

U-space, UTM, Geozone, comment les pilotes et opérateurs doivent appréhender les mois à venir?



A market in full evolution

- Mature use cases
 - **Infrabel**, DIAB for railway inspection
 - **POAB**, D-Hive (automated DIAB Network)
 - ...



- Upcoming projects
 - **BVLOS in CTR**
 - **North Sea Geozone development**
 - ...



Technology in full evolution



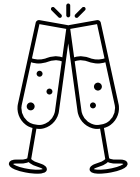
- Scalable BVLOS 'Drone in a box' systems, allowing automated, remote piloted flights, are gaining pace
- Allowing cost-efficient 24/7 drone service availability



Operators in full evolution



- SABCA receives European Light UAS Operator Certificate (LUC) from the BCAA



The majority of drones fly in Open Category

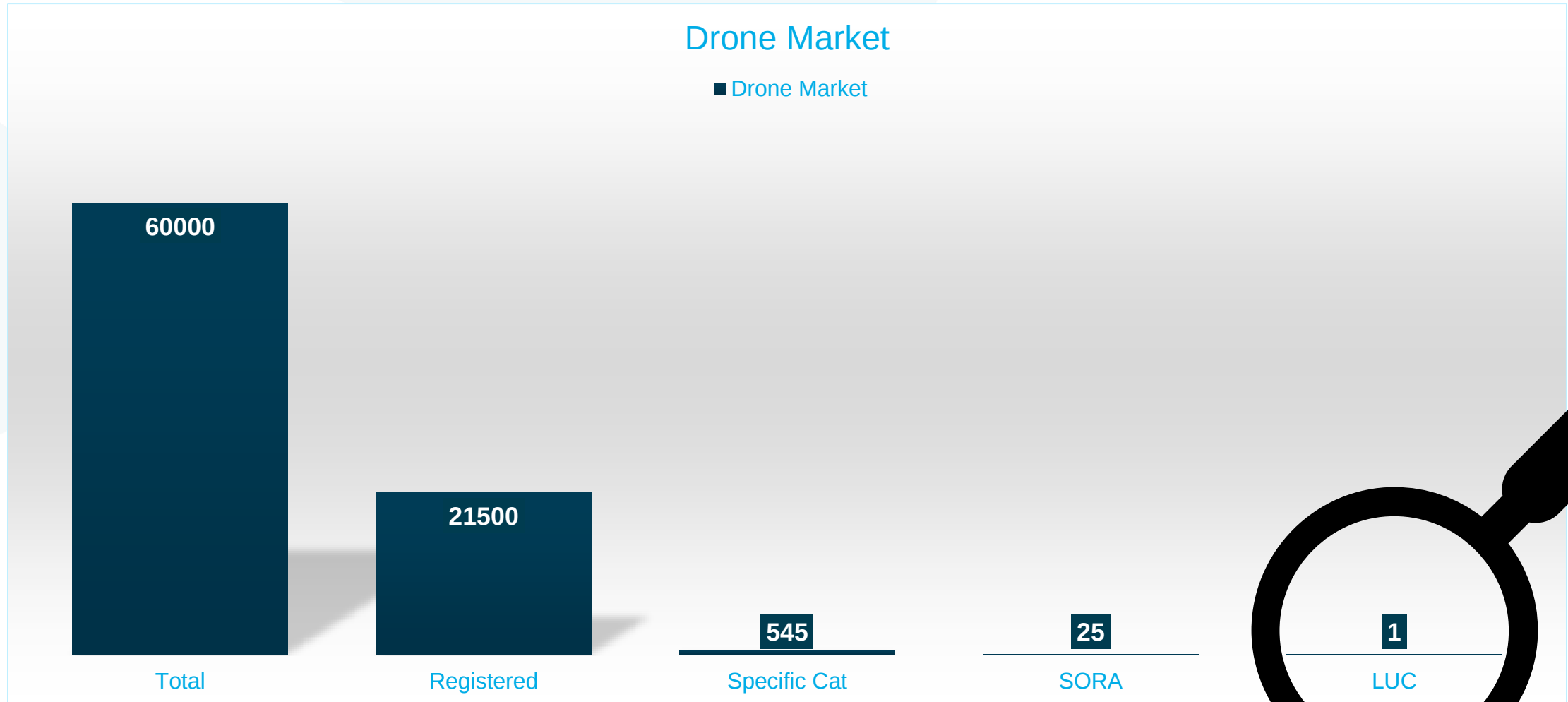


- BCAA Statistics (last update)

BCAA UAS Statistics							
DATE	A1/A3	A2	Operators	SPECIFIC			
				Declaration	PDRA	SORA	LUC
30/11/2021	7.847	1.467	10.697	240	5	6	0
31/01/2022	8.932	1.727	11.633	242	6	6	0
2/05/2022	9.827	1.821	12.904	242	6	6	0
30/06/2022	10.586	1.866	14.240	267	6	9	0
31/08/2023	15.619	2.108	21.573	519	11	14	1

- 21.500 Operators (declared 🙋)
- 545 Authorisations in the Specific Category (2,5%)
 - 95% STS, 2% PDRA, 2,5% SORA and one LUC

The (estimated) Drone Market in Belgium



< 1% = SkeyDrone market

Drone Market in Belgium (Drone Radar Pro*)

95,3 %

47,5 %

DJI 



MINI



AIR



MAVIC



M30

2,7 %

Privately
built



1,5 %

Parrot



0,5 %

Yuneec

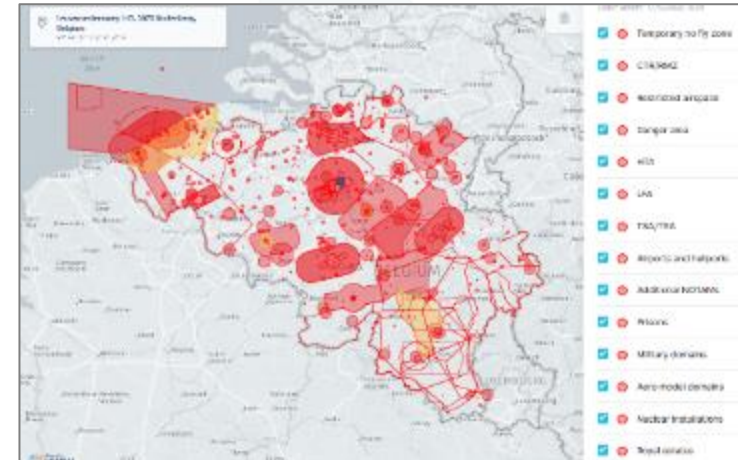


How is the regulatory environment evolving?

