The National Academies of
SCIENCES • ENGINEERING • MEDICINE

EMERGING TRENDS IN AVIATION SAFETY

Fourth Meeting Agenda

ZoomGov Meeting: https://nas-sec.zoomgov.com/j/1616724241

Phone: +1 551 285 1373
Meeting ID: 161 672 4241

December 8, 2021

Meeting Objectives:

- *Prioritize questions for invited speakers on how they identify emerging trends in commercial aviation safety*
- *Clarify committee findings up to this point*
- *Determine next steps in preparation for data gathering and drafting the report*

**** To facilitate engaging discussion, please remain on video whenever possible during the meeting.**

12:30 – 1:00PM **OPEN SESSION - Briefing on United Kingdom Flight Safety Council**

- Dai Whittingham, Chief Executive, UK Flight Safety Committee

1:00 – 3:30PM **CLOSED SESSION – Committee Deliberations**

3:30 – 5:00PM **OPEN SESSION - Perspectives from Key Stakeholders**

- 3:30 Mark Millan, Vice President Technical, Flight Safety Foundation
- 4:00 Kathy Abbott, Chief Scientific and Technical Advisor, Flight Deck Human Factors, FAA

5:00 - 5:30PM **CLOSED SESSION - Committee Deliberations**

EMERGING TRENDS IN AVIATION SAFETY

Statement of Task

In response to a request from Congress, this project will "identify, categorize, and analyze emerging safety trends in air transportation." The committee will review data and analyses of all relevant sources of information, such as operational data being used by the Federal Aviation Administration (FAA) and the air transport industry to monitor for potential safety concerns; government and industry voluntary aviation safety reporting systems; FAA's annual safety culture assessment; and other sources the committee deems appropriate, including National Transportation Safety Board accident investigations; FAA investigations of accidents and incidents; air carrier incidents and safety indicators; and international investigations of accidents and incidents, including information from foreign authorities and the International Civil Aviation Organization. The committee will assess whether these available sources of information are being analyzed in ways that can help identify emerging safety risks as the aviation system evolves and whether other information should be collected and analyzed for this purpose, such as data on accident precursors. The committee may engage in its own empirical analyses of databases.

The project will focus primarily on commercial air transportation sector, but will also include other current and prospective users of the national airspace system that could pose risks to commercial aviation. The committee will draw on the results of FAA's annual internal safety culture assessments and also advise the agency on data and approaches for assessing safety culture to assure that FAA is identifying emerging risks to commercial aviation and sharing that information throughout the agency and with the public.

The project will produce an initial report in mid-2022, biennial reports through 2030, and a final report in 2031. It is expected that the committee's first report will include a high-level assessment of the efficacy of domestic public and private sources of data and information for identifying and assessing emerging risks and advise on data gaps that need filling. The first report is also expected to include the approach the committee intends to pursue in subsequent biennial reports to assess the robustness of domestic and international data sources and processes for analyzing them for the purpose of identifying emerging risks to commercial air transportation. In addition to documenting its study findings in each report, the committee may offer advice to Congress, FAA, industry, and others on options for improving means for identifying, monitoring, understanding, and addressing emerging aviation safety risks, including supplementing, improving, and harmonizing existing databases, reporting systems, and analysis methods.

EMERGING TRENDS IN AVIATION SAFETY

From the Consolidated Appropriations Act, 2021

SEC. 132. EMERGING SAFETY TRENDS IN AVIATION.

(a) ***General*** *—Not later than 180 days after the date of enactment of this title, the Administrator shall enter into an agreement with the Transportation Research Board for the purpose of developing an annual report identifying, categorizing, and analyzing emerging safety trends in air transportation.*

(b) ***Factors*** *—The emerging safety trends report should be based on the following data:*

(1) The National Transportation Safety Board's investigation of accidents under section 1132 of title 49, United States Code 554.

(2) The Administrator's Investigations of accidents under section 40113 of title 49, United States Code.

(3) Information provided by air operators pursuant to safety management systems.

