

**61ST CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGION**

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AGENDA ITEM 3: AVIATION SAFETY

**MALAYSIA'S PREPARATION FOR THE LOW ALTITUDE ECONOMY
(LAE): ENABLING ADVANCED AIR MOBILITY AND EMERGING
AVIATION TECHNOLOGIES**

(Presented by Malaysia)

SUMMARY

Malaysia is pursuing a whole-of-nation approach towards developing a safe, sustainable and innovation-driven Low Altitude Economy (LAE). Recognising Advanced Air Mobility (AAM), Unmanned Aircraft Systems (UAS), electric Vertical Take-off and Landing (eVTOL) aircraft and other emerging aviation technologies as future economic enablers, Malaysia is developing the regulatory, operational and governance frameworks necessary to support their safe integration into the national aviation ecosystem.

This paper outlines Malaysia's strategic direction, implementation approach, progress achieved, and key challenges in enabling future low-altitude aviation operations.

MALAYSIA'S PREPARATION FOR THE LOW ALTITUDE ECONOMY (LAE): ENABLING ADVANCED AIR MOBILITY AND EMERGING AVIATION TECHNOLOGIES

1. INTRODUCTION

1.1 The emergence of Advanced Air Mobility (AAM), Unmanned Aircraft Systems (UAS), autonomous aviation technologies, and electric propulsion systems is transforming the future of aviation worldwide. These technologies are expected to reshape passenger mobility, cargo transportation, emergency response, infrastructure inspection, agriculture, environmental monitoring, and various public services.

1.2 Recognizing these opportunities, Malaysia has embarked on developing a national Low Altitude Economy (LAE) framework to facilitate the safe integration of these emerging technologies into the national aviation ecosystem while supporting economic growth, technological innovation, and environmental sustainability.

1.3 The Civil Aviation Authority of Malaysia (CAAM) is leading the aviation regulatory component of the Low Altitude Economy through the development of appropriate regulatory frameworks, operational concepts, and implementation strategies. This work is undertaken collaboratively with the Ministry of Transport and Futurise Sdn. Bhd., other government agencies, academia, and industry stakeholders.

2. DISCUSSION

2.1 Malaysia's Low Altitude Economy Vision

2.1.1 Malaysia views the Low Altitude Economy as an integrated ecosystem that extends beyond passenger air mobility to include:

- a) Advanced Air Mobility (AAM)
- b) Unmanned Aircraft Systems (UAS)
- c) Electric Vertical Take-off and Landing (eVTOL) aircraft
- d) Drone logistics and cargo transportation
- e) Infrastructure inspection
- f) Emergency medical services
- g) Precision agriculture
- h) Environmental monitoring
- i) Public safety operations
- j) Future urban and regional air mobility services

2.1.2 Rather than focusing solely on introducing new aircraft types, Malaysia's strategy aims to establish an enabling ecosystem comprising regulatory frameworks, digital infrastructure, airspace integration, industry participation and workforce readiness.

2.2 Strategic Regulatory Approach

2.2.1 Given the rapid evolution of emerging aviation technologies and while international regulatory standards remain under development, Malaysia has adopted a progressive, risk-based and incremental regulatory approach:

2.2.2 The approach enables CAAM to:

- a) understand evolving technologies;
- b) develop proportionate regulations;
- c) conduct operational trials;
- d) progressively build regulatory capability;
- e) encourage innovation while maintaining aviation safety; and
- f) align with international developments led by ICAO and other leading aviation authorities.

2.2.3 Malaysia embraces a “Safety-Enabling Innovation” philosophy, under which regulatory development advances in parallel with technological maturity through regulatory sandboxes, structured industry engagement, operational demonstrations, and iterative policy refinement. Regulatory sandboxes provide a controlled environment for regulators and industry stakeholders to validate operational concepts, assess risks, and refine procedures prior to broader deployment.

