



ANTICIPATING THE DRONES PROGRESSION THROUGH EFFECTIVE POLICY-MAKING



KEMENTERIAN PERHUBUNGAN
BADAN PENELITIAN DAN PENGEMBANGAN PERHUBUNGAN
PUSAT PENELITIAN DAN PENGEMBANGAN TRANSPORTASI UDARA

FOCUS GROUP DISCUSSION

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Today and in the Future



A Growing Industry

/ Exponential growth

/ More than the number of traditional AOC in several other countries

/ Various purposes



Hobby

- / Recreational, photography, sport**
- / Typically small drone**
- / Widespread use, non-commercial**

Agriculture

- / Spraying, mapping, crop monitoring
- / Low-level operation
- / Non-commercial



unknown

unknown

shark

shark

shark

shark

shark

unknown

shark

unknown

Patrol

- / SAR, shark spotting
- / Use of AI
- / Non-commercial




Transport

- / Able to transport packages, foods, or other goods
- / Intended to transport passenger in the future
- / Commercial use



Further Impacts

- / Changes in the near future; advanced types of drone**
- / More people will buy and use it, more complex operations**
- / Unsafe conduct**



Beyond Expectation, Beyond Regulation

Incremental Expansion on Regulatory Framework

where are we know?

- / Small UAS and Restricted RPAS
- / Limited operations
- / 0 certified operator, compared to other countries:

// FAA

119.837 remote pilot certificates

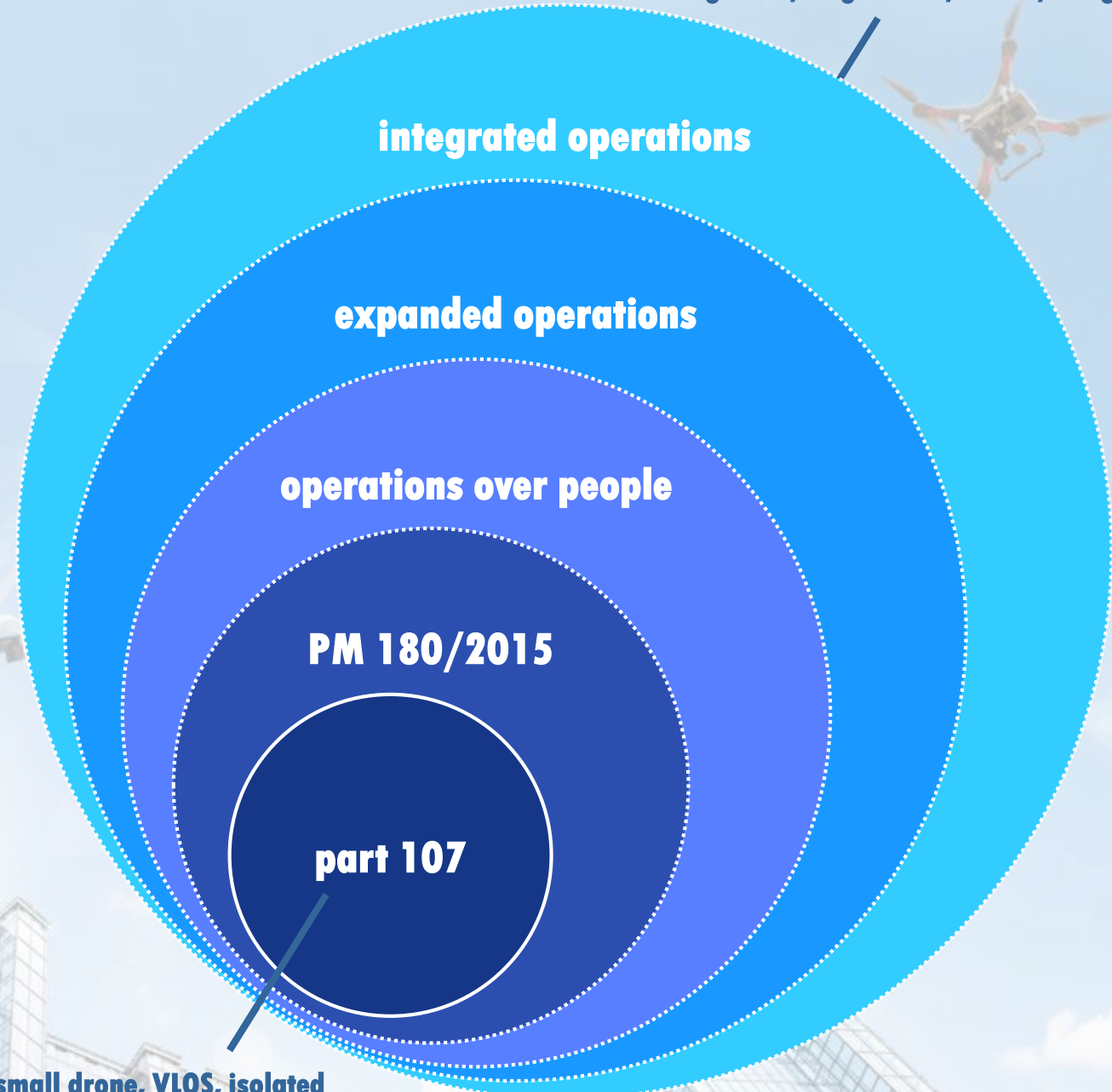
// CASA

10.999 remote pilot licenses

1.504 remote operator certificates

low risk, small drone, VLOS, isolated

high risk, large drone, BVLOS, integrated





The Challenges

- / To implement full risk-based and effective regulatory framework**
 - // integrated but not all-inclusive regulatory solution**
- / Allows for flexibility in innovation in drone industry**
 - // partnering with industry**

Layer 1: Core



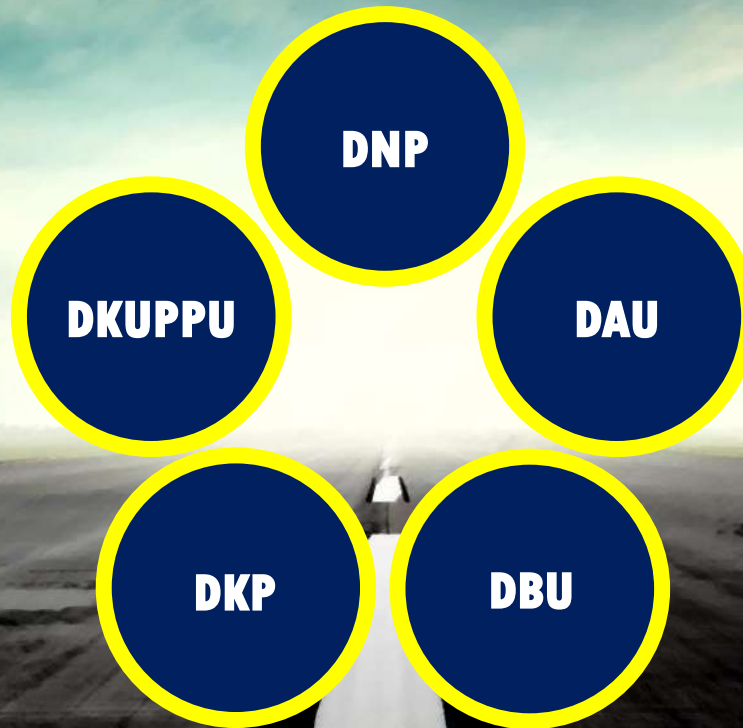
- / Use of airspace
- / Operation permission and procedures
- / Surveillance



- / Drone registration
- / Pilot licence
- / Operator certificate



- / Business plan
- / Non-airline operator
- / Fleet size



- / Security check
- / Equipment and personnel



- / Airport facilities
- / Outside airport area

Layer 2: Opportunity Created

Pilot Hiring



- / Remote pilot training centre
- / Rating procedures

Layer 1

Tech Industry



- / Drone production
- / Maintenance works

Layer 3: Public Interest





Worldwide Progression



I FLY SAFE

All drones are aircraft—even the ones at the toy store. So when I fly a drone I am a pilot. Before I fly I always go through my pre-flight check list. I regularly check the safety guidelines at faa.gov/uas