NEED TO RESPECT

Generic rules (EASA)

National geozones (BCAA)



Operational Authorisation (BCAA)
are you competent?

Flight Authorisation (GZM)
do you have permission?



How to prove “SAFE TO FLY”?



Rules of the air:

It's all VFR “see & avoid”

Airspace safety is based on the pilots' ability to see all other traffic and avoid a mid-air collision, except ...

In controlled airspace you must follow ATCO instructions



Rules of the air:

The BVLOS equivalent?



How to guarantee AIRSPACE SAFETY for UAS (specifically for BVLOS)

SAFE

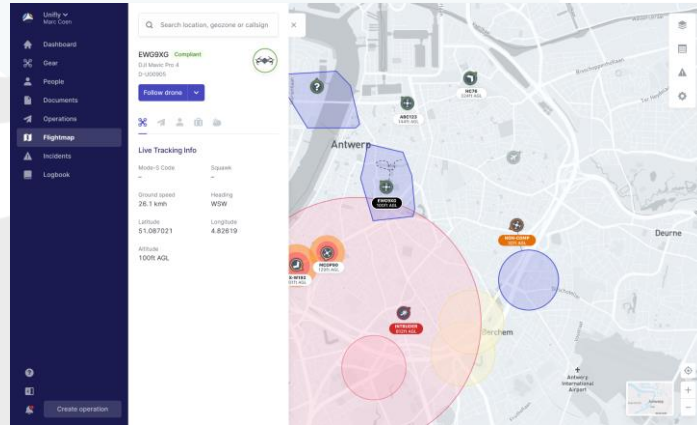
‘STRATEGIC’

Where are you
planning to be?

The flight plan

&

**FLIGHT PLAN
DECONFLICTION**



‘TACTICAL’

Where are you flying
now?

*The real-time
location data*

&

**COLLISION
AVOIDANCE**



And what about U-space



U-space

- U-space is a concept.
- It consists of a special Geo-zone (**U-space airspace**),
- And a set of risk mitigating services (**U-space services**).
- Goal is to safely integrate (large numbers of) drones with manned aviation.
- **skeyes** nice to guide you has been appointed as Single **Common Information Service Provider**
- **skeydrone** Enabling safe drone operations has ambition is to become one of the leading **U-space service providers (USSPs)** in Europe.



The U-space safety solution:

Drone flight plan
deconfliction
through the
**UAS FLIGHT AUTHORISATION
SERVICE**

Knowing in real-time
where all drones are flying
through the
**NETWORK IDENTIFICATION
SERVICE**

Knowing all geozone restrictions
through the
**GEO-AWARENESS
SERVICE**



Knowing in real-time
where all crewed aircraft are flying
through
**TRAFFIC INFORMATION
SERVICE**

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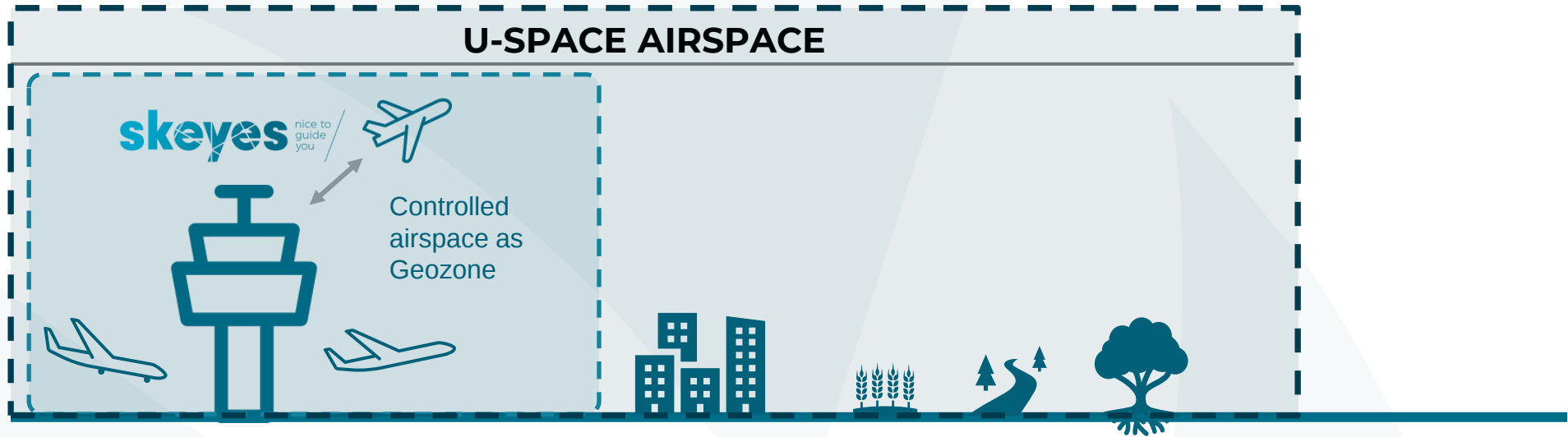
Knowing in real-time
where all crewed aircraft are flying
through
**TRAFFIC INFORMATION
SERVICE**

**COLLISION
AVOIDANCE**

What do these U-Space Services (USS) do for you?

