

RESEARCH REPORT

Committee: (ICAO)

Topic 2: Addressing the Rise of Unregulated Private and Commercial Drone Activity
Threatening Global Airspace Safety

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1. Introduction

The rapid proliferation of unmanned aircraft systems (UAS), commonly referred to as drones, represents one of the most significant regulatory challenges facing international aviation today. Once limited to military use, drones are now widely deployed for commercial delivery, surveillance, agriculture, journalism, infrastructure inspection, and private recreation.

While innovation in this sector supports economic growth and technological advancement, unregulated or poorly coordinated drone operations increasingly threaten:

- Civil aviation safety
- National security
- Airport operations
- Privacy rights
- Cross-border airspace integrity

As the global standard-setting authority for civil aviation, ICAO plays a central role in harmonizing drone governance to ensure safe integration into shared airspace.

2. Background and Problem Statement

2.1 Growth of the Drone Industry

The commercial drone market has expanded exponentially over the past decade. Advancements in automation, GPS navigation, artificial intelligence, and battery efficiency have lowered barriers to entry.

Key trends include:

- Expansion of delivery services (e.g., pilot programs by logistics companies) • Use in infrastructure monitoring and agriculture
- Increased recreational ownership
- Military-to-civilian technology transfer

However, regulatory frameworks have struggled to keep pace with technological development.

2.2 Airspace Safety Risks

Unregulated drone activity poses several risks:

- Near-miss incidents with commercial aircraft
- Disruption of airport operations (temporary shutdowns)
- Interference with emergency services
- Unauthorized flights in restricted or sensitive airspace

High-profile airport disruptions have demonstrated how small unmanned aircraft can cause significant economic and operational damage.

2.3 Cross-Border and Jurisdictional Challenges

Unlike traditional aircraft, drones:

- Can be operated remotely across borders
- Are difficult to detect and identify
- May lack standardized registration systems
- Operate at low altitudes where airspace governance is fragmented

This creates regulatory gaps between national aviation authorities and international oversight mechanisms.

3. ICAO's Existing Framework

ICAO has developed guidance material and model regulations for UAS integration. However:

- Implementation varies widely between Member States
- No fully harmonized global drone traffic management (UTM) system exists
- Enforcement capabilities differ significantly

ICAO must now consider whether stronger binding frameworks or updated Standards and Recommended Practices (SARPs) are necessary.

4. Key Areas of Debate

4.1 Regulation vs. Innovation

- Strict regulation may slow technological development and economic growth. 3
- Insufficient regulation may undermine aviation safety and public trust.

Balancing safety with innovation will be central to negotiations.

4.2 State Sovereignty and Airspace Control

Under international aviation law, states have complete sovereignty over their airspace. However, drones challenge enforcement mechanisms, especially in:

- Border regions
- Conflict zones
- Maritime airspace

How far should ICAO intervene in domestic drone policy?

4.3 Commercial Actors vs. Recreational Users

- Large corporations may support standardized regulation to ensure operational certainty.
- Private users may resist licensing, tracking, and registration requirements.

Delegates must consider proportional regulation.

4.4 Security and Counter-Drone Measures

States are increasingly deploying counter-drone technologies, including:

- Signal jamming
- Geofencing
- Drone interception systems

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These measures raise legal, ethical, and safety concerns, particularly if they interfere with legitimate aviation systems.

5. Policy Options for Delegates

5.1 Global Registration and Identification System

- Mandatory drone registration
- Remote identification technology (digital license plates)
- Internationally interoperable databases

5.2 Harmonized Airspace Classification for UAS

- Clear altitude limits for recreational vs. commercial drones
- Standardized no-fly zones around airports
- Integration with existing Air Traffic Management (ATM) systems

5.3 Development of a Global UTM Framework

A coordinated Unmanned Traffic Management system could:

- Enable real-time tracking
- Reduce collision risks
- Integrate manned and unmanned aviation

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This may require collaboration between ICAO, national aviation authorities, and private tech companies.

5.4 Certification and Licensing Standards

- Mandatory operator training
 - Commercial pilot licensing frameworks
 - Technical safety certification for drone manufacturers
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5.5 Sanctions and Enforcement Mechanisms

- Penalties for unauthorized cross-border operations
 - Standardized enforcement protocols
 - International cooperation on tracking illicit drone use
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6. Stakeholder Perspectives

Major Aviation States (e.g., U.S., EU Member States, China)

Likely to prioritize technological leadership while supporting harmonized safety standards.

Developing Countries

May emphasize capacity-building and financial support to implement regulatory frameworks.

Technology and Delivery Companies

Seek regulatory clarity and scalable frameworks to enable commercial operations. 6

Security-Focused States

Advocate strong enforcement and surveillance capabilities.

Privacy Advocates and Civil Society

Raise concerns about data protection and civil liberties.

