EASA
European Union Aviation Safety Agency

Second Unmanned Aircraft Systems – Remote Piloted Aircraft Systems Implementation/Regulation Workshop (UAS/RPAS/W/2) for the NAM/CAR/SAM Regions

The European drone regulation

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Which UAS operations are we addressing?

Aerial work

Urban air mobility

Leisure flights, including with model aircraft

International IFR flights

EASA
European Union Aviation Safety Agency

The regulatory framework

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Legal Basis and scope of competences

Regulation (EU) **1139/2018** (new EASA Basic Regulation) extends **the EU competence** to **all UAS:**

→EASA carries out on behalf of Member States the functions and tasks of the state of designs for all UAS (type-certificate (TC); draft implementing rules: requirements; Oversight MS National Aviation Authorities NAAs))

→MS NAAs issue authorisations to operators

→Only civil drones but ….. possibility to 'opt in' for aircraft carrying out services of state, military, firefighting, search and rescue, coast guard nature

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The EU ‘DRONE’ Regulation

- Commission Implementing Regulation (EU) **2019/947**
  - *Rules + Procedures for operation of UAS*
  - *Registration*
- Commission Delegated Regulation (EU) **2019/945**
  - *Rules + technical requirements: design+ manufacturing, maintenance of UAS*
  - *Rules for Third Country Operators*
- 3 categories of UAS operations: **Open**, **Specific** and **Certified**

They replaced national regulations

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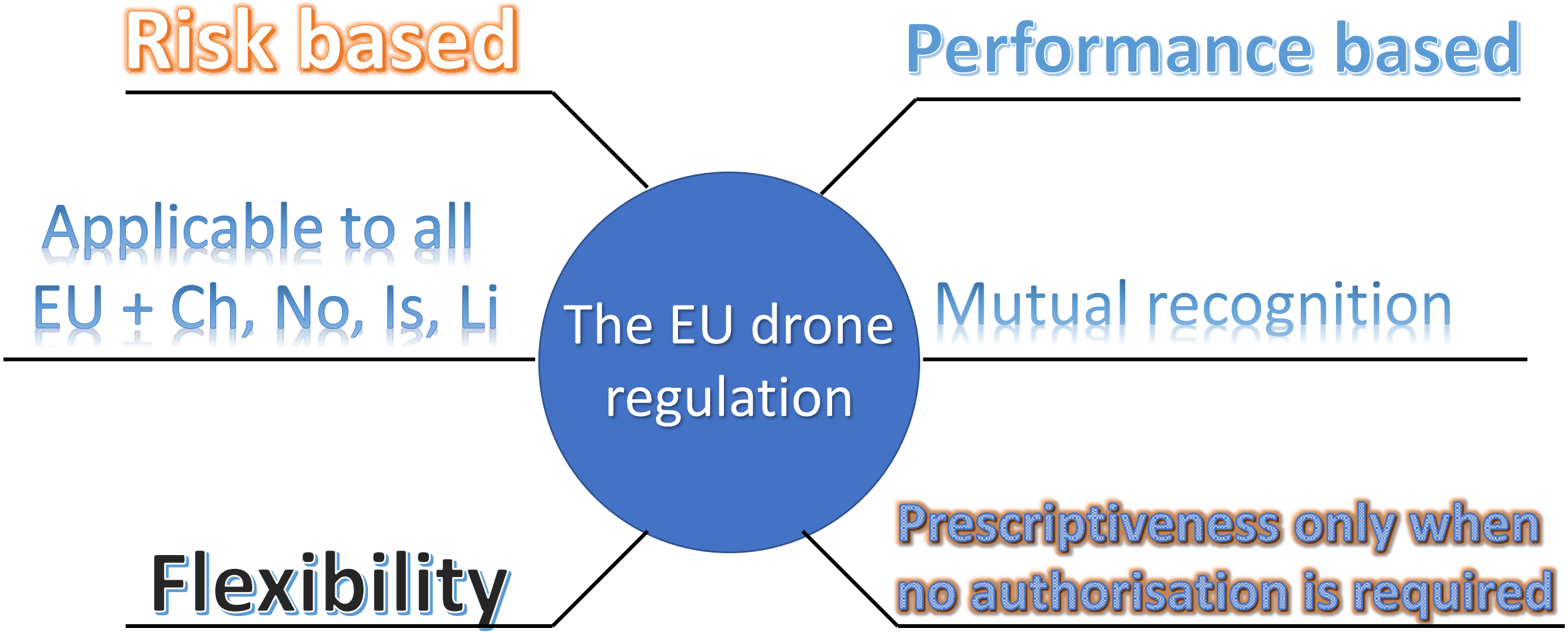
Traditional vs holistic approach

The size of stones does not represent the ration of costs…!


Risk based
Performance based
Applicable to all
EU + Ch, No, Is, Li
The EU drone regulation
Mutual recognition
Flexibility
Prescriptiveness only when no authorisation is required

Operation centric, risk-based, performance based regulation

OPEN category - Low risk

NO-PRE APPROVAL

No Type certificate

CE marking process

Recreational purpose

Professional such as photographers, inspections in unpopulated areas

SPECIFIC - Increased risk

Approval from NAA

Type certificate may be required

BVLOS operations (linear inspections, aerial work, …)

Transport of goods

CERTIFIED - Risk as manned aviation

Certificate for the operator, for the UAS, and licensed pilot

Air Taxi
International IFR (cargo, passengers)
Package delivery over people

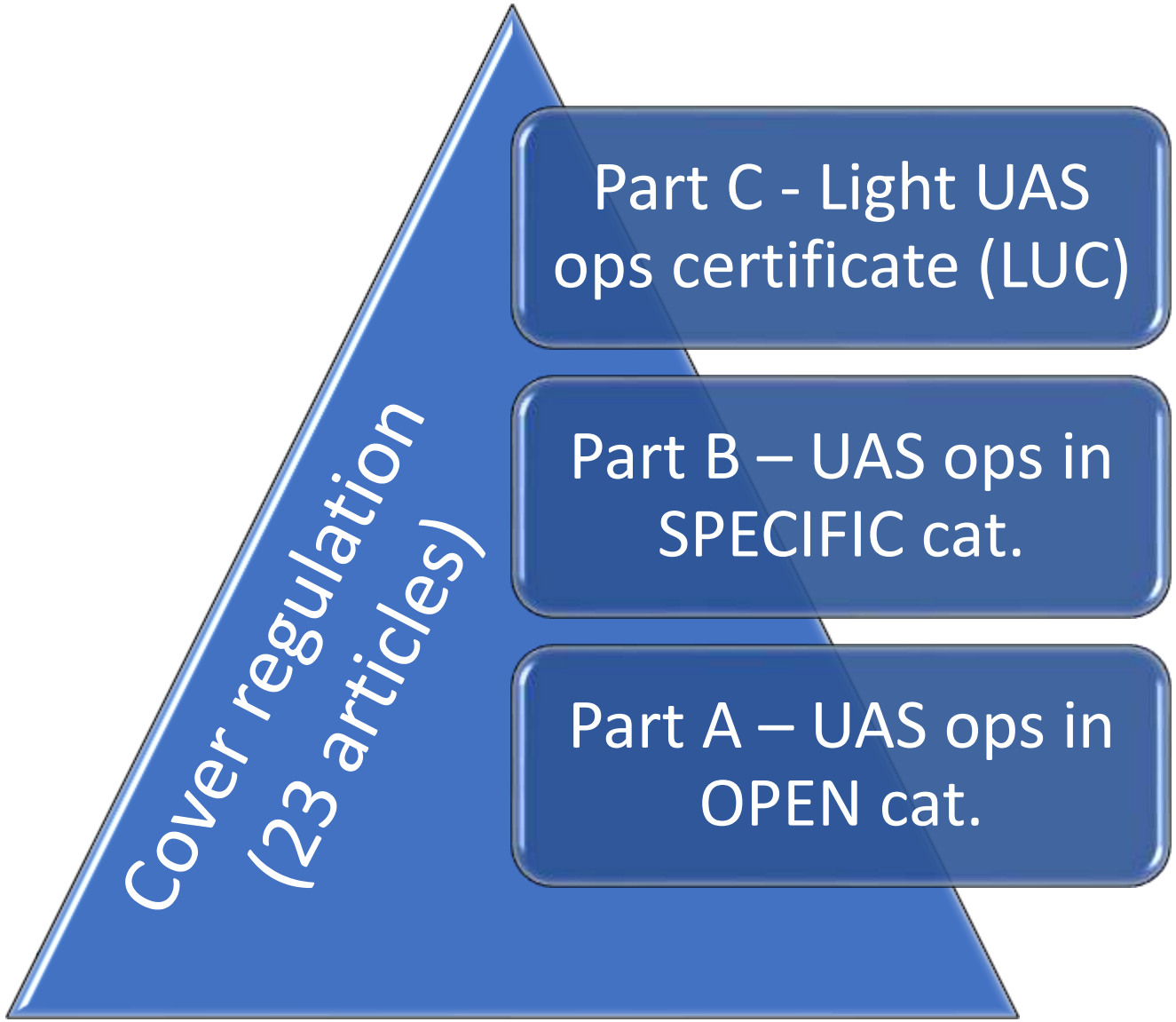
Operation centric, risk-based, performance based regulation

