Aviation Safety Research Strategy

April 15, 2024

Federal Aviation Administration

STEP SENIOR TECHNICAL EXPERTS PROGRAM
ADVANCING SAFETY THROUGH SCIENCE

Aviation Safety Strategy

Why are we Doing This?

- Establish research goals and gain support from industry & other USG agencies
- Guide FAA investments in internal (people/labs) and external research
  - Influence research ideation in priority areas
- Inform future research appropriations and other research
- Inform and leverage research plans of NASA, other USG, industry and academia

Common Misconceptions

- The strategic thrusts focus on FAA-sponsored research
  - Reality: Aviation safety is a shared responsibility with industry, and we aim to influence their research
- The strategic thrusts should lead to program plans and specific deliverables
  - Reality: The thrust provide direction and acceleration – in many cases the destination is unknown
- All FAA research that is important should be connected to a strategic thrust
  - Reality: There are and will continue to be other priorities

REDAC Tasking

- Review the draft strategy and advise on updating the document
  - Are there missing research thrusts?
  - Are there thrusts that are not critical?
  - Recommendations to the vision, objectives, strategy and schedule for each thrust?
  - Identify opportunities to leverage industry research
- Complete REDAC review by summer/fall meeting, to adopt any appropriate recommendations
- FAA will update Strategy based on REDAC feedback and publish initial version by end-of-year 2024

- Considerations
  - FAA can provide subject matter expertise to support the review
  - Deep-dive on each strategic thrust
  - FAA can support development of an updated draft document reflecting industry feedback for consideration at summer/fall meeting

Strategic Thrusts

Operational Safety: Identified safety risks for U.S. aircraft and operations in U.S.-controlled airspace are mitigated to acceptable levels.

Safety Analytics and Risk Synthesis: Potential safety risks are identified before they manifest as risks and are evaluated in the context of the aviation system.

Future of Oversight: The FAA continuously improves the effectiveness of oversight to ensure the aviation system meets public expectations.

Emerging Entrants: Enable the safe introduction of drones and advanced air mobility.

Sustainable Flight: Normalize the safety requirements and compliance for technologies and operations for sustainable aviation.

Public Health Preparedness: Prepare the aviation transportation sector to be resilient in the face of new or re-emerging infectious disease.

Strategic Thrusts (cont.)

Increasing Automation and Complexity: Assure the safety of increasingly complex automation and human interaction, normalizing the safety requirements and compliance to introduce automation for safety and more efficient operations.

Digital Engineering: Use digital engineering to improve safety and reduce the lifecycle costs of aircraft and operational safety assurance.

Artificial Intelligence: Develop methods to assure the safety of AI and identify methods to use AI for safety.

Structure, Materials and Manufacturing: Normalize the safety requirements and compliance for new materials and manufacturing techniques.