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ICAO update

2 November 2021

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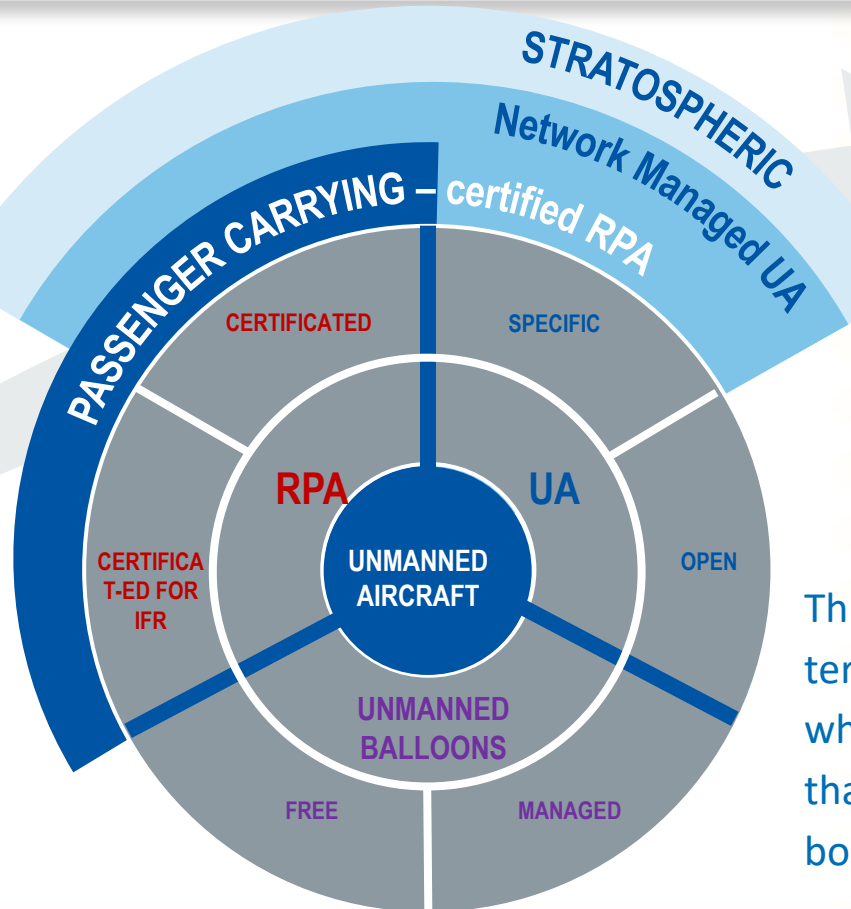
Secretary of the RPAS Panel





Summary

- The role of ICAO to support **RPAS international IFR** operations (**why?**)
- **What ICAO is doing** to support these operations (standards development)
- **How ICAO is supporting** these operations (the RPAS Panel)

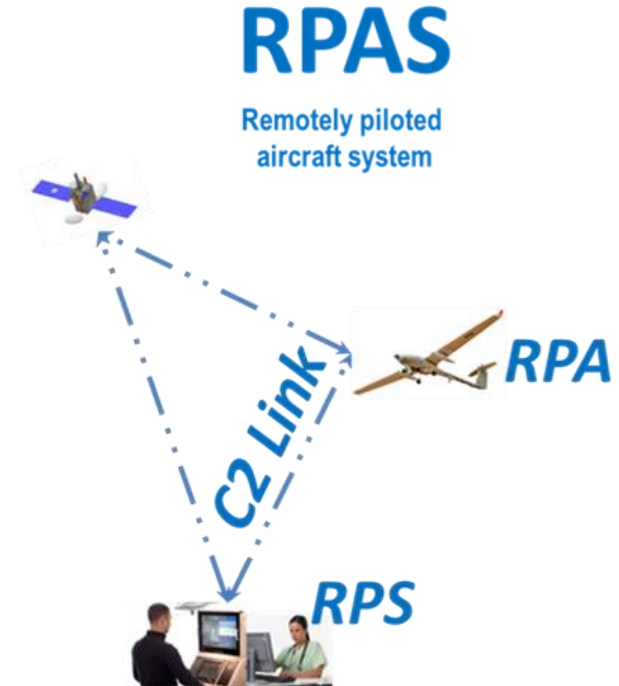


This graphic illustrates the term "unmanned aircraft" which encompass all aircraft that do not have a pilot on board.

