



**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/17)**

Montreal, 24 to 28 April 2017

Agenda Item 6: Other business

**PRESENTATION ON BRIEFING FOR DG PANEL ON REMOTELY PILOTED AIRCRAFT
SYSTEMS (RPAS) & UNMANNED AIRCRAFT SYSTEMS (UAS)**

(Presented by the Secretary of the Remotely Piloted Aircraft Systems Panel
(RPASP))



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Briefing for DG Panel on Remotely Piloted Aircraft Systems (RPAS) & Unmanned Aircraft Systems (UAS)

Leslie Cary

Programme Manager - RPAS

4 May 2017





UA versus RPA

Unmanned aircraft include:

- Free balloons
- Model aircraft
- Remotely piloted aircraft
 - airspace/aerodrome integration requires control
 - control, in real time, provided by a licensed remote pilot
 - certificated aircraft / system
- Drones



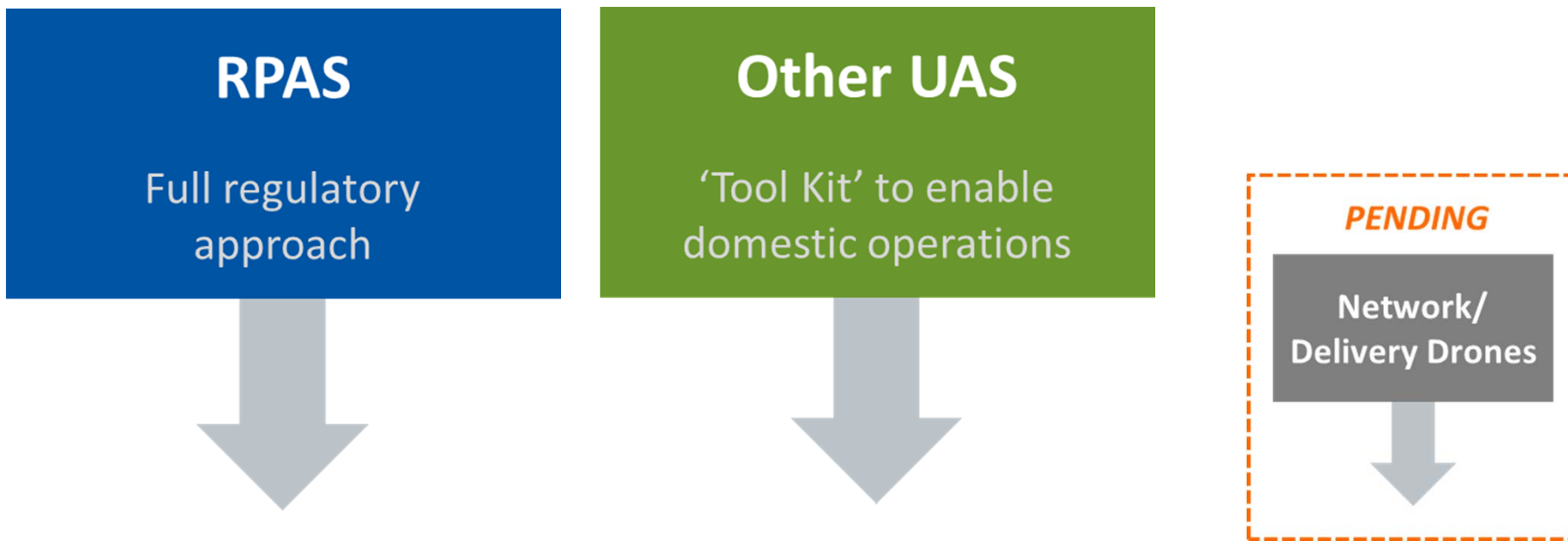
The Drone Market Environment 2016

The image displays a detailed grid of logos for the drone market in 2016, organized into several key categories:

- Recreational:** Includes logos for AEE, AUTEL, HORIZON, DJI, and others.
- Commercial Platform Manufacturer:** A large section featuring companies like 3DR, Aerobics, Aeromapper, and others.
- Integration, Engineering:** Lists firms such as Aerotas, Aurora, and others.
- Services:** Divided into Simulation, Education, Training, Drone Operation, Delivery, Inspection, Flight Planning, Software, Mapping, 3D Modeling & Analytics, Computer Vision & Navigation, and User Groups, Networks.
- Supplier, Retailer:** Includes Aerovision, Drones, and others.
- Governmental:** Features logos for various defense and government contractors.
- Agriculture:** Shows logos for companies like Agrobotix and AgEagle.
- Early Stage Startups:** A collection of emerging drone-related companies.
- Delivery Systems:** Includes logos for Techsys and others.
- Parachute & Recovery:** Features SkyCat and SkyFall.
- Propulsion & Power:** Lists companies like Altadevices and Energyor.
- Components & Systems:** Divided into Electronics, Subsystems & Components, Ground Control Systems & Equipment, Cameras & Vision Systems, Navigation & Guidance Systems, and Data & Communication.
- Counter Drone:** Includes logos for DeTect and others.
- Media, News, Blogs & Magazines:** Lists various industry publications.
- Operator Marketplace:** Features platforms like AirTeam and others.
- Insurance:** Includes Allianz and others.
- Universities, Institutes & Research Programs:** Divided into North America, Europe, and Asia & Oceania.
- Test Sites:** Lists various testing locations.
- Conferences, Events:** Includes Drone Show, Drone Expo, and others.
- Coalitions, Organizations & Initiatives:** Lists various industry associations.



Two Approaches / Two Streams of Work





ICAO Focus

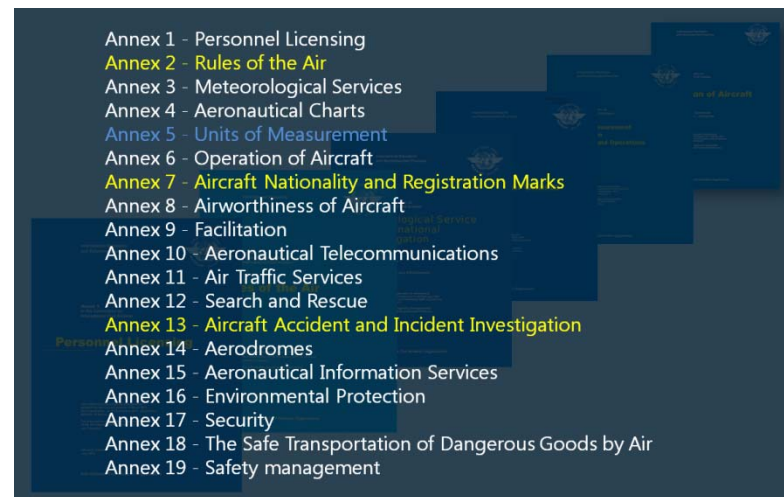
- International IFR operations
- Global interoperability
 - Priority is fundamentals to initiate international operations
 - » Certificate of airworthiness
 - » RPAS operator certificate
 - » Remote pilot licence
- National Authority Focus: Domestic operations, which may differ significantly from int'l ops





RPAS Workstream

- **Objective**
- RPA operate alongside manned aircraft, as a predictable, cooperative airspace user:
 - 18 of 19 Annexes affected



