DRAFT REPORT OF

THE SEVENTH MEETING OF THE ASIA/PACIFIC AIR TRAFFIC MANAGEMENT AUTOMATION SYSTEM TASK FORCE (ATMAS TF/7)

Bangkok, Thailand
2-4 June 2026

The views expressed in this Report should be taken as those of ATMAS TF/7 Meeting and not of the Organization.

Approved by the Meeting
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HISTORY OF THE MEETING

REPORT ON AGENDA ITEMS

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1. Introduction

1.1 The Seventh Meeting of the Asia/Pacific Air Traffic Management Automation System Task Force (APAC ATMAS TF/7) was held from **2 – 4 June 2026** in the ICAO APAC Regional Office, Bangkok, Thailand.

2. Attendance

2.1 The Meeting was attended by **50** participants from **14** Member States/Administrations, and **1** International Organization, namely China, Hong Kong China, Indonesia, Lao PDR, Malaysia, Maldives, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, United States, Viet Nam, and ICAO. The List of participants is provided in **Attachment 1**.

3. Opening of the Meeting

3.1 Ms. Wenxiu Chen, Director of CNS Department, East China Regional ATMB, CAAC, Co-Chair of ATMAS TF, opened the Meeting. She welcomed participants and expressed appreciation to the ICAO APAC Office for organizing the event. Ms. Chen highlighted the importance of the Meeting in supporting the continued development and implementation of ATMAS across the APAC region.

3.2 Mr. Joe Chua, Head (Research & Innovation), Civil Aviation Authority of Singapore (CAAS), Co-Chair of ATMAS TF, emphasized the growing importance of ATM automation systems in enabling emerging operational concepts such as FF-ICE and SWIM. He noted the need for ATMAS evolution to support future operational requirements and encouraged active participation and constructive discussions throughout the Meeting.

4. Officers and Secretariat

4.1 Ms. Wenxiu Chen, Director of CNS Department, East China Regional ATMB, CAAC, and Mr. Joe Chua, Head (Research & Innovation), Civil Aviation Authority of Singapore (CAAS), Co-Chaired the Meeting.

4.2 Mr. Zhang De, Regional Officer CNS, acted as the Secretary of the Meeting with the support of Ms. Xu Jian, Associate Programme Officer (CNS) Implementation and Ms. Varapan Meefuengsart, the Programme Assistant from ICAO Asia and Pacific Regional Office.

5. Organization, working arrangement, language and documentation

5.1 The Meeting met as a single body. The working language for the Meeting was English, inclusive of all documentation and this Report. The Meeting considered **Eleven** (11) Working Papers and **Eighteen** (18) Information Papers under its **Nine** (9) Agenda Items. A List of Working Papers and Information Papers is provided in **Attachment 2**.

6. Draft Conclusions, Draft Decisions and Decisions of ATMAS TF – Definition

6.1 ATMAS TF recorded its actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

> **Draft Conclusions** deal with matters that, according to APANPIRG's terms of reference, require the attention of States or action by the ICAO in accordance with established procedures;

Draft Decisions deal with the matters of concern only to APANPIRG and its contributory bodies; and

Decisions of the ATMAS TF that relate solely to matters dealing with the internal working arrangements of the ATMAS TF.

7. List of Conclusions/Decisions from ATMAS TF/7

Reference Number		Title of (Draft) Conclusions/Decisions
1. Draft Decision ATMAS TF/7/01	-	Request for an ATM Automation System Coordination Group (ATMAS CG) in the APAC Region

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Agenda Item 1: Adoption of the Agenda

Adoption of Agenda - Sec (WP/01)

1.1 The provisional agenda presented in **WP/01** was adopted as the agenda for the Meeting.

Agenda Item 2: Review of Outcomes of Relevant Meetings

Review of Relevant ICAO Meetings – Sec (WP/02)

2.1. This paper summarized key outcomes from relevant ICAO Asia/Pacific meetings held in 2025, particularly APANPIRG/36 and CNS SG/29. It highlighted conclusions and decisions that were related to this Meeting.

2.2. It was noted that the CNS SG/29 Meeting adopted five (5) conclusions and six (6) decisions. In addition, based on the outcome of discussions on various agenda items, the CNS SG/29 Meeting developed three (3) Draft Conclusions and one (1) draft Decision for consideration by the APANPIRG/36, which were adopted by the APANPIRG/36 Meeting. The Meeting noted the Conclusions/Decisions adopted by the CNS SG/29 and the APANPIRG/36 and discussed the follow-up.

Outcomes of SURICG/11 Meeting – Sec (WP/03)

2.3. The Eleventh Meeting of the Surveillance Implementation Coordination Group (SURICG/10) was held at the ICAO APAC Regional Office, Bangkok, Thailand, from 25 – 27 March 2026, including the outcomes of the Fifth Meeting of the Surveillance Study Group (SURSG/5), which was held from 23 – 24 March 2026 in the ICAO APAC Regional Office, Bangkok, Thailand. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=33637

2.4. It was noted that SURSG/SURICG has recommended ASTERIX and JSON for the use of surveillance information sharing in the APAC region. In addition, for the global surveillance data exchange format, it was suggested that the Surveillance Panel (SP) would be informed of regional developments through an information paper for their consideration and feedback.

