

# ***ENABLING OPPORTUNITIES THROUGH AVIATION***



Civil Aviation Authority of Singapore

# ABOUT CAAS



Department of  
Civil Aviation



Civil Aviation Authority of Singapore

**1 September 1984**  
Established as a  
statutory board under  
Ministry of Transport

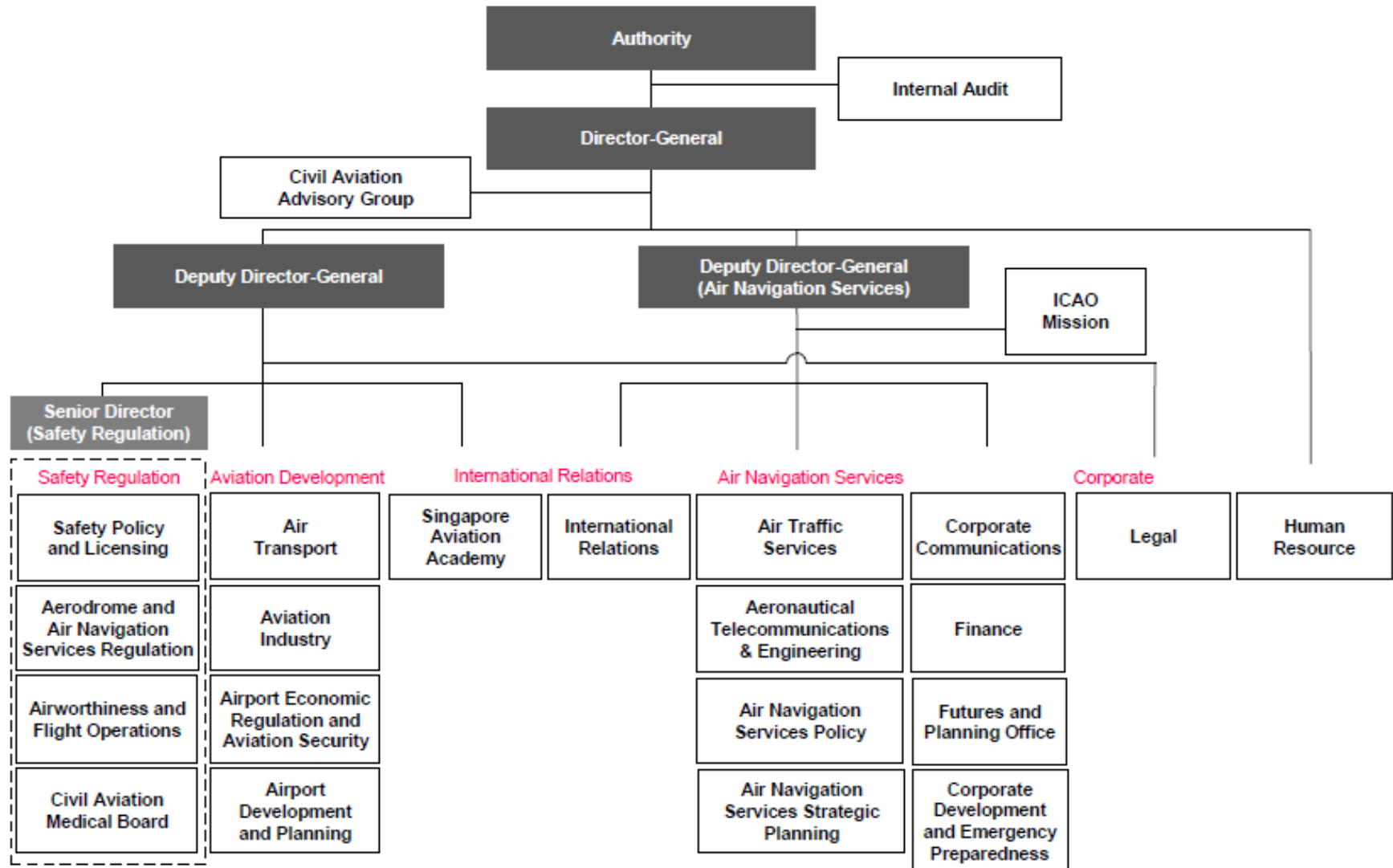


Civil Aviation Authority of Singapore

**1 July 2009**  
Restructured following  