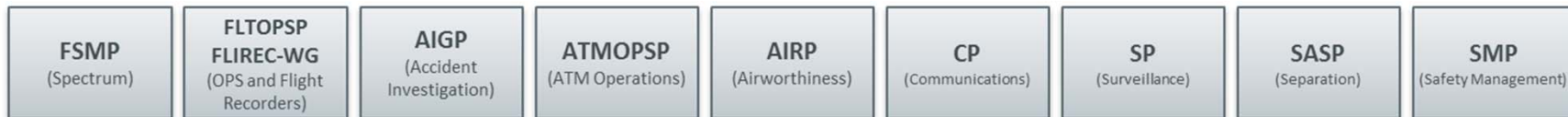


RPAS Workstream

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



- **Other ANB Panels supporting on technical matters**





RPAS Panel Organization

- **Panel Leadership**
 - Panel Chairman: Mike Gadd
 - Panel Vice-chairman: Randy Willis
 - RPAS Program Manager: Leslie Cary
- **Working Groups and Rapporteurs**
 - WG 1 – Airworthiness
 - WG 2 – C2 Link
 - WG 3 – Detect and Avoid
 - WG 4 – Remote Pilot Licence
 - WG 5 – RPAS Operations
 - WG 6 – ATM Integration
 - WG 7 – Human performance
 - RPASP/SMP Task Force



RPAS: Other work within ICAO

- Legal Committee
- Committee on Aviation Environmental Protection (CAEP)
- Aviation Security Panel (AVSECP)





DG and RPA in ANB Business Plan

ICAO Business Plan

ANB - Air Navigation Bureau

1 - Safety



SAF-P2 - Flight and Ground Safety

Department	#	Project / Key Activity	Responsible	Deliverable			
				#	Title	End Date	Responsible



2.3.w369	Doc 9284 - Tech Ins for the ST of DG by Air (Doc 9284) / Instructions on how to handle dangerous goods carried on RPA	2020-11-30
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Challenges on RPA

- Areas of operations and airworthiness:
 - Packaging requirements and RPA design limitation
 - ‘unmanned only’ packaging?
 - lighter requirements on RPA?
 - different DG limits for RPA?
 - Adaptation of DG tech instructions to RPAS characteristics
 - Operational procedures
 - notification to remote pilot
 - hazard detection and mitigation of consequences

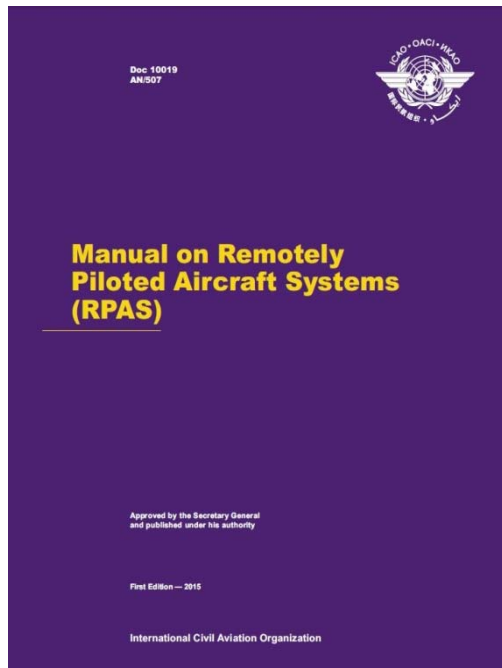


Expected outcomes

- Request: DG Panel to provide input to RPASP to be included in draft proposals for:
 - Annex 6, Part IV
 - Annex 8
- Additional information to be included in next amendment of RPAS Manual and UAS toolkit



Guidance material and resources



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Search:

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Narrative
The narrative presents UAS best practices, lessons learned and regulations for your consideration. We believe that developing UAS guidance and regulations that consider public and aviation safety first, along with security and privacy protection while promoting industry, is an achievable mission.

Fly Safe/Fly Legal
In order to ensure their safe operation, to encourage business and to provide societal benefits, all aircraft must share airspace in a safe, predictable and regulated manner.

Current State Regulations
Existing UAS regulations from around the world.

UAS Toolkit
UAS operators, remote pilots and recreational pilots will benefit from the information contained in this toolkit for UAS operations areas in accordance with ICAO standards for unmanned aircraft.

News
News related to unmanned aviation and related technology.

FAQ
Commonly asked questions and answers associated with unmanned aviation.



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THANK YOU