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Asia and Pacific Office

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Agenda Item 5: ICAO / Member State / Industry Presentations

ADVANCING SAFETY THROUGH INFORMATION EXCHANGE

(Presented by the United States)

SUMMARY

Sharing of safety data and intelligence between States can help 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 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 for strengthening safety data sharing internationally and how the United States (U.S.) Federal Aviation Administration (FAA) is building capabilities in this area and exploring opportunities for global engagement.

REFERENCES

- Annex 8 – Airworthiness of Aircraft Doc 9760, Airworthiness Manual Circular 95, The Continuing Airworthiness of Aircraft in Service
- Annex 19 – Safety Management, Chapter 5 – Safety data collection, analysis and exchange.

1. INTRODUCTION

1.1 The International Civil Aviation Organization (ICAO) framework places certain obligations on Member States to collect and share safety data with other States in an effort to enhance identification and management of existing and emerging risks in the aviation system. As an example, Annex 8 — Airworthiness of Aircraft Part II, Chapter 4 states that a State of Registry (SoR) shall ensure the collection and transmittal of certain safety data to the State of Design (SoD) responsible for the type design of that aircraft. Furthermore, Annex 8 states that the SoD, shall analyse this data and communicate resultant safety information with the SoRs. ICAO Annex 19 introduces a systemic approach to managing safety and requires the collection, analysis and exchange of safety data. When, upon analysis of safety data, a State identifies information which may be of safety relevance to the broader international community, Annex 19, Chapter 5; recommends that the State should share such safety information. Furthermore, it recommends that States establish safety information sharing networks to facilitate the free exchange of safety information. Beyond the obligatory sharing of data, States may also benefit from sharing safety data from across the aviation system by gaining a more comprehensive safety analysis and leveraging demonstrated safety expertise.

1.2 Currently, limited safety data and information is exchanged through various informal, ad-hoc communications between subject matter experts or other peer-to-peer working relationships and legacy coordination mechanisms. Strengthening the mechanisms to exchange aviation safety data

between Member States will allow for a more holistic and accurate assessment of risks and promote alignment of resultant safety enhancements and actions. In the Annex 8 example, the SoD ensures the availability of Mandatory Continued Airworthiness Information (MCAI) so the SoR can take appropriate action in addressing safety issues. The SoD, however, may not always be receiving important operational safety data for products that it certified and are operating in world- wide fleets.

1.3 Under the direction of the U.S. Department of Transportation, the FAA has been tasked with advancing safety data analytics and one way to achieve this is by strengthening international data sharing practices and expanding and strengthening our enterprise-level data collection and analytics. The FAA also recently announced a strategic framework that emphasizes the use of data analytics to proactively identify and take action to reduce emerging risk and promote global safety information sharing. However, the benefits of advanced data analytics can only be realized with a reinvigorated determination in facilitating and promoting the transmission of safety information globally.

2. DISCUSSION

2.1 The global aviation regulatory community lacks a functional infrastructure for communicating operational safety data and other occurrences that cause or might cause adverse effects on the continuing safety of the system. While each State may have a domestic system for collection of such safety data, this data, and the resultant safety intelligence, is not consistently shared with other States to conduct a comprehensive safety analysis and determine if any safety action is required. Global data from across the aviation system may present a greater spectrum of operational experience, thus yielding more accurate and consistent safety information. The FAA has begun taking initial steps toward the development of a global safety information management exchange (GSIME) initiative to allow the intake and integration of safety data from a variety of sources, empowering the global aviation community to make timely and effective safety decisions.

2.2 Along with greater intake of safety data, the FAA is also increasing its analytical capabilities in response to U.S. Congressional mandates and departmental findings that highlight gaps in the FAA's ability to collect, integrate, and analyze data. In 2019, the U.S. Secretary of Transportation launched a "Special Committee to Review the Federal Aviation Administration's Aircraft Certification Process". This Committee concluded that the FAA needs to "expand its engagement, policies, technical assistance, and training efforts to foster higher international safety standards and practices for aircraft certification, operations, and maintenance," and further "propose to the International Civil Aviation Organization the sharing of operational data internationally, to enhance safety initiatives."

2.3 In addition to the Annex 8 and Doc 9760 requirements mentioned above, Annex 19 provides the framework for a State Safety Programme that describes the components and elements that form a robust Safety Management System, including safety assurance measures based on data collection, analysis and exchange, data-driven targeting of oversight, and dissemination of safety information.

2.4 The FAA and other Civil Aviation Authorities (CAAs) need to close the information gap by implementing data sharing best practices and deploying associated technological solutions that enhance data analytics in aviation safety. Increased access to safety data, matched by the ability to interpret information and identify emergent issues, is essential to the FAA and other CAAs in fulfilling national regulatory requirements and enhancing global civil aviation safety as ICAO Member States. The FAA is taking concrete steps in this area by augmenting, maturing and promoting its advanced analytics capabilities to meet the challenges of enhanced safety data collection practices.

2.5 The FAA is embracing a safety data strategy that encourages widespread 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 CAAs that wish to collaborate on use cases that test advanced analytics. 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. The GSIME initiative aims to provide a practical reference guide to identify and establish a safety enhancing information exchange supported by any necessary legal and governance requirements including data protections and the exchange process.

2.6 The FAA's data strategy exemplifies its commitment to advance global safety by enriching safety management with international data-sets and strengthening global safety information ecosystems as required by ICAO. Robust collaboration on data analytics will also give States additional insight on local and regional safety issues. Through concurrent outreach efforts the FAA wishes to promote a productive dialogue to test advanced analytics in a data-enabling environment and to explore ways of enhancing data sharing practices internationally.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) Note the information provided in this paper.

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

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

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