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# ICAO AVIATION CYBERSECURITY STRATEGY

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NACC

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- ✈ Global cyber-trends
- ✈ Cybersecurity scope
- ✈ Air transport ecosystem
- ✈ Concerning scenarios
- ✈ Acts of unlawful interference
- ✈ Annex 17 SARPs and guidance material
- ✈ Air Traffic Management Security Manual

October is ICAO CyberSecurity Awareness Month

DO YOUR PART  
#BECYBERSMART

DON'T LET HACKERS  
PULL YOUR STRINGS



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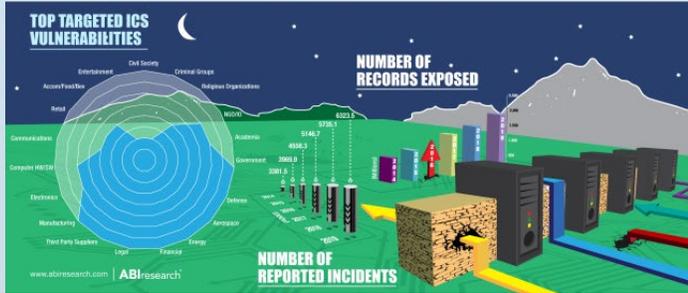
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- ✈ More users and devices
- ✈ Wider networks and faster connections
- ✈ Easier data storage and new efficient data types
- ✈ More usages and new services
- ✈ Less isolated architectures
- ✈ Quick adoption of new technologies

## Cybersecurity Threats Rising Quicker than Spending





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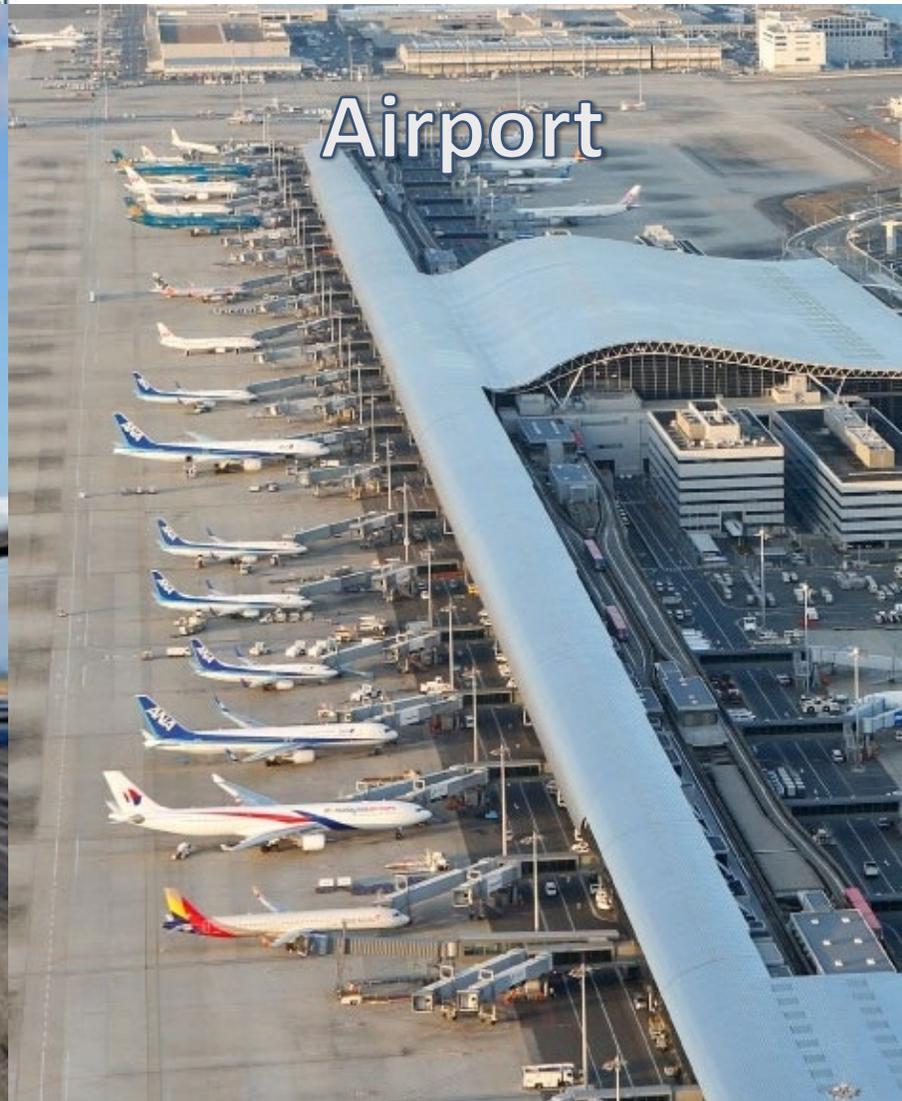
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ATM



