LIVE WEBINAR

Topic:

Drone Regulation, UTM, and Certification

Hamburg, Germany | January 25th, 2023

DRONE INDUSTRY INSIGHTS

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We help companies to understand the commercial drone market and create sustainable business models

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1 GENERAL

2 IMPLEMENTING A LEADING NATIONAL UTM by Pawel Korzec (CEO Drone Radar)

3 A PLAYBOOK FOR DRONE CERTIFICATION by Marc Beltran (CEO EU Drone Port)

4 Q&A

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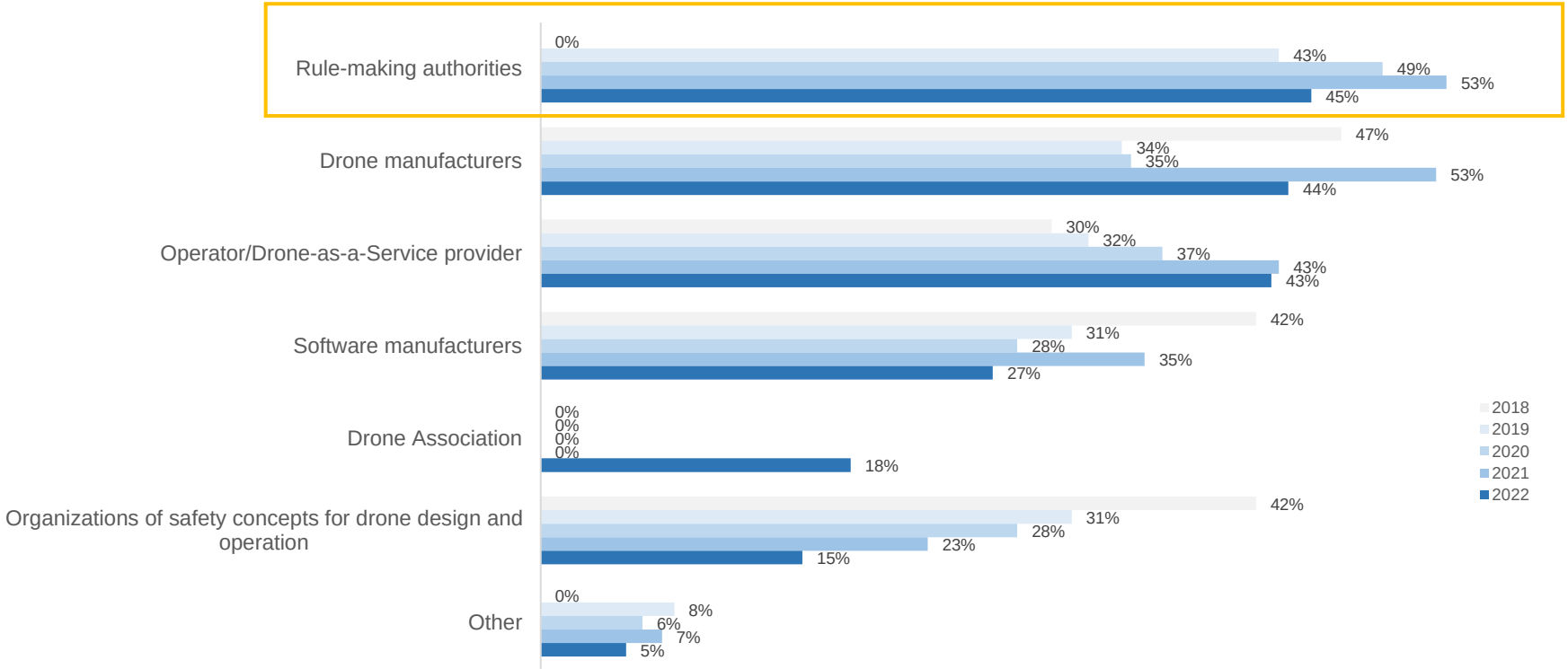
WHY IS REGULATION SO IMPORTANT?



