



ICAO

SAFETY

# DRONE ENABLE

## ICAO'S UNMANNED AIRCRAFT SYSTEMS INDUSTRY SYMPOSIUM

ICAO HQ, Montréal, Canada | 22–23 September 2017

**STEPHEN CREAMER**

DIRECTOR – AIR NAVIGATION BUREAU

ICAO Global Drone Registry Concept





ICAO

SAFETY

# The Challenges

- How can a law abiding individual remain so, and operate their drone seamlessly in different States?
- How can law enforcement monitor compliance with local rules and regulations?
- How can industry contribute to the facilitation of international drone operations?





# Feedback from States

- The primary concerns:
  - Individual State sovereignty is maintained
  - ICAO should not *mandate* a State drone registry
- The main requests:
  - ICAO to facilitate State interoperability for international drone use
  - ICAO to leverage it's experience to support States in a rapidly evolving environment





ICAO

SAFETY

# The Current Situation

## Drone (UA) Registration Systems:

- Lack of consistency between States
- Majority of States without *any* registration system
- No ability to identify and contact operators
- No ability to track drones across borders

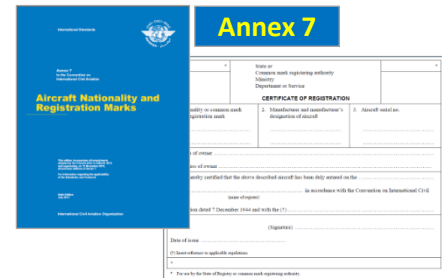
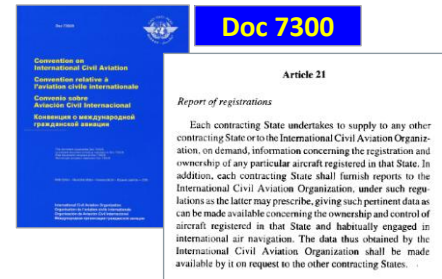
A screenshot of a web-based 'Drone Registration Form'. The form has a grey header with the title 'Drone Registration Form'. Below the header is a paragraph of text explaining the registration process. The form contains several sections with input fields: 'Registration Type' with a dropdown menu, 'Drone Information (Stage 1 - not valid for flying the drone for recreation purposes)' with a dropdown menu, 'A. OPERATOR INFORMATION' with fields for 'Name', 'First Name', 'Last Name', 'Company Name', 'Email Address', and 'Custom Email Address'. There is also a 'Phone Number' section with fields for 'Country Code', 'Area Code', and 'Phone Number'. The form is partially filled out with some text in the input fields.



# Why ICAO?

Global regulations for aircraft engaged in international operations:

- State obligation under the **Chicago Convention - Article 21**
- Aircraft registered by each State in accordance with **Annex 7 – Aircraft Nationality and Registration Marks**.



# The Aircraft Registration System

- For the provision of aircraft registration data, ICAO operates the **Aircraft Registration System (ARS)** which integrates with the **International Registry of Commercial Aircraft (IRCA)**
- As the volume of UA increases, with potential for international use, the need for an interoperable, global registry becomes apparent.



- MAKE: Boeing
- MODEL: 747
- SERIES: 4B5
- SERIAL NO: 26395
- REG. MARK: N-539BC
- etc...

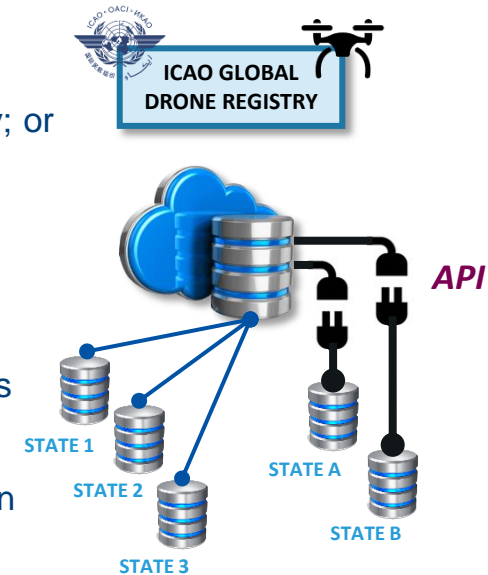
**ICAO is the natural and logical international organization to coordinate efforts for global drone registration**

ICAO AIRCRAFT REGISTRY SYSTEM						AIRCRAFTS LISTED BY STATE		
MAKE	MODEL	SERIES	MANUFACTURER	SERIAL NUMBER	REG. MARK	CERT. NUMBER	REG. DATE	
BELL	427	NO SERIES EXIS	Bell Helicopter Textron Canada	56223	N-427ES		2013-12-17	
BOEING	747	4B5	The Boeing Co.	26395	N-539BC		2014-04-18	
BOEING	737	73V	The Boeing Co.	30249	N-5599N		2015-12-09	
BOEING	747	4B5	The Boeing Co.	26396	N-4992C		2014-04-20	
HOLB	TWINOTAR	II	Ambair Construction	M3-138	N-4294G		2014-04-09	
MCDONNELL DOUG	M300	30	McDonnell Douglas Corp.	53819	N-4524S		2013-09-17	
MCDONNELL DOUG	M300	30	McDonnell Douglas Corp.	53464	N-4994S		2013-02-04	
PIPER	PA31	UNDESIGNATED	Piper Aircraft Corp.	31-619	N-4992A		2013-04-13	