Aircraft



Airport

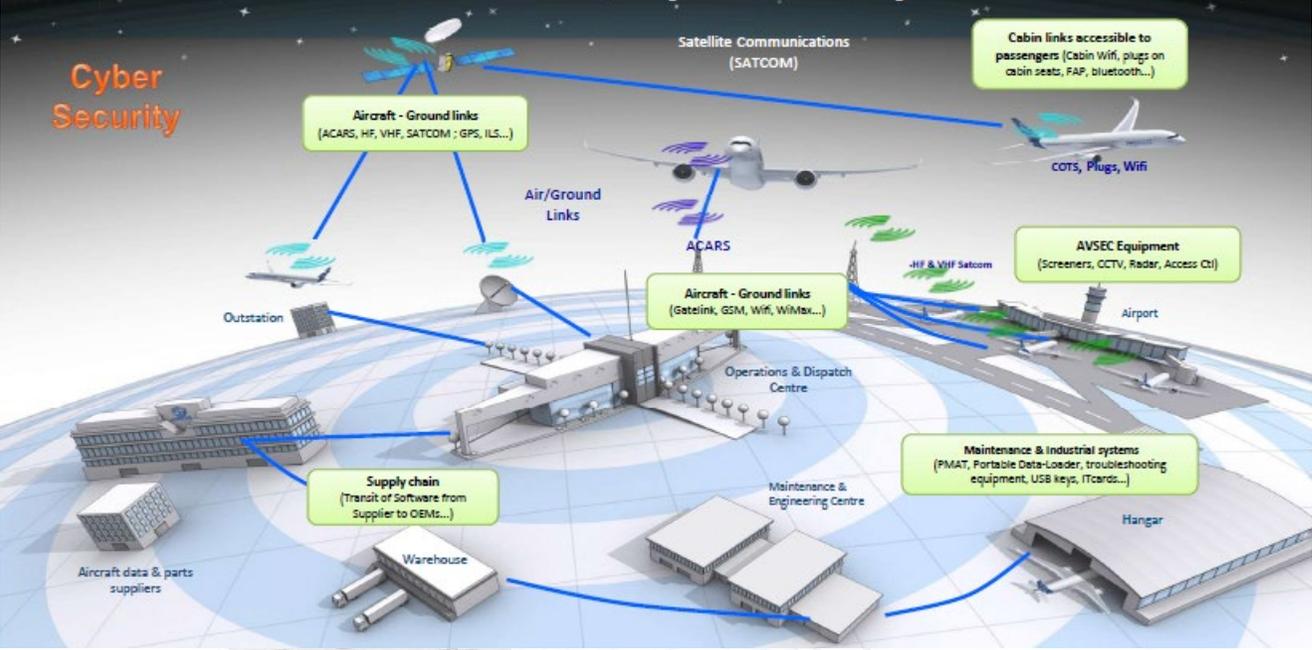


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### Aviation is a System-of-Systems



Aviation is a “system of systems”