corporatisation of  
Changi Airport

# ORGANISATION CHART

\*As of May 2018

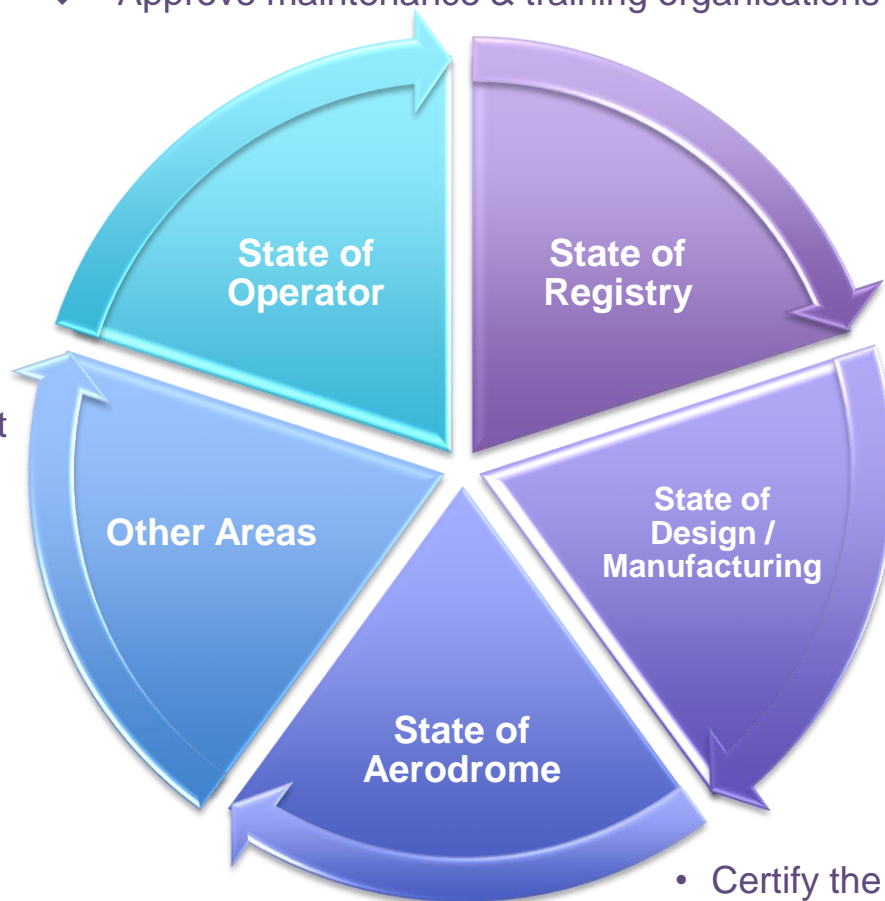


# RESPONSIBILITIES

## FOR SAFETY OVERSIGHT



- Certify the airworthiness of Singapore-registered aircraft and Singapore air operators
  - ❖ License pilots and aircraft maintenance engineers
  - ❖ Approve maintenance & training organisations