# A Potential Solution

- An ICAO hosted global Drone Registration platform to:
  - a) Provide a plug-and-play option for States without an existing drone registry; or
  - b) Enable API integration with a State's existing drone registry
- Optional participation, but necessary in order to benefit from:
  1. Features that facilitate international operations for both States and Operators
  2. Third party apps developed around the global information database
  3. Streamlined & consistent registration process to encourage user participation

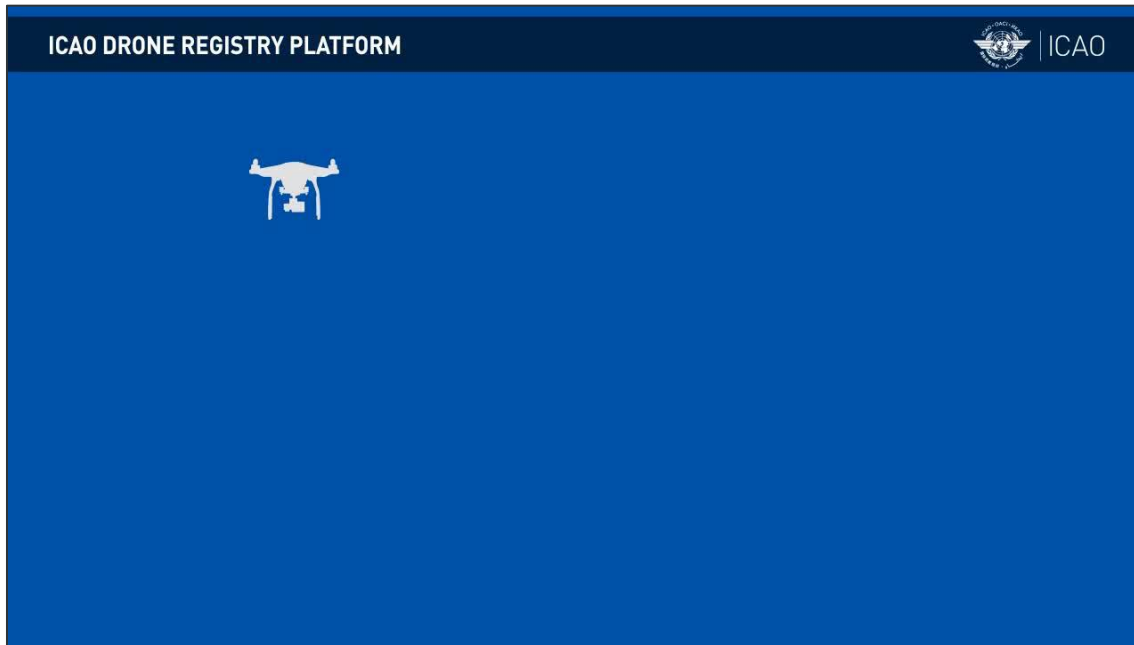




ICAO

SAFETY

# The Drone Registry Concept







# The Key Points

1. A Global Drone Registry Database, that:
  - a) provides custom State-specific registration platforms, powered by ICAO
  - b) enables optional integration of existing State systems
2. State maintains approval authority in accordance with own regulations
3. State adoption is optional but necessary for interoperability
4. Foundation for future developments of 3<sup>rd</sup> party applications