(4) International investigation of accidents and incidents, including reports, data, and information from foreign authorities and ICAO.

(5) Other sources deemed appropriate for establishing emerging safety trends in the aviation sector, including the FAA's annual safety culture assessment required under subsection (c)

(c) ***Safety Culture Assessment*** *- The Administrator shall conduct an annual safety culture assessment through fiscal year 2031, which shall include surveying all employees in the FAA's Aviation Safety organization (AVS) to determine the employees' collective opinion regarding, and to assess the health of, AVS' safety culture and implementation of any voluntary safety reporting program.*

(d) ***Existing Reporting System*** *– The Executive Director of the Transportation Research Board, in consultation with the Secretary of Transportation and Administrator, may take into account and, as necessary, harmonize data and sources from existing reporting systems within the Department of Transportation and FAA.*

(e) ***Biennial Report To Congress*** *– One year after the Administrator enters into the agreement with the Transportation Research Board as set forth in subsection (a) and biennially thereafter through fiscal year 2031, the Executive Director, in consultation with the Secretary and Administrator, shall submit to the congressional committees of jurisdiction a report identifying the emerging safety trends in air transportation.*

SPEAKER BIOS

Dai Whittingham is the Chief Executive UK Flight Safety Committee. He joined the Royal Air Force as a pilot in 1974. He flew F4 Phantoms in the Air Defence fighter role, becoming the senior instructor pilot and standards evaluator for the Phantom force before its withdrawal from service. He has commanded an E-3D AWACS squadron (O-5) and the main operating base at RAF Waddington (O-6), and was deployed as the Air Component Commander for all UK flying operations in Iraq and Afghanistan in 2004. His staff duties have included policy for air safety, UK and European airspace, ATM aircraft equipment, and UAVs, and he chaired the Military Aviation Regulatory Group. As Air Officer ISR (O-7) he was responsible for operational management and oversight of all RAF airborne surveillance platforms and the RAF Search and Rescue Force. His last military appointment was as Deputy Commander, NATO Airborne Early Warning and Control Force.

Mark Millam is the Vice President Technical, Flight Safety Foundation. He has been involved on the technical side of the Airline Industry for over 30 years. His education and technical skills were put into motion after graduating with a Bachelor of Science in Aerospace Engineering at the Minneapolis campus of the University of Minnesota. He began his professional career with Republic Airlines as a Systems Engineer and then has gone on to hold several technical management positions within the Maintenance side of the Airline including overall Reliability, Powerplant Engineering and Chief Engineer at Northwest Airlines. Finding the best performance in a highly complex organization is one of Mark's key interests. Pushing the envelope for Safety has been his main interest since 2005 when he has held safety leadership roles in safety at major U.S. airlines, regional airlines and the Washington DC based Airlines for America. Mark has been with the Flight Safety Foundation for the past 7 years working various projects to provide advice to the worlds efforts to on safety data collection and processing systems and content for the Foundation's seminars and conferences through its advisory committees.

Kathy Abbott is the Chief Scientific and Technical Advisor for Flight Deck Human Factors at the FAA. Dr. Abbott has led the integration of human engineering into FAA/international regulatory material and policies for flight guidance systems, avionics, all-weather operations, Required Navigation Performance, crew qualification, data communication, instrument procedure design criteria, electronic flight bags, electronic displays, organizational culture, design-related pilot error, flight crew alerting, manual flight operations, and other areas. She has been involved extensively in accident, incident, and other safety data analysis. Dr. Abbott came to the FAA from NASA, where she was responsible for leading analytical, simulation, and flight studies with the specific objective of improving aviation safety and operational efficiency. She is a Fellow of the Royal Aeronautical Society, an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a Member of the Livery of the Honourable Company of Air Pilots. She is a certificated private pilot, with familiarization training in several large transport aircraft. Dr. Abbott earned her B.S. in Mathematics and Information Science from Christopher Newport College, an M.S. in Computer Science from George Washington University, and a Ph.D. in Computer Science from Rutgers University.