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ASSEMBLY — 42ND SESSION

TECHNICAL COMMISSION

Agenda Item 23: Global Aviation Safety and Air Navigation Plans

IMPLEMENTATION STATUS OF AVIATION SYSTEM BLOCK UPGRADES IN CHINA

(Presented by China)

EXECUTIVE SUMMARY

The Air Traffic Management Bureau (ATMB) of the Civil Aviation Administration of China (CAAC) maintains continuous oversight of research and implementation pertaining to the *Global Air Navigation Plan* (GANP, Doc 9750) and the Aviation System Block Upgrades (ASBU) framework. Through the formulation of a modernization strategy for China's civil aviation air traffic management (ATM), the ATMB ensures effective alignment with global initiatives. This strategy is advanced via five-year plans, accelerating the development and deployment of relevant technologies.

Practice demonstrates that these measures have further unlocked efficiency potential within China's ATM system, significantly enhanced integrated support and emergency response capabilities, and achieved simultaneous improvements in both quality and efficiency of cross-border flight services. These accomplishments contribute China's expertise and resources toward ICAO's strategic objectives for global ATM modernization and interoperability.

Strategic Goals:	This working paper relates to *Every Flight is Safe and Secure; Aviation is Environmentally Sustainable; Aviation Delivers Seamless, Accessible and Reliable Mobility for All; The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All; and No Country Left Behind*
Financial implications:	This paper has no financial implications.
References:	Doc 9750, *Global Air Navigation Plan* Doc 10209, *Report of the Fourteenth Air Navigation Conference*

[1] English and Chinese versions provided by China.

1. INTRODUCTION

1.1 The Civil Aviation Administration of China (CAAC), amid robust recovery in global and domestic air travel demand, has established its development targets through 2035: 450 operational transport airports and air traffic management (ATM) service capacity supporting 30 million aircraft movements. The continued rapid expansion of China's commercial aviation sector, integration of emerging airspace users, and imperatives for green development are presenting significant challenges to ATM system advancement.

1.2 To address these challenges, the CAAC released China Civil Aviation aviation system block upgrade (ASBU) Development and Implementation Strategy as early as 2015, providing scientific guidance for ASBU implementation. In the same year, ATMB of CAAC issued the Notice on Comprehensive Advancement of Aviation System Block Upgrades Implementation, establishing an ASBU Implementation Committee to define execution mechanisms and deploy operational plans.

1.3 The ATMB developed The Architecture of China's Modernized ATM System (IB-TM-2016-003) and China Civil Aviation ATM Modernization Strategic Roadmap (IB-ATMB-2020-001), referencing ICAO's *Global Air Navigation Plan* (GANP, Doc 9750) while accounting for national conditions. These documents provide guidance for China's ATM modernization through 2030. Through the ATMB's formulation and oversight of the 13th and 14th Five-Year Plans, China has effectively accelerated research, application, and knowledge-sharing of ASBU-related technologies. Consequently, ATM efficiency potential has been further unlocked, integrated support and contingency response capabilities significantly enhanced, and cross-border flight service delivery achieved simultaneous quality-efficiency improvements. These contributions advance ICAO's strategic objectives for global ATM modernization and interoperability through China's expertise and solutions.

1.4 The Office of the ASBU Implementation Committee maintains ongoing monitoring of developments in the GANP and ASBU frameworks. It completed comprehensive studies on the Fourth, Fifth, Sixth and Seventh Edition of GANP and ASBU documentation. Following comprehensive surveys of China's ATM system, the Office has periodically compiled and issued the Report on ASBU Implementation in China's ATM, establishing a robust foundation for holistic assessment of the nation's ATM modernization progress. Leveraging these reports, the Air Traffic Management Bureau (ATMB) prepared working and information papers submitted to: The Thirteenth and Fourteenth ICAO Air Navigation Conferences, The 39th and 40th Sessions of the ICAO Assembly, Other international forums. These submissions demonstrate China's proactive implementation of its solemn commitments toward "advancing the Global Air Navigation Plan and ASBU" made during successive ICAO Assemblies and Asia-Pacific Ministerial Conferences on Civil Aviation. They further highlight China's resolute determination and concrete actions in fulfilling its responsibilities as an ICAO Council Category I State.

2. DISCUSSION

2.1 China's civil aviation air traffic management focuses on three major aspects: "level of new technology implementation," "degree of new technology application and promotion," and "synchronization with ICAO." Based on three core dimensions—"whether it is available," "whether it is widespread," and "whether it is rapid"—it has established three comprehensive evaluation indicators: "technology implementation rate," "technology promotion rate," and "progress alignment degree," conducting a comprehensive and multi-dimensional assessment of the overall status of ASBU implementation.

2.2 **ASBU technology implementation rate**

2.2.1 The ASBU technology implementation rate refers to the proportion of technical elements that have reached an implementable level to the total number of surveyed technical elements. From Phase B0 to B1, a total of 89 technical elements were included in the survey, of which 77 reached an implementable level, resulting in an ASBU technology implementation rate of 86.52 per cent for the B0-B1 phase. Specifically, there were 11 information-related technical elements (with a technology implementation rate of 69 per cent in this category, similarly hereinafter), 51 operational elements (100 per cent), and 15 technical elements (60 per cent). This data fully demonstrates that the ASBU technical elements selected by China's air traffic management system based on its own needs have been widely put into practical operation, achieving a high degree of alignment with international advanced air traffic management technical standards.

2.3 **Application promotion rate**

2.3.1 The application promotion rate refers to the proportion of a technical element that has reached an implementable level and is applied within the air traffic management system. Among the 77 mature technical elements that have reached an application promotion level in the B0-B1 phase, 33 have an application promotion rate of over 80 per cent, 10 range between 50 per cent and 80 per cent, and 34 are below 50 per cent.

2.4 **Progress alignment evaluation**

2.4.1 The progress alignment degree refers to the alignment between the actual technical maturity level of a technical element and the timeline required by the ASBU block. This indicator reflects the speed at which China's civil aviation air traffic management advances specific technical elements under the ASBU technical framework. According to ASBU block requirements, the technical elements included in Phases B0, B1, and B2 should reach an implementable level by 2013, 2019, and 2025, respectively. Currently, there are two advanced technical elements: "simultaneous operations to parallel runways" and "Wake turbulence separation minima based on 7 aircraft groups." There are 110 technical elements synchronized with international standards, accounting for 82% of the total surveyed elements.

3. CONCLUSIONS

3.1 The Air Traffic Management Bureau (ATMB) of the Civil Aviation Administration of China (CAAC) maintains continuous oversight of research and implementation pertaining to the Global Air Navigation Plan (GANP, Doc 9750) and Aviation System Block Upgrades (ASBU) framework. Through the formulation of a modernization strategy for China's civil aviation air traffic management (ATM), the ATMB ensures effective alignment with global initiatives. This strategy is advanced via Five-Year Plans, accelerating the development and deployment of relevant technologies. Demonstrable outcomes confirm that these measures have:

a) further unlocked efficiency potential within China's ATM system;

b) significantly enhanced comprehensive support and emergency response capabilities;

c) achieved simultaneous improvements in both quality and efficiency of cross-border flight services.

d) these accomplishments contribute China’s expertise and resources toward ICAO's strategic objectives for global ATM modernization and interoperability.

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