Source: Drone Regulation Report 2023

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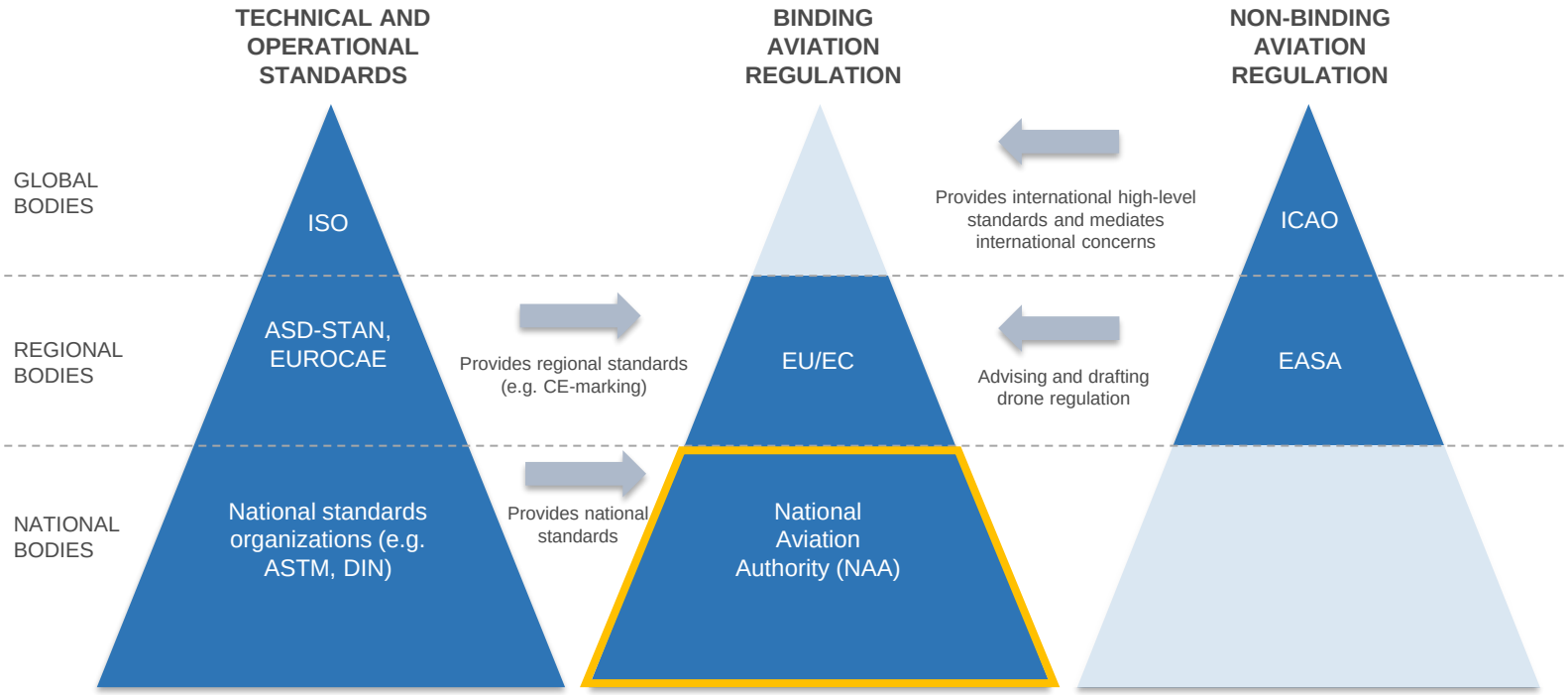
WHAT REGULATIONS DO EXIST?



Source: Drone Regulation Report 2023

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REGULATORY MILESTONES UNTIL AND INCLUDING 2022

Drone Operation

2016:
Publication of FAA Part 107 framework for drone operation.

2019:
Publication of (EU) 2019/947 for drone operation according risk categories (SORA) and enabling BVLOS flights based on standard scenarios.

14.03.2022:
Publication of FAA BVLOS recommendations for BVLOS rulemaking.

06.12.2022:
Japan established a certification system for drones, operators and pilots to enable Level 4 (BVLOS) operation in urban areas.

Airspace

2017:
FAA established the Low Altitude Authorization and Notification Capability (LAANC**)** for testing UTM capabilities.

