DIRECTORS GENERAL OF CIVIL AVIATION-MIDDLE EAST REGION

Seventh Meeting (DGCA-MID/7)
(Riyadh, Saudi Arabia, 19 – 20 May 2024)

Agenda Item 5: Aviation Security and Facilitation

OUTCOME-BASED REGULATION TO FACILITATE ADOPTION OF INNOVATIVE TECHNOLOGY IN AIRPORT SECURITY

(Presented by Airports Council International)

SUMMARY

The rapid air traffic recovery, coupled with staff shortage, continues to be an ongoing challenge for many airports across the world, sometimes resulting in longer queues and lower efficiency at security checkpoints. It has therefore become ever more important for airports to further embrace and leverage innovation and technology to address such challenges and ensure sustainable operations in the long-term.

This paper highlights the importance of an outcome-focused regulatory framework that could facilitate the adoption of innovative technologies or practices in aviation security. Also, a few examples of innovative practices that are believed to have huge potential to enhance operational efficiency and security effectiveness at airports will also be highlighted in the paper for consideration.

This paper encourages States to adopt an outcome-focused regulatory framework that would facilitate the trial and use of innovative technologies and processes at airports.

REFERENCES

- ICAO Assembly Resolution A41-18

1. INTRODUCTION

1.1 Shortage in aviation security manpower continues to be a global challenge. Many airports across the world are still having difficulty in recruiting and retaining sufficient security workforce to meet current and future demands, resulting in longer queues and lower throughput at airport security checkpoints.

1.2 In response to the current challenges, many airports, including those in the Middle East region, have accelerated the introduction of innovation and technology to help relieve bottlenecks and alleviate pressure on staff and resource shortage.

1.3 The Resolution A41-18 adopted at the 41st session of the ICAO Assembly in 2022 "*encourages Member States to work in partnership with industry to develop, conduct operational trials of, and implement effective security measures and innovative technologies, techniques and processes*".

1.4 In order to foster innovation in aviation security, it is important for States to ensure security regulations are outcome-focused, allowing operational flexibility for new technologies and processes to be tested at airports and eventually implemented in a timely and efficient manner.

1.5 This paper presents a few emerging technological innovations that could streamline operations as the technologies continue to mature in the future. Nevertheless, the examples should not be regarded as one-size fits-all solutions and are not intended to be exhaustive. Each airport should determine what fits the best of its operational needs and national regulations.

2. INNOVATION FOR EFFICIENCY AND EFFECTIVENESS IMPROVEMENT

2.1 Innovation refers to the introduction of new things, ideas or ways of doing something. Below are some innovative security technologies with immense potential to enhance operational efficiency and security effectiveness. An increasing number of airports have already tried or even implemented such technologies, including but not limited to:

2.2 Artificial Intelligence (A.I.) for cabin baggage screening: The technology of A.I. has made possible and accelerated the development of automated detection of threats in security screening. A number of A.I.-based algorithms, commonly known as Automated Prohibited Item Detection Systems (APIDS), have been introduced in recent years to leverage computing power to analyse x-ray images and automatically recognize prohibited items carried within cabin baggage, including guns, weapons, and sharps. APIDS software can be applied to both conventional x-ray and CT (computed tomography) machines as an assist function to expedite screeners' decision-making and minimise human errors, resulting possibly in a better security outcome and a faster process for travellers. The operational trials of APIDS conducted at some airports have demonstrated promising results in terms of detection performance and throughput improvement. Also, the European Commission passed a regulation in April 2023 to allow APIDS to be deployed at EU airports equipped with the approved equipment and the respective certification protocols is under development.

2.3 Centralized Image Processing (CIP) for cabin baggage screening: CIP, also known as multiplexing, refers to the networking and real-time transmission of x-ray images to a centralised location for processing. CIP has been applied in the screening of hold baggage for a long time, but is a relatively new concept in the screening of cabin baggage. Within a CIP operating model, screeners are deployed in a remote location away from the screening equipment, such as onsite CIP room, to review images generated from multiple sources. This allows screeners to stay away from the distractions of a busy security hall, and more importantly the maximization of staff and equipment productivity by distributing workload to a pool of screeners. Over the past few years, more airports, including those in the Middle East, have adopted CIP for cabin baggage as part of their overall security systems upgrade. Some countries have even started to explore the possibility of CIP between different airports, including the trial conducted in Finland between Helsinki Airport and Oulu Airport.

2.4 Biometrics for airport staff access control: Biometrics technology has been widely applied along the passenger journey at airports, but less common for staff access control. A lot of airports especially the small and regional airports are still using traditional methods, such as access card and manual verification, to control staff entry into the restricted areas, which are often manpower-intensive, insecure, and inefficient. One of the main advantages of a biometric access control system is increased security as it relies on unique physical characteristics of an individual that cannot be easily replicated or stolen. The experience from airports which have applied biometrics for staff access control reveals promising results in efficiency enhancement and cost saving for manpower.

2.5 These technologies, which may require significant initial financial investment, are only listed for consideration and may not be applicable for every airport. There might be other more cost-effective alternatives that can achieve the same outcome.

2.6 Besides what is also important is the fostering of an environment under an outcome-focused regulatory framework that encourages and facilitates the trial and approval of innovative technologies and processes for aviation security as and when needed. Without such environment, the room for airports to initiate any new solution would be significantly limited.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the importance of innovation and technology in addressing the operational challenges caused by security staff shortage at some airports.

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