



| ICAO

UNITING AVIATION

AVIATION CYBERSECURITY STRATEGY

THE VISION OF A GLOBAL AVIATION CYBERSECURITY STRATEGY

Mr. Saulo Da Silva

Chief of the Global Interoperable Systems
International Civil Aviation Organization-ICAO



| ICAO

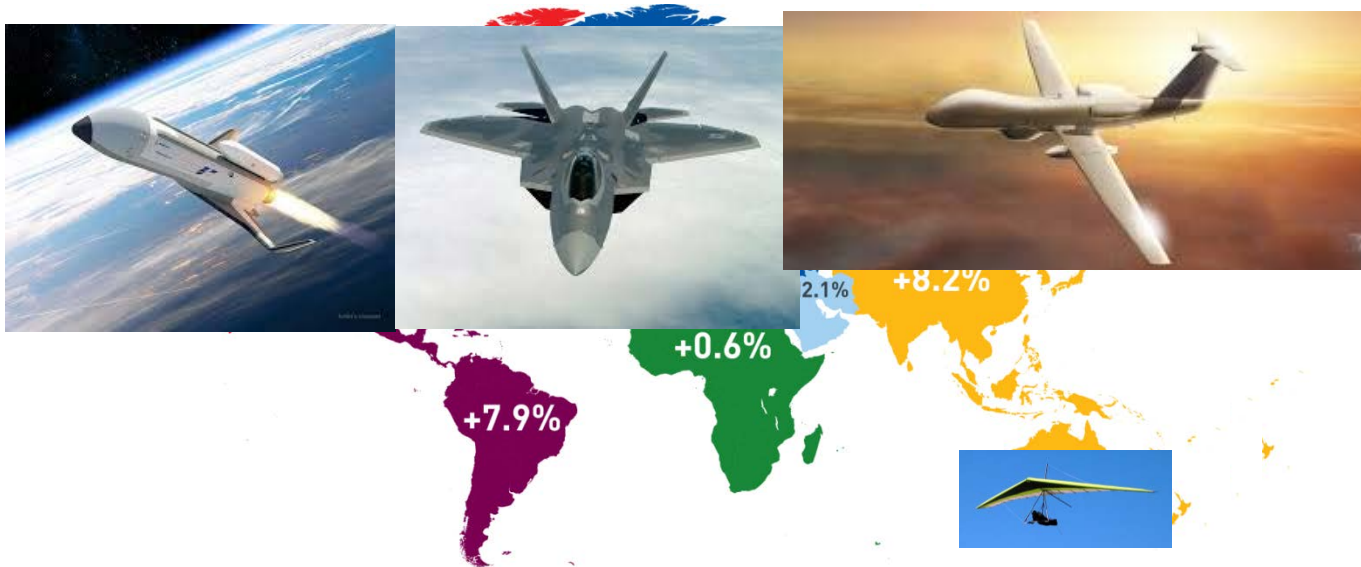
UNITING AVIATION

“A plan without action is just a dream.
An action without planning is a nightmare.”



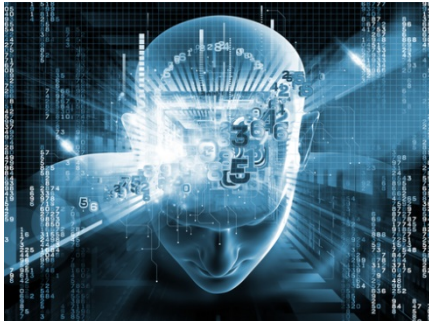
A NEW ERA IN AVIATION

- Demand, including new entrants



A NEW ERA IN AVIATION

- Technology and information
 - Autonomous systems
 - Artificial intelligence





ICAO

UNITING AVIATION

A NEW ERA IN AVIATION

- Technology and information
 - Full connectivity

**“ANYTHING THAT CAN BE
CONNECTED, WILL BE CONNECTED”**



Top 10 world risks

Top 10 world risks in terms of			
Likelihood		Impact	
1	Extreme weather events	1	Weapons of mass destruction
2	Failure of climate change mitigation and adaptation	2	Failure of climate-change mitigation
3	Natural disasters	3	Extreme weather events
4	Data fraud or theft	4	Water crisis
5	Cyber-attacks	5	Natural disasters
6	Man-made environmental disasters	6	Biodiversity loss
7	Large-scale involuntary migration	7	Cyber-attacks
8	Biodiversity loss	8	Critical information infrastructure breakdown
9	Water crises	9	Man-made environmental disasters
10	Asset bubbles in major economy	10	Spread of infectious diseases