22.04.2021:
Publication of EU U-Space regulation (EU) 2021/664 (UTM system).

Drone Manufacturing

2019:
Publication of (EU) 2019/945 for system requirements in the open category.

15.01.2021:
Publication of US remote ID rules for drones.

2022:
Type Certificate for Matternet M2.
EU Class certificates for DJI Mavic 3, Sensefly ebee and Quantum System Trinity F90+ .

23.11.2020:
FAA publication of airworthiness criteria for the proposed certification of 10 different drone systems or drones as special class aircraft.

17.12.2020:
Publication of airworthiness standards for issuance of type certificate for operating under medium risk in the specific category (EU) 2019/947.

Phase 1	Enabling basic drone operation
Phase 2	Improving procedural requirements for advanced drone operation
Phase 3	Defining systems requirements for enabling high risk or certified drone operation

Source: Drone Regulation Report 2023

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MISSION FOR 2023

Priorities:

- Scaling Phase 1 (Basic drone operation)
  - Proof of concept of basic drone operation ✓
  - Increasing drone adoption on enterprise level
  - Empower education
- Improving Phase 2 (Advanced drone operation)
  - Simplifying approval process with appropriate means of compliance
  - Enable easy access for applicants
  - Enroll global harmonization with international standards
- Complying with Phase 3 (high risk/certified drone operation)
  - FAA Remote ID rules for operators by December 16th, 2023
  - Airspace integration according (EU) 2021/664 from January 26th, 2023
  - EU Class certification according (EU) 2019/947 and (EU) 2019/945 by December 31st, 2023

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Implementing a leading national UTM

Speaker:

Pawel Korzec

CEO DroneRadar

Warsaw, Poland | January 25th, 2023

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The greatest 664, 665, 665 implementation challenges

the day before ... and after

Human Factor

The most complicated and unpredictable piece of U-space

5 min 57 sec*

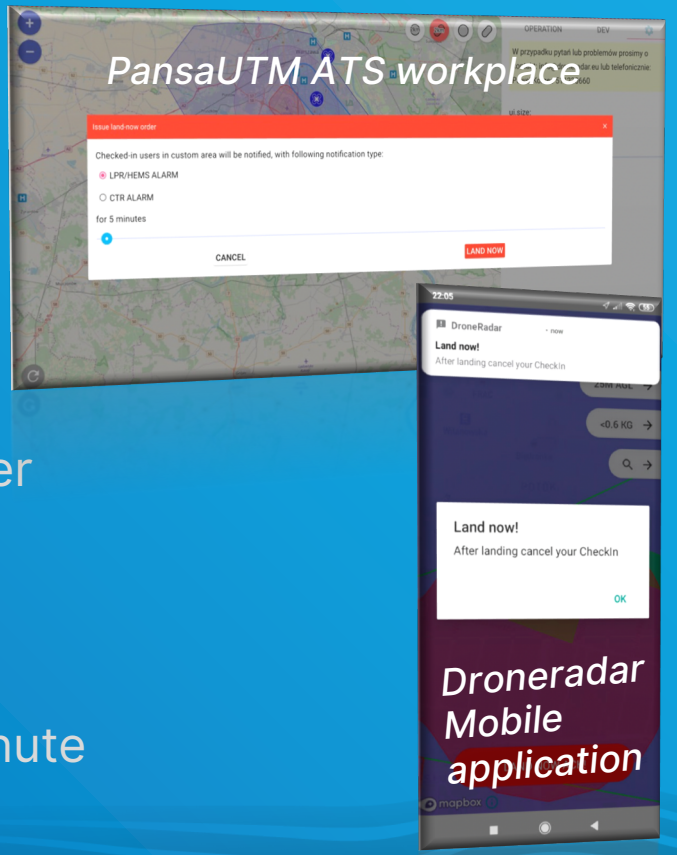
Average response time to the ATS order

1 min 52 sec*

Median of the response time to the ATS order

37%*

of UAS pilot, reacts to ATS order within 1 minute



* based on 714 “Land now” commands ordered by ATC and FIS within FIR EPWW via certified PansaUTM system, collected & aggregated as part of the PJ.34 AURA project

UAS Pilot response times

Are they quick enough?

