



International Civil Aviation Organization

RASG-MID Steering Committee

Sixth Meeting (RSC/6)
(Cairo, Egypt, 25-27 June 2018)

Agenda Item 6: Any Other Business

**FACILITATION OF DATA-DRIVEN DECISION-MAKING IN SUPPORT OF
SAFETY INTELLIGENCE TO SUPPORT SAFETY RISK MANAGEMENT**

(Presented by the United States)

SUMMARY

This Information Paper provides information on the current U.S. efforts in collaboration with the International Civil Aviation Organization (ICAO) to promote better collection and utilization of aviation safety data for data-driven decision-making.

Action by the meeting is at paragraph 4.

1. INTRODUCTION

1.1 This information paper presents solutions developed or recommended by ICAO that facilitate data-driven decision-making and assist stakeholders in identifying and managing safety risks in support of the development and promotion of safety intelligence and the implementation of State safety programs.

1.2 These solutions include data, tools, methodologies and training that facilitate data-driven decision-making and help stakeholders identify and manage safety risks. These tools and methodologies contribute to the development, exchange and sharing of safety information.

1.3 The U.S. Federal Aviation Administration (FAA) is working with ICAO on initiatives that will lead to better use of the increasingly available data collected by air operators and other service providers in the aviation field.

2. DISCUSSION

2.1 The aviation system is rapidly increasing the collection and use of aviation related data. For every flight hour, a modern quick access recorder of an aircraft typically generates around 60,000 data points. During the same period, an aircraft equipped with automatic dependent surveillance-broadcast (ADS-B) also emits around 3600 data points. With over 32 million scheduled commercial flights a year, these two systems alone generate over 500 million data points every hour worldwide.

2.2 In addition to the data generated by the equipment, civil aviation authorities as well as other stakeholders generate additional data points through their oversight and surveillance systems. Data collected through audits, inspections, occurrence reports or investigations can be utilized to ensure the safe growth of commercial aviation.

2.3 The use of innovative technology, such as cloud computing, big data clusters, and artificial intelligence, is crucial for processing safety and air navigation data and allows for the extraction of actionable information, which can be used to ensure operational and organizational safety in aviation

2.4 The main input to an effective data-driven decision-making process is data, which will allow States to evaluate risk, assess performance, and take appropriate decisions. Data processed into information is key to implement proactive and predictive risk management, one of the Global Aviation Safety Plan (GASP) objectives, as well as the performance-based approach of the Global Air Navigation Plan (GANP) in alignment with Amendment 1 to Annex 19 and the *ICAO Safety Management Manual*, 4th edition.

2.5 Recognizing the complexity of developing and driving meaningful information and useful insights from this data, ICAO launched the Safety Information Monitoring Systems (SIMS) project in 2017. SIMS is a web-based data and information system comprised of different applications, which generate indicators in support of State Safety Programmes and Safety Management Systems. SIMS promotes cooperation among States and industry to collect and analyse data pertinent to the monitoring of safety performance, with no charge to the State.

2.6 States participating in SIMS can only view their own data. However, by signing a Memorandum of Understanding with ICAO, SIMS allows participating States to not only view their own data but also to securely share certain generated safety information with each other, such as ramp inspection information. For further information on the program and how Civil Aviation Authorities can participate, contact the SIMS Team at sims@icao.int.

2.7 The FAA is currently in discussions with ICAO on creating an aviation data exchange framework (AVDEx) through an ICAO partnership initiative that aims to provide a platform for sharing data from both industry and civil aviation authorities. This proposal is still in discussion and is separate from the already established and launched ICAO-SIMS.

3. CONCLUSION

3.1 The FAA aims to work with ICAO towards expanding data systems and tools through the development of an open-source, flexible, and secure data-sharing platform that will be tailored to assist member states and industry partners to maximize the potential of this data in improving operational safety and safety oversight.

4. ACTION BY THE MEETING

4.1 The RASG-MID is invited to note the information contained in this Information Paper.