



| ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY



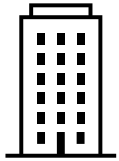
ICAO's Legal Approach to UAM

Christopher Petras

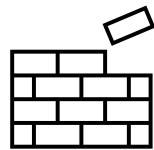
Legal Officer, Legal Affairs & External Relations Bureau

International Civil Aviation Organization

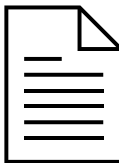
ICAO's Legal Approach to UAM



Introduction to ICAO



Legal Foundations: 1944 Chicago Convention



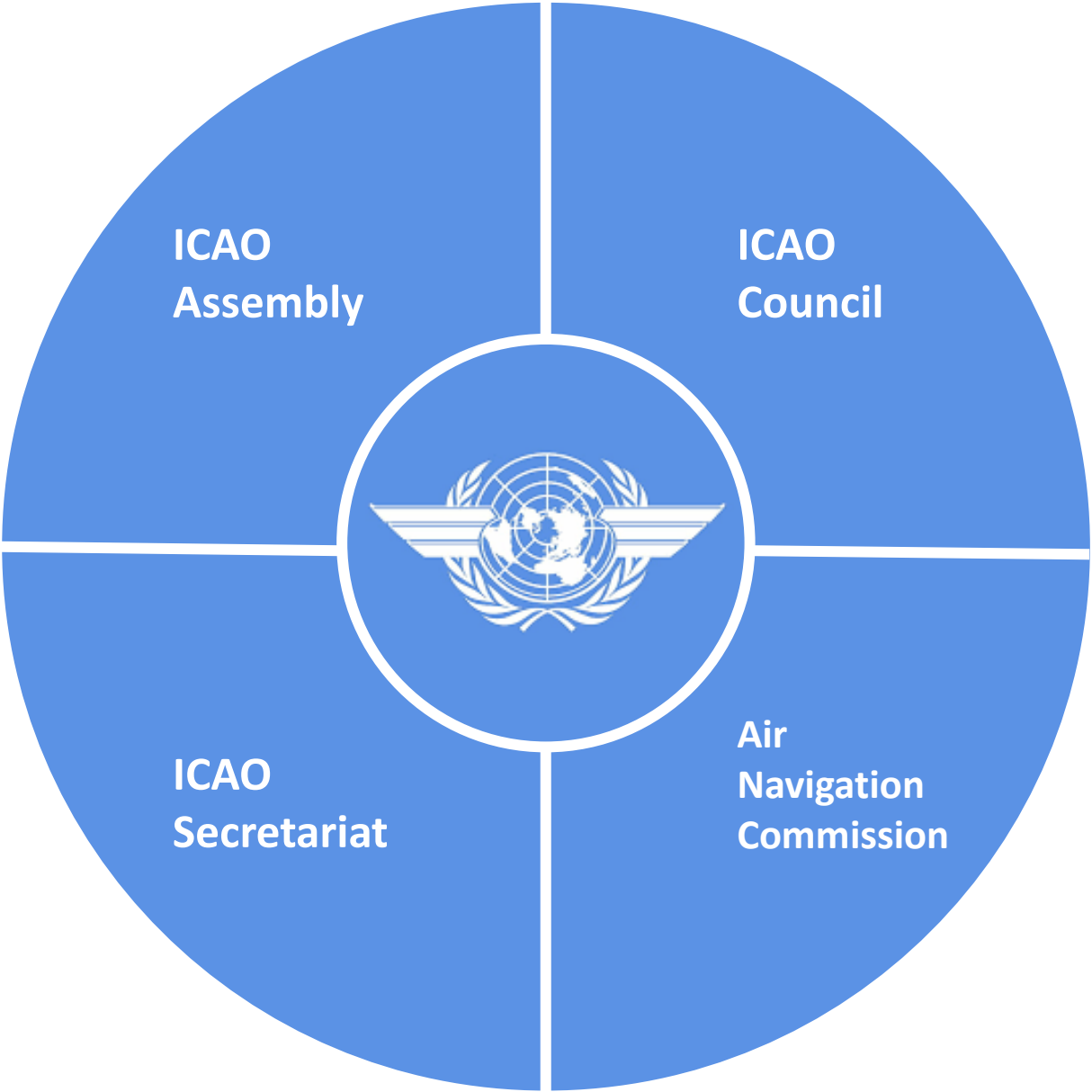
Regulatory and Legal framework for “Pilotless Aircraft”

What is ICAO?