2.5. The SURSG/5 Meeting reviewed and finalised *the Guidance Materials for the sharing of surveillance data in SWIM*. The finalised Guidance Material was endorsed by **Draft Conclusion SURICG/11/01** (SURSG/5/01) – *Guidance Materials for the sharing of surveillance data in SWIM* for CNS SG/30 adoption. As SWIM development in the region is ongoing, it was anticipated that future updates on the Guidance Material would be necessary, especially on any further required details of the surveillance information services. The Meeting was informed that SURICG has assumed this responsibility and will respond appropriately.

Outcomes of ACSICG/13 Meeting – Sec (WP/04)

2.6. The paper summarized relevant information and updates on the outcomes of ATN Workshop and the Thirteenth Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/13) held at Nadi, Fiji, from 20 to 24 April 2026. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=42491

Outcomes of SWIM TF/11 – Sec (IP/17)

2.7. The paper presented the relevant outcomes of the Eleventh Meeting of the System Wide Information Management Task Force (SWIM TF/11) held at Bangkok, Thailand, from 25 to 29 May 2026. The meeting is to note the transition towards a digital oriented network to support data exchanges, and coordination will require ATMAS to evolve to ensure continued interoperability while maintaining the required performance requirements. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=60121

2.8. It was noted that after Decision CNS SG/29/14 made by CNS SG/29 in 2025 for the creation of ANS Information Assurance Task Force (ANSIA TF), it was agreed that the ANSIA TF would prepare the draft Terms of Reference (ToR), its key deliverables, and plan in close coordination with CRV OG, ACSICG, SWIM TF, TFP Secretary and IMP Secretary. After CNS SG/29, with the collaborative efforts of ANSIA TF experts, the first draft of the ToR was finalised. The ANSIA TF/1 reviewed and modified the draft ToR, and the *Draft Decision ANSIA TF/1/1 – Adoption of Terms of Reference (ToR) of the ANS Information Assurance Task Force (ANSIA TF)* was endorsed by the ANSIA TF/1 for CNS SG/30 adoption.

2.9. The Meeting was presented with the information of draft APAC FF-ICE/R1 Plan, particularly the implementation timeline. It was informed that the draft APAC FF-ICE/R1 Plan, including all feedback from ATFM & A-CDM SG/16 and SWIM TF/11, will be submitted to CNS SG/30 (6-10 July 2026) and ATM SG/14 (3-7 August 2026) for approval. Subject to approval by both groups and the availability of Doc 9965 Manual on FF-ICE Vol. II – Implementation Guidance, the draft APAC FF-ICE/R1 Plan will be submitted to APANPIRG/37 (tentatively in November 2026) for endorsement. Additionally, the dissolution of the FF-ICE Ad-Hoc group and the establishment of the APAC FF-ICE Implementation Task Force will be proposed to ATM SG. The Implementation Task Force would, *inter alia*, address the transition from FPL2012 to FF-ICE, operations in a mixed-mode environment, and FF-ICE/R1 implementation issues in the APAC region.

Update on the Surveillance Performance Requirements Manual and its Relevance to ATM Automation Systems (ATMAS) – Thailand and Singapore (IP/02)

2.10. Thailand and Singapore shared the update and the future developments of the Surveillance Performance Requirements Manual (formerly known as RSUR manual).

2.11. The Meeting was informed that the RSUR Manual has been renamed to the Surveillance Performance Requirements Manual to avoid confusion with PBCS concepts, its scope is currently limited to cooperative surveillance systems (ADS-B, Multilateration) covering 3 NM TMA, 5 NM en-route, and 2.5 NM final approach separations. The PBSSG will continue work on specifications for 3 NM en-route and 5 NM TMA separations.

2.12. It was emphasized that the manual serves as a key ICAO reference providing a technology independent, performance-based surveillance framework and supports the full ATMAS lifecycle (procurement, acceptance testing, performance monitoring, and interoperability).

2.13. The Meeting noted that, although the Surveillance Performance Requirements Manual is still under ICAO development, its performance benchmarks could have implications for future ATM automation systems and should be considered by States when planning or procuring ATMAS upgrades. A review of the ATMAS IGD document will be required when the PBS documents have been officially endorsed by the ICAO to effect the necessary changes in ATMAS surveillance performance requirements.

2.14. States and Administrations are encouraged to monitor the progress of ICAO work on Performance-Based Surveillance (PBS), assess the implications of surveillance performance requirements on ATM automation systems, particularly in relation to surveillance data processing, and share relevant studies or experiences at the next ATMAS TF meeting. **ACTION ITEM 7-1**

Agenda Item 3: Global and Regional ATM Automation System (ATMAS) Updates

3.1. No papers were submitted for this agenda item.

Agenda Item 4: ATM Automation System Implementation Experience by States

4.1. Review ATMAS Implementation Status in APAC

Repository of the ATMAS in APAC – Sec (WP/05)

4.1. The paper presented the updated table of the ATMAS status in the APAC region, the preliminary analysis of the status, and invited States/Administrations to review and take necessary actions. The Meeting updated the ATMAS repository, which is provided in **Appendix A**.

4.2. The Meeting noted that the repository is maintained as a routine regional monitoring tool and that several updates had been received since ATMAS TF/6. The Meeting further noted the progress of ATMAS implementation across the region, including a number of ongoing modernization projects. States/Administrations were urged to review the repository and promptly notify the Secretariat of any significant changes. **ACTION ITEM 7-2**

Current Developments in ATM Automation Systems in Sri Lanka – Sri Lanka (IP/03)

4.3. Sri Lanka presented a briefing on the status of its ATM Automation related developments in Sri Lanka in recent years and activity plans in the near future, including status of ATM Automation System, Cyber Security Management, and AIDC Implementation.