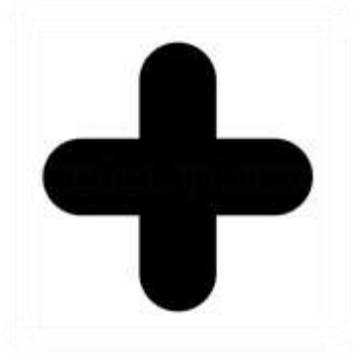
Commission Delegated Regulation (EU) 2019/945 (UAS technical requirements and third country operators)
&
Commission Implementing Regulation (EU) 2019/947 (Registration and operational requirements)

Applicability from 31 Dec 2020

Planned starting from 2022

The structure of Reg. (EU) 2019/947





Acceptable Means of Compliance (AMC)

Guidance Material (GM)

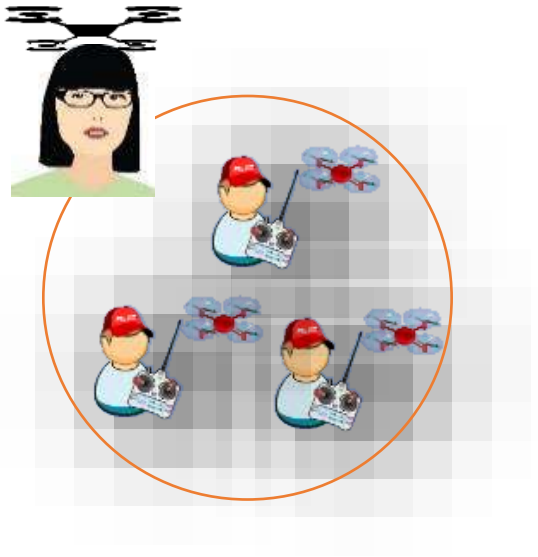
Important definitions from EU drone regulation

UAS

Model aircraft = UAS

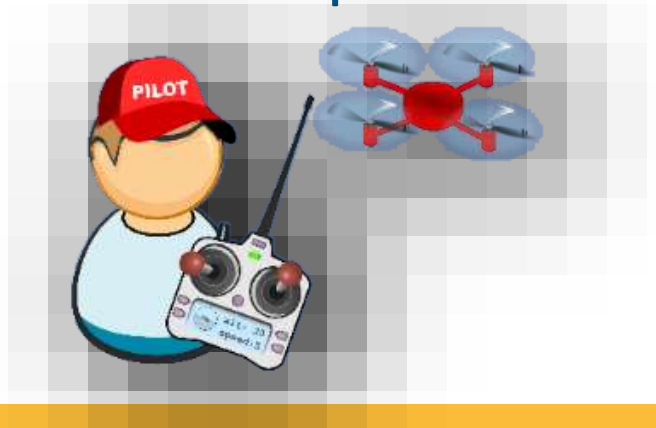
However special provisions apply

UAS Operator



Involved person

Remote pilot



Article 14 - Registration of UAS operators and certified UAS

All UAS operators must be registered in the EU Member State of residence!

The unique exceptions being:

mass< 250gr
and no camera

Toy with mass< 250gr
even with a camera

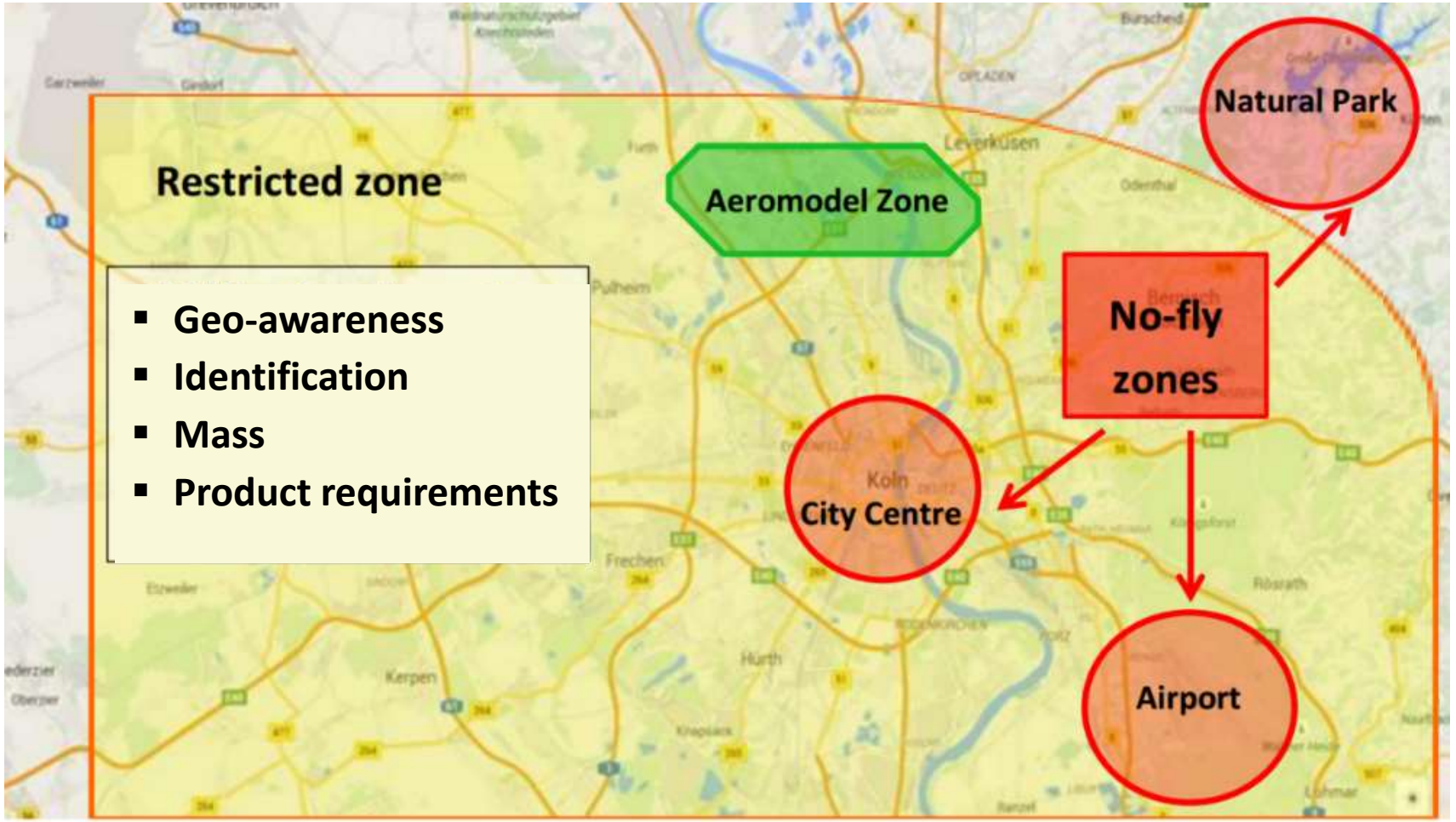
Member State of residence or main place of business