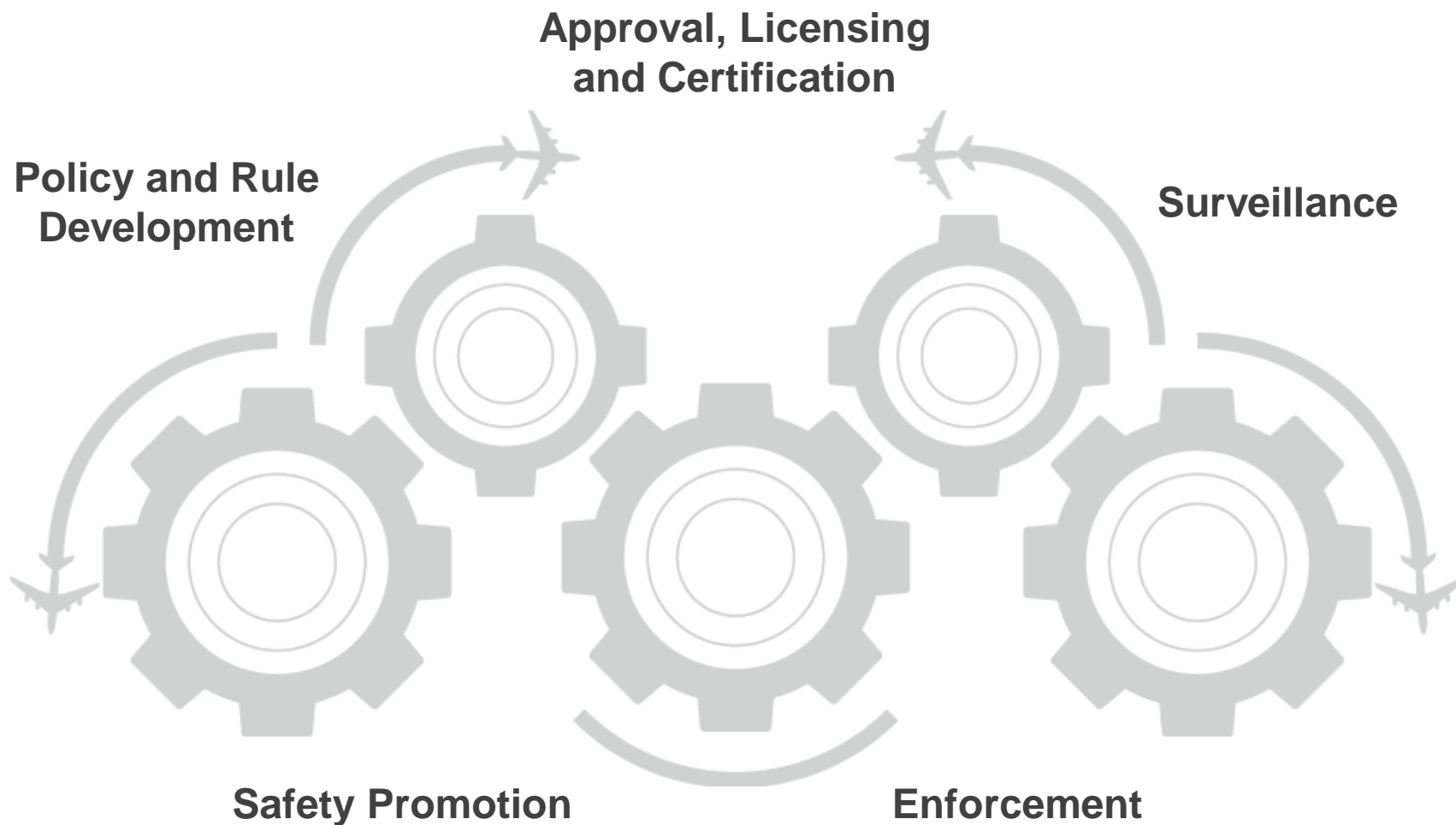
- Maintain safety oversight of the air navigation service provider
- License air traffic controllers
- Conduct surveillance on foreign air operators
- Regulate unmanned aircraft operations

- Approve organisations involved in design & production of aircraft components for Singapore-registered aircraft

- Certify the aerodrome operator

# **CORE**

## **FUNCTIONS**



# ***UAS LANDSCAPE IN SINGAPORE***



Important enabler to meet both economic and strategic outcomes for many countries, not the least, Singapore