4.4. The Meeting was informed that successful AIDC trials had been conducted with Malaysia and Chennai, additional trials with Australia were planned, and full implementation of AIDC electronic coordination and transfer procedures with adjacent States was targeted by the end of 2027.

4.5. The Meeting discussed cybersecurity considerations for ATM automation systems and noted that Sri Lanka's cybersecurity governance framework covers both ATM automation and CNS systems. Sri Lanka further informed the Meeting that particular attention is given to systems connected to external networks in order to mitigate cybersecurity risks.

Modernization of Indonesia's Air Traffic Management Automation System – Indonesia (IP/18)

4.6. Indonesia provided an update on the implementation of modernization programmes at the Jakarta Air Traffic Service Center (JATSC), including the installation of a new ATM Automation System (ATMAS), Air Traffic Flow Management (ATFM) system, Aeronautical Message Handling System (AMHS), and Aeronautical Information Management (AIM) systems.

4.7. It was also noted that Indonesia is undertaking the modernization of ATM Automation System (ATMAS) at selected Approach Control units, including Medan, Pontianak and Balikpapan. These initiatives aim to improve operational efficiency, connectivity, and data exchange capabilities within the Jakarta and Ujung Pandang FIRs.

4.8. The Meeting was informed that the modernization programmes are currently in the shadow operation phase. System implementation is planned to begin in the second quarter of 2026. A phased transition will be carried out to ensure operational readiness and minimal disruption, with full local transition targeted for completion by the end of the fourth quarter of 2026. AIDC implementation with other States is planned for 2027, while limited technical trial may be conducted in Q4 2026.

4.9. The Meeting exchanged views on the transition from AIS to AIM and the future evolution towards FF-ICE and SWIM-enabled operations. The Meeting noted the importance of ensuring that future ATM automation systems are capable of supporting emerging information exchange models during the transition period, and encouraged Indonesia to share further implementation and operation experiences at future meetings.

4.2. ATM Automation System Implementation Issues Sharing

ATM Automation System Full-Business-Chain Operation and Maintenance – China (IP/16)

4.10. To address global ATC challenges, China put forward the concept of full-business-chain operation and maintenance for ATM automation systems. These challenges include that ICAO has not yet formulated mandatory specifications for the regular calibration and periodic accuracy verification of ATC surveillance sources, and there remains a lack of unified quantitative control standards for surveillance data transmission globally, covering key indicators such as transmission latency, stability, and data integrity.

4.11. The Meeting was informed that China is actively exploring the establishment of a full-business-chain quality management mechanism for surveillance signals. As global civil aviation moves toward digitalization and collaborative operation, fragmented, siloed O&M modes are no longer viable. It was recommended that all ICAO Member States collaborate on joint research, formulate unified regional full-chain O&M standards and methodologies, and establish a complete operational assurance system to improve the overall safety, efficiency, and cross-border collaboration capability of global ATC operations.

4.12. The Meeting noted the relevance of the paper to the ongoing ICAO work on performance-based surveillance (PBS) and the development of surveillance performance requirements. China emphasized the importance of evaluating surveillance performance from the controller's perspective, focusing on the quality of system tracks presented by ATM automation systems rather than solely on the performance of surveillance sensors.

4.13. New Zealand shared its experience in applying surveillance performance assessments at the output of ATM automation systems, where surveillance data quality is evaluated after processing and presentation to controllers. The discussion recognized similarities between such practices and the user-focused approach proposed in the paper.

4.14. The Meeting acknowledged that there is currently limited guidance on ATM automation system track performance from an end-user perspective and noted the potential value of further study in this area. States were encouraged to share relevant experience and practices, and the Meeting expressed interest in continuing discussions on the subject at future ATMAS TF meetings.

4.3. Resilience consideration and contingency planning

Enhancing Cybersecurity Posture for Singapore Air Traffic Management Automation System – Singapore (IP/15)

4.15. This paper presented an overview of Singapore's approach to strengthening the cybersecurity posture of its Air Traffic Management Automation System (ATMAS). It outlined the threats faced by mission-critical air traffic management systems in the evolving cybersecurity landscape, the key risks identified for Singapore's ATMAS, the layered technical and procedural control measures implemented, and the principal challenges encountered during the enhancement of a large-scale legacy system. Given increasing connectivity with external systems, LORADS III faces elevated cybersecurity risks, including advanced persistent threats, insider threats, supply chain vulnerabilities, legacy system

weaknesses, malware and ransomware, denial of service attacks, remote access exploits, and data manipulation. To mitigate these risks, Singapore has implemented a defence-in-depth strategy combining technical and procedural controls, such as privileged access management, multi-factor authentication, endpoint protection, security monitoring (e.g. SIEM), network segmentation, and continuous system monitoring. These are complemented by regular assessments, testing, audits, and cybersecurity exercises to enhance system resilience. Overall, the paper emphasises that a risk-based, layered approach and phased implementation are essential to improving cybersecurity while ensuring operational continuity.

4.16. The Meeting noted that Singapore's experience demonstrates that strengthening the cybersecurity posture of mission-critical ATMAS requires a risk-based and defence-in-depth approach, underpinned by regular assessments, layered technical and procedural controls, and close coordination with system manufacturers and stakeholders. Such measures are essential to safeguard the confidentiality, integrity, and availability of ATMAS functions and to support the continued safety and continuity of air traffic operations.