Registration of drones only when a certificate of airworthiness is mandated

Flexibility for Member States

Geographical zones defined by Member States

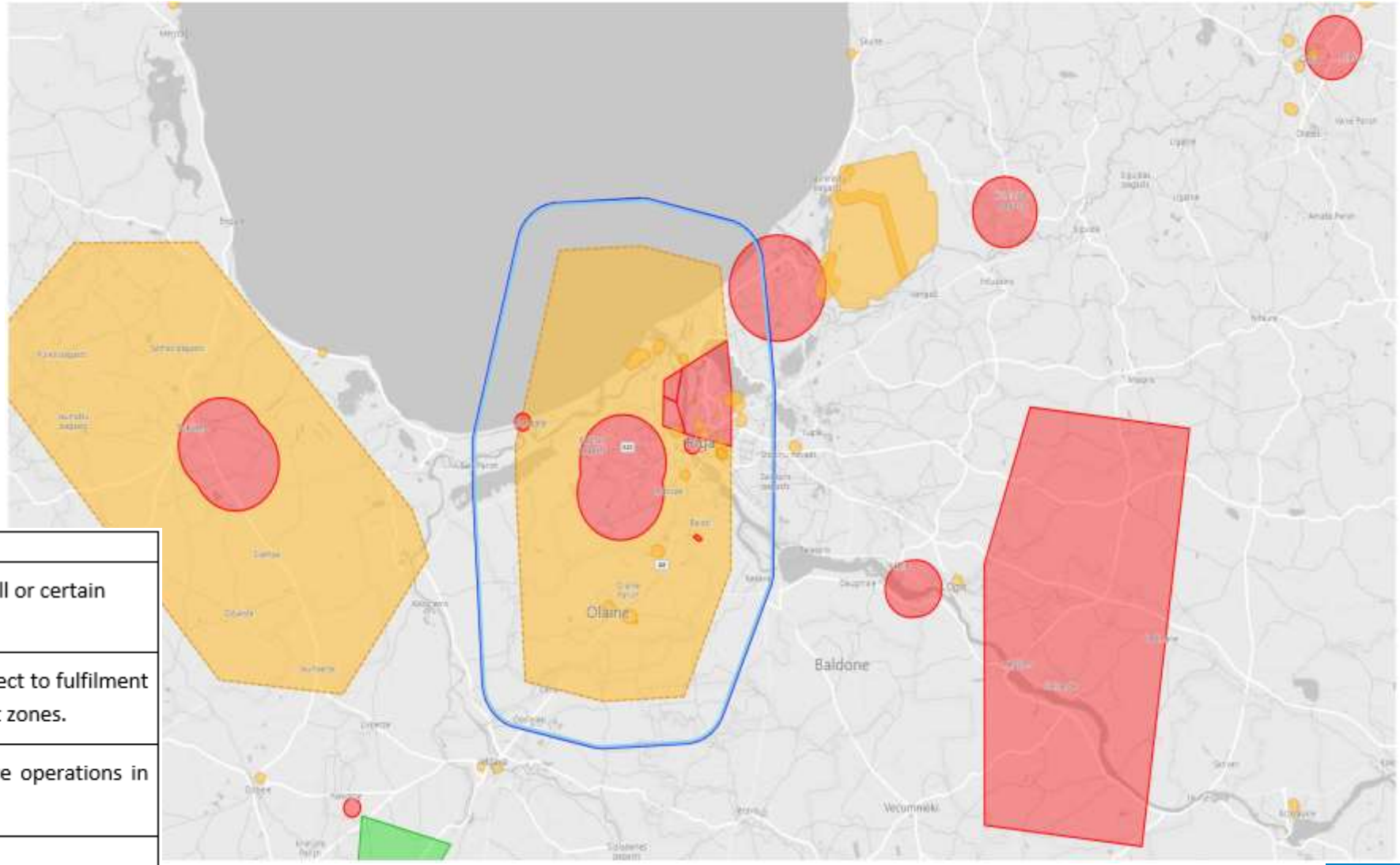
Geo-awareness on drones to support remote pilots



Regulatory reference: Art.15 of EU regulation 2019/947

Geographical zones published by Member States

Practical example:



COLOR CODE	MEANING
	Flights are prohibited for operations in all or certain classes.
	UAS operations are limited and are subject to fulfilment of set of conditions imposed for relevant zones.
	UAS geographical zones, which facilitate operations in the "OPEN" category
	U-Space airspace

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The ‘open’ category

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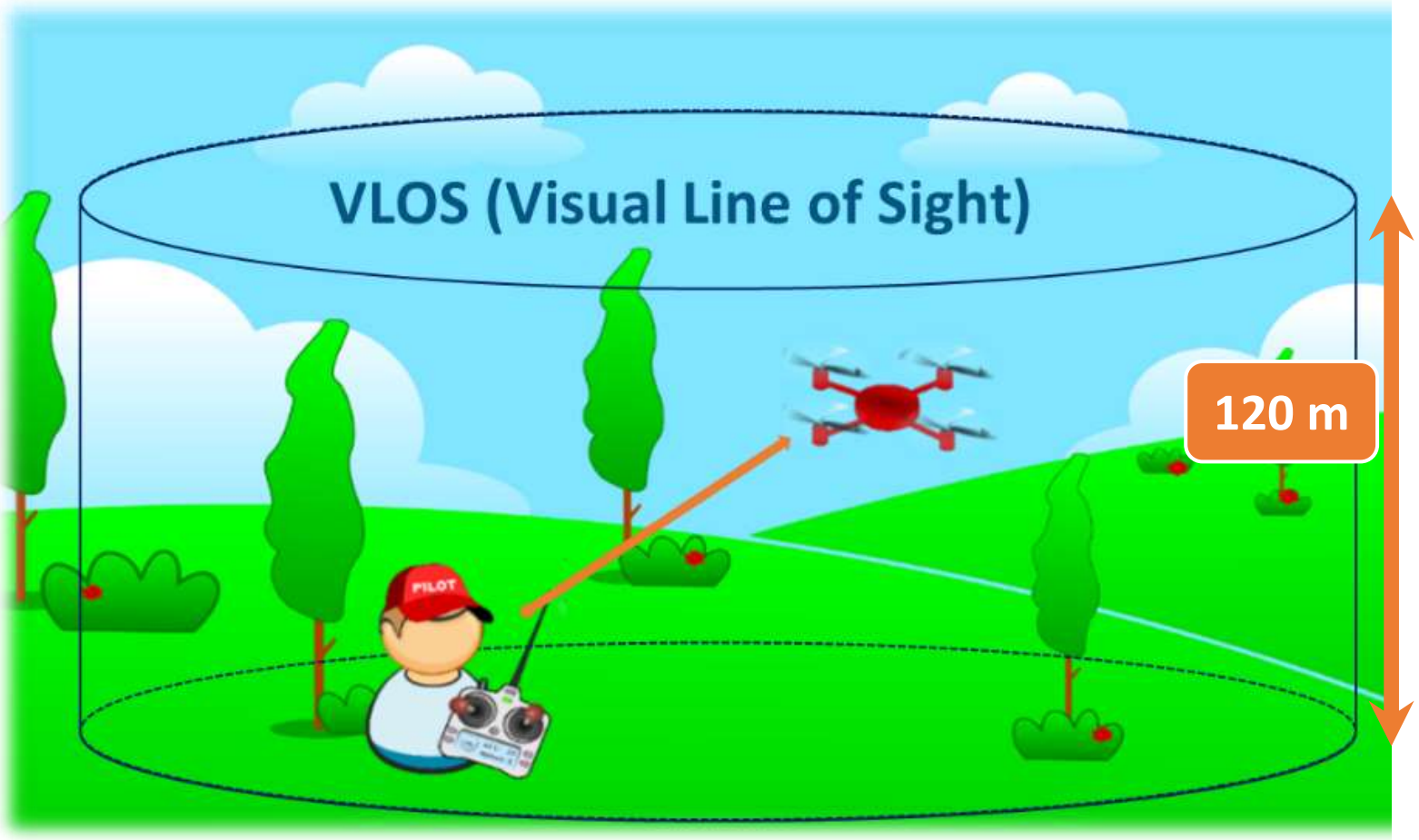
Open category – the main boundaries



- MTOM < 25 Kg
- Remote pilot minimum age 16, unless supervised (it may be reduced to 12, no minimum age for toys)
- No carriage of dangerous goods
- No dropping of material
- No autonomous operations

