



ASSEMBLY — 42ND SESSION

EXECUTIVE COMMITTEE

Agenda Item 13: Aviation Security — Policy

TRANSFORMATIVE POTENTIAL OF ARTIFICIAL INTELLIGENCE (AI) IN AVIATION SECURITY (AVSEC)

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

Artificial Intelligence (AI) has shown its potential to further transform Aviation Security (AVSEC) and other areas of civil aviation, while establishing aviation cybersecurity as an essential part in upgrading systems or introducing new technologies. Opportunities, benefits, challenges and threats inherent in the application and rapid growth of technology need to be appropriately explored and addressed. Emerging trends and potential advances in AI technologies that can lead to future revolutionization of the aviation industry need to be considered. In order to ensure that the full potential of AI can be used to deliver more secure, safer and faster air travel, considerable work remains to be done.

Action: The Assembly is invited to:

- recognize transformative potential of AI in AVSEC and other areas of civil aviation;
- encourage ICAO, Member States, industry stakeholders, ICAO Panels of experts and other expert groups to cooperate, collaborate and coordinate efforts in order to maximize the benefit derived from AI; and
- promote the exchange of information between States and industry on emerging trends and potential advances in AI technologies that can lead to an even further revolutionization of AVSEC and other areas of civil aviation.

<i>Strategic Goals:</i>	This working paper relates to <i>Every Flight is Safe and Secure</i> Strategic Goal.
<i>Financial implications:</i>	
<i>References:</i>	ICAO Doc 101118, <i>Global Aviation Security Plan</i> (GASeP)

1. INTRODUCTION

1.1 Artificial intelligence (AI) has potential and power to transform civil aviation by driving new, safe, and secure solutions, bearing in mind the transformative role that machine learning and deep learning play in critical civil aviation applications. AI has capability to process huge datasets and look for patterns in civil aviation that humans cannot see. The potential for AI-driven solutions to overcome the problems faced by civil aviation needs to be further evaluated. Emerging trends and potential advances in AI technologies that can lead to future revolutionization of the aviation industry should be considered.

1.2 The Second Edition of the *Global Aviation Security Plan* (GASeP) from 2024 has an Aspirational Goal to achieve and sustain a strong global aviation security system that is underpinned by full and effective implementation of ICAO aviation security Standards in all Member States. GASeP highlights six Global Priority Areas of equal importance on which States, industry and other stakeholders may focus their efforts. One of the six Global Priority Areas is to “Improve technological resources and foster innovation”. The importance of promoting and applying technological solutions and innovative techniques that can provide the tools for enhancing aviation security effectiveness, while ensuring operational efficiency and the integration of human factors principles is recognized in this Global Priority Area. One of the ways how States can embrace it is the approach to innovation, as a common strategy to achieve greater effectiveness, efficiency and sustainability in response to new and evolving threats to aviation security is by encouraging “the application of machine learning and artificial intelligence to accelerate Original Equipment Manufacturer (OEM) algorithm development”.

2. DISCUSSION

2.1 During the Thirty-sixth Meeting of the Aviation Security Panel (AVSECP/36), held in Montréal from 7 to 11 April 2025, the Member nominated by the United Arab Emirates presented a Working Paper (AVSECP/36-WP/34) on Advancing Aviation Security with the use of Artificial Intelligence (AI). This WP was co-sponsored by the AVSEC Panel Members from Brazil, France, Germany, Italy, Jordan, Nigeria, Portugal, Qatar, Singapore, Spain, Switzerland and the Observer from the International Air Transport Association (IATA).

2.2 The WP explores how Artificial Intelligence (AI) may transform Aviation Security (AVSEC) along with its workforce, with objectives to enhance efficiency and effectiveness of AVSEC measures, contribute to harmonization, simplify tasks, improve customer experience and support new developments in line with the predicted growth of civil aviation. It proposed to the AVSECP to undertake a holistic study of the impact of AI on aviation security and to play a leading role by recommending clear direction, objectives, strategies, roadmaps, etc., to the aviation security community on the use and implementation of AI in AVSEC.

2.3 During the discussion on the matter of AI, as proposed in the above-mentioned WP, the AVSECP recognized the need to advance swiftly on the matter to better understand the opportunities, benefits but also challenges and threats inherent in the application and rapid growth of technology in aviation security.

2.4 The AVSECP acknowledged the transformative potential of AI in enhancing aviation security, particularly in areas such as risk awareness, technological innovation, and workforce development. Also, the AVSECP welcomed a proposal to study the impacts of AI on aviation security with a view to developing a strategy and roadmap on the use and implementation of AI. The AVSECP further emphasized the need for a collaborative approach that would include ICAO, Member States, and industry stakeholders to ensure responsible, ethical, and effective use of AI, in keeping with relevant GASeP’s Global Priority Areas.