# In line with the Smart Nation vision, UAS can improve our mobility, productivity, and service delivery

**Improve  
logistics  
flow:  
*E.g. Drone  
delivery***

**Emergency  
response:  
*E.g. Oil spill  
incident***

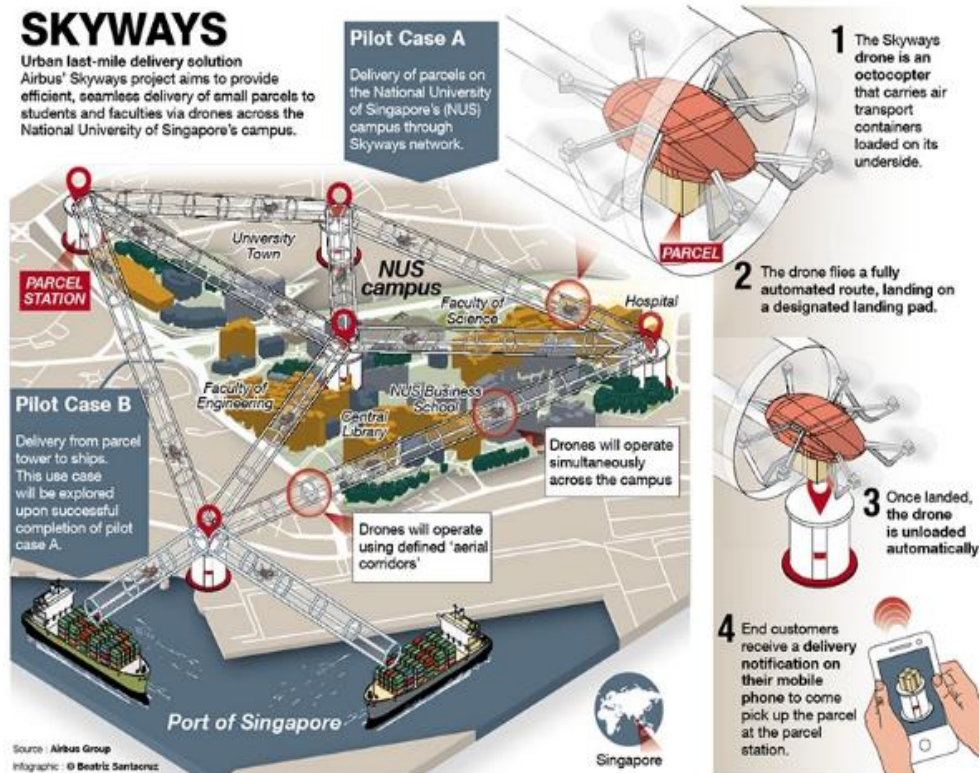
**Improve  
productivity:  
*E.g. Workplace  
safety  
inspection***