4.17. It was also highlighted that enhancing cybersecurity in large-scale legacy ATMAS environments is complex and resource-intensive, particularly where operational continuity must be maintained. A phased implementation strategy, supported by compensating controls and continuous monitoring, can enable meaningful security improvements while minimising disruption to critical air traffic services.

4.18. The Meeting appreciated Singapore's sharing of practical experience and noted Singapore's intention to provide further lessons learned and implementation experiences at future meetings as its cybersecurity enhancement programme progresses.

4.4. Life cycle management

Smartised Maintenance in Large-Scale Air Traffic Management Automation System - China (IP/05)

4.19. China presented data-driven and AI-assisted approaches for the maintenance of ATM automation systems, highlighting the application of an intelligent maintenance platform to support system monitoring, fault diagnosis, log management, and lifecycle management. China noted the increasing challenges associated with maintaining large-scale ATM automation systems amid growing traffic demand and system complexity, and shared its experience and lessons learned in developing smart maintenance capabilities to improve maintenance efficiency and system reliability.

4.20. The Meeting discussed the potential application of AI and data analytics in ATM automation system maintenance. Participants noted the benefits of moving from traditional reactive maintenance towards predictive and condition-based maintenance through the use of operational and hardware health data. Views were exchanged on the use of AI models to support fault diagnosis, log analysis, lifecycle management, and service assurance, as well as the challenges associated with model training, data quality, and the maturity of AI technologies.

4.21. The Meeting recognized the potential of AI-enabled maintenance approaches to improve system reliability, availability, and maintenance efficiency, and encouraged further sharing of experience and lessons learned among States.

4.5. Integration with External Systems

End-to-End Systems Integration Testing to Improve Interoperability – Singapore (WP/10)

4.22. The Meeting recalled at ATMAS TF6 in June 2025, Singapore presented IP/02 to highlight the need for modern architectural design principles in Air Navigation Services (ANS) systems to address the aviation industry's rapid transformation. Singapore recommended four guiding principles:

a. Modularity – enabling flexible system upgrades and scalability.
b. Open interfaces with common data standards – ensuring interoperability and reducing vendor lock-in.
c. Security-by-design – embedding resilience against cyber threats.
d. Continuous innovation – supporting new operational concepts and long-term adaptability.

4.23. The Meeting noted Singapore is applying these principles in its modernization of its ANS systems with the aim to achieve better vendor integration, operational flexibility, stronger cybersecurity, and cost efficiency. Singapore's plan in conducting end-to-end systems integration testing in the modernization of its Air Navigation Services (ANS) systems was presented. It was noted that, operating on a System-of-Systems (SoS) approach, a dedicated systems integration facility will facilitate advanced system integration testing techniques, including the use of automated scenario simulation and emulator tools for orchestrated and controlled end-to-end SoS-level integration validation, enabling early issue detection and robust performance assurance beyond traditional pair-wise system validation. The facility may also support cross-border data exchange validation, fostering international collaboration to strengthen global aviation safety and resilience.

4.24. During the discussion, participants exchanged views on the benefits and challenges of end-to-end integration testing, particularly in increasingly complex and interconnected ATM environments. The Meeting noted the importance of automated and scenario-based testing to improve testing efficiency, reduce manual effort, and support the validation of operational workflows involving multiple systems.

4.25. The Meeting further recognized that such test platforms could provide a valuable environment not only for software and interface verification, but also for evaluating emerging operational concepts, new services, and future ATM technologies. The Meeting welcomed continued experience sharing and potential collaboration among States in this area.

Space-Based ADS-B Trial in Thailand ATM Automation System (ATMS) – Thailand (IP04)

4.26. Thailand conducted a trial integrating Space-based ADS-B into ATMAS to assess its compatibility, capabilities, and potential to enhance surveillance, address existing gaps, and provide an additional layer of ATS surveillance coverage within the Bangkok FIR. This paper presented the integration process of Space-based ADS-B data into Thailand ATMAS and the performance evaluation results observed during the trial period.

4.27. In response to an inquiry, Thailand advised that the update performance had been evaluated during the trial, achieving approximately 96% update availability within an 8-second interval, which was consistent with the service provider's expected performance objectives.

Design and Application of Output Standards for Integrated Monitoring Information in ATMAS – China (IP/06)

4.28. To mitigate increasing workload and enhance onsite situational awareness, China proposed a standardized specification for integrated monitoring information output. By leveraging the universal and lightweight advantages of the JSON format, the specification implements both periodic and event-driven output modes to unify disparate system health data into a centralized monitoring platform. The application of this standardized framework in operational environments enables rapid

situational assessment and precise fault localization, ultimately bolstering the integrated monitoring and maintenance capabilities for CNS facilities.

4.29. The Meeting noted that the primary challenge lies in retrofitting legacy CNS infrastructure that relies on outdated hardware architectures with limited processing power, requiring extensive engineering effort to support modern JSON and XML output specifications without compromising the stability of core functions. Additionally, the transmission of high-frequency monitoring data from geographically dispersed assets, such as remote VHF stations or radar sites, can impose substantial overhead on limited network bandwidth, necessitating optimization of data payloads and transmission intervals to balance monitoring precision with network efficiency. Successfully addressing these integration challenges provides a strategic foundation for extending the standardized framework to the broader CNS domain. Establishing cross-system data models for VHF, ILS, and ADS-B ground stations will eventually facilitate a unified network-wide view of equipment health, serving as a key driver for the evolution of industry-wide standards and regulatory frameworks.