Source: WEF



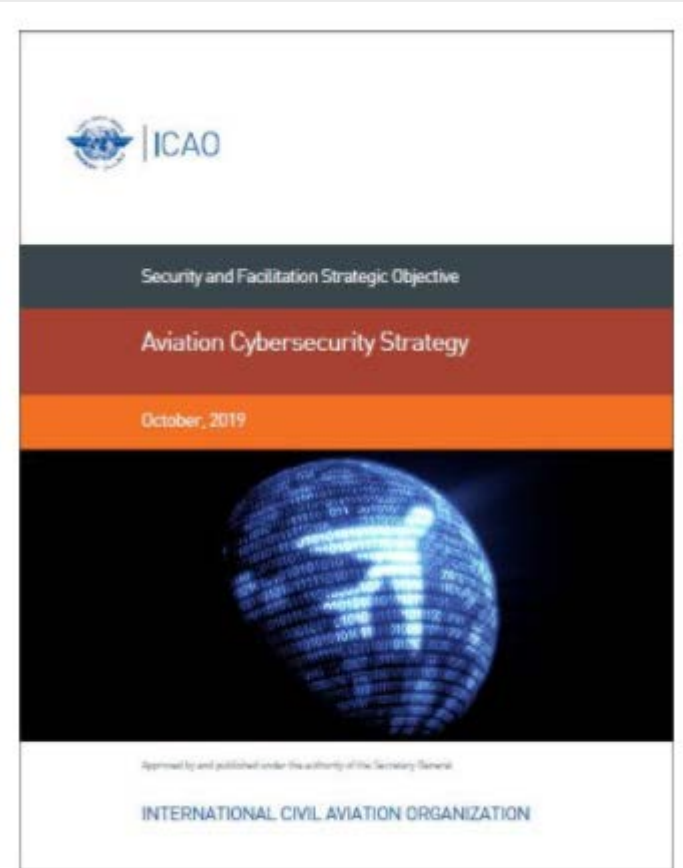
✈ ICAO developed the Cybersecurity Strategy endorsed by the ICAO 40th Assembly.



ICAO Cybersecurity Strategy

✈ The civil aviation sector is increasingly reliant on the availability of information and communications technology systems, as well as on the integrity and confidentiality of data. The threat posed by possible cyber incidents to civil aviation is continuously evolving, with threat actors focusing on malicious intents, disruptions of business continuity and the theft of information for political, financial or other motivations.

✈ <https://www.icao.int/cybersecurity/Documents/AVIATION%20CYBERSECURITY%20STRATEGY.EN.pdf>



ICAO Cybersecurity Strategy

- ✈ The Strategy's aims will be achieved through a series of principles, measures and actions contained in a framework built on seven pillars:
1. International cooperation
 2. Governance
 3. Effective legislation and regulations
 4. Cybersecurity policy
 5. Information sharing
 6. Incident management and emergency planning
 7. Capacity building, training and cybersecurity culture





International cooperation



 Need for global cooperation and harmonization.



Governance

- ✈ ICAO Member States are encouraged to build upon the Cybersecurity Strategy and include cyber analysis in their national civil aviation safety and security programmes.





Effective legislation and regulations

- ✈ Member States should ensure that appropriate legislation and regulations are formulated and applied, in accordance with ICAO provisions, prior to implementing a national cybersecurity policy for civil aviation.



Cybersecurity policy

- ✈ Evaluate cyber threats, hazards and risks.
- ✈ Consider the complete life-cycle of the aviation system.





Information sharing

- ✈ Share information to allow for prevention, early detection and mitigation of relevant cybersecurity events before they lead to wider effects on aviation safety or security.
- ✈ Through established and trusted means. This will help to reduce the impact of ongoing or future attacks.





Incident management and emergency planning

- ✈ The need to have appropriate plans that provide for the continuity of operations during cyber incidents.
- ✈ Table-top exercises are a useful tool to test existing cyber resilience and identify improvements, and are therefore highly encouraged.



CAPACITY BUILDING, TRAINING AND CYBERSECURITY CULTURE

- ✈ The human element as a core component.
- ✈ Strategy to development a cyber culture.





ICAO | UNITING AVIATION


ICAO Documentation

ICAO

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

ICAO

Doc 8973 — Restricted

Aviation Security Manual


11th Edition, 2019



Approved by and published under the authority of the Secretary General.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Doc 9854
AM/458




**Global
Air Traffic Management
Operational Concept**

Approved by the Secretary General
and published under his authority.

First Edition — 2005

International Civil Aviation Organization



International Standards
and Recommended Practices

Annex 19
to the Convention on
International Civil Aviation

Safety Management

The first edition of Annex 19 was adopted by the Council on 25 February 2013 and became applicable on 14 November 2013.

For information regarding the applicability of the Standards and Recommended Practices, see Chapter 3 and the Foreword.

First Edition
July 2019

International Civil Aviation Organization



THANK YOU!