RPAS components

An **RPAS** consists of:

- One (1) **RPA**
- One (1) or more **RPS**
- **RPA and RPS** connected by **C2 Link** (in direct radio line-of-sight or BRLOS, such as via satellite)
- **other components** essential for flight, like manned aircraft, including:
 - ATC communications and surveillance equipment (radio coms; CPDLC; ADS-B; SSR transponder)
 - navigation equipment
 - launch and recovery equipment (e.g. catapult, winch, rocket, net, parachute, airbag)
 - flight control computer (FCC), FMS and autopilot
 - system health monitoring
 - flight termination system





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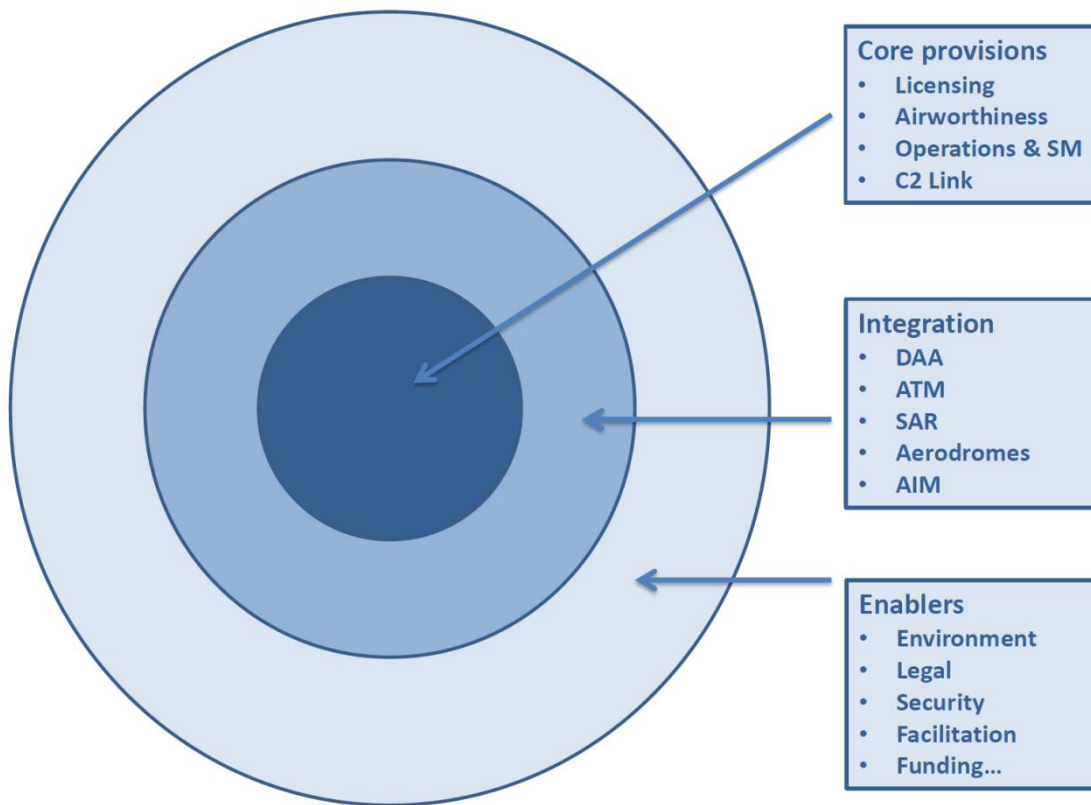
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Scope of the ICAO work





Other ICAO work



- **Core provisions for international air navigation**
- **Additional requisites for safe international navigation**
- **Other ICAO work to integrate RPAS into int'l aviation**



- International IFR operations
- Controlled airspace and aerodromes
- Global interoperability
 - RPA to operate alongside manned aircraft, as a predictable, cooperative user: All **19 Annexes** affected
 - Priority given to **fundamentals** for **international** operations
 - » **Remote pilot licence** – adopted March 2018; applicable Nov. 2026 (Annex 1, Amdts 175 & 177)
 - » **Certificate of airworthiness** – adopted Q1 2021; applicable Nov. 2026 (Annex 8, Amdt 108)
 - » **C2 Link** – adopted Q1 2021; applicable Nov. 2026 (new Vol. VI to Annex 10 to & Amdt 90 to Vol. V, Annex 10)
 - » **RPAS operator certificate** – delivery Q1 2021 (new Annex 6, Part IV); applicable Nov. 2026