- The 4 Mandatory services (USS) have a SAFETY objective;
 - USS are SORA based, Strategic, Risk Mitigation tools that allow to reduce the intrinsic Air Risk Category (iARC) to be reduced from ARC-c or ARC-d (CTR) to ARC-b
 - They give drone operators access to complex airspaces, integrated with manned aviation, in a “Low Risk” specific assurance and integrity level (SAIL II)
- **If you can operate in SAIL II, you can operate in U-space airspace**

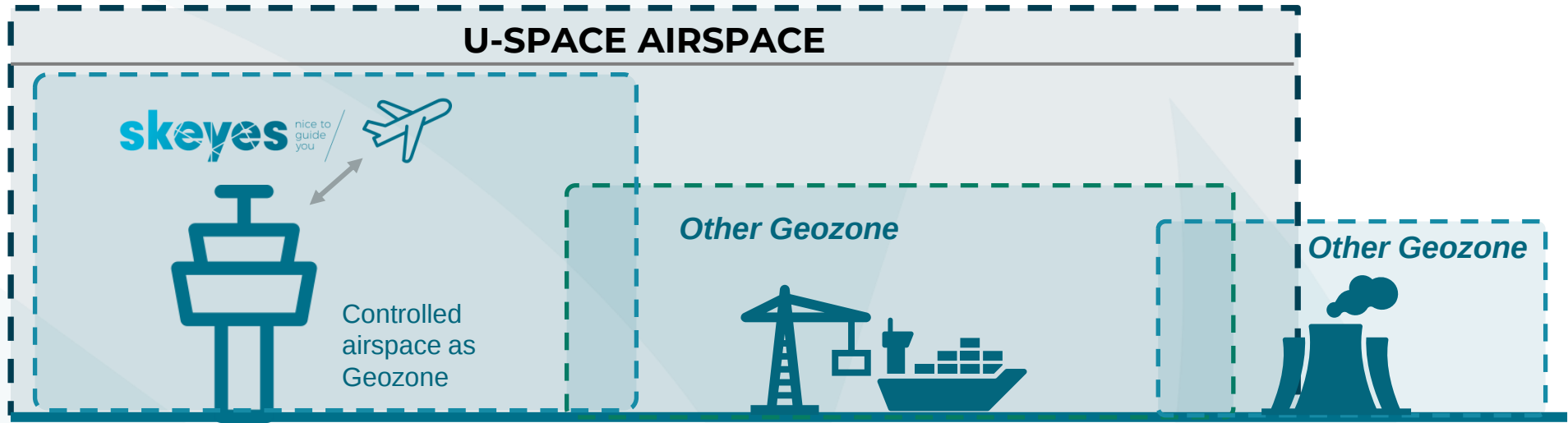
U-space airspace



Location to be determined based on

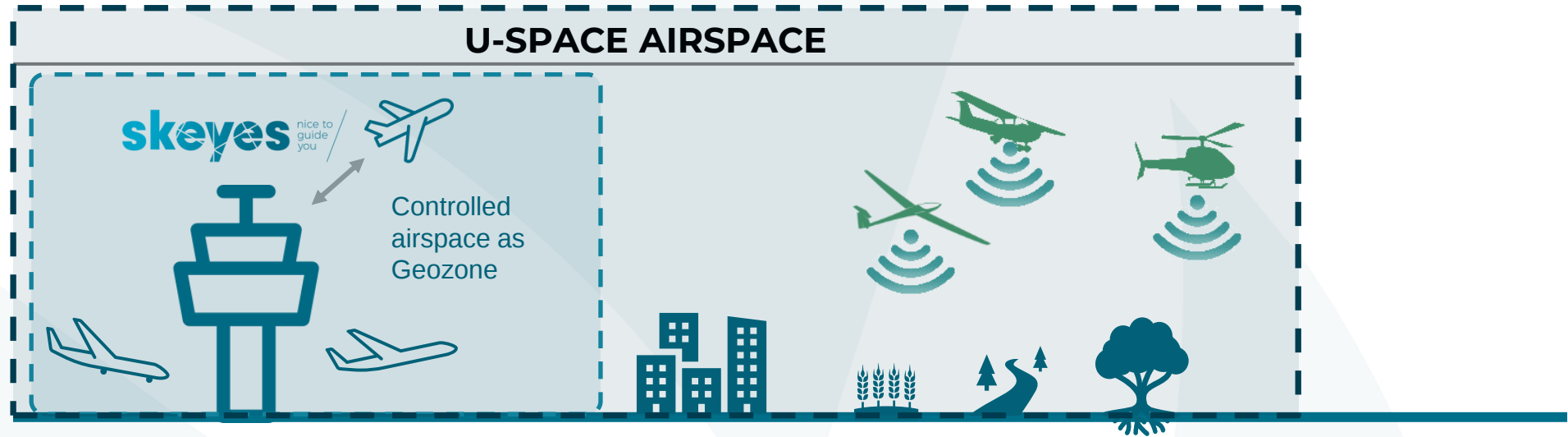
- risk assessment (>SAIL II)
- drone market demand (multiple 🚁)

U-space airspace

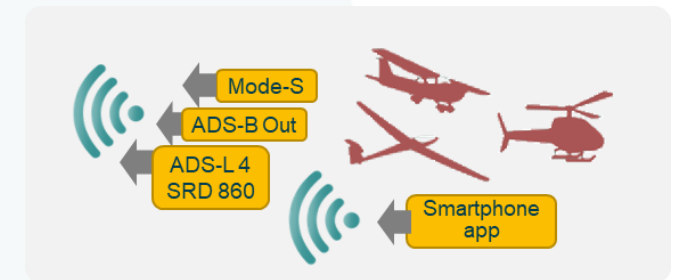


Can contain 1 or more existing
Geozone (*overlapping*)

