



International Civil Aviation Organization

Sixth Meeting of the Safety Enhancement Implementation Group SEIG/6 Meetings

(Kuwait, 13 – 14 OCT 2024)

Agenda Item 2: Regional Performance Framework for Safety

Proposal of Safety Enhancement Initiative for implementing Artificial Intelligence

(Presented by United Arab Emirates)

SUMMARY

This paper outlines the UAE's proposal for addressing AI integration in aviation safety within the MID region. It emphasizes the importance of building foundational capabilities and regulatory frameworks before full AI implementation. The paper suggests treating AI as a Safety Enhancement Initiative (SEI) under the MID-RASP, focusing on capacity building, data infrastructure development, and regulatory readiness. The meeting is invited to endorse this approach and encourage further efforts to enhance AI capabilities in the region.

Action by the meeting is at paragraph 7

REFERENCE

- RASG-MID/11 REPORT

1. INTRODUCTION

1.1 The UAE presented WP/63 At the RASG-MID/11 meeting in Abu Dhabi, which proposed the establishment of a regional group to explore the development of data and AI in aviation.

1.2 While AI's potential for aviation safety is recognized, the MID region is still in the early stages of AI adoption. The meeting agreed, as per Resolution 4.2.34 of the MID RASG 11 final report to treat AI as a Safety Enhancement Initiative (SEI) within the MID-RASP, led by the UAE, instead of forming a formal study group.

1.3 This paper explores this approach and suggests focusing on building foundational capabilities for future AI integration through the SEI framework.

2. DISCUSSION

2.1 AI is transforming aviation safety globally, from predictive methods to more advanced and proactive approaches in different domains of aviation. Similarly, many States are investing in AI research and related pilot projects.

2.2 While these global developments are significant, many AI applications are still in early stages. Thus, the MID region may focus on building infrastructure and regulatory frameworks before full AI implementation, considering the complexity and resources involved.

3. STATUS OF AI IN THE MID REGION

3.1 In the MID region, AI initiatives are still in the early exploratory stages. While some States are beginning to conduct research and pilot AI projects, there is a lack of a coordinated, region-wide strategy for AI integration in aviation. The agreement to include AI as a SEI in the MID-RASP is an important step toward addressing this gap.

3.2 Challenges:

1. **Limited Expertise:** The region currently lacks the specialized skills and technical knowledge required to fully implement AI systems. Capacity-building and technical training are necessary to enable AI development.
2. **Data Infrastructure:** AI relies heavily on the availability of large and high-quality data sets. The region does not yet have the necessary infrastructure i.e. data-sharing systems or frameworks to support AI-driven aviation applications.
3. **Regulatory Readiness:** AI raises complex regulatory and ethical questions, particularly around safety and accountability. The region must develop appropriate regulatory frameworks to address the specific challenges posed by AI technologies.
4. **Introduction of new Risks:** Implementing AI in the aviation industry, while promising, does come with several risks due to its relative newness and the critical nature of aviation operations.

4. AI AS A SAFETY ENHANCEMENT

4.1 The inclusion of AI as an SEI within the MID-RASP is a crucial step forward, allowing the region to take a structured and gradual approach to AI integration. This approach ensures that AI development will focus on enhancing aviation safety and align with ICAO's global strategic priorities.

4.2 Key Areas

4.2.1 ENGAGING A DIVERSE RANGE OF STAKEHOLDERS ON NATIONAL LEVEL:

- **Government and Local Aviation Stakeholders:** To ensure alignment with regulatory frameworks and safety standards.
- **Airlines and Operators:** To provide insights into operational needs and challenges.
- **Technology Providers** To offer expertise and solutions related to AI applications.
- **Academic Institutions:** To contribute research and development efforts.

4.2.2 CAPACITY BUILDING AND TRAINING

- **Develop regional training programs** focused on AI and machine learning for aviation professionals, in collaboration with ICAO and industry partners. This will help build the technical knowledge required to support AI integration.
- **Encourage partnerships** between aviation authorities, universities, and institutions to create specialized AI curricula for aviation safety.
- **Organize AI-focused workshops and seminars** within the MID region to share knowledge &

promote collaboration.

4.2.2 DATA MANAGEMENT AND INFRASTRUCTURE DEVELOPMENT

- Utilize existing safety data repositories to build a foundation for AI applications, ensuring data quality.
- Establishing a secure infrastructure encompassing the complete Data lifecycle management process.
- Launch pilot projects to explore the use of AI in analyzing safety data, identifying trends, and enhancing risk management.

4.2.3 REGULATORY AND GOVERNANCE FRAMEWORKS

- Develop guidelines for the implementation of AI systems in aviation, aligning with international best practices and safety standards.
- Establish regulatory frameworks governing AI use in aviation, addressing accountability, ethics, and data security.
- Establishing Safety Risk Monitoring Guidelines and Registers covering aspects of AI implementation in the Aviation Industry.

5. PHASED APPROACH & ALIGNMENT WITH ICAO'S GLOBAL STRATEGIC PRIORITIES

The MID-RASP SEI should adopt incremental goals for successful AI integration. Initial steps can focus on capacity and infrastructure, progressing to AI implementation in safety oversight and risk management.

5.1 AI's inclusion as an SEI within the MID-RASP aligns with ICAO's global strategic direction for the integration of new technologies into aviation. By focusing on capacity building, data infrastructure, and regulatory development, the region will be better positioned to take advantage of AI's potential to enhance aviation safety.

5.2 ICAO's emphasis on a phased approach to emerging technologies ensures the MID region proceeds responsibly, building necessary foundations without compromising safety.

6. CONCLUSION

6.1 The decision to include AI as a Safety Enhancement Initiative (SEI) under MID-RASP is a practical approach to advancing AI capabilities while addressing current challenges in expertise, data infrastructure, and regulation.

7. ACTION BY THE MEETING

7.1 The meeting is invited to:

- a) Note the challenges and current limitations outlined in this paper.
- b) Endorse AI as an SEI in the MID-RASP framework, with the nomination of the UAE to lead, and be supported by other States.
- c) Encourage continued efforts to enhance AI capabilities in the region
- d) Encourage member states to participate actively in the proposed SEI and share their experiences and insights