Research and Application of Air-Ground Data Link-Based Landing Information Interaction Technology for Inbound Flights – China (IP/07)

4.30. China introduced the operational concept and practical application of the Landing Information Deliver (LID) function based on Air-Ground data link for inbound flights. The LID function enables the pre-delivery of Standard Terminal Arrival Route(STAR) and Arrival Runways (ARWY) to flight crews during the cruise phase, establishing an efficient, accurate, and bidirectional digital information channel between flight crews and air traffic controllers.

4.31. It was informed that the LID public trial operation in Shanghai has overall validated the feasibility of the LID function based on Air-Ground data link, achieving pre-delivery of arrival runways, arrival procedures, approach types, and parking stands information, bringing tangible benefits to both airlines and ATC. The implementation of this tool has also accumulated valuable experience for ATM Automation System new function module upgrades. Going forward, China will maintain in-depth communication with airlines and flight crews to extend the application of this tool to the departure phase. Verification tests on departure-related information were conducted last September and October. It is anticipated that the LID function will further reduce workload for both controllers and flight crews, playing a more important role in future airspace management.

4.6. Development of New Technology

Runway Inconsistent Warning Function in Air Traffic Management Automation Systems – China (WP/11)

4.32. China presented the Runway Inconsistent Warning (RIW) function of Air Traffic Management Automation Systems (ATMAS), which aims to enhance controller situational awareness and mitigate safety risks related to incorrect runway landing.

4.33. The paper provided a detailed explanation of the warning mechanism. It was noted that for multi-runway airports, RIW polygonal areas are defined for each runway, referenced to the extended runway centerline and bounded by the point where aircraft begin aligning with the runway after intercepting the ILS signal. Once a landing aircraft enters the RIW polygonal zone, the system compares the angle between its flight track and the corresponding runway direction with the predefined deviation threshold, if the angle is less than or equal to the threshold, the aircraft is judged to be in alignment with the runway, thereby triggering the RIW calculation process.

4.34. It was added that a track is eligible for the RIW calculation only when all the following conditions are met: it is successfully coupled with a flight plan, the landing airport information is accurate, and a landing runway has been assigned.

4.35. The Meeting noted RIW function is currently operational at Guangzhou Baiyun International Airport, which operates five parallel runways. It was observed that the RIW function of ATMAS provides real-time monitoring of runway alignment during the final approach and mitigates the safety risks associated with incorrect runway landings through technical means, thereby enhancing the safety and efficiency of air traffic operations.

4.36. The Meeting supported the proposal to incorporate the runway inconsistency warning function into the APAC ATMAS IGD. **ACTION ITEM 7-3**

4.37. The Secretariat reminded States/Administrations to review the ATMAS IGD Ad Hoc Group focal point list and provide any necessary updates to ensure the contact information remains current. **ACTION ITEM 7-4**

A Safety Protection System Based on Speech Recognition – China (IP/08)

4.38. China introduced a safety protection system based on speech recognition, which transforms the conversations between controllers and pilots into text. It also compares the controllers' instructions with integrated track information from ATMAS to identify discrepancies and performs alert calculations.

4.39. The Meeting was informed that the system has realized accurate voice recognition and can provide early alerts for potential air traffic control operational risks. In the next step, China will formulate interface specifications between the ATMAS system and the speech recognition system. Text data generated by the speech recognition system will be transmitted to ATMAS, enabling the comparison of voice data, track data, and flight plan data, and achieving integrated display of alert information within the ATMAS system.

4.40. The Meeting discussed the implementation approach of the speech-recognition-based safety protection system. China explained that the speech recognition function is currently implemented as an independent system and that future integration may be achieved through interfaces that provide alerts and analysis results to ATMAS while maintaining the speech-processing functions externally.

4.41. The Meeting also discussed operational considerations, including the identification of controller and pilot transmissions, call-sign association, and the handling of complex communication scenarios such as overlapping transmissions. Singapore shared relevant experience and highlighted that the use of EUROCAE ED-137C format could improve speaker identification accuracy.

4.42. China informed the Meeting that the trial was continuing and that further evaluation was being conducted for more complex operational scenarios. The Chair encouraged States, including China, to share future implementation experiences and lessons learned as the technology matured. **ACTION ITEM 7-5**

ATMAS Testing and Evaluation Cloud Platform Integrating Virtualization, Hyper-Convergence, and Cloud Desktop Technologies – China (IP/09)

4.43. To address the limitations of traditional ATM automation system testing platforms—such as rigid resources and limited scenarios—the ATMBTC of China has developed a next-generation testing and evaluation cloud platform. It integrates virtualization, hyper-convergence, and cloud desktop technologies. The platform enables resource pooling and elastic provisioning, supports parallel testing of multi-vendor, multi-version systems and high-fidelity scenario simulation. It significantly improves testing efficiency and flexibility, providing strong support for the safe operation and evolution of China's civil aviation ATM systems.

4.44. The Meeting discussed technical aspects of the platform, including virtualization of ATMAS applications, support for system integration testing, and the use of both operational and

simulated data sources. China explained that ATMAS applications are deployed on virtualized infrastructure within the platform, while integration testing can be conducted using real surveillance data interfaces as well as simulation tools.

Operation Experience Sharing of Light Guidance Function of A-SMGCS – China (IP/10)

4.45. China introduced operational experience with the Light Guidance Functions of the A-SMGCS system deployed at Beijing Daxing International Airport. The paper described the system architecture, control authority transfer mechanism, operational performance, and safety protection measures. Through optimization of communication mechanisms and control logic, the system has maintained stable and reliable operation while supporting high-density taxi operations and precise guidance under low-visibility conditions.