2.3 Development of Malaysia's AAM Concept of Operations

2.3.1 Malaysia's AAM ConOps forms one of the key implementation documents supporting the national Low Altitude Economy initiative.

2.3.2 The ConOps establishes:

- a) operational concepts for AAM services;
- b) stakeholder roles and responsibilities;
- c) airspace integration principles;
- d) safety oversight requirements;
- e) infrastructure considerations;
- f) digital ecosystem requirements; and
- g) future implementation pathways.

The document is intended to serve as a living document that will continue evolving alongside technological advancements and ICAO developments.

2.4 Key Milestones

Year	Milestones
2024	Initiation of the national AAM programme

Q1 2025	Establishment of the CAAM AAM Steering Committee
Q2 2025	Industry and inter-government engagement workshops
Q2 2026	Inaugural Malaysia Low Altitude Economy Forum 2026
Q3 2026	Launching of the Malaysia AAM Concept of Operations and National Regulatory Sandbox (NRS)
Q4 2026	Launching of Malaysia's Low Altitude Economy Framework
Future	Operational trials and phased implementation

2.5 **Economic Opportunities**

2.5.1 Malaysia considers the Low Altitude Economy as a strategic growth sector capable of contributing towards national economic development through:

- a) attraction of foreign direct investment;
- b) development of advanced aerospace manufacturing;
- c) creation of high-skilled employment;
- d) digital transformation;
- e) regional connectivity;
- f) sustainable transportation;
- g) logistics optimisation;
- h) smart city development; and
- i) enhanced public service delivery.

2.5.2 The Low Altitude Economy is expected to become an important contributor to Malaysia's future aerospace ecosystem and digital economy.

2.6 **Key Challenges**

2.6.1 Malaysia recognizes several challenges that require coordinated action.

a) Regulatory Development

Developing comprehensive yet adaptive regulations that remain technology-neutral while maintaining acceptable levels of aviation safety.

b) Infrastructure

Planning and developing vertiports, charging infrastructure, maintenance facilities, and supporting digital infrastructure.

c) Airspace Integration

Integration of AAM operations with conventional aviation through interoperable Air Traffic Management (ATM) and Unmanned Aircraft System Traffic Management (UTM).

d) Digital Infrastructure

Ensuring resilient communication, navigation, and surveillance capabilities, including Remote ID, cybersecurity, 5G connectivity, and secure data exchange.

e) Aircraft Certification

Supporting certification pathways for emerging aircraft technologies while aligning with international certification standards.

f) Workforce Development

Developing future competencies for pilots, maintenance engineers, air traffic personnel, inspectors, and other aviation professionals operating within the Low Altitude Economy ecosystem.

g) Public Acceptance

Building public confidence through transparent safety regulation, stakeholder engagement and effective communication.

3. CONCLUSION

3.1 Malaysia is transitioning towards a comprehensive Low Altitude Economy that integrates Advanced Air Mobility, Unmanned Aircraft Systems and future aviation technologies into a safe, sustainable and economically viable ecosystem. Rather than viewing AAM solely as a new mode of transportation, Malaysia considers it an important catalyst for innovation, economic development, and future mobility. Through progressive regulation, collaborative governance and close engagement with industry, Malaysia aims to establish an enabling environment that balances innovation with aviation safety while supporting national economic aspirations. Continued collaboration among ICAO, Member States, regulators and industry will remain essential in developing harmonized approaches for the safe implementation of the Low Altitude Economy across the Asia-Pacific Region.

4. ACTION BY THE CONFERENCE

4.1 The Conference is invited to:

- a) note the information contained in this Paper:
- b) encourage States to exchange experiences and best practices developing regulatory frameworks, operational concepts and implementation strategies for the Low Altitude Economy (LAE) and Advanced Air Mobility (AAM); and
- c) agree that States report progress on the development and implementation of national Low Altitude Economy and Advanced Air Mobility frameworks at the 62nd DGCA Conference, in continuation of Action Item 60/6.