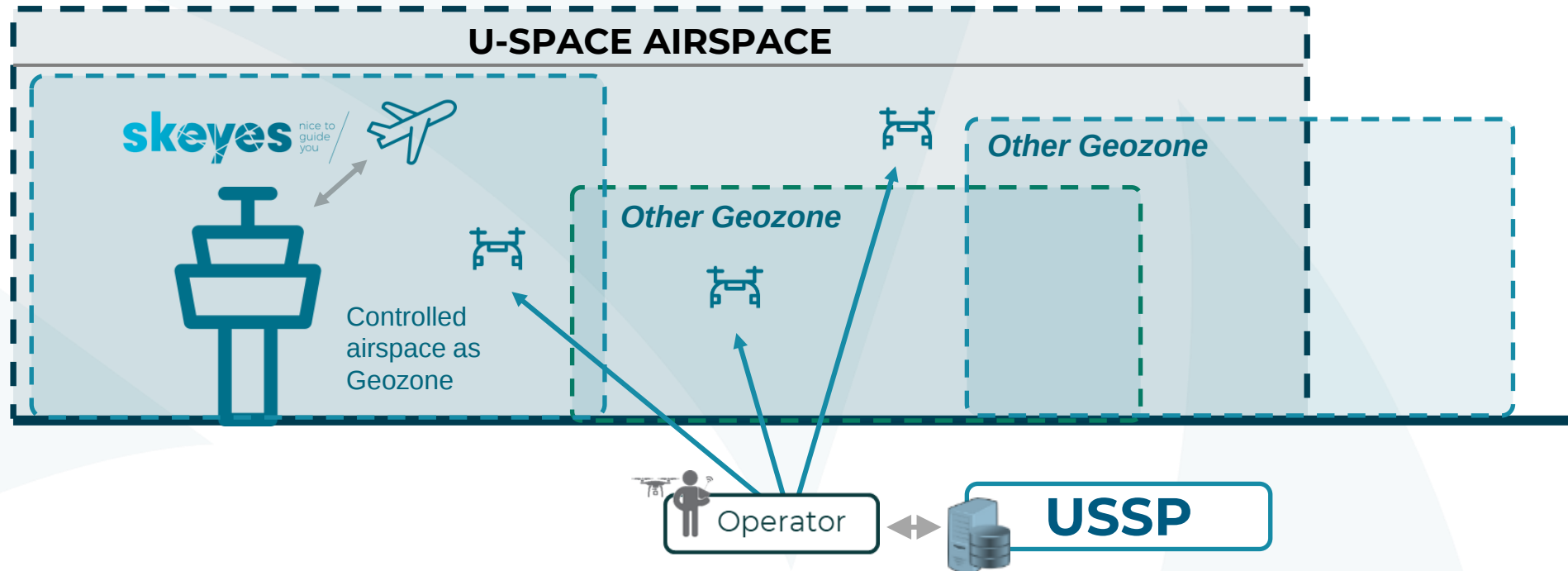
In U-space airspace



Manned aviation shall make itself electronically
e-conspicuous
in U-space airspace



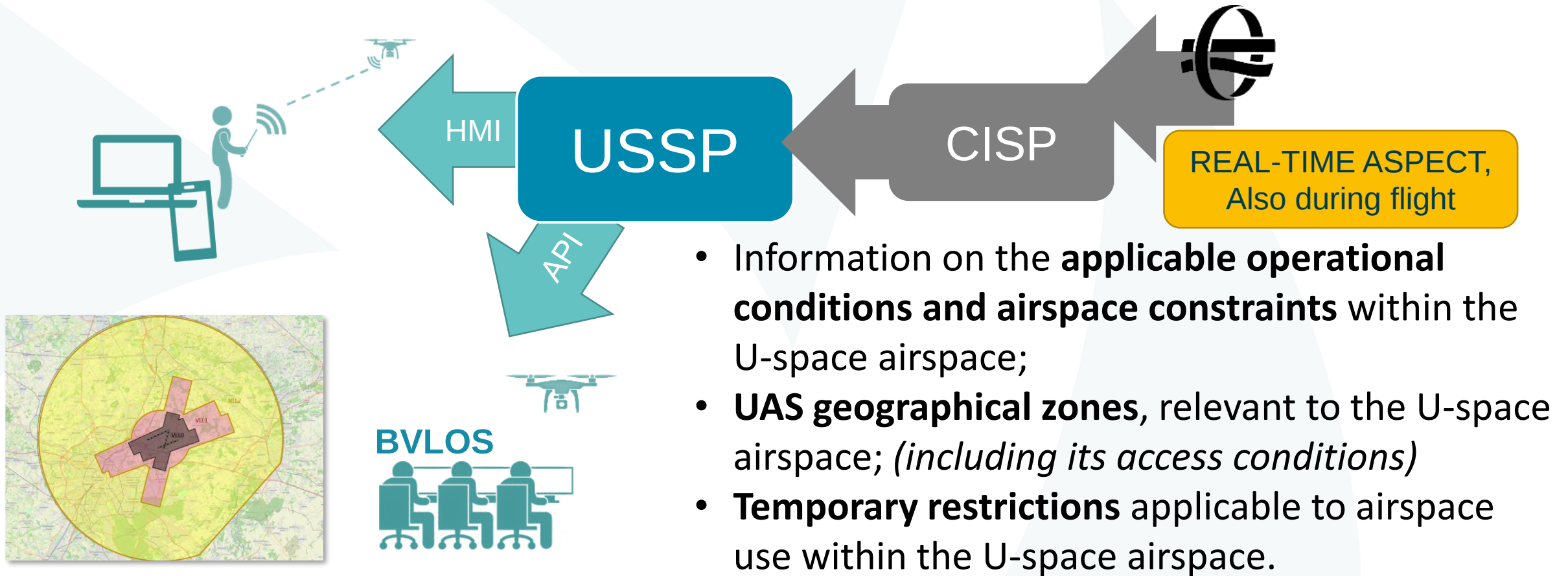
In U-space airspace



UAS operators have to connect through a USSP and use (buy) the four obligatory services:
(1) Flight Authorisation (2) Network Identification
(3) Geo Awareness (2) Traffic Information (