- The International Civil Aviation Organization
- Established in 1944 by the Convention on International Civil Aviation (Chicago Convention)
- A UN Specialized Agency – i.e., an ***autonomous international organization*** that works with the United Nations
- 193 Member States
- Headquartered in Montreal, Canada
- Sets standards and regulations for international aviation safety, security, efficiency, and regularity, as well as for aviation environmental protection



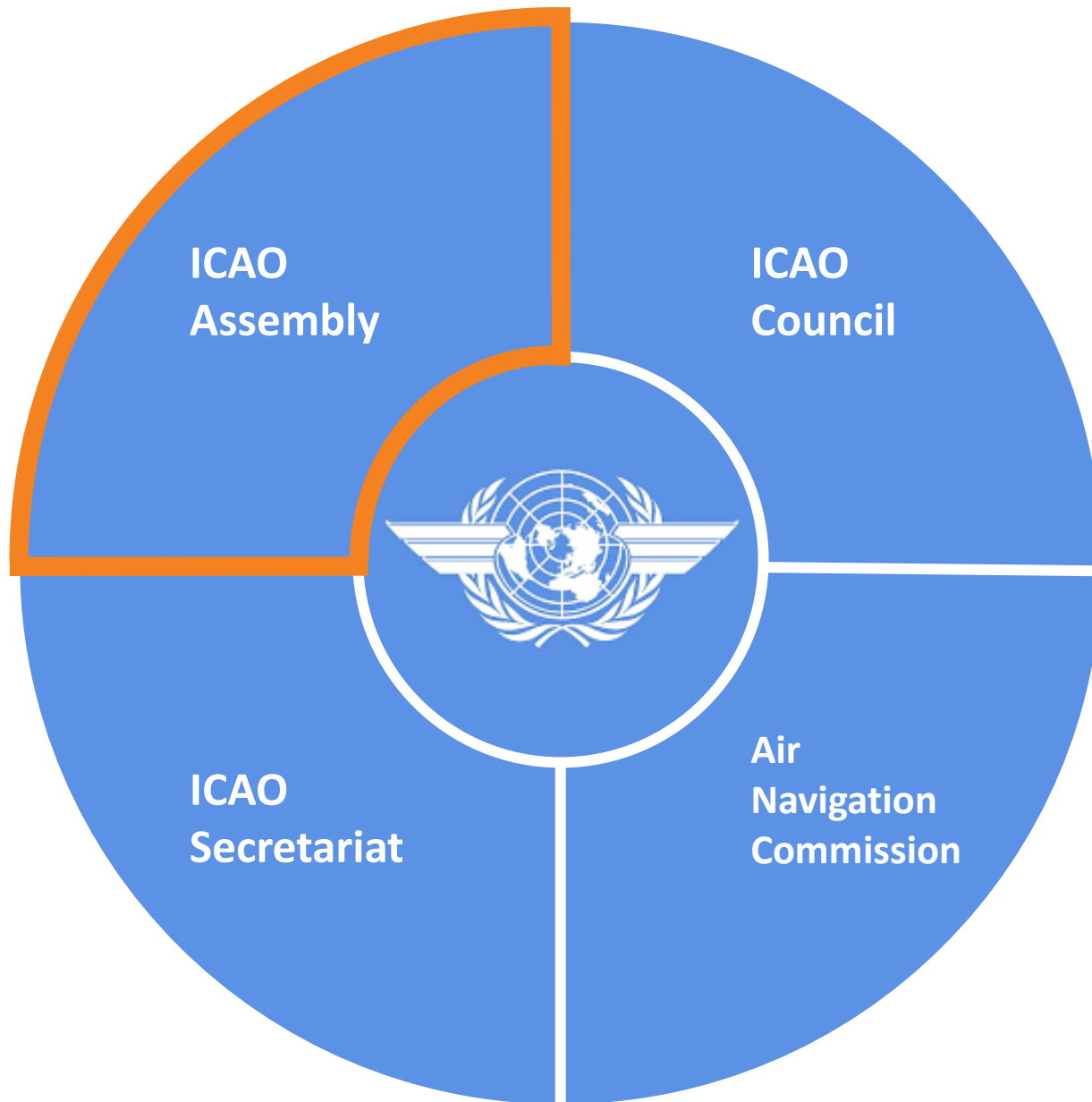