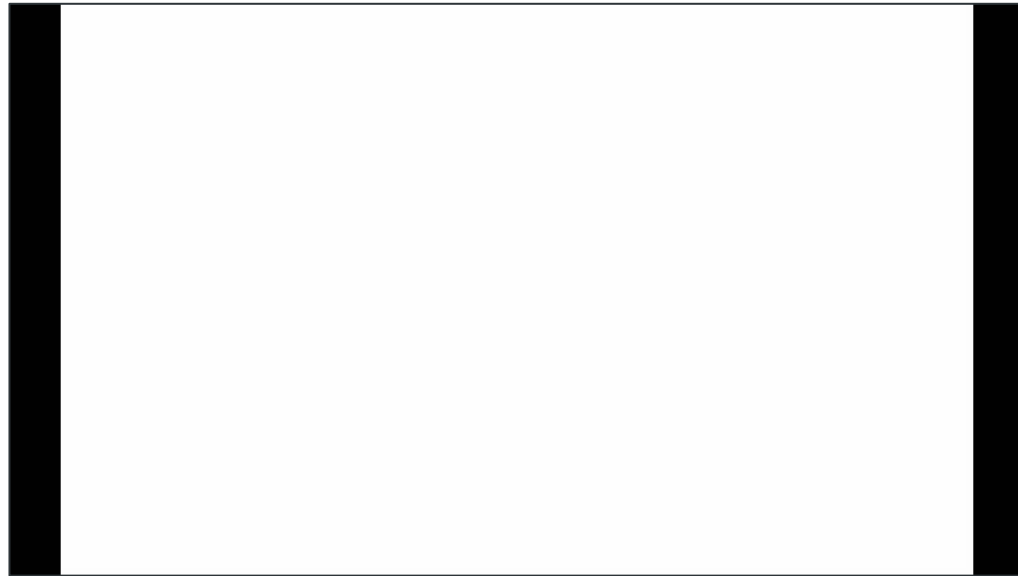




ICAO

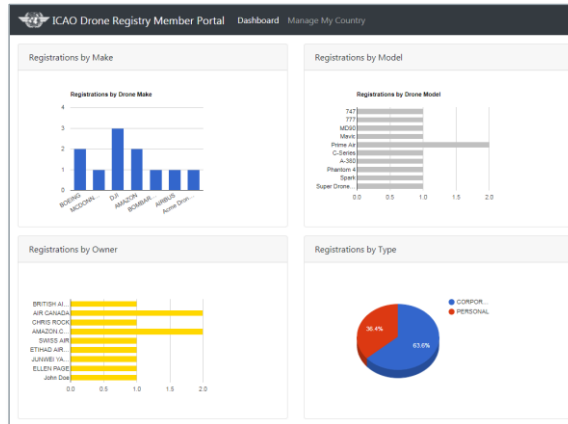
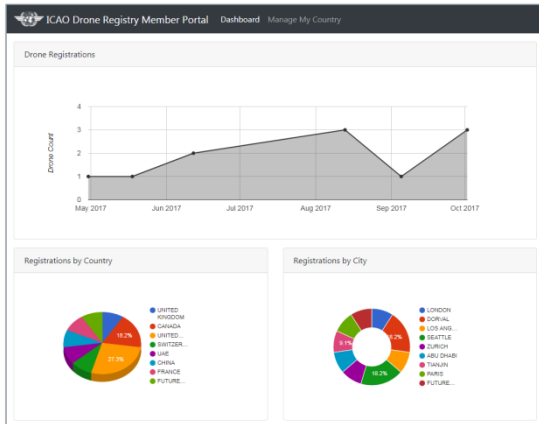
SAFETY

# The User Registration Example



# The Global Relevance

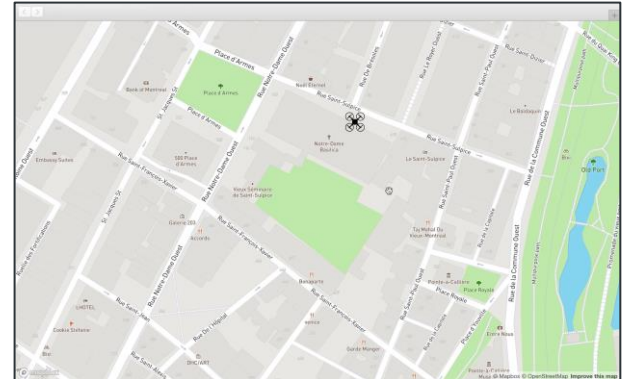
- Access to international datasets on drone statistics
- Facilitate international operations for both States and Operators



# Third Party Applications

The ICAO platform could fuel the development of third party applications

- Consistency of
  - common data fields
  - interaction with a single, global dataset
- Reduced
  - technical complexity
  - development costs





# The Next Steps

- ICAO seeking **feedback** from attendees
- Request for State(s) interested in participation in a pilot programme:
  - A State with existing platform to connect via API
  - A State looking to create their own drone registration platform
- Establishing unique identifier

**TARGET: an operable international registry by next DRONE ENABLE**



# So tell us what you think!

Are we hitting the mark on the recognized challenges...?



- How can a law abiding individual remain so, and operate their drone seamlessly in different States?
- How can law enforcement monitor compliance with local rules and regulations?
- How can industry contribute to the facilitation of international drone operations?



ICAO

SAFETY



ICAO

North American  
Central American  
and Caribbean  
(NACC) Office  
Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarters  
Montréal

Western and  
Central African  
(WACAF) Office  
Dakar

European and  
North Atlantic  
(EUR/NAT) Office  
Paris

Middle East  
(MID) Office  
Cairo

Eastern and  
Southern African  
(ESAF) Office  
Nairobi

Asia and Pacific  
(APAC) Sub-office  
Beijing

Asia and Pacific  
(APAC) Office  
Bangkok

Send comments to: [aircraftregistry@icao.int](mailto:aircraftregistry@icao.int)

THANK YOU