4.46. The paper also highlighted the use of segmented lighting control, controller validation procedures, and interlocking logic between electronic flight strips and stop-bar lights to enhance runway safety and prevent runway incursions.

The Rationale for Requiring PL Alert Despite the Existence of MTCD – China (IP/11)

4.47. The Meeting recalled at the 2025 ATMAS TF/6 meeting, China submitted an information paper entitled *Optimization of STCA in Complex Airspace Environment* concerning Short Term Conflict Alert (STCA), in accordance with ICAO ASBU module SNET-B1/1 *Enhanced STCA with aircraft parameters*. On this basis, aiming at near mid-air collision incidents induced by altitude level crossing, this paper proposes the PL (Predict Collision based on Level Bust) alert with CFL instruction as the core constraint. It elaborated on the functional differences of STCA, MTCD and PL alerts in practical deployment. With statistical data, the paper verified the application advantages of PL alert, and outlined its development potential in refined air traffic management in the future.

4.48. The Meeting discussed the relationship between the proposed PL Alert and existing Medium-Term Conflict Detection (MTCD) functions. It was noted that both functions use similar surveillance and flight plan data but apply different prediction models and alerting logic. China explained that the PL Alert focuses on potential conflicts associated with controller-issued flight level clearances and was intended to complement existing MTCD functionality, particularly in situations where controllers require immediate feedback following a level change instruction.

Agenda Item 5: ATMAS integration to SWIM

Upgrade of ATM Automation System for FF-ICE – China (WP/06)

5.1. With the steady advancement of the global Flight and Flow Information for a Collaborative Environment (FF-ICE), the International Civil Aviation Organization (ICAO) has established the sunset date of FPL2012 flight plans. States have gradually commenced formulating and implementing the deployment for FF-ICE Release 1 (R1). Focusing on the core application requirements of FF-ICE, China discussed the core functional upgrade requirements for Air Traffic Management (ATM) Automation Systems to support FF-ICE applications, covering key functional modules including FIXM message reception and processing, flight plan–track correlation, and four-dimensional trajectory profile computation, laying the foundation for subsequent Trajectory-Based Operations (TBO) implementation.

5.2. China stated that at present, mainstream global ATM automation equipment suppliers have not yet launched mature commercial products supporting FIXM data ingestion and integration of other SWIM-compatible formats. Specialized solutions fully adapting to all phases of FF-ICE are still in the stage of research and development, testing and pilot verification, which is also a common technical challenge faced by ATM service providers worldwide.

5.3. It was noted in accordance with ICAO's globally unified deployment roadmap for FF-ICE, in addition to the core functional upgrades mentioned above, to fully exploit the value of refined flight information carried by FIXM messages and lay a solid foundation for data sharing and in-depth applications in FF-ICE Release 2 in advance, other supporting functional modules of ATM automation systems need to carry out targeted transformation and adaptive upgrades simultaneously.

5.4. The Meeting noted that implementation of FF-ICE would require significant upgrades to ATM automation systems to support structured information exchange, mixed-mode operations during the transition period, and future TBO-related capabilities. The Meeting further noted that the APAC regional sunset date for FPL 2012 is 2032 and encouraged States/Administrations to take account of FF-ICE requirements in future ATM automation modernization programmes.

5.5. The Meeting noted that related FF-ICE implementation activities and guidance material were being developed through other ICAO expert groups and regional groups. The Meeting emphasized the importance of maintaining consistency across ICAO initiatives, avoiding duplication of effort, and ensuring that ATM automation system evolution remains aligned with emerging FF-ICE, SWIM and TBO implementation guidance.

Progress of TBO Pathfinder Development in the Asia/Pacific Region – New Zealand (WP/09)

5.6. This paper presented progress by the Asia-Pacific (APAC) Trajectory-Based Operations (TBO) Pathfinder project (Pathfinder). It was recalled that Pathfinder was initiated under the APAC Air Navigation Service Provider (ANSP) Committee (AAC) to develop pathways for implementing the ICAO global TBO concept in the region.

5.7. It was informed that throughout 2025, Pathfinder efforts were focused primarily on the FF-ICE/R1 application. A summative report of the efforts to support the implementation planning efforts among ANSPs was presented to ATM/SG/13. With the focus for 2026 being FF-ICE Release 2 (FF-ICE/R2), Airspace Users (AUs) will be involved as key stakeholders. Activities in 2026 include updating TBO communication materials, conducting stakeholder engagement in the Philippines, and organising regional webinars led by IATA to raise AU awareness. It was added that technical preparations for the FF-ICE/R2 lab demo (scheduled for March 2027) are underway through technical interchange Meetings and table-top exercises, with AUs input being organised to enhance operational realism and initial meetings have taken place to support two of the airlines to participate as FF-ICE enabled AUs.

5.8. It was added that Pathfinder will also develop trajectory analysis methodologies to quantify TBO benefits for city pairs and ANSPs, documented in a TBO benefits report. It was emphasised that FF-ICE/R2 will extend trajectory negotiation beyond current flight dispatch and tactical airborne changes to negotiation, including pilots, flight operations units and ATM systems, altering the roles and responsibilities of all. States/Administrations were encouraged to support ANSPs and national airlines in raising TBO awareness, work towards SWIM deployment by 2030 and FF-ICE/R1 implementation by 2032 and participate in IATA's regional webinars.

5.9. The Meeting noted that the TBO Pathfinder Project provides a collaborative platform for States, ANSPs, airlines and other stakeholders to explore practical pathways towards TBO implementation in the APAC Region.