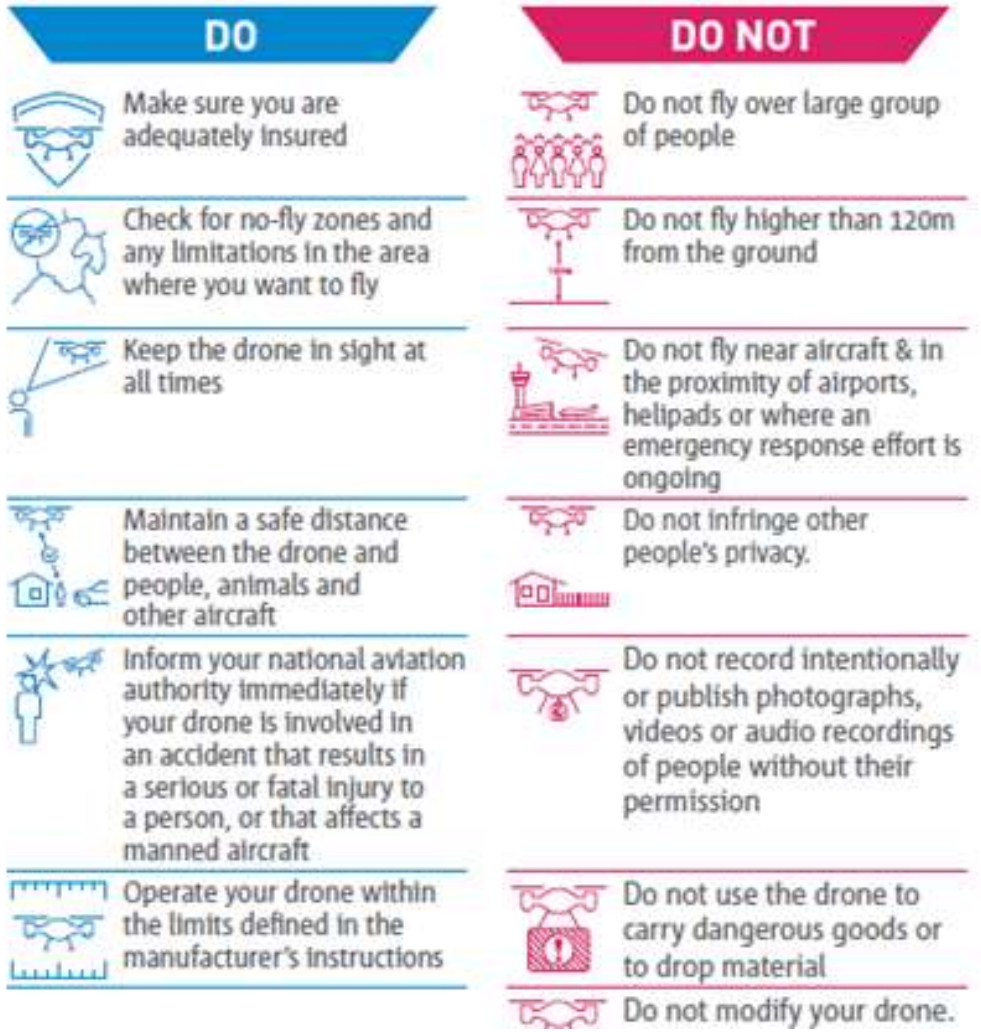
- A1 fly over people
- A2 fly close to people
- A3 fly far from people

Privately built with MTOM<250g

Privately built with MTOM<25kg

1) Buy a drone with CE markings - Leaflets

Each drone package will include consumer information



2) Registration of UAS operator

UAS Operators shall register themselves when they operate:

- In the open category:
  - UAS with an MTOM > 250g
  - UAS (non toys) with an MTOM < 250g equipped with a sensor able to capture personal data

Member State of residence or main place of business

- In the specific category: All operators

Relevant regulation: article 14 of Reg (EU) 2019/947.

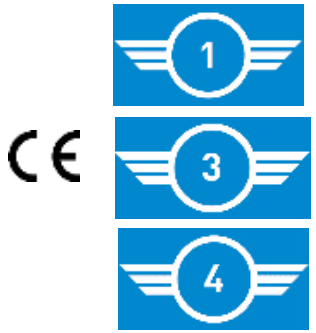
2) UAS operator registration number (example)

The operator registration number must be visible in the drone

3) Train the remote pilot: Subcategories A1/A3

Privately built with MTOM<250g

- Familiarisation with the manufacturer's instructions



- Familiarisation with the manufacturer's instructions
- Complete the online training
- Pass the online test (A1/A3)

Privately built with MTOM<25kg

Remote Pilot training proof of completion number

After passing the examination, the MS issues the proof to the remote pilot

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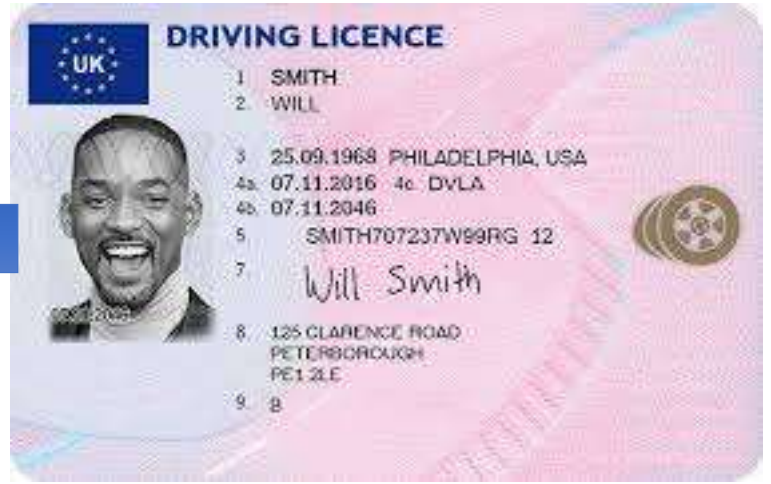
3) Train the remote pilot: subcategory A2

- Familiarisation with the manufacturer's instructions
- Complete the online training
- Pass the online test (A1/A3)
- **Conduct a self-practical training in a "safe" area (A3 subcategory conditions)**
- **Declare completion of the practical training**
- **Pass a written test in an entity recognised by the competent authority (A2)**

Regulatory reference: UAS.OPEN.030 Annex Part A of EU regulation 2019/947.

UAS operator registration number vs remote pilot training proof of completion number

Pilot licence:



Operator registration number:

Summary of ‘open’ category

Fly respecting rules

Train the remote pilot

Register as operator

CE

Buy

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The ‘specific’ category

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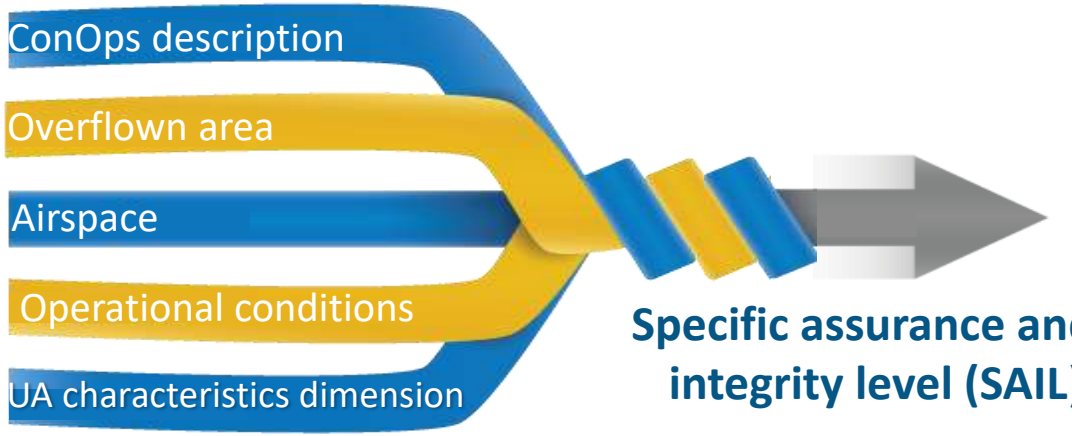
Specific category - Range of applicability

- UAS operation exceeding the limitations defined in the ‘open’ category.
- Examples :
  - ✓ Beyond Visual Line of Sight (BVLOS)
  - ✓ using a drone with a weight > 25 kg
  - ✓ higher than 120m
  - ✓ with the purpose of dropping material
- But, if one of the following conditions is met, the operations will have to be in the **Certified category**:
  - operations over assemblies of people with an UAS larger than 3 m
  - transport of people
  - transport of dangerous goods if in case of accident they pose high risk for third parties