FLY SMART, FLY SAFE, AND HAVE FUN! knowbeforeyoufly.org
faa.gov/uas

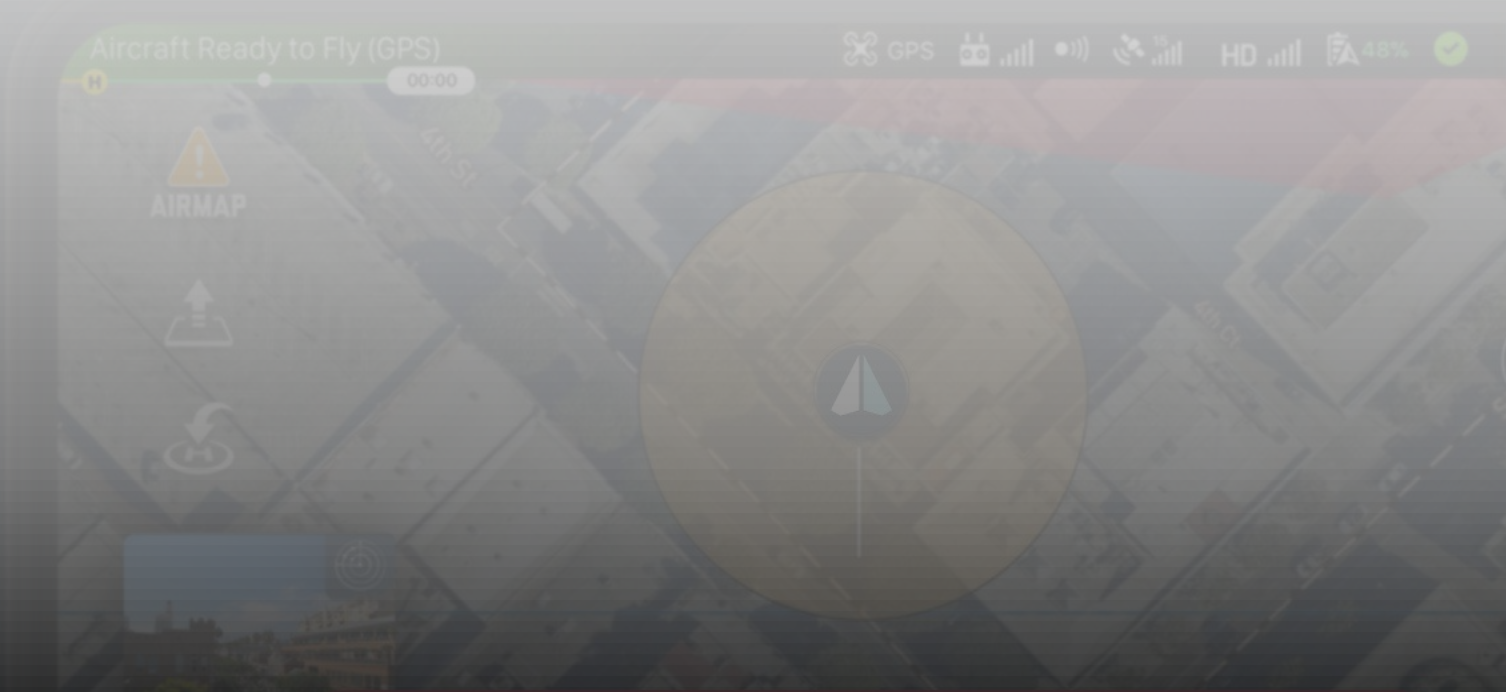
PRE-FLIGHT CHECKLIST

- I fly below 400 feet
- I always fly within visual line of sight
- I'm aware of FAA airspace requirements: faa.gov/uas/fr
- I never fly over groups of people
- I never fly over stadiums and sports events
- I never fly within 5 miles of an airport without first contacting air traffic control and airport authorities
- I never fly near emergency response efforts such as fires
- I never fly near other aircraft
- I never fly under the influence

 Federal Aviation Administration



Get **real-time alerts** if your flight is approaching or intersecting regulated or restricted airspace.



Approaching No-Fly Zone in 12 Seconds

Steps that are being Carried out

/ Collaboration efforts

/ UAS traffic management

/ Involvement of local governments

/ Geofencing

/ Mobile app

/ Safety promotion and education



Drone that Succeed

“Wing, an initiative of Google’s parent company Alphabet, has received Air Carrier Certification from the Federal Aviation Administration”

- / Wing Aviation LLC, its company name, wins approval both from FAA and CASA**
- / Extensive testing from 18 months trial with more than 70.000 test flights and 3.000 deliveries in Australia**
- / Serve as commercial delivery drone from local business to households, operate over North Canberra (Aus) and Blacksburg and Christiansburg of Virginia (USA)**

The background of the slide features a faded, light-colored image of a person's hands. One hand is holding a smartphone, and the other is holding a pen, positioned as if writing or pointing at a laptop screen. The overall aesthetic is clean and professional, with a focus on technology and research.

**We can Do it Better when We
Know it Better**