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ASSEMBLY — 42ND SESSION

TECHNICAL COMMISSION

Agenda Item 24: Aviation Safety and Air Navigation Priority Initiatives

EFFICIENCY ENHANCEMENT PROGRAM

(Presented by China)

EXECUTIVE SUMMARY

At the Fourteen Air Navigation Conference (AN-Conf/14), ICAO projected the 2050 passenger traffic to be 12.4b, which is 2.7 times that of today's 4.6b. This growth will require the member States and regions to review their current concepts of operations and adopt innovation solutions leveraging technologies and a well-trained workforce. In the short to medium term, ICAO could support the regions and States to identify the relevant efficiency initiatives to embark on and undertake a data-driven approach to identify efficiency gaps and implement enhancements.

Strategic Goals:	This working paper relates to *Every Flight is Safe and Secure, No Country Left Behind, Aviation Delivers Seamless, Accessible, and Reliable Mobility for all* and *The International Civil Aviation Convention and other Treaties, Laws and Regulations address all Challenges.*
Financial implications:	Nil
References:	Nil

[1] English and Chinese versions provided by China.

1. INTRODUCTION

1.1 ICAO has projected traffic to grow 2.7 times from 4.6 billion today to 12.4 billion in 2050. This will translate to a growth in air traffic volume of a similar magnitude. To support this growth, a fundamental review of existing air traffic management (ATM) processes and procedures, and restructuring of current airspace structures will be needed. At the same time, the introduction of new participants such as advanced air mobility (AAM) and delivery drones will introduce new challenges in the provision of air navigation services. To accelerate advancement in ATM, new and novel operational concepts enabled by innovation in technology and manpower will be necessary. In the short to medium term, States and regions should explore ways and means to maximise ATM efficiency and airspace capacity.

1.2 Against this backdrop, at the Fourteen Air Navigation Conference (AN-Conf/14), the Committee supported continuing efforts to enhance operational efficiency of the global air navigation system. ICAO identified the top 3 recommendations for capacity enhancement to be: Project 30/10 NM which aims to reduce separation minima over high seas across flight information regions (FIRs); sunsetting of Flight Plan 2012 by 2034 to take advantage of flight and flow information for a collaborative environment (FF-ICE), trajectory-based operations (TBO) and free route airspace (FRA); and encouraging frameworks for more efficient delegation of airspace between member States.

2. DISCUSSION

2.1 These are significant projects and will promise to bring about efficiency for ATM. Beyond these initial measures, ICAO planning and implementation regional groups (PIRGs) could help States understand the strengths and weaknesses of the air navigation services (ANS) systems and map out a series of efficiency enhancement program through the following steps.

2.2 First, ICAO and the PIRGs should consider a means of synthesising a global picture of ATM efficiency across regions/States, and reporting them in a transparent, holistic and harmonised manner. This could take the form of a performance report or dashboard. To date, 4 out of the 7 ICAO regions have formed the equivalent of a data analytics group/ performance measurement group to start performance measurement and many States have demonstrated capabilities to measure performance.

2.3 Second, following their initial pilot efforts, these groups recommend establishing implementation steps for the existing performance framework and key indicators, and identifying a subset of indicators whose data collection, storage and analytical computation are comparatively straightforward for Phase-1 roll-out.

2.4 Third, ICAO should encourage all Member States to consider the use of the Global Air Navigation Plan (GANP) performance guidance, so that the underlying data, key performance indicator (KPI) definitions and measurement methodologies are consistent and thereby provide a trustworthy foundation for subsequent cross-regional benchmarking.

2.5 Fourth, after the first 3 steps are complete, ICAO and the PIRGs could then support States/air navigation services providers (ANSPs) in understanding these performance data and translating them into areas for improvements for the region e.g. modernising ATM systems, airspace improvements, collaboration and technical cooperation on capacity building. This translation process should also take

into account that ANS systems require high capital investment, have long planning cycles and potential implementation risks.

2.6 Fifth, in view of the rapid evolution of artificial-intelligence technologies, a stable, transparent and globally harmonised performance-indicator framework is essential. Such a framework will provide clear directional guidance for the accelerated deployment of AI in air navigation, ensure that the effectiveness of these technologies can be compared across regions through standardised data interfaces and evaluation baselines, and facilitate balanced and coordinated global technology diffusion.

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