Specific category – Risk assessment

SORA

(Specific Operation Risk Assessment)



Specific assurance and integrity level (SAIL)

- SAIL I & II: low risk
- SAIL III & IV: medium risk
- SAIL IV & V: high risk

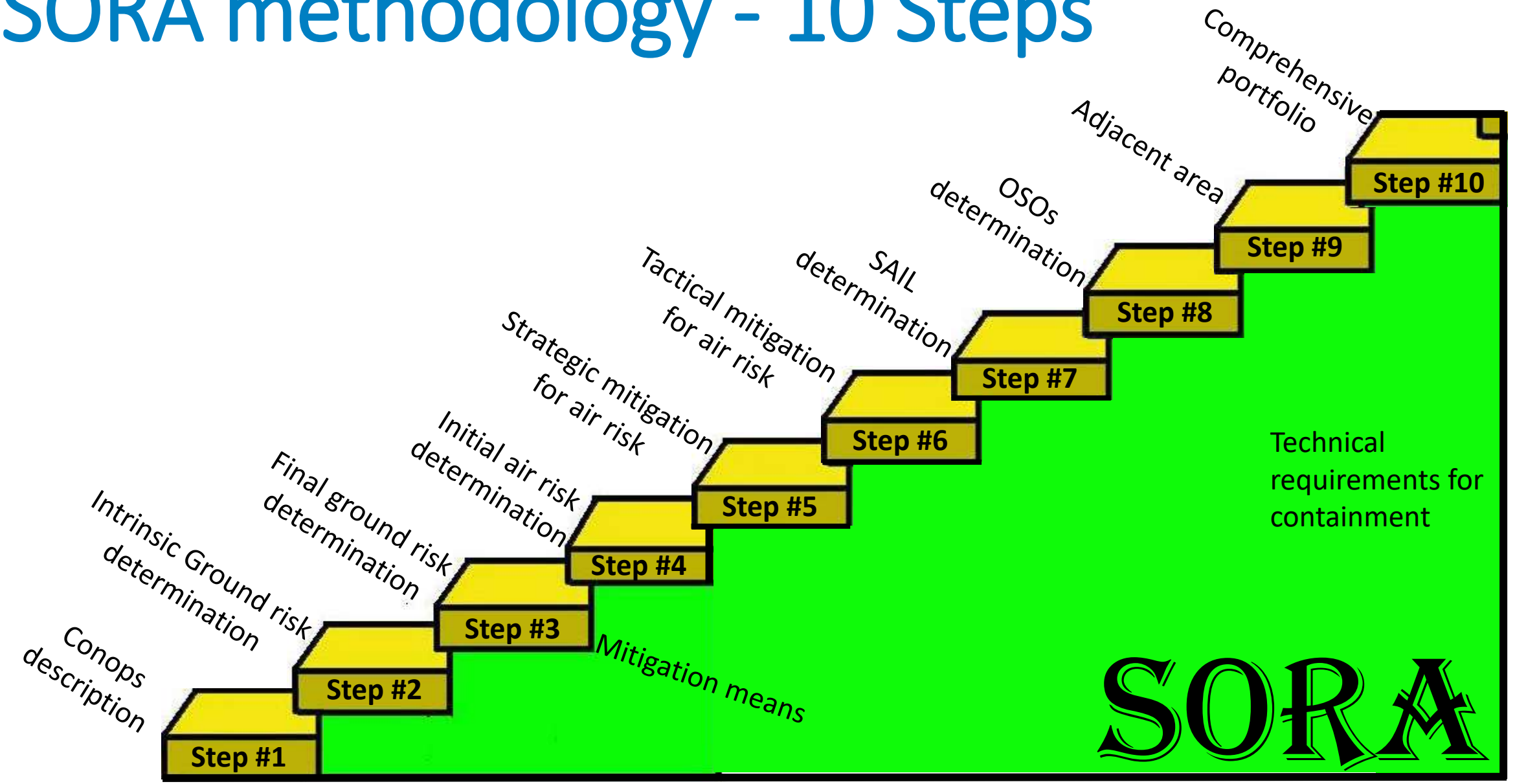
Operational safety objectives (OSO) and mitigations

for a safe and secure flight

- Flight conditions
- Operational limitations,
- Remote pilot and other personnel competencies
- Technical requirements of the UAS
- Security and privacy

Included in the AMC to Regulation (EU) 2019/945 published on EASA website

SORA methodology - 10 Steps



How does it work the ‘specific’ category?

① 

ASSESSMENT

(based on SORA)

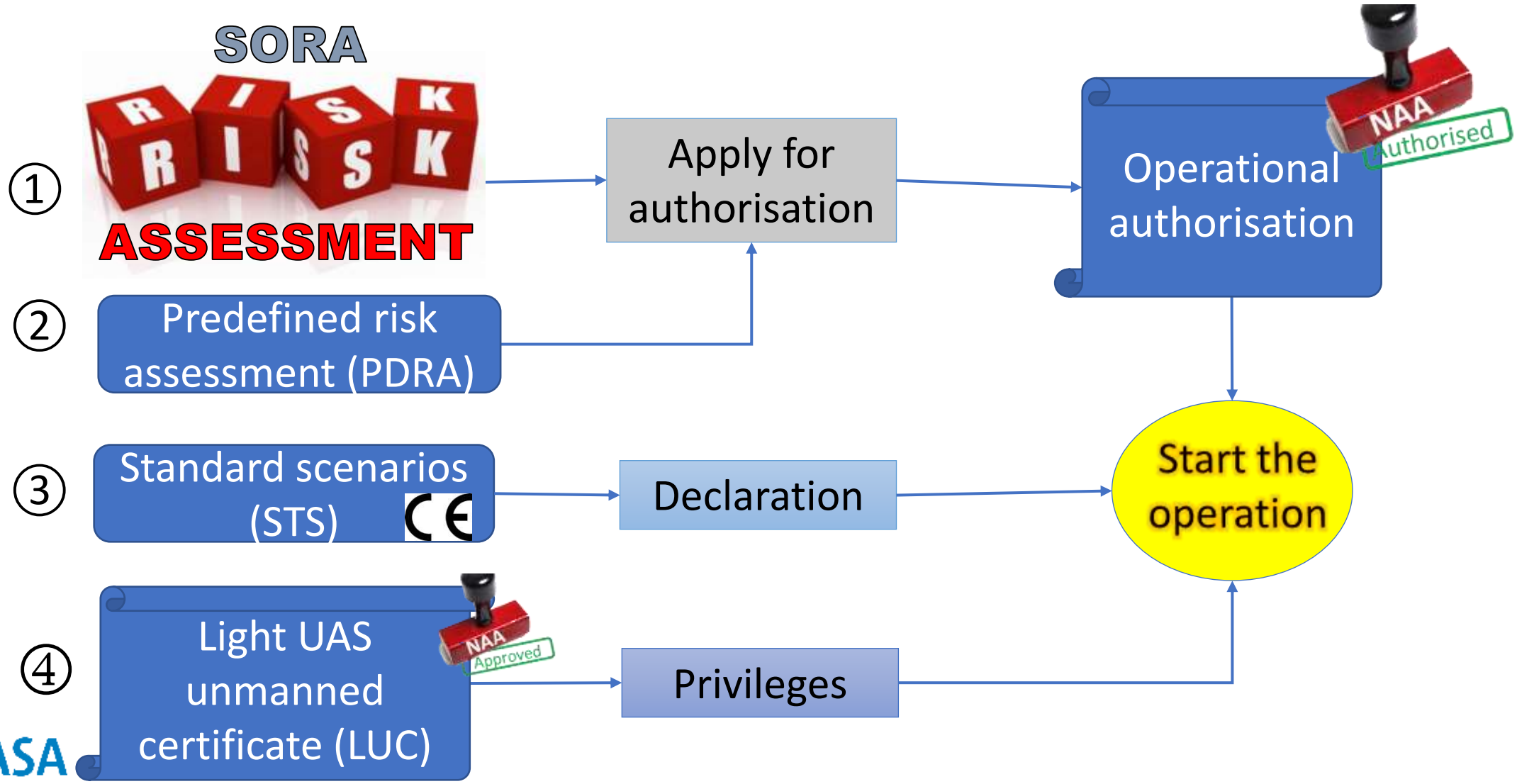
Apply for authorisation

Start the operation

https://www.easa.europa.eu/drones

[Easy Access Rules for Unmanned Aircraft Systems]

How does it work the ‘specific’ category?