**Transport:  
*E.g.  
Passenger  
drones***

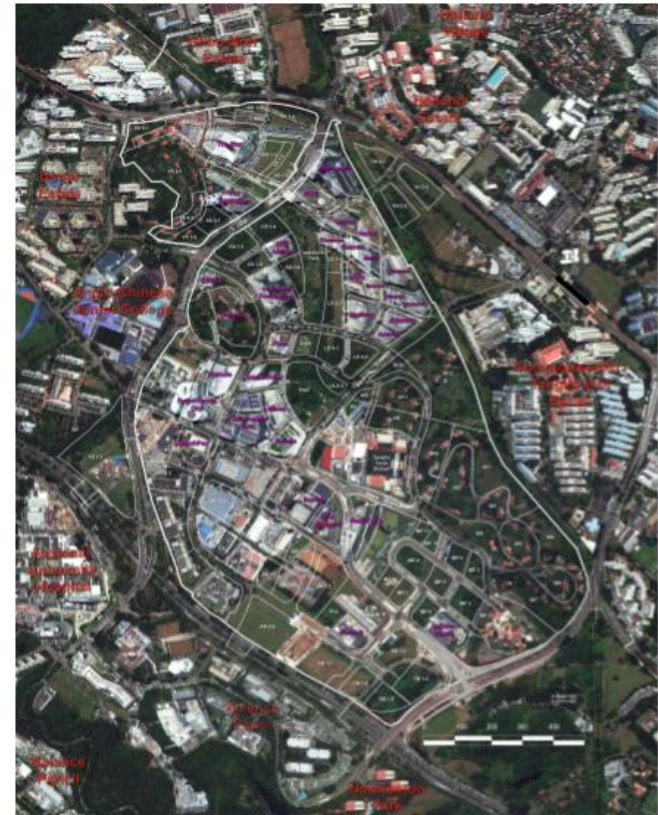


# To enhance the UAS regulatory framework, a proactive, calibrated and customised approach is necessary to bridge gaps

- 1 Facilitating new use cases and trials
- 2 Carving out zones for trials

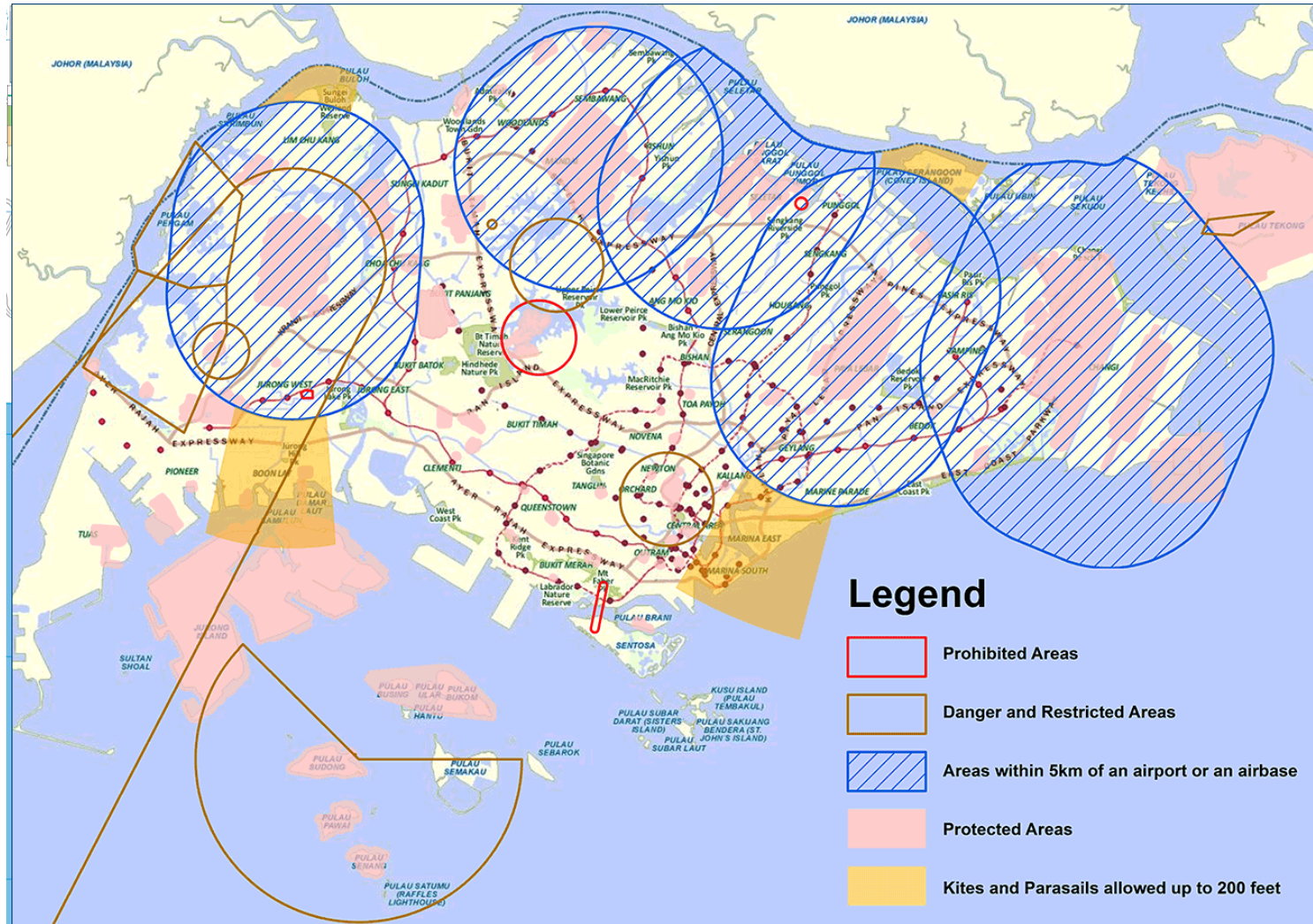


Source: Airbus



# SINGAPORE LANDSCAPE

HIGHLY URBANIZED ENVIRONMENT





# WHY WE REGULATE

UAS is an emerging safety risk to the public and to manned aviation

A regulatory framework to give CAAS the mandate for:

- Safety oversight over UAS operations
- Taking enforcement actions against errant UAS operators

Commercial operations are regulated differently from recreational and research operations:

- Expectation from general public for more stringent regulation of commercial operations
- Expected to carry higher risk due to higher frequency and complexity of operations

# ***WHO WE REGULATE***



OEM & Manufacturer



Service Providers



Recreational Users

**Regulation is from the operational aspect and on the use of the unmanned aircraft**



# **CURRENT REGULATORY FRAMEWORK**

# ***REGULATORY & PERMIT FRAMEWORK***

## ***FOR UNMANNED AIRCRAFT OPERATIONS***

### **Recreational & Research**

- No Permit Required **UNLESS**
  - UA > 7kg
  - Within restricted Areas and aerodromes
- Follow Advisory and **Fly it Safe!**

### **Commercial Activities**

- Operator Permit
- Activity Permit

# PERMIT FRAMEWORK

## Types of Permit(s):

### Operator Permit

- For upfront evaluation of operator (at the organisational level) competency, pilot competency, and airworthiness of unmanned aircraft

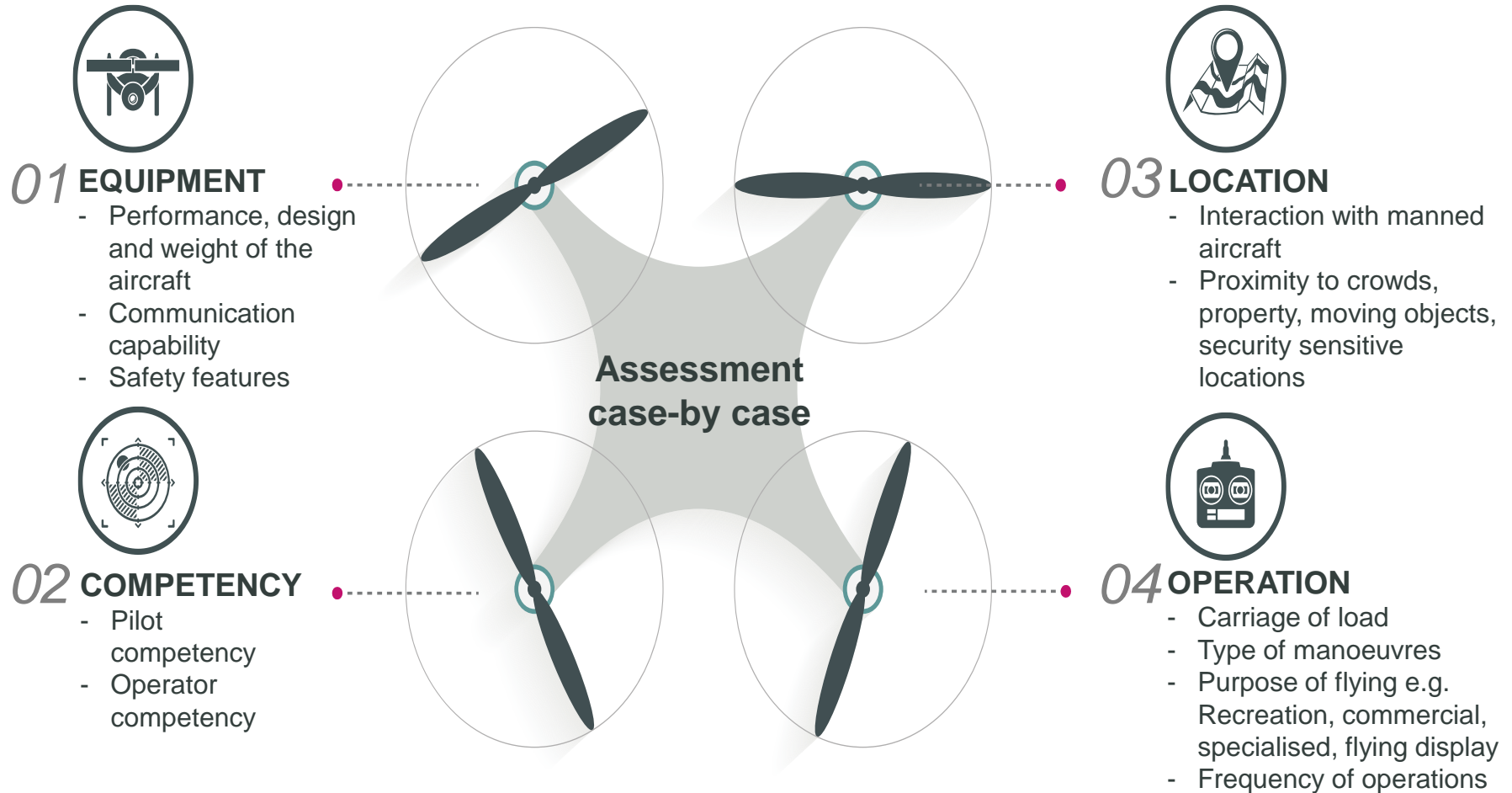
### Activity Permit

- For site-specific evaluation (e.g. within 5km of aerodromes, operating above 200ft AMSL, type of operations etc.)

### Other Permits

- For other uses (e.g. discharge of substances, use of radio frequencies and power limits outside of IMDA guidelines, operating in Restricted or Danger Areas, including Security Sensitive Locations (SSLs), Special Event Areas etc.)

# RISK-BASED APPROACH





# FLY IT SAFE!

## SINGLE LOCATION FOR ALL UA-RELATED INFORMATION

Fly It Safe

Aerial Activities

Flying of Unmanned Aircraft

Flying of Unmanned Airship

Holding of Captive Balloons

Kite-flying

Kite-surfing


Parasailing

Release of Free-flying Helium Balloons

Release of Sky Lanterns

Area Limits