Principle Organs



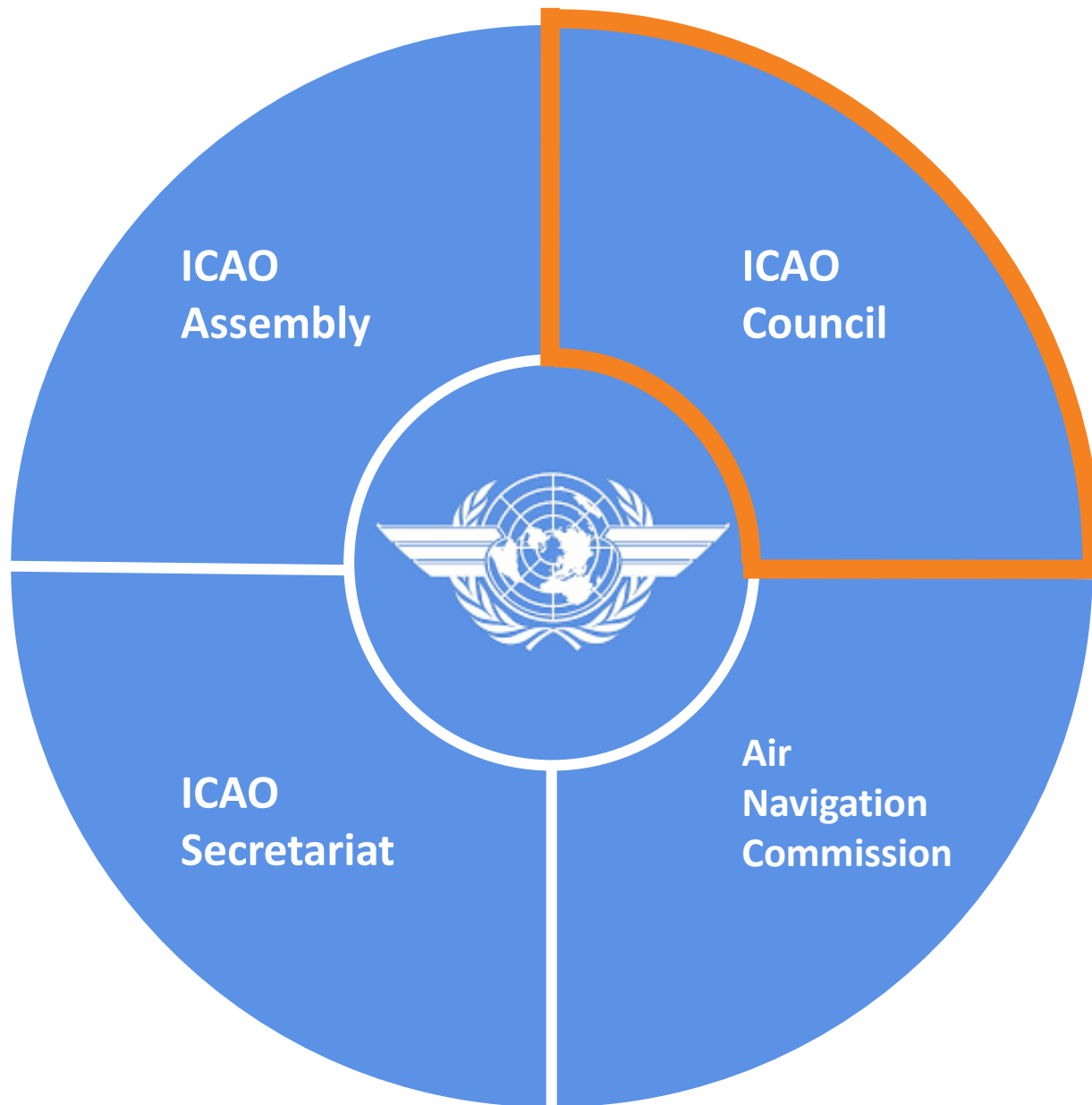
Principle Organs

ICAO Assembly

- Policy-setting body
- Composed of representatives of all 193 Member States
- Meets every three years (or by Extraordinary Session)
- Issues decisions on substantive matters in the form of Resolutions
- Elects States to the Council
- Approves the ICAO budget



Principle Organs



ICAO Council

- Executive governing body
- 36-members elected for a three-year term