4 obligatory U-space services

1 Geo-awareness service (Geobewustzijn – Géovigilance)

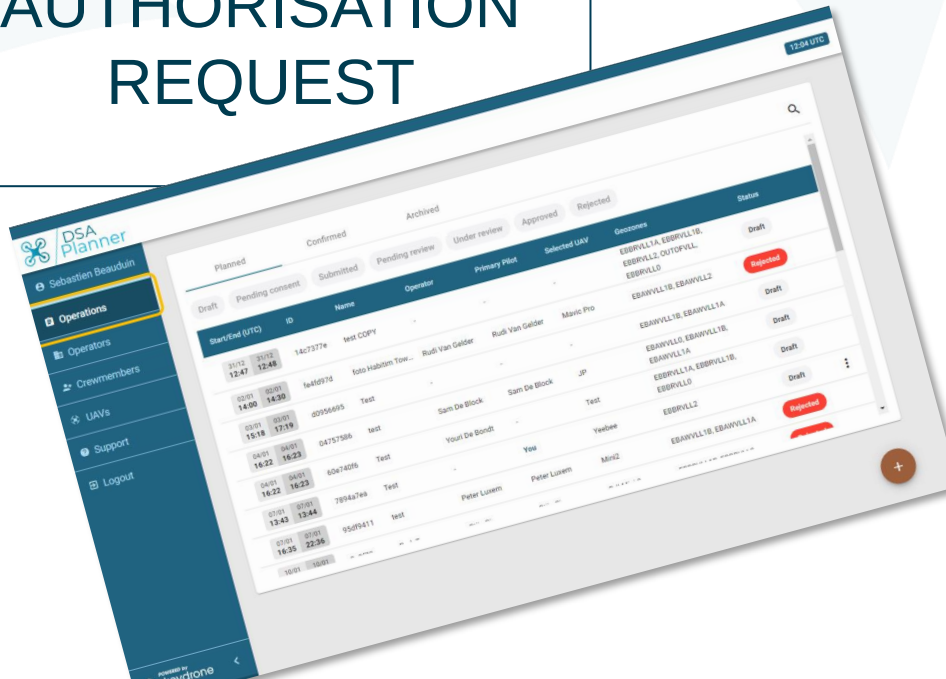


4 obligatory U-space services

2 Flight authorisation service: two phased approach

- Strategic

FLIGHT
AUTHORISATION
REQUEST



- (Pre-)Tactical

FLIGHT
AUTHORISATION
ACTIVATION
REQUEST



4 obligatory U-space services

3 Network Identification Service

The USSP gets to know from his own customers where their UAs are flying and shares that info with all other USSPs

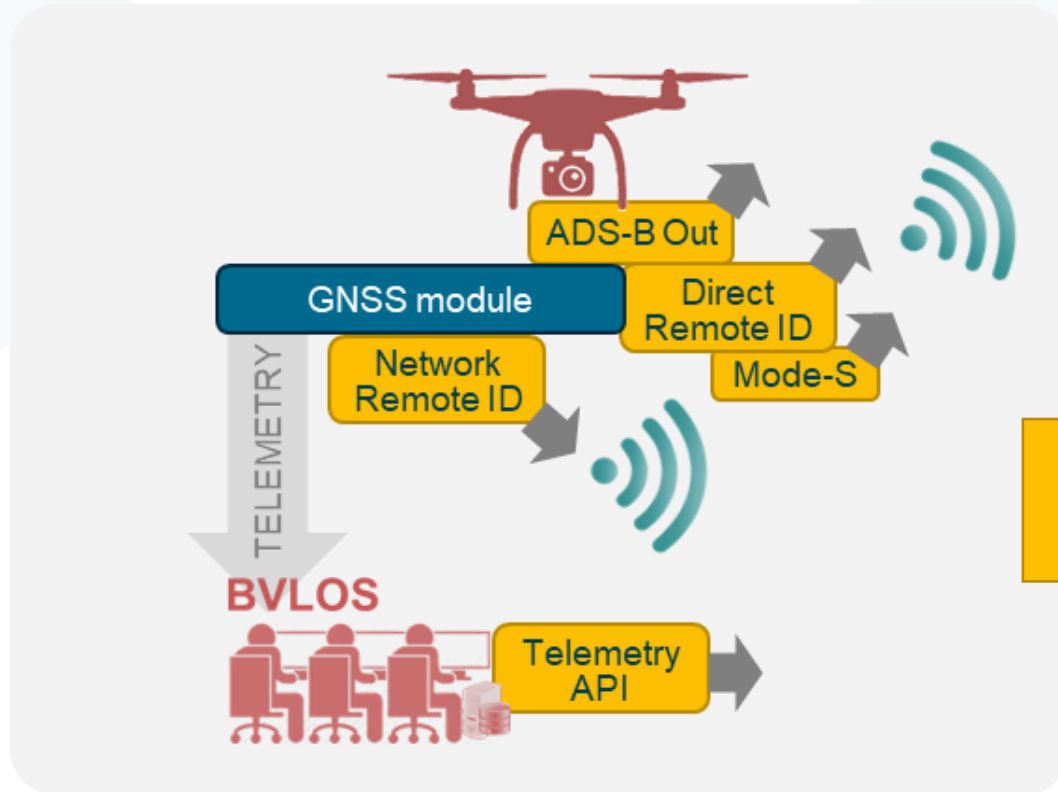
4 Traffic Information Service

The operator gets to know from the USSP where ALL aircraft are flying in the proximity of its UA flight plan (crewed and uncrewed)

4 obligatory U-space services

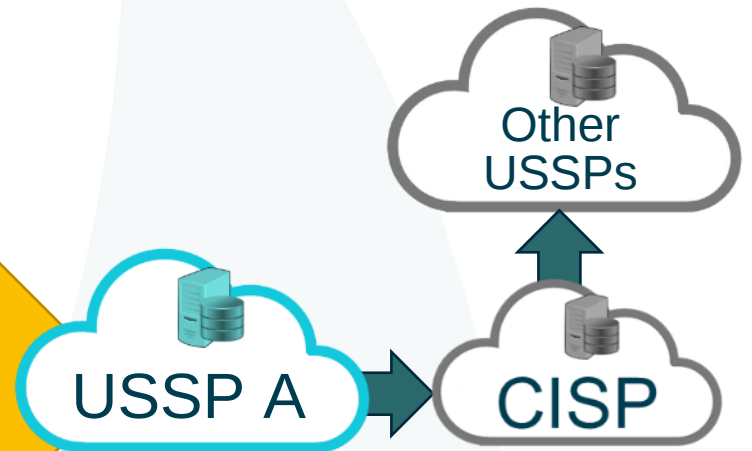
3 Network Identification Service: two aspects to it

e-conspicuity of
USSP's *own* customer's UAV



1) Collecting
the data

Identification &
location data



2) Sharing the data
with other USSPs
(directly or thru CISP)