### SAFETY

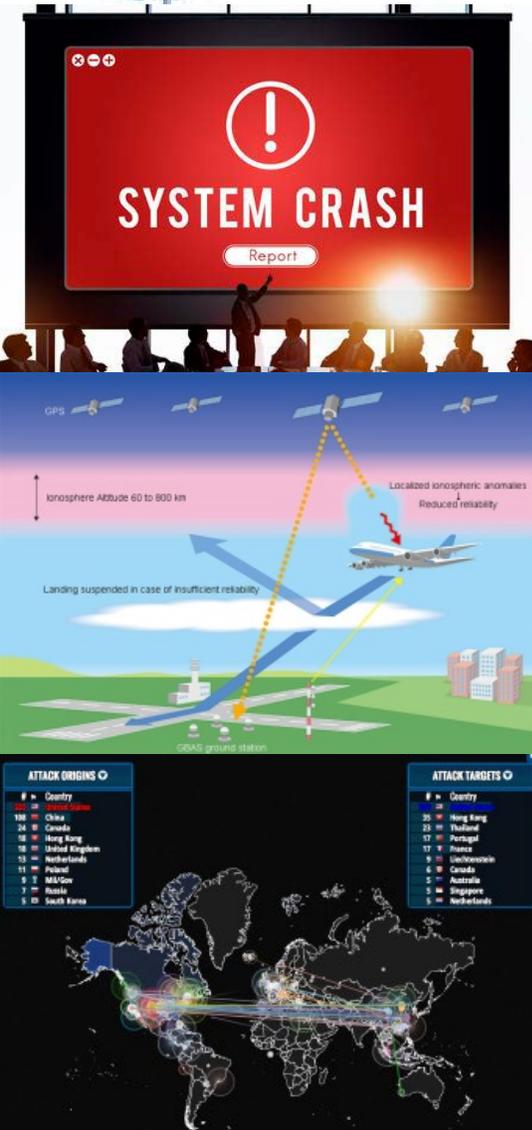


### SECURITY



Intentionality!

Cybersecurity requires close coordination between aviation safety and aviation security



- ✈ IT network crashes/lack of disaster recovery plans
- ✈ Confidentiality, integrity, and availability of data
- ✈ Cyber hygiene across entities