- Adopts Standards and Recommended Practices (SARPs) as Annexes to the Chicago Convention
- Appoints the ICAO Secretary General
- Adjudicates disputes between States under the Convention

Principle Organs

Air Navigation Commission

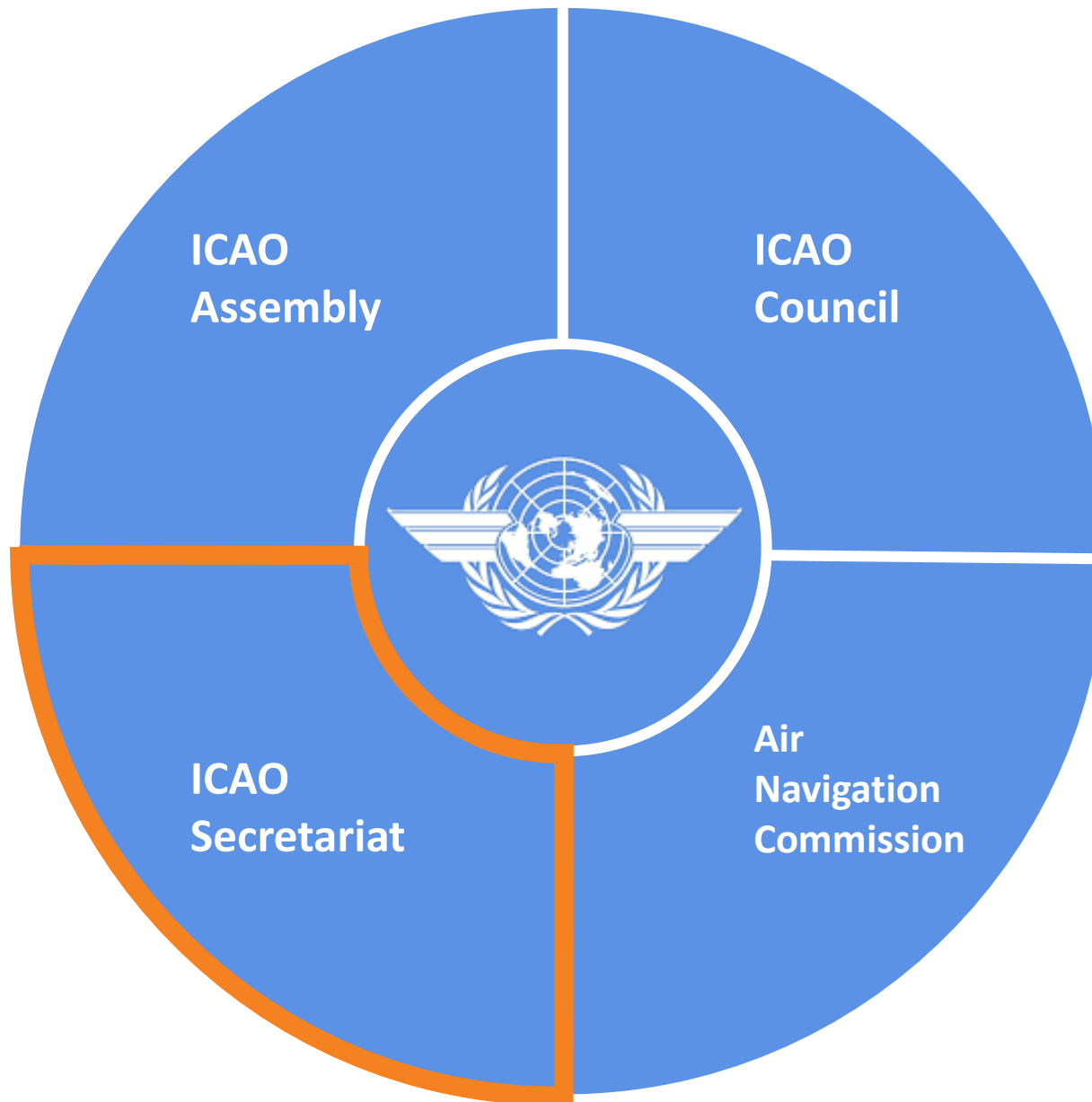
- Technical body
- 19 members, each nominated by a State, but appointed by the Council in their personal capacities
- Considers amendments to the Convention's Annexes (new SARPs or modifications) and recommends them to the Council