2.5 The AVSECP/36 decided to establish a Task Force on Artificial Intelligence (TF-AI) to address the growing implications of AI in aviation security. Recognizing AI's transformative potential in areas such as risk awareness, innovation and technology, and workforce development, the initiative aims to explore opportunities, benefits and challenges. The Task Force will define how AI is related to or contributes to aviation security, identify areas where AI can support efforts in addressing the priorities of the GAsEP, and develop a strategy and roadmap for AI implementation in aviation security. The AVSECP TF-AI will provide recommendations and strategies for the effective use of AI in enhancing aviation security measures while involving ICAO, Member States, and industry stakeholders. Collaboration with AVSECP working groups like Working Group on Threat and Risk (WGTR), Working Group on Innovation in Aviation Security (WGIAS), the Cybersecurity Panel (CYSECP) and other ICAO Panels of experts and expert groups will support this effort. The TF will report back to the 37th Meeting of the AVSECP.

2.6 The use of AI in civil aviation is a cross-cutting topic involving also cyber aspects. During the Fourth Meeting of the Cybersecurity Panel (CYSECP/4), held in Montréal from 2 to 6 June 2025, the expert nominated by the United Arab Emirates presented WP on Addressing Cyber Aspects Posed by the Use of Artificial Intelligence (AI) in Civil Aviation (CYSECP/4 - WP/14). This WP explores the role of the CYSECP in addressing cyber aspects of the use of AI in civil aviation in a collaborative and holistic manner. Cooperation and coordination between CYSECP with other ICAO Panels and expert groups can be essential taking into consideration the need for a collaborative approach to this matter.

2.7 The CYSECP supported the content of the above-mentioned UAE WP, and deliberated on whether AI poses by itself new cyber threat vectors or is only a catalyst for existing cyber threat vectors through facilitating and enabling existing Tactics, Techniques, and Procedures (TTPs). The CYSECP also noted that AI issues need to be captured and monitored. This Panel acknowledged the importance of cooperation and information sharing related to AI and agreed on the importance of collaboration with the AVSECP TF-AI. In conclusion, the CYSECP agreed to consider AI, specifically on the potential implications of machine learning on different aviation disciplines, while coordinating with the AVSECP's TF-AI in relation to aviation security impacts. A report on the topic including recommendations on the way forward should be considered at the 5th Meeting of the CYSECP.

2.8 AI has shown its potential to further transform AVSEC and other areas of civil aviation, while establishing aviation cybersecurity as an essential part in upgrading systems or introducing new technologies. Using a robust and holistic cyber risk management framework is important for implementing AI in AVSEC fields such as risk awareness, innovation and technology, and workforce development. Opportunities, benefits, challenges and threats inherent in the application and rapid growth of technology needs to be appropriately explored and addressed.

2.9 As AI is developing rapidly, it is important that the civil aviation community is swift to learn and respond to these technological advancements not only in aviation security, but also in other important civil aviation fields such as safety and facilitation, as well as understand its risks and limitations. Keeping pace with AI developments is essential as well as beneficial for the future development of civil aviation. However, implementation of AI should not equate to implementing AI technologies rapidly. Comprehensive understanding, caution and forethought need to be of top priority. There is a need to find out ways for comprehensive assessment of AI risks and to implement mitigation measures, navigate challenges and make informed and responsible decisions. It is important to build and use AI systems in AVSEC and other areas of civil aviation in a responsible, ethical, and unbiased manner.

3. **CONCLUSION**

3.1 AVSEC and other areas of civil aviation are being transformed by AI, which is bringing innovative solutions to long-standing challenges. AI systems are likely to bring critical benefits to civil aviation by making operations more efficient and enhancing AVSEC and other areas of civil aviation. For example, AI supports moving from reactive to proactive means of AVSEC and other areas of civil aviation, which requires reliance on predictive tools and automated systems to anticipate and contain risks before escalation.

3.2 To maximize the benefit derived from AI, it is important to establish a strategy and a roadmap, support continued research, cross-sector cooperation, collaboration and coordination, as well as to proactively develop framework. As civil aviation turns to a data-driven future, AI will remain among the main drivers of progress, helping make air travel more secure, safe and efficient. Therefore, AI's transformative potential and power should be officially recognized as it is expected to be realized in years to come.

3.3 In order to ensure that full potential of AI can be used to deliver more secure, safer and faster air travel considerable work remains to be done.

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