Aircraft category	V_{AT}	Range of speeds for initial approach (and reversal and racetrack procedures)	Range of final approach speeds	Maximum speeds for circling
C (typical Airline Jet)	**121-140kt**	**160-240kt**	**115-160kt**	**180**
Distance travelled in **1m52s**	3.76 - 4.36 nm	4.98 - 7.47 nm	3.58 - 4.98 nm	5.6 nm
Distance travelled in **5m57s**	12 - 13.88 nm	15.87 - 23.8 nm	11.4 - 15.87 nm	17.85 nm

Aircraft	Typical HEMS Cruising Speed	Typical GA aircraft
	100-120kt	**70-130kt**
Distance travelled in **1m52s**	3.11 - 3.73 nm	2.18 - 4.04 nm
Distance travelled in **5m57s**	9.92 - 11.9 nm	6.94 - 12.89 nm

Why so long?

UAS pilots are the first airspace users in the history of mankind who do not directly risk their lives when flying

Effectiveness of communication, depends on many factors...

ambient noise - *sorry I didn't hear*

temperature - *it was so cold, that my battery gave up*

clothes - *I was so thickly dressed that I didn't feel haptic signals*

education - *really? I should react?*

radio waves propagation - *sorry, I was out of internet*

stress - *sorry, but I lost control over my 30k$ drone*

OS stability- *sorry, but I don't know how, but my app restarted*

level of sense of responsibility - *common, I was flying very low*

So in principle of transitive relation

(Mathematics) whenever *a* relates to *b* and *b* to *c*

than *a* relates *c*

If Sense of Responsibility relates to Understanding and

than

In this sense, the responsibility of explaining the U-space rules and setting up the infrastructure will, in principle, be in hands of the U-space decision makers.

Test your mobile applications on children's

Already at the stage of system implementation, communicate plans via social media.

Ifyou manage to present an issue that is liked by thousands of people, it means that you have achieved your goal.

Risk assessment

We all expect it to be unambiguous, but it is relative

“

Does the number of people on the street change depending on who is counting them?

Not

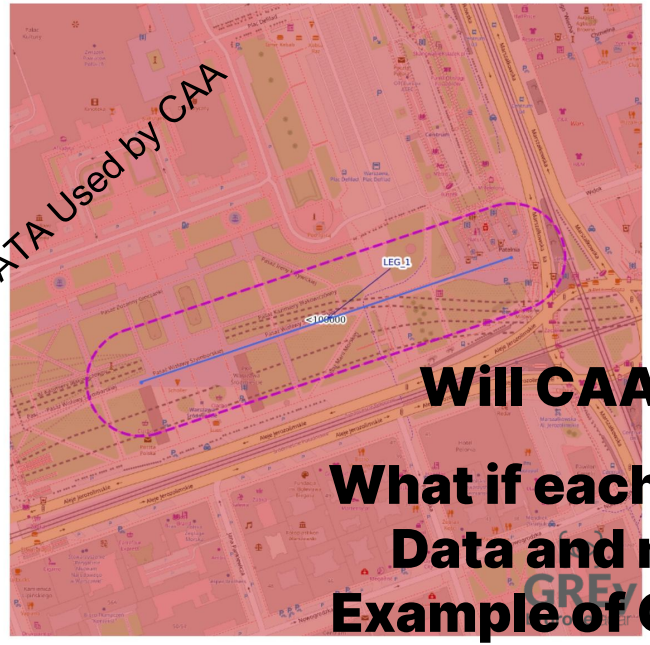
but the average number does.

So this is relative.