- ✈ Denial-of-service (network unavailable to its intended users)
- ✈ Precision navigation and timing disruption (e.g. jamming, spoofing)
- ✈ Lack of encryption or authentication
- ✈ Incident management across regions/borders



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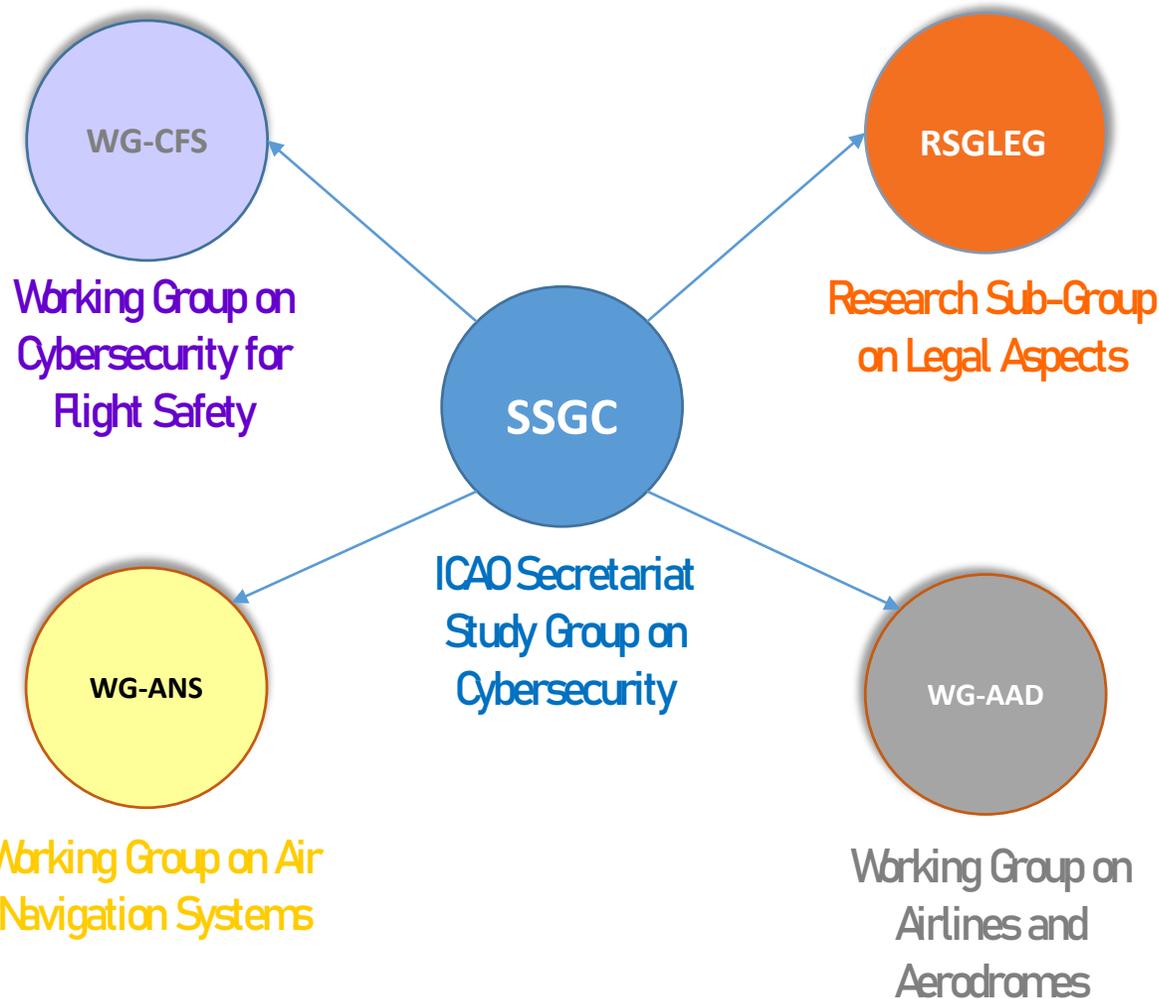