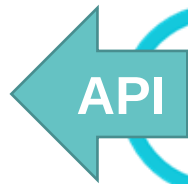
4 obligatory U-space services

4 Traffic Information Service

USSP's customer provided with full air picture



1. Position
2. Time of report
3. Speed
4. Heading or direction
5. Emergency status of aircraft (when known)



USSP



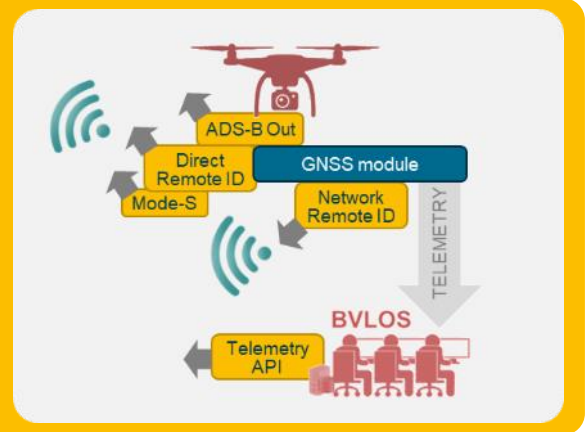
other USSPs uncrewed traffic data



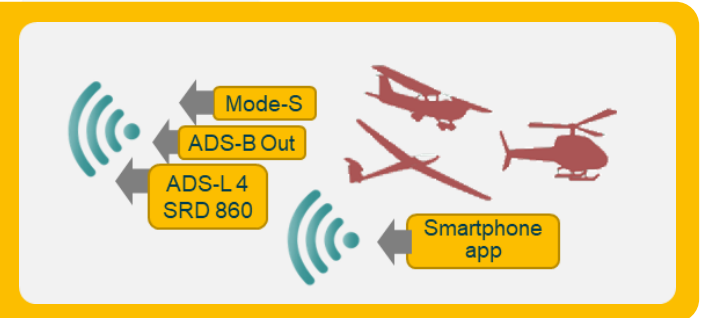
Controlled airspace crewed traffic data



USSP own customers' uncrewed traffic data



USSP own detection crewed traffic (uncontrolled airspace)





OOAWT
Light (< 15500 lbs)