Contact Us



Flying of Unmanned Aircraft

What is it?

An unmanned aircraft, also known as an unmanned aerial vehicle (UAV) or drone, is an aircraft that is operated with no pilot on board.

Why is it important to operate unmanned aircraft safely?

Given Singapore's busy airspace and densely populated urban environment, the flying of unmanned aircraft must be carried out in a safe and responsible manner. If not carried out properly, the operation of unmanned aircraft may pose a risk to aviation and public safety. Despite the safety features in some unmanned aircraft, mechanical malfunction, loss of control link or human error could occur and cause operators to lose control of their aircraft in flight. This may result in the unmanned aircraft colliding with a manned aircraft or another unmanned aircraft, or hitting persons and property on the ground, potentially causing injury and damage. Operators should ensure that they are able to operate unmanned aircraft safely, exercising due care and concern for others.

How do I fly unmanned aircraft safely?

The infographics below provide guidelines for flying your unmanned aircraft safely.

Here's what you should observe when flying unmanned aircraft for recreation under conditions that do not require a permit.

### How do I fly unmanned aircraft safely?

The infographics below provide guidelines for flying your unmanned aircraft safely.

Here's what you should observe when flying unmanned aircraft for recreation under conditions that do not require a permit.

Here's what you should avoid when flying unmanned aircraft for recreation under conditions that do not require a permit.

You may download the Advisory on the "Safe and Responsible Operation of Unmanned Aircraft (for recreational uses not requiring a permit)" [here](#).

Source: CAAS Website ([www.caas.gov.sg](http://www.caas.gov.sg))