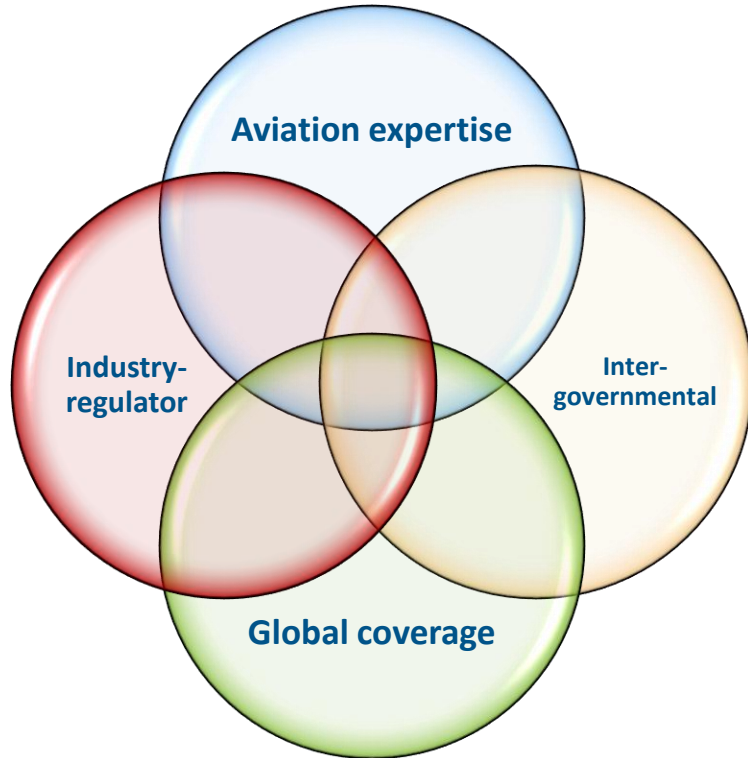
RPASP SARPs Delivery Timelines (cont'd)

	2021				2022				2023				2024				2025				2026										
Annex 10 C2 technological SARPs					Delivery				PR						FR				Adoption				Effective								Applicability
Manual on C2 Links for RPAS					Delivery																										Applicability
Annex 10 DAA					Delivery				PR						FR				Adoption				Effective								Applicability
DAA Manual					Delivery																										Applicability
Annex 2					Delivery										PR				FR				Adoption				Effective				Applicability
Annex 11					Delivery										PR				FR				Adoption				Effective				Applicability
Annex 12					Delivery										PR				FR				Adoption				Effective				Applicability
PANS-ATM					Delivery										PR				FR				Approval								Applicability
RPAS Manual				Delivery Vol. I					Delivery Vol. II																						Applicability
Annex 14														Delivery					PR								FR	Adoption		Effective	Applicability
PANS-Aerodromes														Delivery					PR								FR	Approval			Applicability
Aerodrome Design Manual																														Delivery	Applicability
Airport Services Manual																														Delivery	Applicability
Heliport Manual																														Delivery	Applicability
Ground Handling Manual																														Delivery	Applicability



- For UAS, **ICAO guidance** available for humanitarian and emergency response ops, incl. on **transport of DG**
- Advisory circular 102-37 (Google: “**ICAO AC 102-37**”)
- Dangerous goods are articles or substances that are capable of posing a **hazard to health, safety, property** or the **environment**
- To the extent possible, **Annex 18** Chicago Convention, and **Technical Instructions** to be complied with (except when full provisions of TI are not be necessary for small UA)
- **Classes** and **divisions** of DG
- Examples: **infectious** substances, **medical, clinical** waste, lithium batteries, first aid kits...
- **DG SOPs** : policy; procedures; training program; emergencies; data collection

Conclusion



The challenge of integrating **unmanned aircraft** into the aviation system requires:

- **technical** expertise
- **intergovernmental** framework
- **global** geographic coverage
- **regulators & industry** cooperation



- Enabling UAS Operations Part I
- Enabling UAS Operations Part II - Panel Discussion
- Introducing ICAO UAS Model Regulations
- UAS Beyond Visual Line of Sight Operations - for Regulators
- ICAO UTM Framework - Core Principles for Global Harmonization
- U-AID - Humanitarian Operations using UAS
- Safety Management System (SMS) for UAS Operations
- RPAS International IFR Regulatory Framework

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Air Navigation Services
Unmanned Aviation Fundamentals



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