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EXECUTIVE COMMITTEE

Agenda Item 13: Aviation Security — Policy

ADDRESSING EVOLVING THREATS TO CIVIL AVIATION: INNOVATION, INVESTMENT, AND WORKFORCE PROFESSIONALIZATION

(Presented by Denmark on behalf of the European Union and its Member States[1], the other Member States of the European Civil Aviation Conference[2], and by EUROCONTROL, and co-sponsored by Brazil, Kazakhstan and Peru)

EXECUTIVE SUMMARY

This Working Paper highlights the increasing complexity and unpredictability of threats to civil aviation, driven, among other factors, by geopolitical instability and sophisticated actors with advanced capabilities. It reflects on the opportunities offered by technological advancement and the importance of developing regulatory frameworks that allow for innovation. It calls for targeted assistance to narrow the technological gap between States to maintain a robust aviation security framework, and it discusses the critical role that a professional workforce plays in maintaining a secure global network.

Action: The Assembly is invited to:

a) request ICAO, Members States, and industry to continue to encourage innovation in the aviation security system;
b) request ICAO, Members States, and industry to implement targeted assistance activities so as to narrow the technology gap between States;
c) request ICAO to develop an ICAO Next Generation of Aviation Professionals AVSEC Strategy to ensure sufficient qualified and capable resourcing of aviation security at government and industry levels worldwide, which encompasses guidance on the interface between technological progress and human factors;
d) urge the ICAO Council to task the Secretary General with the organization at ICAO Headquarters of a High-Level Aviation Security Conference during the upcoming triennium with the objective of reaffirming the commitment of States to provide aviation security with all necessary resources; and of establishing the priorities that will drive the future of the international regulatory framework, the roll-out of new generation technology, the professionalization of the workforce, and the scope of assistance activities; and
e) recognize in the Consolidated Statement on Continuing ICAO policies related to aviation security (A41-18) the evolving nature of threats to civil aviation, including those posed by sophisticated actors.

[1] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden

[2] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Monaco, Montenegro, North Macedonia, Norway, Republic of Moldova, San Marino, Serbia, Switzerland, Türkiye, Ukraine and United Kingdom

Strategic Goals:	This working paper relates to Strategic Goal of *Every Flight is Safe and Secure*.
Financial implications:	*The actions referred to in this paper will be subject to the resources available in the Regular Programme Budget and/or from extra budgetary contributions.*
References:	*Consolidated Statement on Continuing ICAO policies related to aviation security (A41-18)*

1. INTRODUCTION

1.1 The current volatile geo-political and security situation in the world has shown that the security of civil aviation can be either instrumentalised as part of a wider agenda or be subject to collateral damage because of military activity. The advanced capabilities of sophisticated actor(s) in this context further complicates and highlights the threats and risks to the international aviation community.

1.2 The 2022-2025 triennium has witnessed, among others, the downing of civilian aircraft operating over or near conflict zones, several incidents related to cyber-security, and several, calculated efforts to put civil aviation in harm's way by exploiting vulnerabilities of the express air cargo and mail supply chains. We have also seen a growing concern over the potential misuse of unmanned aircraft systems (UAS), to conduct surveillance, disrupt airport operations, or even carry out malicious acts.

1.3 It appears evident, hence, that the threat to civil aviation endures, and it is today more complex, diverse, and unpredictable than ever. As the attractive target it is, plots against civil aviation will increase in sophistication, and will target more vulnerable areas.

1.4 On the other hand, innovative approaches and available new generation technologies, such as artificial intelligence, including machine learning, yield great opportunities to enhance the security posture of global civil aviation while improving the airport user experience. To fully leverage these advancements, the human factor remains crucial - ensuring that professionals are adequately trained, adaptable, and capable of making effective, technologically informed decisions.

2. THE IMPERATIVE OF KEEPING UP WITH THE PACE OF INNOVATION

2.1 Civil aviation is undergoing a period of transformational change, where innovation and new generation technologies are offering the sector new ways of doing business, and evolutionary impacts on day-to-day industry operations.

2.2 Innovation offers phenomenal promise in strengthening security outcomes while enhancing the sustainability and viability of the aviation sector. Seizing the opportunities offered, ensuring that a strong security posture is maintained, and securing an improved airport user experience, will require significant and enduring commitment and investment.

2.3 Among the challenges ahead, there may be a need to tackle, independently or in combination with each other: the roll out of new generation technologies, for instance artificial intelligence, including machine learning; enhancing recruitment policies in the context of new and diverse skill requirements, and achieving further professionalization of the workforce; or ensuring even greater coordination and collaboration among stakeholders both at national and international levels.