Verification of the design of the UAS

Open category

Specific category

Depending on the risk

low risk

Or declaration

medium risk

high risk

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Design verification report

Certified category

Certification basis:

- **SC Light UAS**

  or

- **CS- x complemented by future CS UAS**

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The U-Space

TE.GEN.00409-001

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U-space

→ U-space is the European brand for UTM

→ U-space regulation is intended to avoid in the air,

what we sometimes see on the roads….

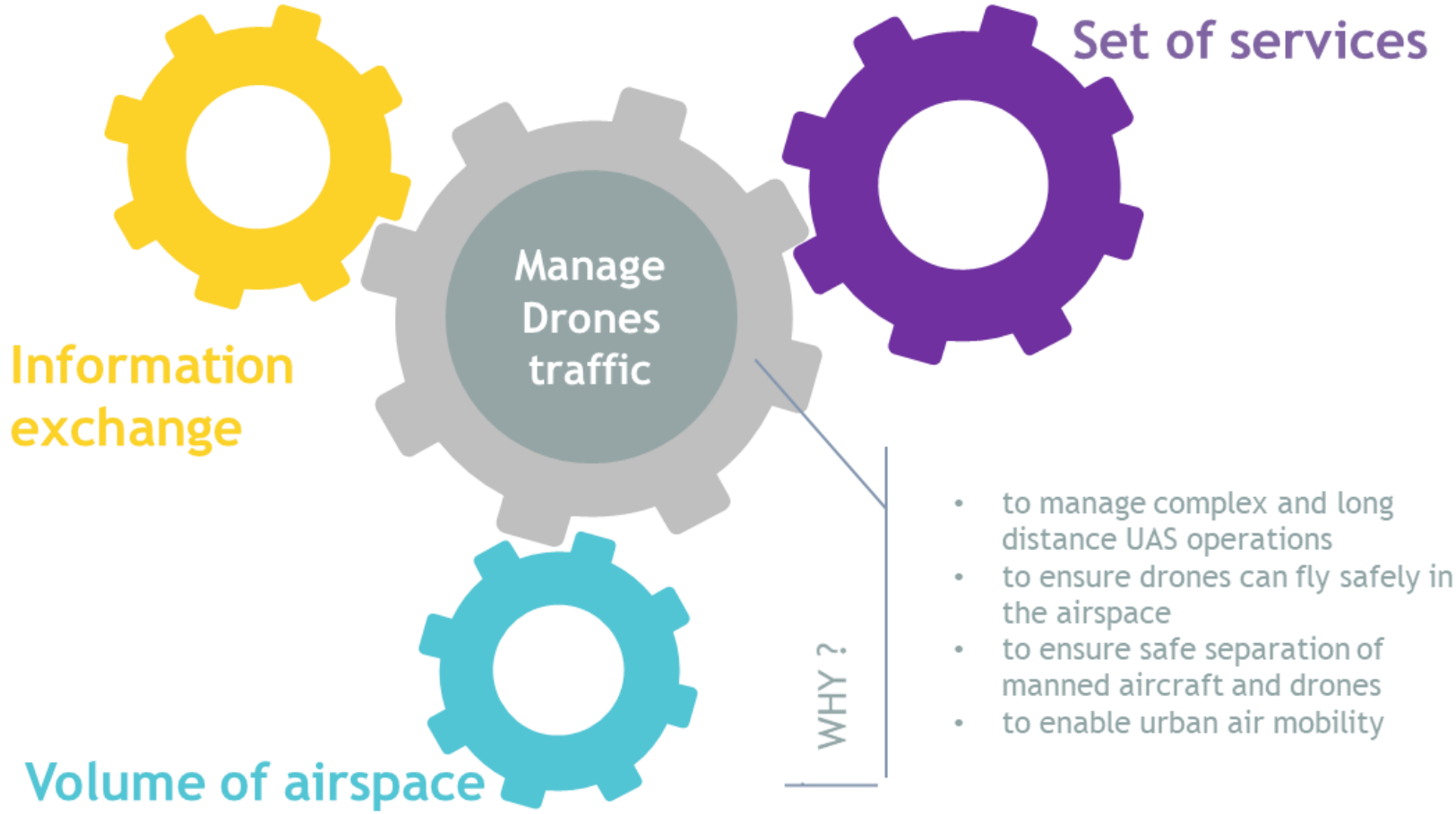
U-space

…and to enable an EU competitive drone service market





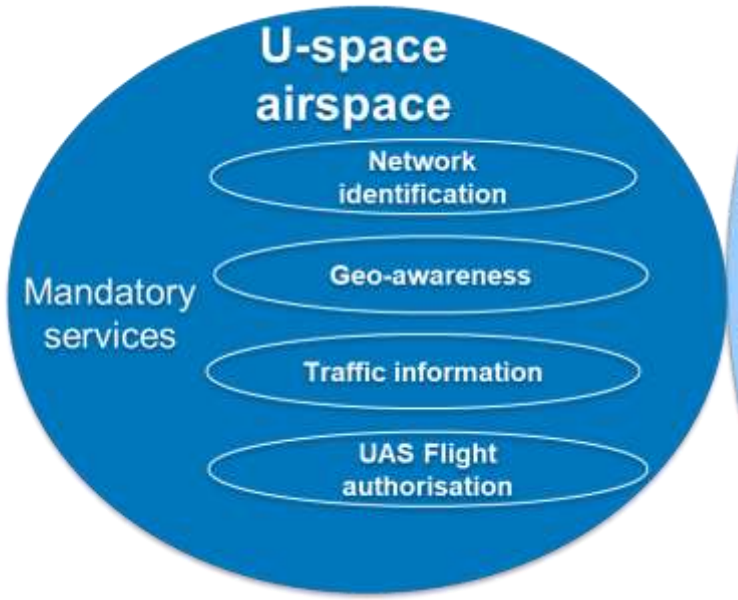

The U-space ‘system’



The U-space

Regulation (EU) 2021/664 of 22/04/21
Applicability date 26 January 2023

Airspace where services are provided.



EASA *NPA on AMC and GM planned for the end of 2021*

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The ‘certified’ category

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Operations in ‘certified’ category

→ UAS operations in the ‘**certified**’ category include risks that <u>cannot</u> be mitigated in the ‘specific’ category.

→ Additionally:

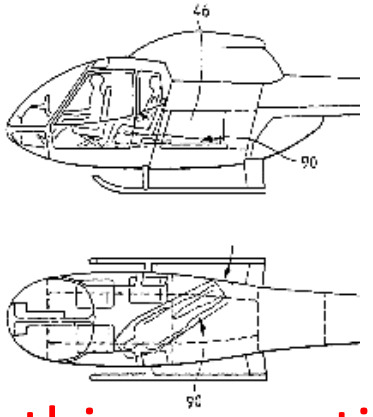
operations over assemblies of people with an UAS larger than 3 m

transport of people

transport of dangerous goods if in case of accident they pose high risk for third parties

How is the risk mitigated in the certified category?

→ UAS operations classified in the certified category when to mitigate the risk it is required:



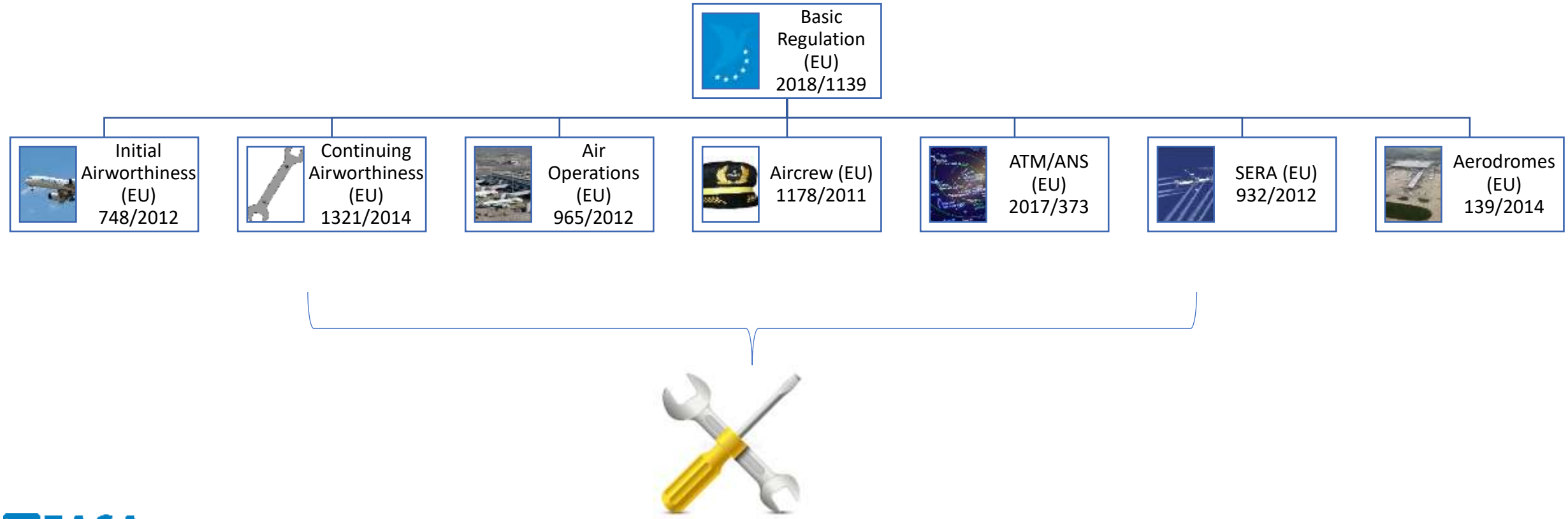
Airworthiness certification

certification of the operator

licensing of the remote pilot

RMT.0230: objectives and planning

Comprehensive and interrelated set of affected rules



Expected industry developments

Drones Business Services
Initially: in corridors
Later: free routes

Passenger-carrying eVTOL
(*with* pilot on board)

International Cargo
(*no* crew on board)

2020 — 2025 — 2030 — 2035

U-space applicability
(January 2023)

Passenger-carrying eVTOL
(*no* pilot on board)

Next rulemaking activities

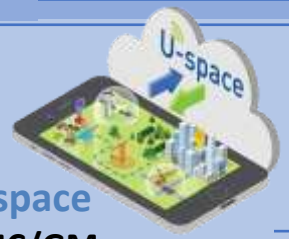
2020		2021				2022				2023				2024
Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1

Specific category
AMC/GM Low-medium risk

NPA

Decision

Guidelines



U-space
AMC/GM

NPA

Decision

Specific category
High risk

Manned UAM
Type#3 operations

NPA #1

Opinion #1

Certified category
Type#2 operations
Unmanned UAM

Certified category
Type#1 operations
IFR cargo

NPA #2

Opinion #2

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Lesson learned

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Lessons learned

- → Regulatory material must ensure the right balance between simplicity and flexibility;
- → Use a stepwise approach allowing operators and authorities to gain experience in a safe environment;
- → “Growing” exercise to be carried out by all stakeholders together
- → Safety promotion is an essential element to ensure safe ops

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Safety promotion

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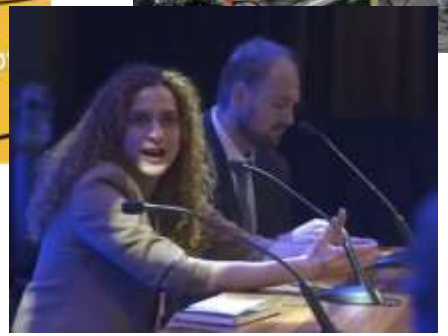
How does EASA promote safety?

- →Regular workshops organised with EU MSs
- →Webinars open to public
- →Website dedicated to drones
- →Informative material
- →Participation to third parties events
- →Press releases, interviews, videos

Drone Safety promotion examples



https://www.easa.europa.eu/light/topics/operators-guidance-drone-pilots

EASA drone website

https://www.easa.europa.eu/domains/civil-drones-rpas

Easy access rule including:

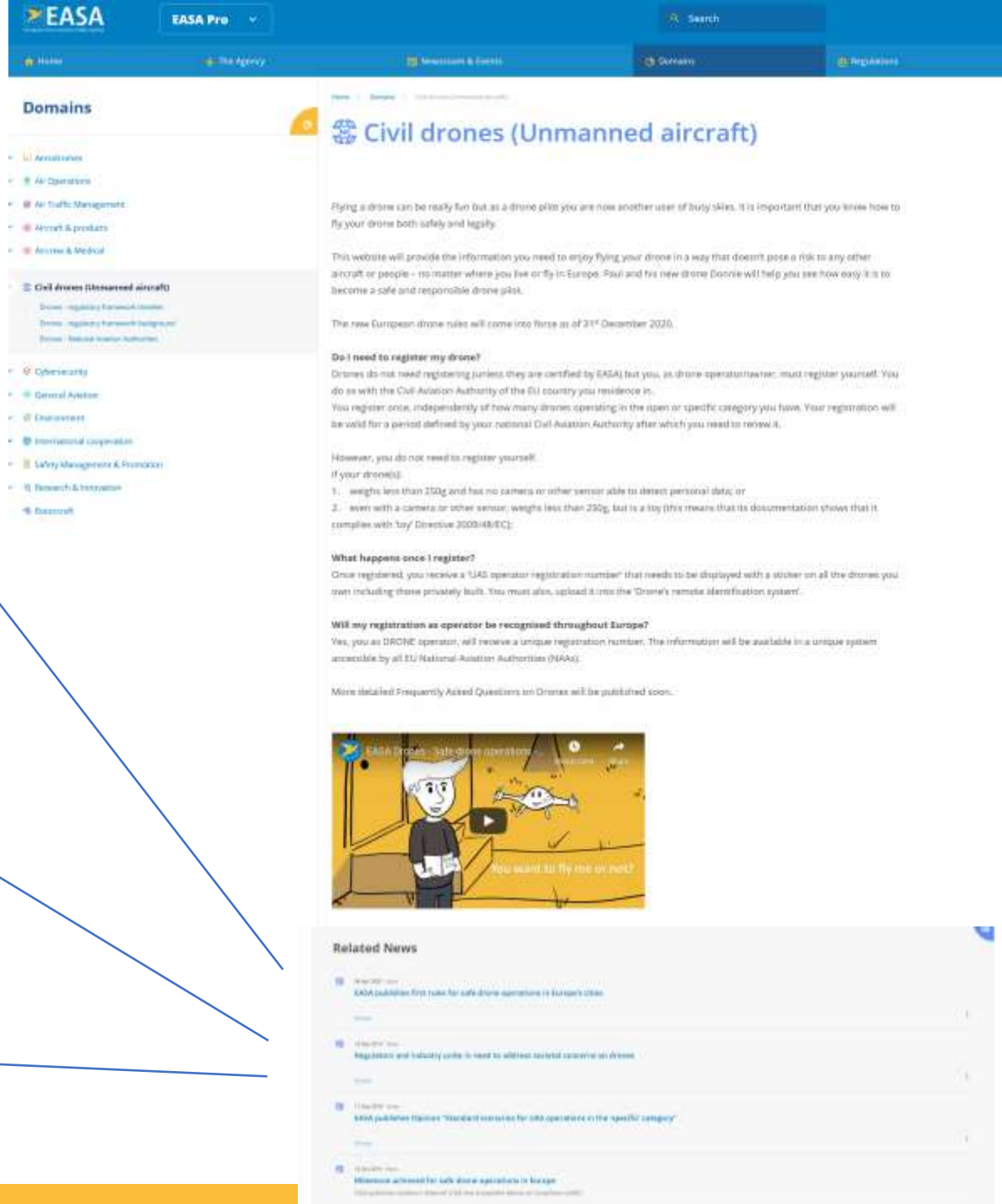
→ Regulation (EU) 2019/947

→ → AMC/GM to the regulation (including SORA)

→ Regulation (EU) 2019/945

Videos and presentations explaining Regulations (EU) 2019/947 and 2019/945

FaQ for the open and specific category



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Questions may be sent to drones@easa.europa.eu

