ICAO MID Safety Summit 2026

Advancing Investigative Capabilities for eVTOL Operations

UAE Air Accident Investigation Sector (AAIS)
General Civil Aviation Authority

UAE's Readiness Strategy for Urban Air Mobility Safety



ICAO

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

What This Presentation Is About

UAE's proactive eVTOL investigation strategy

Technical challenges in electric aircraft accidents

Training and capacity building initiatives

Roadmap for other aviation authorities





ICAO

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

The eVTOL Revolution is Here

"As eVTOL aircraft prepare to transform our skies, are we ready to investigate when things go wrong?"

- Electric vertical flight combines helicopter capabilities with electric propulsion efficiency
- UAE deploying first commercial operations with Archer and Joby Aviation
- Traditional investigation methods insufficient for new technology
- Proactive preparation essential for effective safety oversight







ICAO

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

UAE Leading the Way

- Develop specialized eVTOL accident investigation capabilities
- Address unique technical and operational challenges of electric vertical flight
- Establish UAE as global leader in eVTOL safety oversight
- Create replicable model for international aviation authorities
- Support safe integration of urban air mobility into transportation infrastructure







Why eVTOL Investigations Are Different?

- Battery thermal runaway and energy storage hazards
- Autonomous flight systems and software complexity
- Non-traditional data recording architectures
- Advanced composite materials and structures
- Urban operational environment risks







Battery Safety: New Hazards, New Methods

High-capacity lithium-ion batteries present unique investigation challenges requiring specialized protocols

- Thermal runaway can lead to rapid temperature escalation and combustion
- Toxic gas emissions and electrolyte hazards require specialized containment
- Specialized tools and protective equipment needed for safe handling
- Manufacturer collaboration essential for data access and interpretation
- Damaged systems may remain electrically active after accidents







UAE's Comprehensive Readiness Strategy

- Dedicated Technology Investigation Unit established
- Specialized training programs aligned with ICAO Doc 10206
- International partnerships with manufacturers and authorities
- Advanced laboratory capabilities for battery and composite analysis
- Comprehensive documentation and knowledge management systems





ICAO

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

Building Specialized Expertise

Accident Prevention and Safety Recommendations Unit:

- Central coordination for eVTOL investigations
- Technical assistance to investigation teams
- Manufacturer liaison and support coordination
- Continuous technology monitoring and updates
- Advancing Abu Dhabi Flight Recorders Laboratory to accommodate the tools and equipment to download and analyzed eVTOLs Data.







Lessons for Global Implementation

- Establish specialized technical teams early in eVTOL deployment planning
- Integrate eVTOL-specific modules into investigator training programs
- Develop data access protocols with manufacturers before operations begin
- Harmonize investigation methodologies with international standards
- Engage local emergency responders in eVTOL-specific training







ICAO

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

Key Takeaways

Specialized Capabilities

eVTOL requires unique investigation methodologies addressing electric propulsion, battery systems, and autonomous controls

International Cooperation

Harmonized standards and knowledge sharing are essential for consistent investigation capabilities across jurisdictions

Proactive Preparation

Authorities must develop capabilities before commercial operations begin to ensure effective safety oversight

UAE Model

The UAE AAIS Technology Investigation Unit provides a practical framework for other aviation authorities





Thank You

“Urban air mobility success will depend not only on technological innovation, but on how effectively we identify emerging risks and take preventive actions before accidents occur.”

Questions & Discussion

Air Accident Investigation Sector

UAE General Civil Aviation Authority

aai@gcaa.gov.ae



