sharing (ASIAS). Information sharing is intended to give a broader perspective on risk, especially to detect hazards that may not be visible through typical data streams. Global cooperation in the exchange and management of safety information is critical to achieving timely and effective safety outcomes, both domestically and internationally.

1.2   Aviation is undergoing a digital transformation leveraging vast amounts of diverse data generated across the aviation lifecycle; from design, production, operations, maintenance, air traffic, aerodromes, personnel licensing and associated surveillance activities. With globalization of the industry and the expansion of commercial air transport across the world, States' obligations under the ICAO framework for safety data sharing are in the spotlight. The exchange of safety intelligence

including the analytical approach and methods to enable data-informed decision-making is recognized as a foundational element of long-term enhancements in the safety of civil aviation.

1.3   In order to create sustained opportunities for international collaboration to identify existing hazards, emerging risks, potential risks mitigations and meet ICAO's standards and recommended practices (SARPs), it is important States focus on establishing these foundational elements:

a) a robust system for safety data collection from operators and other aviation stakeholders,

b) a positive safety culture that promotes voluntary safety reporting and establishes a community of learning, and

c) a strong partnership between regulators and industry to improve safety management, including the implementation of data protections and confidentiality policies.

1.4   ICAO's Global Aviation Safety Plan, Annex 8, and specifically Annex 19, Chapter 5 strongly emphasize the importance of exchanging safety information and agreeing on the level of protections and conditions of the information being shared regionally and globally. While this paper focuses on Annex 8 and 19, other annexes should be considered to promote data and information exchange to help provide a higher fidelity picture of the risk profile and directly support safety decision-making and proactive and predictive safety management in today's fast-changing environment

2.   DISCUSSION

2.1   While ICAO is strengthening its frameworks for safety management, aviation authorities and organizations lack a structured approach to facilitate and implement data and information exchange between States and aviation stakeholders. Establishing an international data and information exchange requires significant commitment from all stakeholders, including the provision of resources to collect, analyze, and protect the data, information and intelligence shared. The United States shared this idea at the 41st Session of the ICAO General Assembly in information paper A41-WP/556, Advanced Data Analytics in Aviation Safety. The Federal Aviation Administration (FAA) established an initiative entitled Global Safety Information Management Exchange (GSIME) and partnered with the Australia Civil Aviation Safety Authority (CASA) to conduct a proof-of-concept (PoC). In December 2023 at the thirteenth meeting of the Regional Aviation Safety Group – Asia and Pacific Regions (RASG-APAC/13-WP/18), the United States shared progress under the GSIME initiative, which focused on developing a practical guide to identify and document relevant considerations required for regulatory organizations to initiate and implement an exchange for data, information, and intelligence with other authorities. Most recently the U.S. and Australia presented a joint working paper to the ICAO AN-Conf/14, highlighting the GSIME initiative and the results of the PoC which validated the mutual benefits from a safety information exchange. This received resounding support from States, and the ICAO Safety Management is studying the outcomes to consider incorporating into their Annex 19 guidance materials

2.2   The collection, analysis, protection, confidentiality, and sharing of safety data, information and intelligence is critical to improving the global aviation industry's safety record. An important element of effective data sharing is protecting safety information against uses other than aviation safety. The integrity of any data and information exchange rests upon the identification and protection of the supplied safety data and information from unauthorized access and disclosure. Any disclosure for purposes other than safety management can compromise the voluntary provision of safety data. Annex 19 suggests that States establish voluntary safety reporting systems to compliment mandatory reporting systems. The United States has established collaborative safety teams and the

Aviation Safety Information Analysis and Sharing (ASIAS) system between aviation stakeholders and the FAA to voluntarily share safety data for analysis and development of mitigation strategies in a collaborative process. ICAO encourages States to implement data protections in their legal frameworks to promote safety reporting and a positive safety culture. The United States places significant emphasis in this area and has enshrined into law protections (49 U.S. Code Section 44735 – Limitation on Disclosure of Safety Information) from disclosure for voluntarily shared safety data.

2.3   The United States FAA is embracing a safety data strategy that encourages access to data sources and information across the Agency, fostering informed safety decisions and actionable insight on emerging issues. In parallel to the domestic effort to implement advanced data analytics, the FAA is also reaching out to the international community via the GSIME to promote safety data exchange, including Civil Aviation Authorities that wish to collaborate on a proof-of-concept activity. The FAA's outreach strategy is not platform-centric and does not promote any specific data analytics products or solutions. The GSIME initiative seeks to close the operational safety gap through sharing safety information and data among international aviation partners resulting in improved operational insights for timely, actionable, and aligned safety outcomes.

2.4   The United States, in collaboration with Australia, conducted a proof-of-concept study to validate the mutual benefits of a global safety information exchange using Annex 8 safety data as a use-case. The results of this study highlight various challenges States may face in establishing a safety data and information exchange. This study and its findings are captured in a playbook, as found in AN-Conf/14-WP/105, Global Safety Information Management Exchange – Playbook, which serves as a practical guide to assist States in identifying opportunities and working through potential challenges to establish a safety information exchange. The Playbook highlights underlying considerations and serves as a resource to establish a structured safety information exchange with a governance framework. It incorporates a scalable methodology for varying scope and complexity of the intended safety information exchange.

3.   ACTION BY THE MEETING

3.1   The meeting is invited to:

a)   Note the information contained in this paper.

b)   Establish an environment which promotes a reporting culture for robust safety data collection from stakeholders.

c)   Promote safety data and information sharing and collaborate on use cases which validate the benefits of a global safety information exchange.

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