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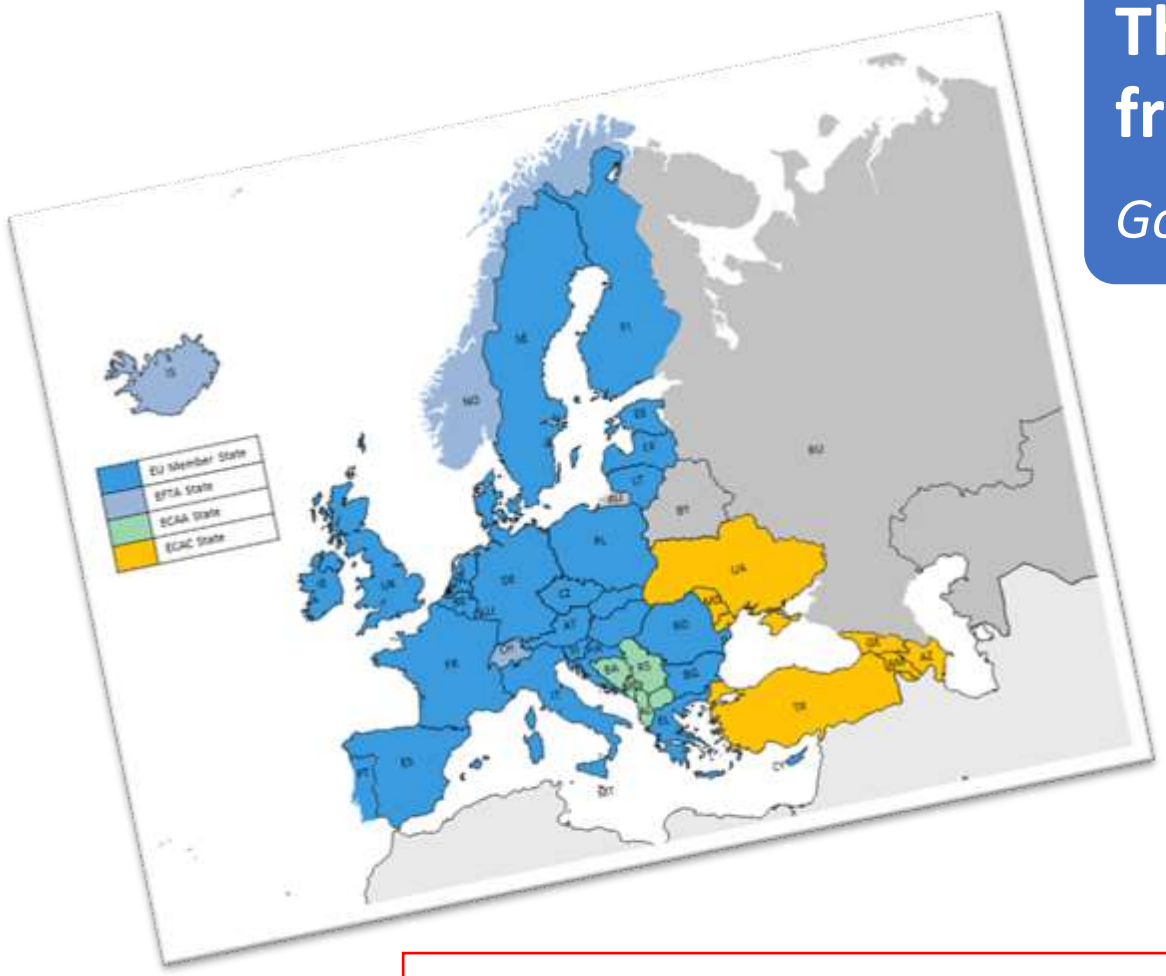
Standardisation of ‘drones regulations’

The EU aviation safety system

Assists the EU Commission in monitoring the application of the rules

- **Adopts rules**
- **Monitors the application of the rules**
- **Launches infringement procedures**

Standardisation: the EU monitoring mechanism



States: 28 EU + 3 EFTA = **31**

The EU single market: four freedoms of movement

Goods / Services / People / Capital

Mutual recognition of certificates
Basic Regulation Art. 67

EASA monitoring the application of the rules
Basic Regulation Art. 85

Implementation monitoring (IM) – innovative approach

→ **EASA monitors** how Authorities implement the new framework

→ Data collection through questionnarie (**surveys**) and review, to achieve 3 goals:

→ Detect **significant non-compliances** → **Findings**

→ Identify **good/best practices** → **Sharing**

→ Assess whether the **rule** needs fine-tuning → **Improving**

→ Expected **benefits** of this approach:

→ **Applied concurrently** to all Competent Authorities

→ Full picture of the situation by end of 2021; prepare the ground for on-site inspections

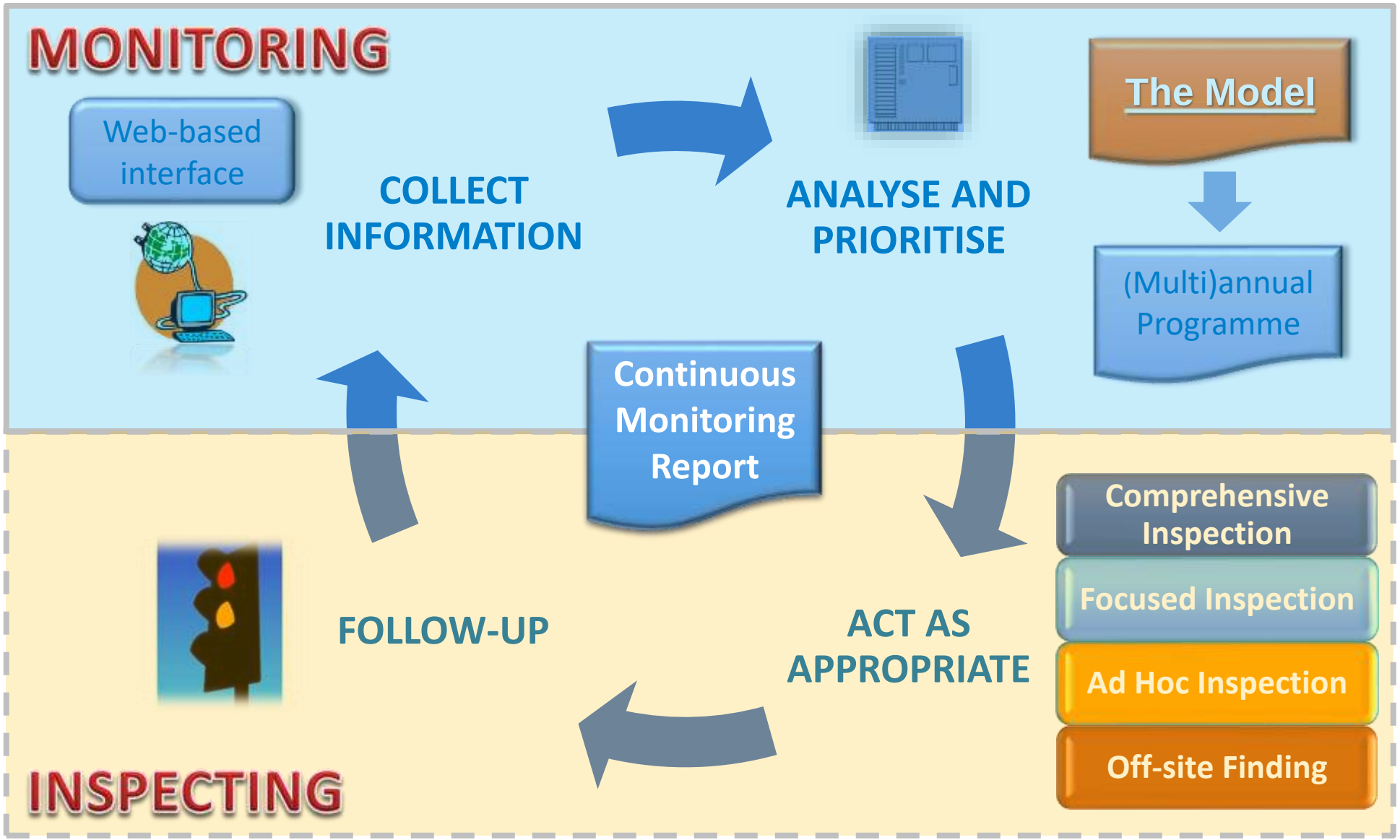
→ **Efficient use of limited resources** (both on EASA and on Authorities' side)

→ No inspections in 2021; 1 or 2 familiarisation visits; ad-hoc inspections if significant concerns

→ **Positive attitude** towards the new domain

→ Actively support a smooth implementation, rather than policing it

Standardisation: Continuous Monitoring Approach



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Thank you for your attention

easa.europa.eu/connect

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