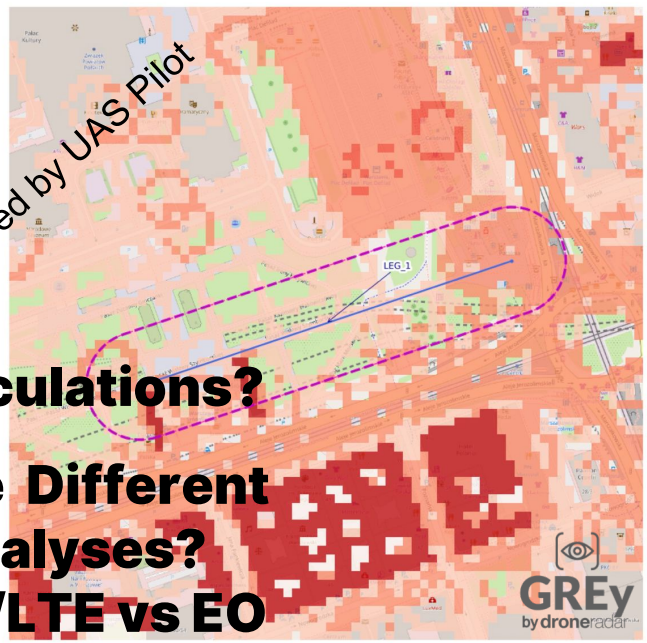
Warsaw City Center H24 CENSUS DATA

Warsaw City Center SUNDAY 03:00

6. iGRC



5. iGRC powered by HOPE Project (Population density modeled @ 2022-06-26 03:00)



Will CAA trust this calculations?

What if each UAS Pilot use Different Data and methods of analyses?

Example of CENSUSvs 3G/LTE vs EO

iGRC 3 quota	0.0%	0.0%
iGRC 4 quota	0.0%	0.0%
iGRC 5 quota	0.0%	0.0%
iGRC 6 quota	100.0%	100.0%
iGRC 7 quota	0.0%	0.0%
iGRC 8 quota	0.0%	0.0%

iGRC 3 quota	62.1%	10.3%
iGRC 4 quota	37.9%	75.9%
iGRC 5 quota	0.0%	0.0%
iGRC 6 quota	0.0%	13.8%
iGRC 7 quota	0.0%	0.0%
iGRC 8 quota	0.0%	0.0%

SUBJECTIVE + ? = OBJECTIVE

So the answer is...

DATA

Accredited data, recognized by the national authority

Because only from the right data can you get information necessary to make the right decision.

Our recommendations at the end (selected)

When implementing regulations, always take the human factor into account

Push to make every decision in the U-space system driven by data and algorithms, instead of expecting people to understand complex tasks

Relieve pilots and air traffic services of unnecessary tasks

Don't expect everyone to behave the way you expect them to

Communicate your expectations as you would explain something to a child

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Any questions?

Feel free to contact me
pawel.korzec@droneradar.eu

A playbook for drone certification

Speaker:

Marc Beltran

CEO EU Drone Port

Barcelona, Spain | January 25th, 2023

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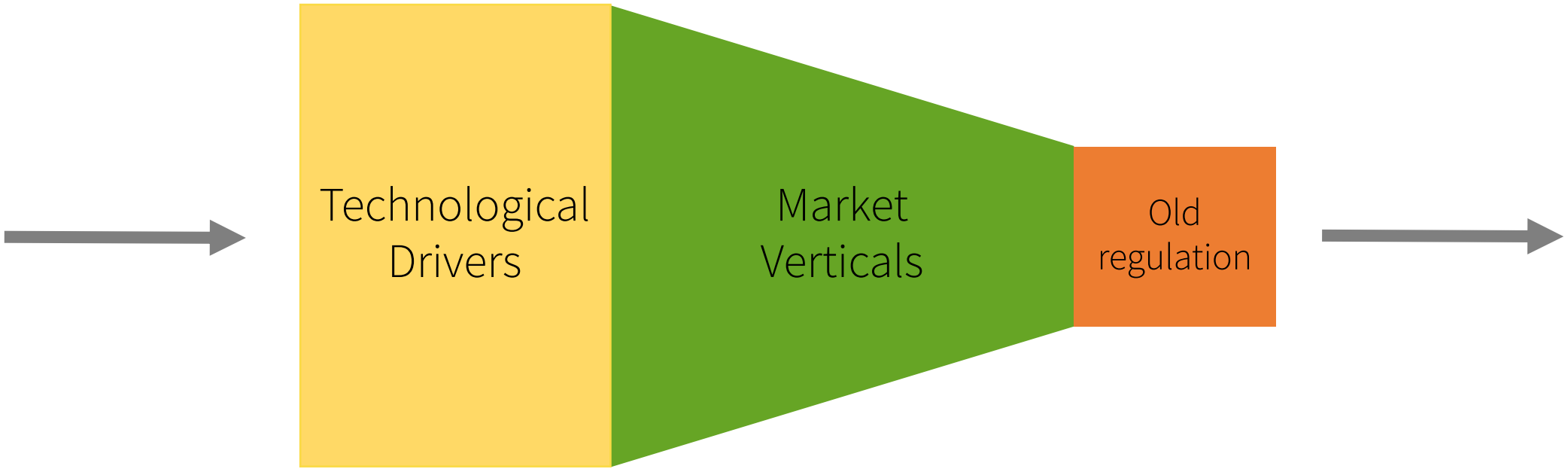
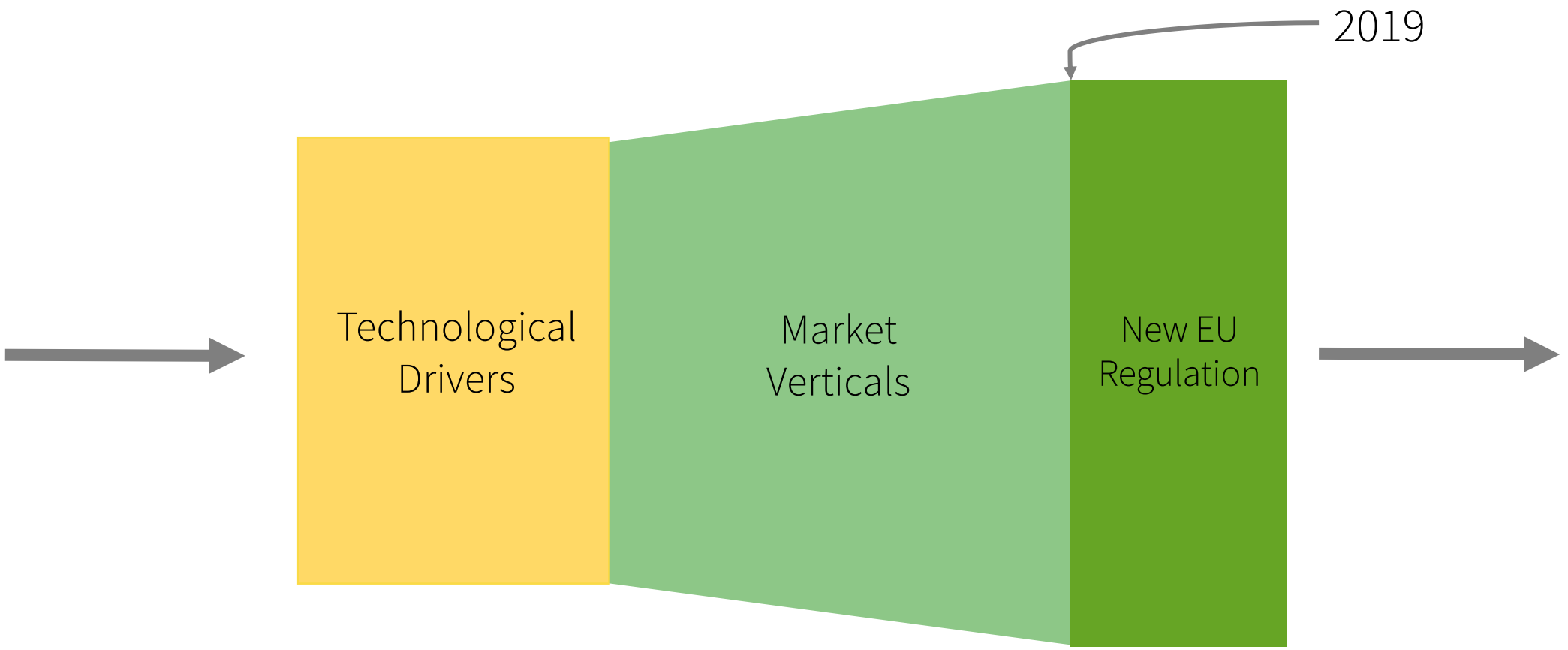
Why do we need UAS Certification?