2.4 Moreover, meeting future challenges, and ensuring that the benefits of innovation are fully realised, will also require the development of regulatory frameworks that allow for the integration of increasingly fast-evolving new technologies.

3. A TECHNOLOGY DRIVEN TRANSFORMATION FOR ALL

3.1 The main element in transforming aviation security processes is new generation technology, which is a game-changing capability for both security and facilitation. Whilst some States will be able to embrace the latest technology to mitigate threats and unlock efficiency advantages; many other States will continue to utilize existing traditional technology for many years to come.

3.2 Therefore, States willing to invest in innovative technological methods, which are vital to thwart sophisticated threats while at the same time enhancing airport users' experience, should not neglect the importance of supporting others which may not possess the financial capability, and of encouraging those who lack political willingness to do so. International civil aviation is highly interconnected and ensuring a harmonized security posture will be key to achieving effective security outcomes across the board.

3.3 All involved entities, including States, ICAO, and industry stakeholders should work together to narrow the technology gap between States, supporting targeted assistance to ensure that no country is left behind in the transformation process.

3.4 The transformational impact on policy that technical innovation can bring, and the impact that this may have on air services between states, should be acknowledged. Early adopters must grapple with the policy and legal implications of the use of new equipment. To ease this burden, keep up with the pace of technological advancements, and accommodate the implementation of innovative solutions, ICAO must remain flexible, investment focused and agile.

4. STAFF WILL STILL BE CRUCIAL

4.1 As the demand for air transport continues to grow, investing in a more qualified and competent workforce becomes essential. The civil aviation security sector is evolving into a highly technical and specialized field, requiring professionals capable of navigating complex environments, integrating information from multiple sources, and making informed decisions. While state-of-the-art technical solutions are crucial, their effectiveness depends on human expertise to implement them efficiently. Experienced, motivated, and well-trained aviation security professionals remain a critical asset, enabling the swift application of specific measures in response to precise threat scenarios.

4.2 Effective professionalization can only be achieved if senior management levels of organizations implementing security controls, including authorities and industry, are well informed of the existing risk level, understand the massive consequences an act of unlawful interference could have, and are fully involved in the security objectives of their organizations. Their commitment is essential to creating a security culture that prioritizes vigilance, adaptability, and continuous improvement.

4.3 In line with the GASeP global priority area 3 – develop and promote the role of the human factor, which emphasizes the importance of human capability development, only organizations enjoying a high level of commitment from their senior leaders will be able to implement recruitment and retention strategies that provide the desired security outcomes. Ensuring a competent and well-prepared workforce requires not only attracting qualified professionals but also fostering career development and long-term engagement to effectively address evolving security challenges.

4.4 In this context, it is essential to define a clear strategy for the professionalization of aviation security personnel, ensuring their continuous development and recognition, in line with established practices in other areas of civil aviation. The development of an ICAO Next Generation of Aviation Professionals AVSEC Strategy would contribute to ensure sufficient qualified and capable resourcing of aviation security at government and industry levels worldwide, encompassing guidance on the interface between technological progress and human factors.

5. THE FUTURE AHEAD

5.1 Moving forward, prioritisation of activities will become more important than ever in a time of constrained resources, to ensure that new capabilities have the greatest possible effect. This will demand new levels of State and global regulatory commitment and investment. It cannot be assumed that new capabilities will fit seamlessly into established models of operation, and new ways of working will be required to embrace the opportunities and prevent unintended consequences or vulnerabilities occurring.

5.2 It is therefore fundamental that the protection of civil aviation from acts of unlawful interference is given the same importance as other domains. The consequences of a possible catastrophic aviation security incident are immense, as evidenced during the last 25 years, and that is why ensuring a strong security posture should be considered as one of the best possible investments.

5.3 For all this, aviation security must remain a priority for States and ICAO, with appropriate financial and human resourcing investment provided, as we continue to face the threats and challenges ahead.

5.4 To this end, the Assembly is invited to recognise in the Consolidated Statement on Continuing ICAO policies related to aviation security (A41-18) the importance of the evolving nature of threats to civil aviation, including those posed by sophisticated actors.

5.5 To provide a global forum to discuss these and other matters of aviation security, ICAO should organise a High-Level Aviation Security Conference at ICAO Headquarters in the upcoming triennium with the objective of reaffirming the commitment of States to provide aviation security with all necessary resources; and of establishing the priorities that will drive the future of the international regulatory framework, the roll-out of new generation technology, the professionalization of the workforce, and the scope of assistance activities.

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