5.10. The Meeting discussed the relationship between Pathfinder outcomes and ATM automation system evolution. It was noted that while the Pathfinder Project is not intended to develop ATM automation system requirements directly, the operational concepts, implementation considerations and lessons learned generated through the project could provide valuable inputs to relevant ICAO technical groups and future ATMAS guidance material. The Meeting encouraged States/Administrations to remain engaged in regional TBO initiatives and monitor the outcomes of

Pathfinder activities to support future system planning and modernization efforts.

Multiple ATM Automation System Data Collaboration and Sharing – China (IP/12)

5.11. In response to the current challenges posed by the large number of ATM Automation Systems, cumbersome data configuration, and data from multiple sources and types, China introduced a data collaboration and sharing technology among multiple ATM Automation Systems.

5.12. The Meeting noted it breaks through key technologies for the trustworthy fusion of multi-source flight data, and develops a platform for sharing airspace environmental data and real-time operational data among ATM Automation Systems based on the SWIM concept. It was added a field validation environment is established in East China ATMB to achieve data collaboration and sharing among ATM Automation Systems of ACC, TMA, Tower, and other information systems, thereby providing more comprehensive and accurate data support for air traffic management.

5.13. In response to an inquiry, China informed that data update authority is assigned according to operational responsibility and aircraft location, while the platform itself remains independent of operational systems and does not affect normal operations if unavailable. The meeting noted that such data-sharing mechanisms could improve consistency among multiple ATM automation systems, support contingency operations, and reduce maintenance efforts through centralized management and synchronization of flight and aeronautical information.

Agenda Item 6: Review of Guidance Material of Implementation of ATMAS in the Asia-Pacific Region (APAC ATMAS IGD)

6.1. No papers were submitted for this agenda item.

Agenda Item 7: ATS Inter-Facility Data - Link Communication (AIDC) Implementation

7.1. Review AIDC Implementation Status in APAC

Repository of AIDC Implementation Status in APAC – Sec (WP/07)

7.1. The paper presented the latest repository of AIDC Implementation Status in the APAC region and invited States/Administrations to review and continue to update the AIDC implementation status and Focal Point for AIDC Implementation if necessary. The Meeting updated the table of AIDC Implementation Status in the APAC region, which is provided in **Appendix B**, and the list of focal points for AIDC Implementation, which is provided in **Appendix C** of the Report.

7.2. The Meeting encouraged States to further verify the accuracy of their implementation status and other operational details, and to provide any necessary updates to the Secretariat. **ACTION ITEM 7-6**

7.2. AIDC Implementation Experience Sharing by States

Operational Experience with AIDC Coordination and Transfer Messages Between Singapore and Kuala Lumpur FIR – Singapore and Malaysia (IP/13)

7.3. The Meeting recalled that at ATMAS TF/6, it was recommended that the addition of CDN and REJ messages to the recommended core set of AIDC messages for initial implementation. It was informed that Singapore began operational trials of CDN message exchange with Malaysia in October 2025, focusing initially on four sector boundary points (SUKRI, ARAMA, AROSO, SABKA).

7.4. This paper presented Singapore's experience, including statistical results and

operational observations. The continued operation of TOC/AOC alongside CDN represents a comprehensive AIDC capability at the boundary, encompassing both coordination and transfer of control automation. Singapore will continue to monitor CDN and TOC/AOC message exchange performance and work with neighbouring states to address identified issues with the aim of achieving higher success rates over time.

7.5. During the discussion, the meeting exchanged views on the operational use of multiple consecutive CDN messages and controller preferences for managing coordination loops. Singapore explained that, while the system does not impose a technical limit on successive CDN exchanges, controllers are encouraged to limit negotiations and, where appropriate, reject and initiate a new coordination sequence. Malaysia supported the operational approach and noted ongoing efforts to address message rejections and syntax-related issues. The meeting noted the lessons learned from the implementation and the intention to expand the use of AIDC operational messages with additional neighbouring FIRs.

Updates on the Development of Global Guidance Material for AIDC – Singapore (IP/14)

7.6. This paper shared the development of ICAO global guidance material for ATS inter-facility data communications (AIDC) of ICAO CP-OPDLWG panel that was attended by Singapore in May 2026. The new guidance material will replace the Manual of Air Traffic Services Data Link Applications (Doc 9694). It highlights the operational value of AIDC in supporting safe, efficient and interoperable coordination between ATS units, its relevance to ASBU/FICE implementation, and the expected progressive transition towards FF-ICE in a mixed-mode environment.

7.7. The paper also notes the continued role of regional interface control documents, including PAN AIDC ICD, OLDI and NAM ICD, in supporting implementation, and advises that the CP-OPDLWG is developing the new guidance with an estimated publication date of 2028.

7.3. Issues Reported and Recommended Solutions

7.8. No papers were submitted for this agenda item.

Agenda Item 8: Review of the Terms of Reference (ToR) and Task List

Review of ToR and Task List – Sec (WP/08)

8.1. The Meeting recalled that ATMAS TF/6 Meeting reviewed the ToR and agreed on the need to modify it further to accommodate the latest needs of ATMAS TF, such as accommodating FF-ICE and SWIM requirements. An ad-hoc group consisting of China, Hong Kong China, India, New Zealand, Singapore, Thailand, and the USA was formed to review the ToR. The revised draft ToR was presented by the ad-hoc group in the ATMAS TF/7 Meeting, which is provided in **Appendix D**.