CAAS

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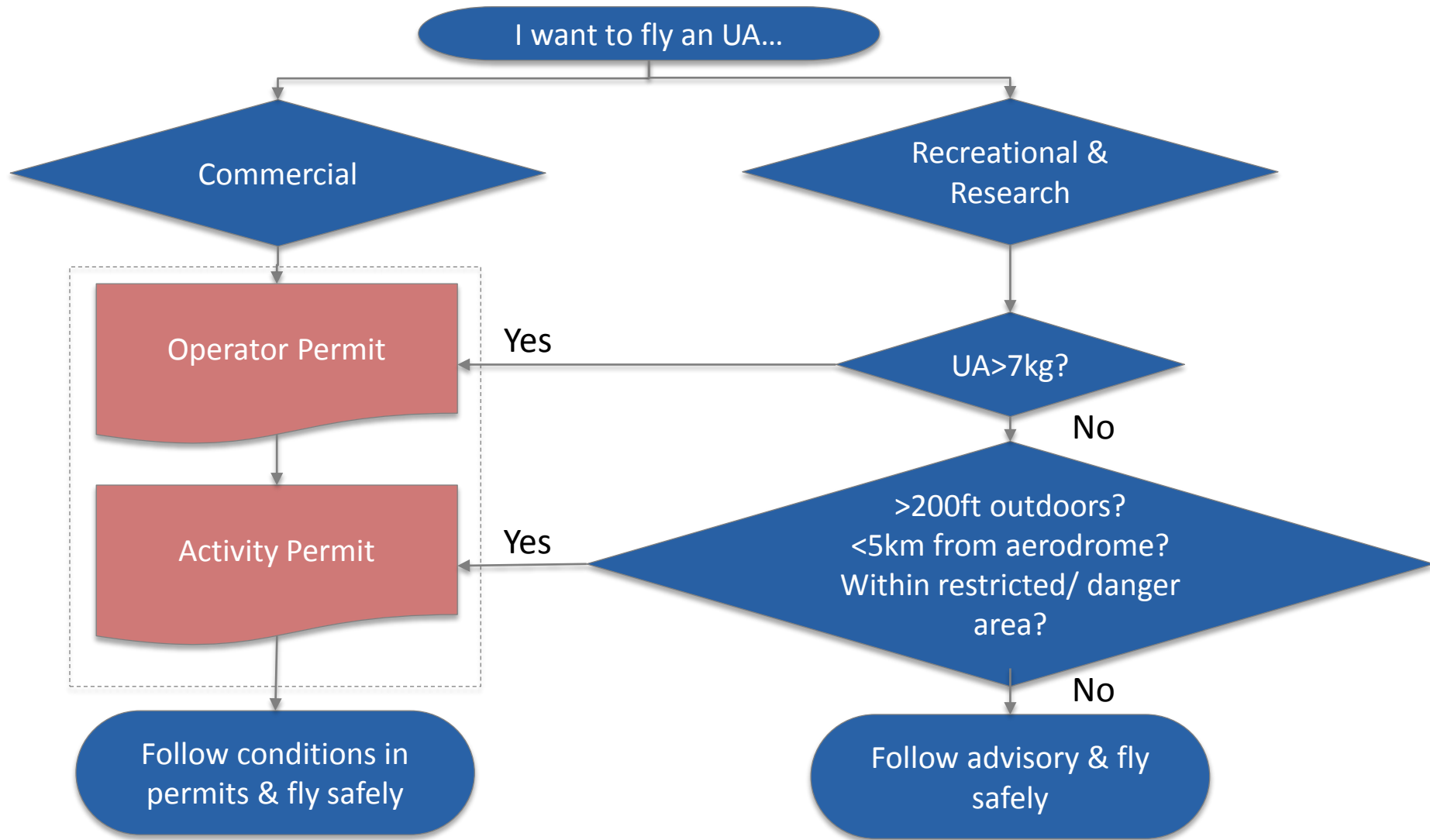
# FLY IT SAFE!

## EDUCATING PUBLIC ON DOs and DON'Ts



Source: TODAY

# IN SUMMARY





# **UPCOMING REGULATORY ENHANCEMENTS**

# BEYOND VISUAL LINE OF SIGHT (BVLOS) OPERATIONS

## OUR APPROACH

Risk based approach to develop requirements with varying level of stringency to address the risks involved for various tiers of BVLOS operations

Internal study on  
risks involved

Identify enabling  
factors for BVLOS

Draft requirements  
based on enabling  
factors

Validation of  
requirements with  
Industry

# ***ENHANCE REGULATIONS***

## ***FOR UNMANNED AIRCRAFT OPERATIONS***

### Weight Threshold

- *Review of existing weight threshold of 7kg*
- *Development of UA weight classification tiers*

### UA Registration

- *Evaluate the policy intent for UA registration and requirements for UA registration*

### Pilot Licensing Framework

- *Proof of UA pilot competency*
- *Authorised training facilities*

- Proposed enhancements to the existing framework subjected to further review and evaluation.



**THANK YOU!**