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### Resolution A39-19 – Addressing Cybersecurity in Civil Aviation

This resolution set out the actions to be undertaken by States and other stakeholders to counter cyber threats to civil aviation through a cross-cutting, horizontal and collaborative approach. Furthermore, ICAO was instructed to lead and seek to attain a comprehensive cybersecurity, cyber safety and cyber resilience work plan and governance structure with all relevant stakeholders





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Physical Security



Data Security



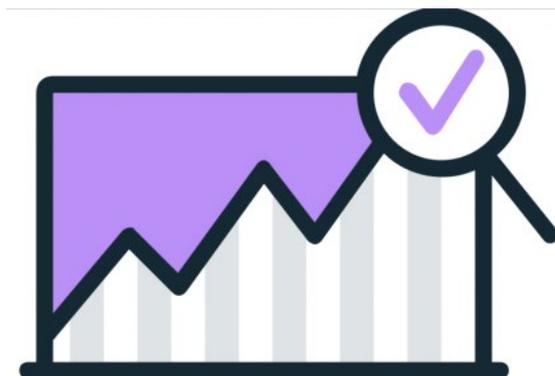
Security roles, responsibilities, and accountabilities



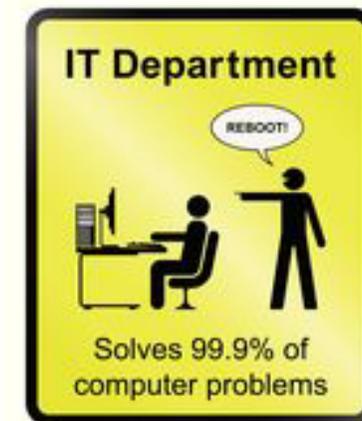
Risk Management



Education and training



Monitoring



Recovery

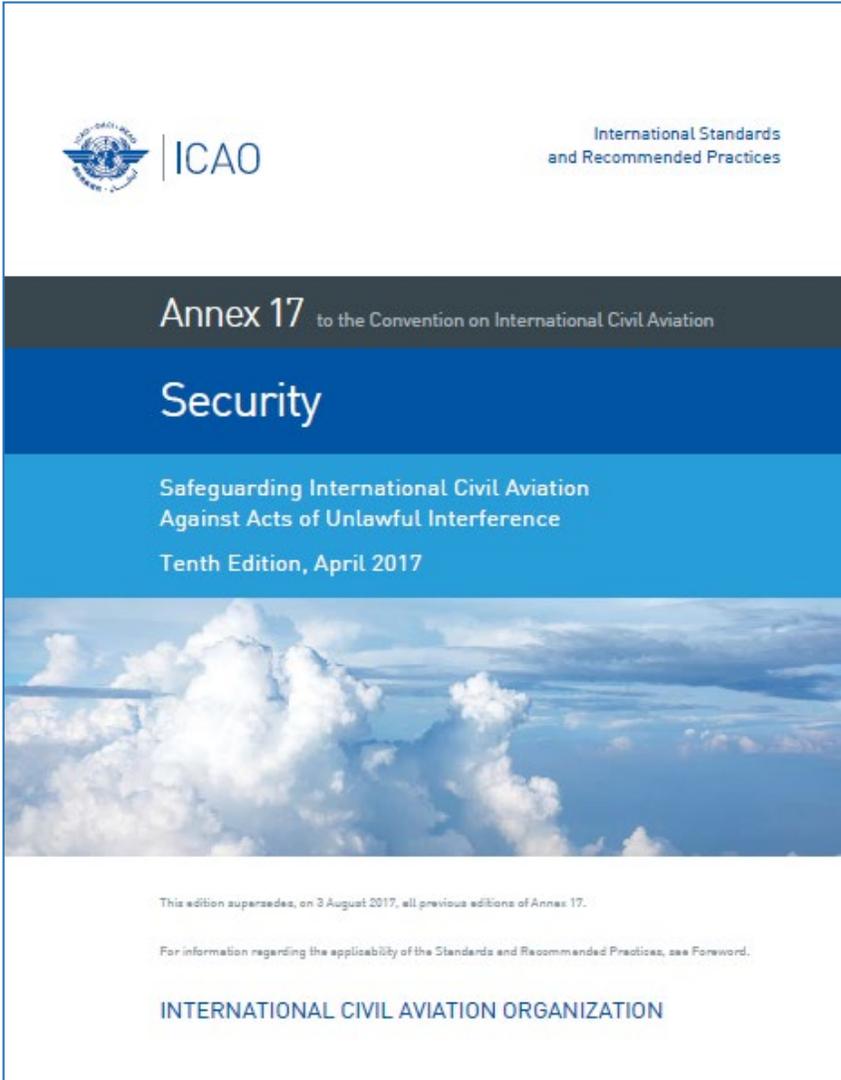


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### Acts of unlawful interference

Communication of false information such as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel on the general public, at an airport or on the premises of a civil aviation facility.

### Measures relating to cyber threats

4.9.1 Each Contracting State shall ensure that operators or entities as defined in the national civil aviation security programme or other relevant national documentation identify their critical information and communications technology systems and data used for civil aviation purposes and, in accordance with a risk assessment, develop and implement, as appropriate, measures to protect them from unlawful interference.

**4.9.2 Recommendation** – *Each Contracting State should ensure that measures implemented protect, as appropriate, the confidentiality, integrity and availability of the identified critical systems and/or data. The measures should include, inter alia, security by design, supply chain security, network separation, and the protection and/or limitation of any remote access capabilities, as appropriate and in accordance with the risk assessment carried out by its relevant national authorities.*



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Security and Facilitation Strategic Objective

Aviation Cybersecurity Strategy

October, 2019



Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Cybersecurity framework built on seven pillars:

