



International Civil Aviation Organization

MIDANPIRG/23 & RASG-MID/13 Meetings

(Cairo, Egypt, 14 – 18 June 2026)

Agenda Item 3.2: Safety Subjects of interest to MIDANPIRG

CAPACITY DEVELOPMENT FOR ADVANCED AIR MOBILITY AND EMERGING TECHNOLOGIES

(Presented by the United Arab Emirates)

SUMMARY

This paper presents the experience of the United Arab Emirates in supporting capacity development for Advanced Air Mobility (AAM) and emerging technologies in response to RASG-MID Conclusion 12/6. It highlights lessons learned from regulatory preparedness activities, stakeholder engagement, safety considerations, and institutional capability development undertaken through cooperation between the General Civil Aviation Authority (GCAA), industry, and research organizations. The paper also identifies opportunities for regional knowledge sharing and cooperation to support the safe and harmonized integration of AAM within the MID Region.

Action by the meeting is at paragraph 3.

REFERENCE

- MIDANPIRG/22 & RASG-MID/12 Report
- ICAO Doc 10004 — Global Aviation Safety Plan (GASP) 2026–2028

1. INTRODUCTION

1.1 RASG-MID Conclusion 12/6 encouraged States to undertake capacity development activities to enhance knowledge and expertise related to Advanced Air Mobility (AAM) and emerging technologies through engagement with industry, academia, international organizations, and bilateral cooperation initiatives.

1.2 While AAM initiatives continue to advance globally, States within the MID Region remain at different levels of regulatory and operational preparedness. The absence of established regional mechanisms for exchanging regulatory experience, lessons learned, safety assessments, and technical validation results may cause duplication of effort and inconsistent approaches to emerging technologies.

1.3 In response to Conclusion 12/6, the United Arab Emirates has undertaken a structured programme of capacity development and regulatory preparedness activities covering regulatory frameworks, operational concepts, data governance, interoperability considerations, and stakeholder engagement. The programme has been conducted by the Technology Innovation Institute (TII) and ASPIRE in cooperation with the General Civil Aviation Authority.

1.4 This paper presents key lessons learned from these activities and identifies opportunities for regional cooperation and knowledge sharing to support the safe and harmonized integration of AAM within the MID Region

2. DISCUSSION

2.1 Capacity Development Through Regulatory Preparedness

2.1.1 One of the primary lessons identified through the UAE experience is the importance of initiating regulatory preparedness activities at an early stage of technology development. Emerging technologies evolve more rapidly than traditional regulatory development cycles and require authorities to build technical knowledge and institutional capability before commercial operations commence.

2.1.2 The UAE has undertaken a structured programme addressing AAM corridor design, operational concepts, separation policy considerations, data governance arrangements, and interoperability between future AAM systems and conventional air traffic management environments. This work has been supported through engagement with international standards, regulatory initiatives, industry developments, and research organizations.

2.1.3 The UAE experience has demonstrated that the development of AAM regulatory frameworks benefits from a phased implementation approach. Rather than developing a complete regulatory system at the outset, initial policy concepts, operational assumptions, and safety considerations may be progressively refined through stakeholder engagement, technical studies, operational demonstrations, and evolving international guidance. This approach enables regulatory preparedness to advance in parallel with technological maturity while maintaining flexibility to accommodate future developments.

2.1.4 As part of its preparedness activities, the GCAA has established regulatory frameworks addressing vertical flight infrastructure and U-space service provision. These initiatives have provided valuable practical insights into the regulatory, operational, and safety considerations associated with emerging aviation technologies and have contributed to the development of institutional knowledge and technical capability.

2.2 Capacity Development Through Industry and International Engagement

2.2.1 Consistent with RASG-MID Conclusion 12/6, the UAE has pursued capacity development through active engagement with industry stakeholders, research institutions, manufacturers, operators, and international partners.