ICAO ID

4486F4

CALL SIGN

OOAWT

CATEGORY

A1

LAST DETECTED

18/5/2022 12:20 UTC

ALTITUDE

954 FEET - MSL

954 FEET - AGL

290,78 METERS - MSL

290,78 METERS - AGL

GROUND SPEED

54,02 METERS PER SECOND

105 KNOTS

HEADING

89 °E

DETECTION SOURCE



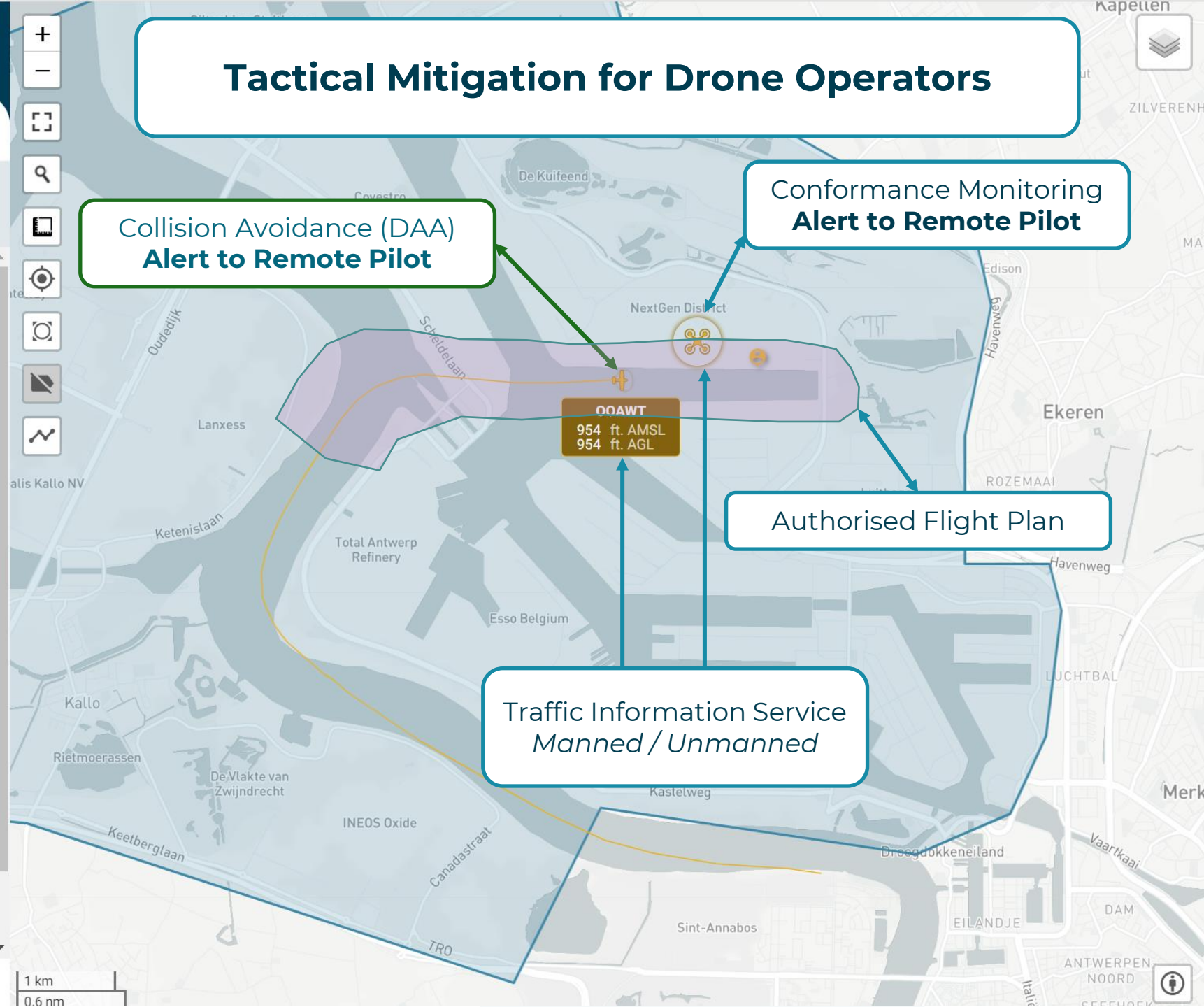
Tactical Mitigation for Drone Operators

Collision Avoidance (DAA)
Alert to Remote Pilot

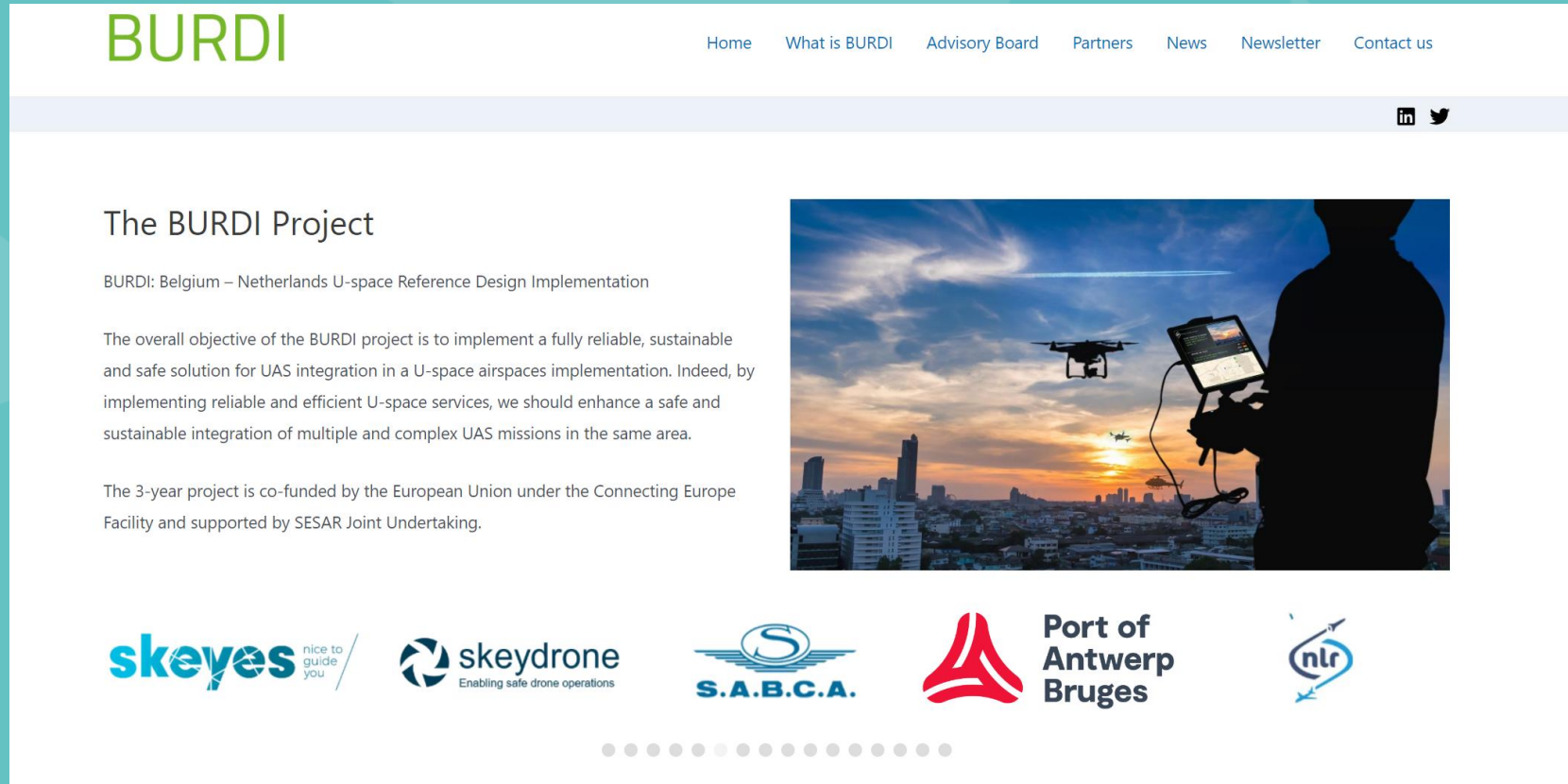
Conformance Monitoring
Alert to Remote Pilot