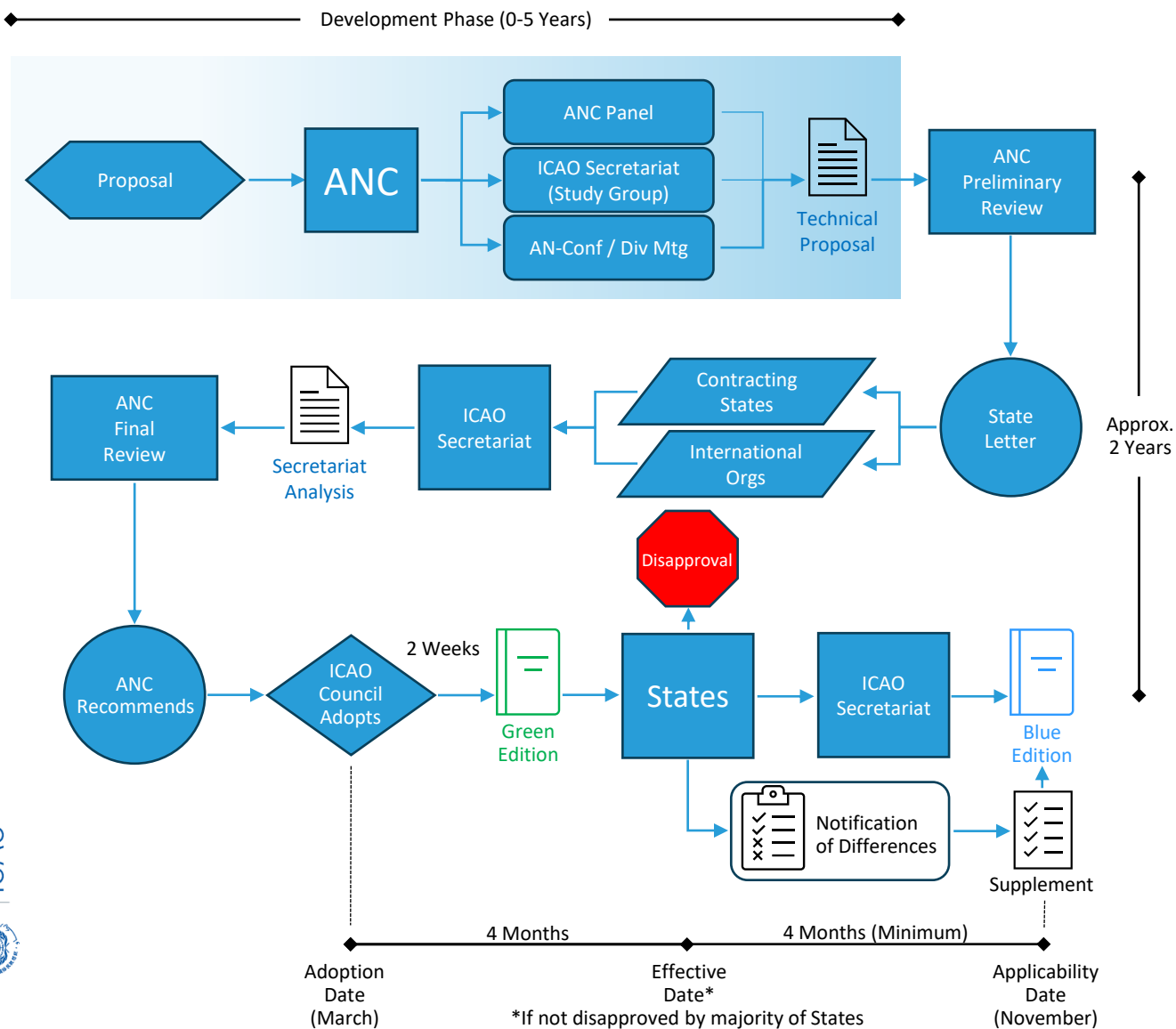
Principle Organs

ICAO Secretariat

- Air Navigation Bureau (ANB)
- Air Transport Bureau (ATB)
- Legal Affairs and External Relations Bureau (LEB)
- Technical Cooperation Bureau (TCB)
- Bureau of Administration and Services (ADB)



Making of a Standard



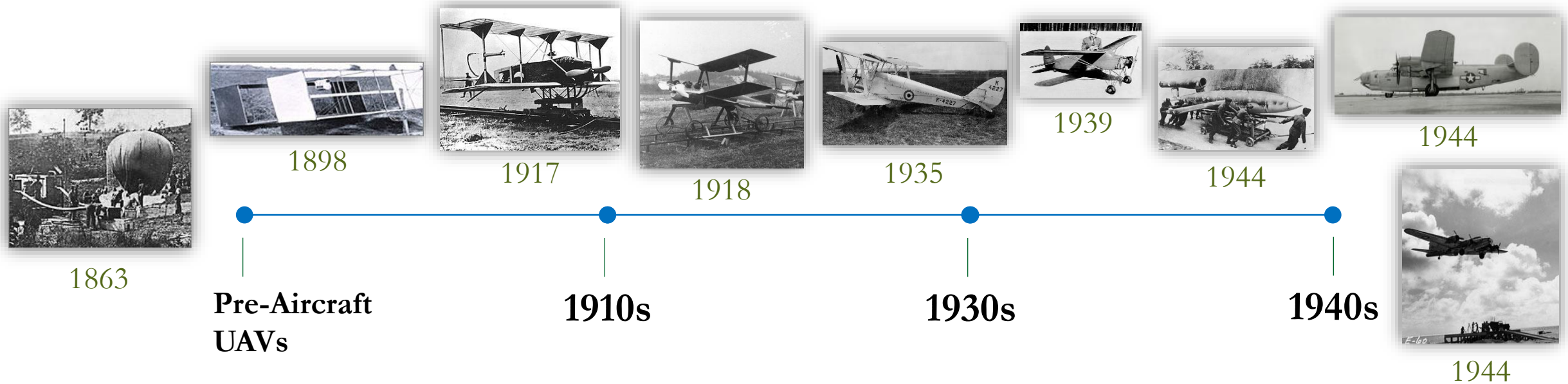
1944 Chicago Convention



Article 8 – *Pilotless Aircraft*

No aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a contracting State without special authorization by that State and in accordance with the terms of such authorization. Each contracting State undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft.