2.2.2 Activities have included participation in international forums, technical workshops, bilateral meetings, industry engagement programmes, and collaborative discussions related to certification pathways, operational approvals, airspace integration, safety considerations, and regulatory frameworks for emerging technologies.

2.2.3 Such engagement has proven essential in developing regulatory understanding, identifying emerging risks, and supporting evidence-based decision making during the development of national policies and frameworks.

2.2.4 An additional lesson identified is the importance of early engagement between civil aviation authorities and technology developers. Such engagement allows regulators to better understand emerging operational concepts, identify potential regulatory gaps, and build internal technical competency before formal certification and operational approval activities commence.

2.3 Safety Considerations and Operational Readiness

2.3.1 The integration of AAM introduces new operational environments, airspace users, infrastructure concepts, and data exchange requirements. As a result, regulatory preparedness should be supported by appropriate safety risk management processes, operational assessments, and progressive validation activities.

2.3.2 The UAE experience has demonstrated the importance of adopting performance-based and technology-neutral approaches that allow regulatory frameworks to evolve alongside technological advancements while maintaining an appropriate level of safety oversight.

2.3.3 The UAE experience has also highlighted the importance of integrating safety considerations at the earliest stages of AAM planning, including airspace design, infrastructure development, operational concept development, and data management arrangements. Early application of safety risk management principles can assist States in identifying hazards and developing proportionate mitigations before large-scale operational deployment occurs.

2.4 Lessons Learned

2.4.1 The UAE experience has identified several lessons that may be of value to other MID States:

- a) early regulatory preparedness activities support safer and more efficient integration of emerging technologies;
- b) capacity development should combine regulatory, operational, technical, and safety expertise;
- c) close cooperation between civil aviation authorities, industry, academia, and research organizations accelerates knowledge development and regulatory readiness;
- d) international standards and guidance continue to evolve and require active participation by States to ensure that regional perspectives are adequately reflected; and
- e) regional exchange of experience and lessons learned can reduce duplication of effort and support harmonized implementation approaches.

2.5 Opportunities for Regional Cooperation

2.5.1 As AAM and other emerging technologies continue to develop, there may be value in establishing periodic exchanges of experience among interested MID States to facilitate the sharing of lessons learned, regulatory developments, safety considerations, and implementation challenges.

2.5.2 Such exchanges could support capacity development objectives, improve regional awareness of emerging technologies, and contribute to the development of harmonized approaches consistent with ICAO strategic objectives and the Global Aviation Safety Plan (GASP).

2.5.3 The UAE further notes that many of the challenges associated with AAM implementation, including airspace integration, infrastructure certification, interoperability, data governance, operational approvals, and safety oversight, are common across States. Greater regional cooperation and knowledge sharing could therefore reduce duplication of effort, support consistency in regulatory approaches, and facilitate more efficient capacity development throughout the MID Region.

2.6 UAE Experience and Ongoing Developments

2.6.1 The UAE has complemented its regulatory preparedness activities with practical implementation initiatives involving vertiport development, certification activities, operational demonstrations, and engagement with AAM operators and infrastructure providers.

2.6.2 The practical implementation experience gained through these initiatives has reinforced the importance of cross-sector coordination involving civil aviation authorities, air navigation service providers, airport operators, local authorities, infrastructure developers, and technology providers.

2.6.3 These activities continue to provide valuable operational and regulatory experience that may contribute to future regional and international discussions concerning the safe integration of Advanced Air Mobility operations.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information provided in this paper regarding the UAE experience in supporting capacity development and regulatory preparedness for Advanced Air Mobility;
- b) recognize the importance of capacity development, knowledge sharing, and regulatory preparedness to support the safe integration of Advanced Air Mobility and other emerging technologies within the MID Region; and
- c) encourage the exchange of experiences, lessons learned, and best practices among MID States and relevant stakeholders to support the safe and harmonized implementation of Advanced Air Mobility initiatives.