Authorised Flight Plan

Traffic Information Service
Manned / Unmanned



And what about BURDI



BURDI specificities

BURDI
supported by sesar*ju



INFRABEL



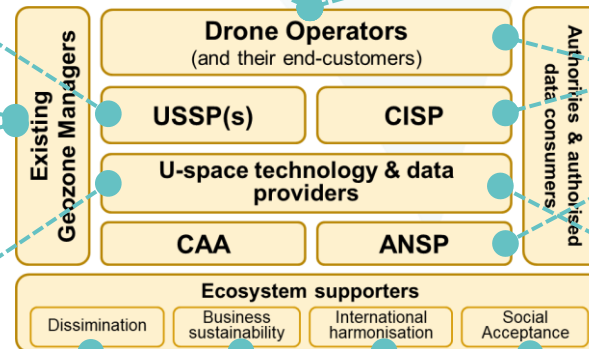
**Alliance For
New Mobility
Europe**



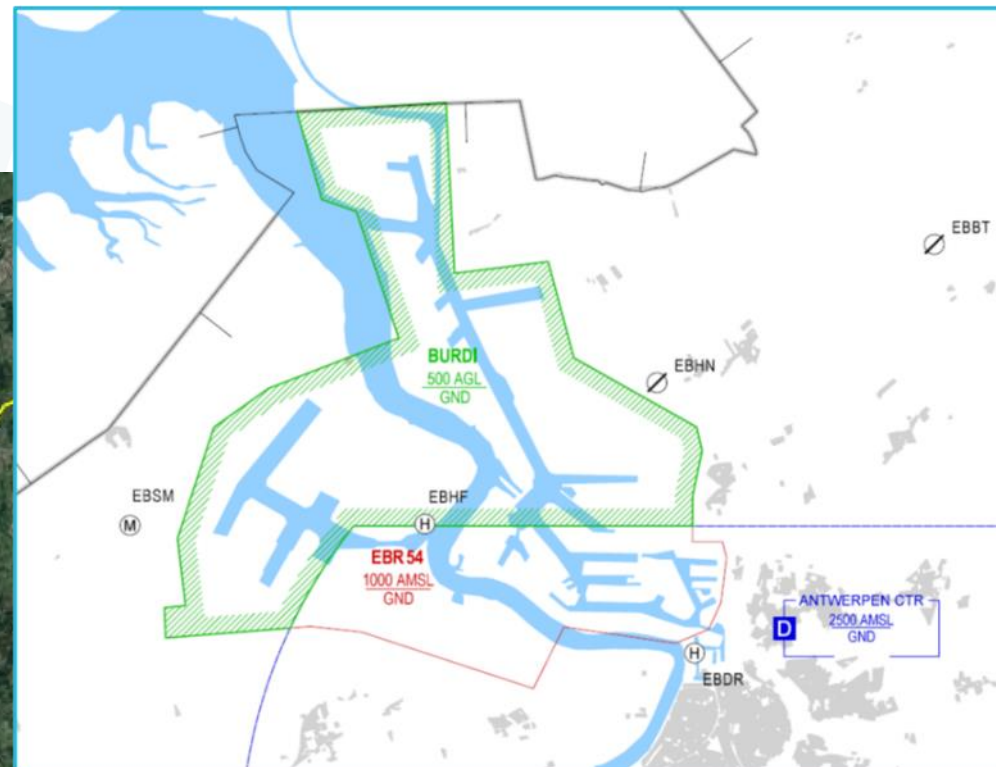
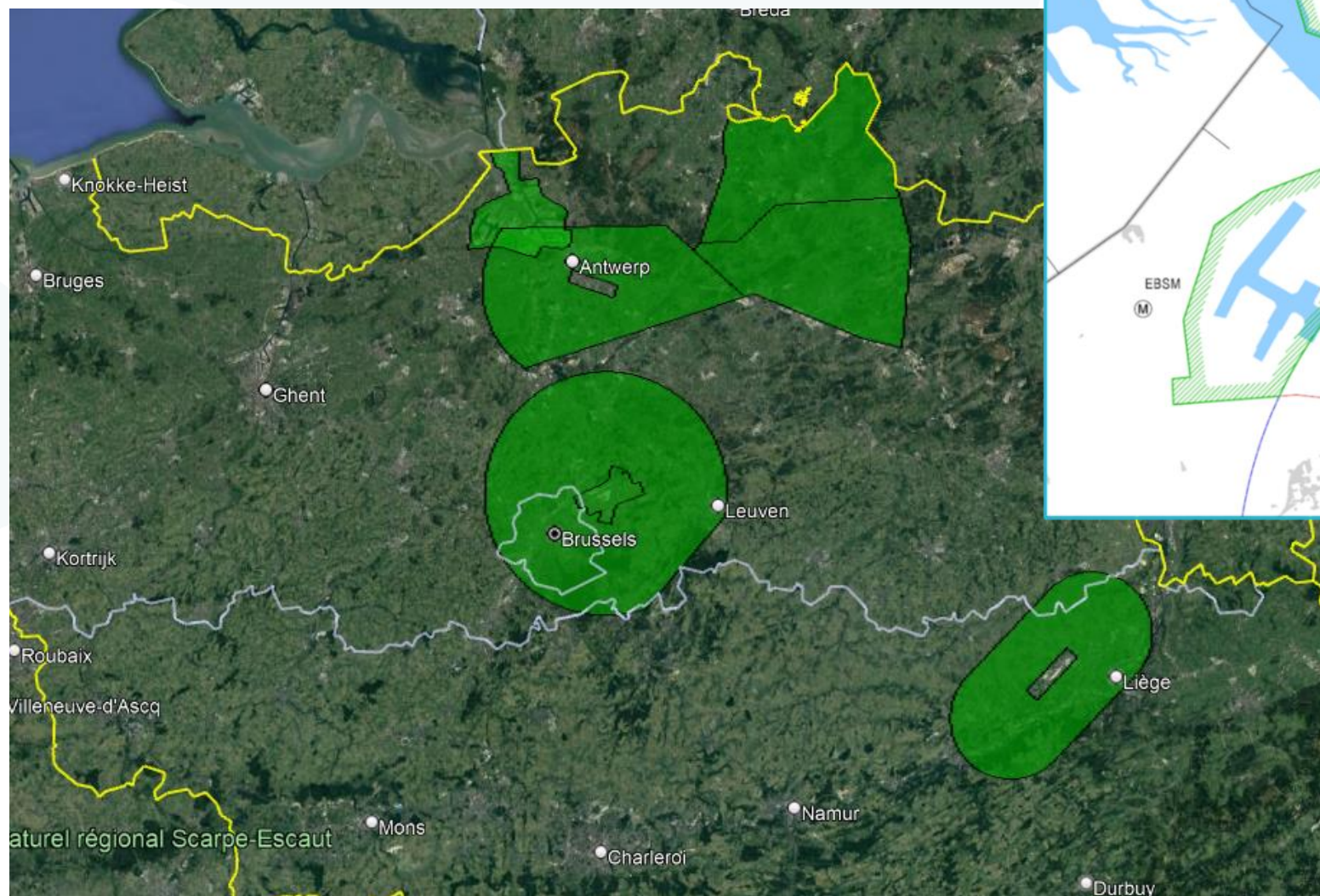
AIRBUS



UNISPHERE



Geographical scope



Merci!

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