Before 2019



After 2019


2019
Technological Drivers
Market Verticals
New EU Regulation

SCENARIO	CLASS

SCENARIO	CLASS
A1	C0, C1
A2	C2
A3	C2, C3, C4
STS-01	C5
STS-02	C6

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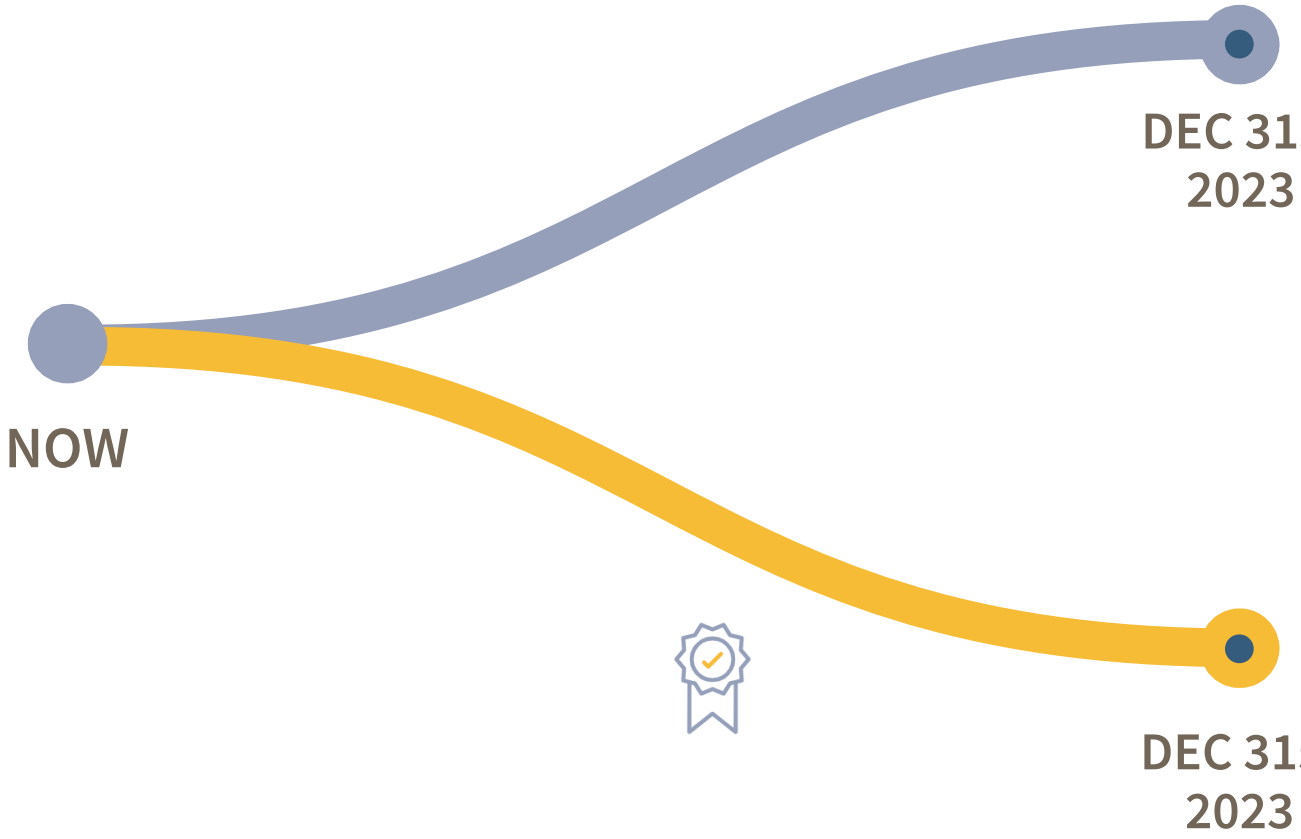
How does the certification roadmap look like in each case?