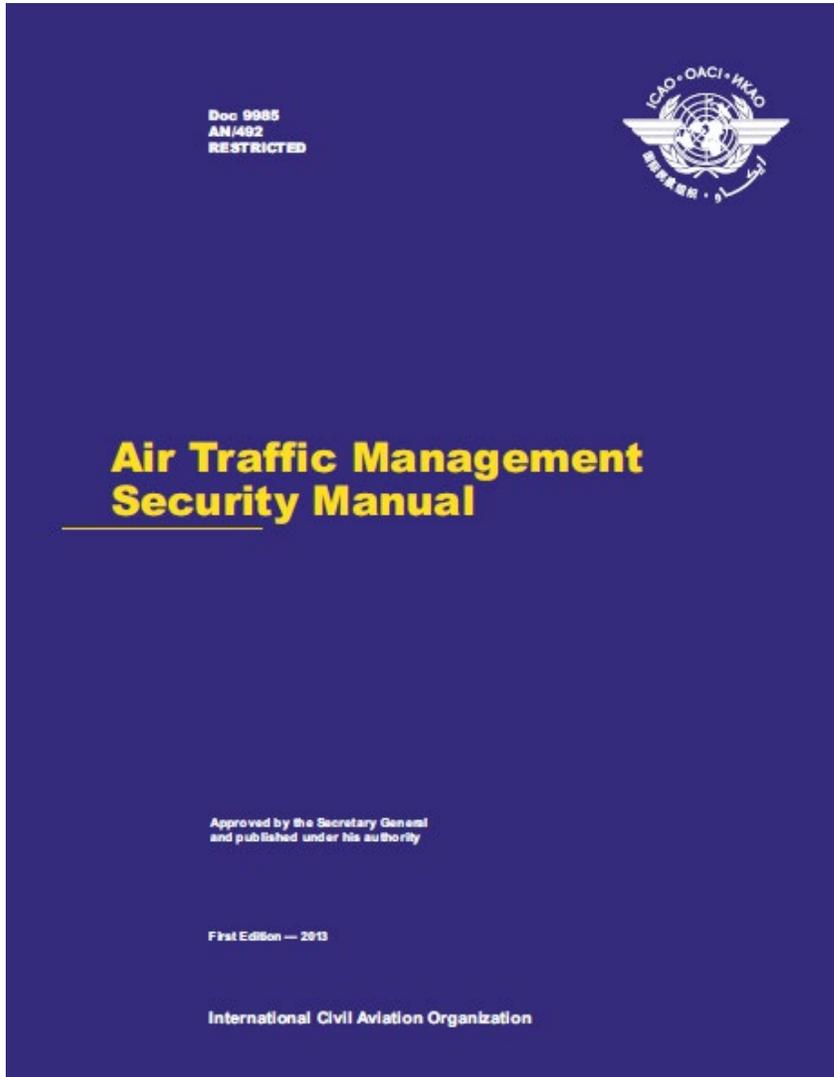
- ✈ International cooperation
- ✈ Governance
- ✈ Effective legislation and regulations
- ✈ Cybersecurity policy
- ✈ Information sharing
- ✈ Incident management and emergency planning
- ✈ Capacity building, training and cybersecurity culture



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## ATM security definition

(ICAO Circular 330, Civil/Military Cooperation in Air Traffic Management)

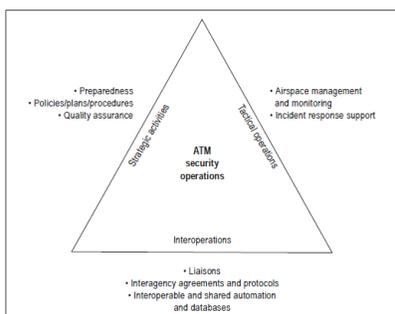
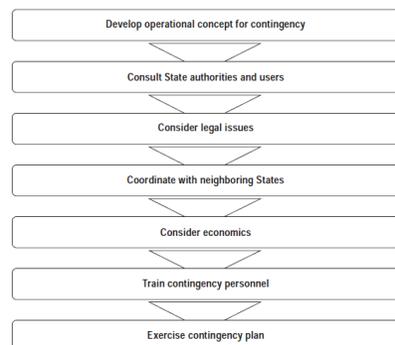
*The contribution of the ATM system to civil aviation security, national security and defence, and law enforcement; and the safeguarding of the ATM system from security threats and vulnerabilities.*



ATM security has dual requirements of protection of the ATM system against threats and vulnerabilities and the provision of ATM security services in support of organizations and authorities engaged in aviation security, national security, defence, and law enforcement.



- ✈ **Facility physical security and access control** (ATM facility design considerations, NAVAIDs, etc.)
- ✈ **Personnel security programme** (position risk categorization, personnel screening and vetting, third-party personnel security, etc.)
- ✈ **Information and Communication Technology (ICT) system security** (unauthorized access, tampering with the systems, attacks on the systems)
- ✈ **Contingency planning for ATM security** (planning, system degradation to a safe/secure situation, service continuity, recovery, maintenance of plans)
- ✈ **ATM contribution to safeguarding against unlawful interference**
- ✈ **ATM support for law enforcement** (e.g. laser threats, man-portable air defence system threats)
- ✈ **Disasters and public health emergencies** (e.g. disaster response and recovery, communicable disease and other public health risks on board aircraft)
- ✈ **Airspace management for ATM security** (monitoring and reporting over security identification zones, emergency security control of air traffic, creation and monitoring of temporary airspace/flight restrictions)





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THANK YOU!



2021 | THE YEAR OF SECURITY CULTURE