8.2. The Meeting reviewed the revised ToR and deliberated on the future role and structure of the ATMAS Task Force, taking into account the outcomes of previous discussions, the transfer of AIDC-related functions from the Asia/Pacific ATS Inter-Facility Data-Link Communications Implementation Task Force (APA TF) in 2023, and emerging regional requirements associated with FF-ICE, SWIM and Trajectory-Based Operations (TBO).

8.3. The Meeting noted that ATM automation systems constitute a fundamental component of ATM infrastructure, providing essential support to air traffic controllers and serving as a key enabler for the progressive realization of SWIM-enabled TBO and other future operational concepts.

8.4. The Meeting further acknowledged that the activities of the ATMAS Task Force had

evolved significantly beyond the development and maintenance of the ATMAS Implementation Guidance Document (IGD). In recent years, the Task Force had increasingly served as a regional platform for coordination and information exchange, including the sharing of implementation experiences and best practices, developments related to next-generation ATM automation technologies, coordination of AIDC and FF-ICE implementation activities, and discussions on SWIM and TBO related initiatives across the APAC Region. The presentations in this current edition of the ATMAS has highlighted the need for sustained regional coordination to support ATMAS upgardes/implementation.

8.5. The United States observed that, given the evolution of the group's activities towards coordination, harmonization, implementation monitoring and integration of outputs from multiple expert groups, the region may wish to consider whether a Coordination Group structure would more accurately reflect the current and future role of the group. Singapore expressed support for this direction, noting that the ATMAS Task Force had already convened seven meetings and continued to undertake an expanding range of activities extending beyond the traditional scope of a task force.

8.6. Following further discussion, the Meeting recognized that the current designation of "ATMAS Task Force" no longer adequately reflected the role, responsibilities and functions of the group. The Meeting also considered that the increasing scope of work related to ATM automation evolution, SWIM, FF-ICE and future operational concepts would be difficult to sustain under a task force structure with a limited lifecycle.

8.7. In view of these considerations, the Meeting agreed that the future evolution of the ATMAS Task Force into a Coordination Group would better support the continued coordination, harmonization and implementation of ATM automation-related activities in the APAC Region. All participating States expressed support for this proposal and reached consensus to recommend the transition of the ATMAS Task Force into a Coordination Group for consideration by CNS SG.

8.8. Consequently, the meeting developed the following Draft Decision for CNS SG/30 review and consideration.

Draft Decision ATMAS TF/7/01 - Request for an ATM Automation System Coordination Group (ATMAS CG) in the APAC Region	
Considering that: 1. The ATMAS TF has successfully provided a valuable regional forum for the development and maintenance of Air Traffic Management Automation System Implementation and Operations Guidance Document; 2. ATM automation systems in the APAC Region continue to evolve in support of AIDC, FF-ICE, SWIM, TBO, ATFM, DNOTAM, cybersecurity, and other emerging/evolving operational concepts/standards; 3. Sustained regional coordination is required to support ATMAS upgardes/implementation to ensure harmonized implementation, interoperability, transition planning, and information exchange among States and Administrations; 4. ATMAS TF is increasingly serving as a forum for coordination, implementation monitoring, experience sharing, and consolidation of outputs from multiple expert groups rather than the development of new guidance material; 5. Substantial effort has already been invested by the ATMAS TF ad hoc drafting group in updating the Terms of Reference to address SWIM, FF-ICE, TBO, AIDC, and other emerging	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical

requirements, providing a mature foundation for a future Coordination Group structure. That: The ATMAS TF/7 meeting agreed that: a. the current ATM Automation System Task Force (ATMAS TF) should transition to a formal Coordination Group (CG) structure; b. the Coordination Group should provide a sustained regional mechanism for coordination, harmonization, and information sharing related to ATM automation systems and associated enabling technologies in the APAC region; c. the Coordination Group should support regional implementation and interoperability activities related to SWIM, FF-ICE, TBO, AIDC, ATFM, DNOTAM, and other emerging/evolving ATM initiatives; d. the Coordination Group should serve as a focal point for sharing implementation experience, lessons learned, transition considerations, and best practices among States and Administrations; e. the Coordination Group should facilitate coordination with relevant ICAO expert groups and other regional implementation groups to promote harmonized development and implementation of ATM automation capabilities throughout the APAC Region; f. the revised ATMAS TF Terms of Reference developed by the ATMAS TF ad hoc drafting group should form the basis for the Terms of Reference of the ATM Automation System Coordination Group (ATMAS CG), with only those amendments necessary to reflect the transition from a Task Force to a Coordination Group.	
Why: Continued regional coordination, harmonization, and implementation support are required as ATM automation systems evolve to support future operational concepts and information-sharing environments.	Follow-up: ☐Required from States
When: 4-Jun-26	Status: Draft to be adopted by CNS SG
Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: ATMAS TF	

8.9. The Meeting updated the Action Item List, which is provided in **Appendix E** of this Report.

Agenda Item 9: Next Meetings and Any Other Business

Any Other Business

9.1. The Secretariat informed the Meeting of the upcoming ICAO APAC SWIM Training and Workshop to be held in Hanoi, Viet Nam, from 25 to 27 August 2026. The workshop aims to support States and Administrations in enhancing their understanding and implementation of SWIM, including its relationship with FF-ICE. Noting the relevance of the workshop to the SWIM-related

discussions held during the meeting, the Secretariat encouraged interested States and participants to consider attending the workshop. The Meeting noted the information provided.