Case 1: already commercialised UAS



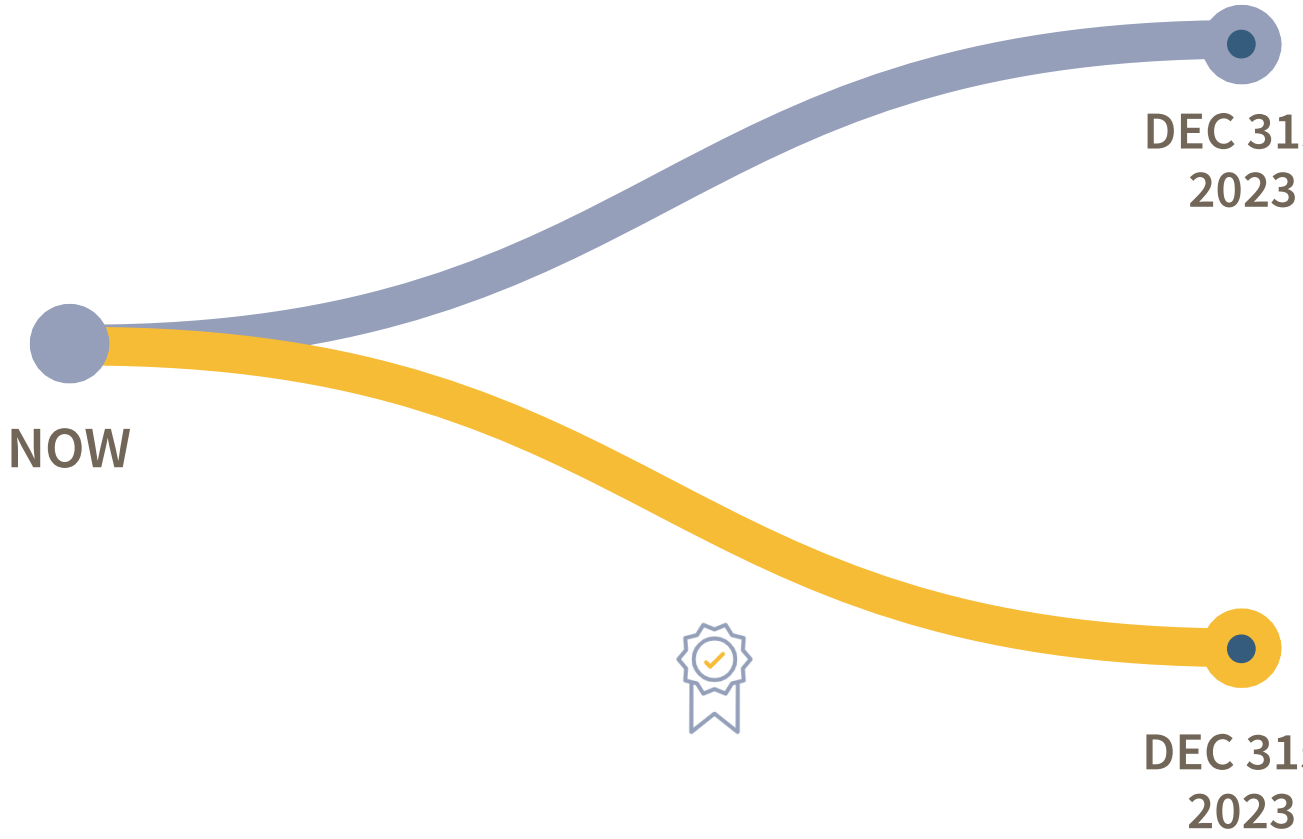
A1
< 250 gr

A3
> 250 gr

A1, A2, A3
STS-01, STS-02

Case 2: non-commercialized UAS

Case 3: Private-built



A1
< 250 gr

A3
> 250 gr

A1, A2, A3
STS-01, STS-02

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How does a UAS Class Identification Label Certification process look like?

Class Identification Label Process

DAY 1

User's manual, datasheet, maintenance manual for pre-analysis.

DAY 5

Documentation feedback. Certification viability. Set the test plan.

DAY 45

Test conclusion. Certification decision.

DAY 50

EU-Type examination certification issuance

What are the tests included in a Class Identification Label?

Class Identification Label Tests

C0

C1

C2

C3

C4

C5

C6

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trusted by:

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