Chicago Convention



“... without a pilot”

- “Pilotless” in the sense of Article 8 means without a pilot on board the aircraft

Chicago Convention

“... special authorization”



- Comparable to authorization for “state aircraft” under Article 3 c)
- Annex 2, Appendix 4 – Unless otherwise specified, requests for authorization require submission of the same level of documentation required for issuance of a Certificate of Airworthiness

Chicago Convention

“... obviate danger to civil aircraft”

- Comparable to State’s “due regard” obligation under Article 3 d)



Chicago Convention



“Pilotless aircraft” include:

- Balloons
- Model aircraft
- Remotely piloted aircraft (including “drones”)
- Autonomous (self-piloted) aircraft



Unmanned Aircraft
Two Technical Workstreams

Operation centric,
risk-based approach



Remotely Piloted Aircraft Systems

- RPAS Panel (RPASP)
- Full aviation regulatory approach
- International IFR operations



Other Unmanned Aircraft Systems

- UAS Advisory Group (UAS-AG)
- UAS Toolkit, Registration, UTM

Unmanned Aircraft
**Two Technical
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RPAS Workstream

- RPAS Panel

Developing the regulatory framework for RPAS to conduct IFR operations in controlled non-segregated airspace/aerodromes



Requirements to initiate international operations:

- Certificate of Airworthiness
- RPAS Operator Certificate
- Remote pilot license



RPA to operate alongside manned aircraft, as a predictable, cooperative airspace user



18 of the 19 Annexes to the Chicago Convention to be affected

RPAS Workstream

- RPAS Panel Deliverables (to date)

Applicable 2022

Amend 175 to Annex 1

Regulatory framework for the issuance of remote pilot licences and RPAS licensing for int'l ops

Applicable 2012

Amend 43 to Annex 2 and Amend 7 to Annex 7

General operating rules for RPAS and requirements for “special authorization” requests; requirement for RPAS marking/identification

Applicable 2026

Annex 8 – Airworthiness certification Annex 10 – C2 Requirements

(Effective as of 2021)

Unmanned Aircraft Two Technical Workstreams

Operation centric,
risk-based approach



Other Unmanned Aircraft Systems

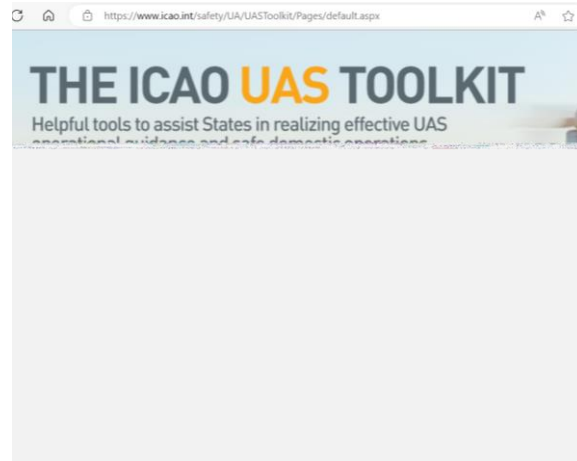
- UAS Advisory Group (UAS-AG)
- UAS Toolkit, Registration, UTM

Principles of Aviation Regulation Apply!

- Air worthiness
- Rules of the air
- Educated operators and remote pilots
- Safety Management

- Scaled to level of risk posed to others:
 - Consumer product certification versus certificate of airworthiness
 - Distance from structures versus separation standards
 - Operational limitations versus licensing
 - Risk to third-parties: 2 kg versus 80K kg
 - Aviation safety-of-life spectrum versus... ?

UAS Workstream



ICAO UAS Toolkit

- Guidance
- Best practices
- Practical examples



Drone Enable Symposia

- Brings together key stakeholders
- Topics include: UTM, registration, ID/tracking, COMs, and geo-fencing



Model UAS Regulations

- Developed to support UAS regulatory harmonization

Three ~~Two~~ Technical Workstreams?

Unmanned Aircraft

Operation centric,
risk-based approach



Remotely Piloted Aircraft Systems

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Other Unmanned Aircraft Systems

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- UAS Toolkit, Registration, UTM



Advanced Air Mobility

- Advanced Air Mobility Study Group (AAM SG)
- First Advanced Air Mobility Symposium (AAM 2024)

Regulatory Approach

Unmanned Aircraft Two Technical Workstreams

Operation centric,
risk-based approach



Remotely Piloted Aircraft Systems

- RPAS Panel (RPASP)
- Full aviation regulatory approach
- International IFR operations



Advanced Air Mobility

- UAS Advisory Group (UAS-AG) to be sunset
- AAM Study Group (AAM SG): Full assessment of AAM ongoing, including gap analysis with current regulatory framework



AAM 2024

ICAO'S FIRST ADVANCED
AIR MOBILITY SYMPOSIUM

9 — 12 September 2024

ICAO Headquarters, Montréal, Canada

Theme: *"Advanced air mobility (AAM) global harmonization & interoperability: Challenges & opportunities"*.

- Information about the Symposium and on-line registration:

<https://www.icao.int/Meetings/AAM2024/>

Legal Work on Pilotless Aircraft

- *Secretariat Study Group on Legal Issues related to Pilotless Aircraft (SSG-LIPA)*
 - Established in February 2020
 - Provides an interface between ICAO's legal and technical work on pilotless aircraft
 - Met for the first time in a virtual setting in August 2021
 - Two Subgroups:
 - *Subgroup on Compliance with the Chicago Convention (SSG-LIPA-CCSG)*
 - *Subgroup on Liability & Security (SSG-LIPA-LSSG)*



Remote pilot licensing

- ✓ “Remotely piloted” aircraft are “pilotless”; that is, a “remote pilot” is not a “pilot” within the meaning of Article 32 of the Convention
- ✓ Under Article 32, pilots and crew functioning on board an aircraft must be licensed by the aircraft’s State of Registry
- ✓ Under new Annex 1 Standards, the licensing authority for remote pilots and crew is the State of the Operator of the remotely piloted aircraft system



Questions of Application of the Chicago Convention

Article

12

Contracting State obligation to ensure all aircraft carrying its nationality comply with the rules and regulations in force wherever such aircraft operates

Article

17

Aircraft nationality (State of registry)

Article

18

Prohibition against dual or multiple registrations

Questions of Application of the Chicago Convention

Article

20

Nationality and registration marks

Article

21

Contracting State obligation to report to ICAO the registration and ownership information for any aircraft engaged in international air navigation

Article

26

Accident investigations and the rights of State of Registry (no rights afforded the State of the Operator)

Questions of Application of the Chicago Convention

Article

29

Documents required to be carried on board aircraft

Article

31

Certificates of airworthiness

Article

32

Licensing by State of Registry (versus State of the Operator) and the right of contracting State to refuse to recognize certificates and licenses granted to any of its nationals by another State

Questions of Application of the Chicago Convention

Article

33

Mandates mutual recognition of certificates and licenses issued in accordance with ICAO Standards by the State of Registry

Article

40

Aircraft or personnel holding endorsed (noncompliant) certificates or licenses may not operate in a state without that State's permission

Official ICAO Unmanned Aviation & AAM Page



ICAO
UA & AAM



Launched to gather the growing Unmanned Aviation and AAM community to share progress and industry milestones on AAM, RPAS, UAS, UTM



Regular updates on ICAO's work in the field and information on upcoming events, the work of AAM SG and the RPAS Panel.



Follow us:

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Hashtags: #unmannedaviationICAO
#ICAOAAM



Thank You!