



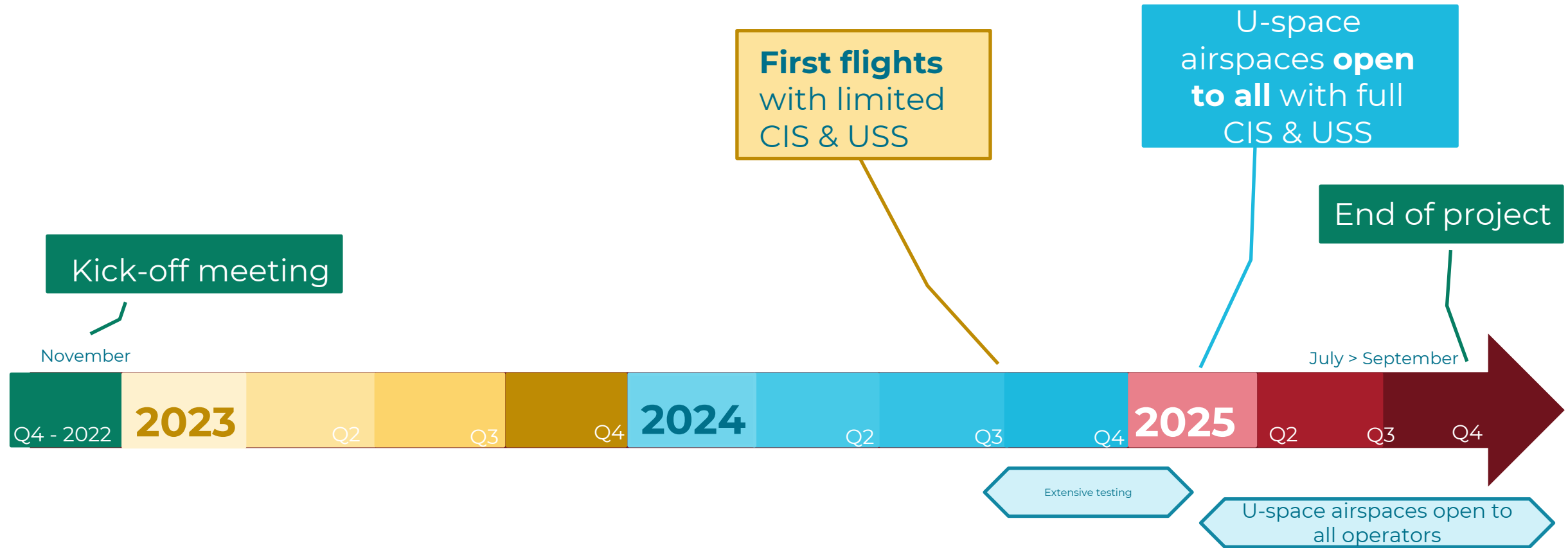
BELGIUM-NETHERLANDS U-SPACE REFERENCE DESIGN IMPLEMENTATION

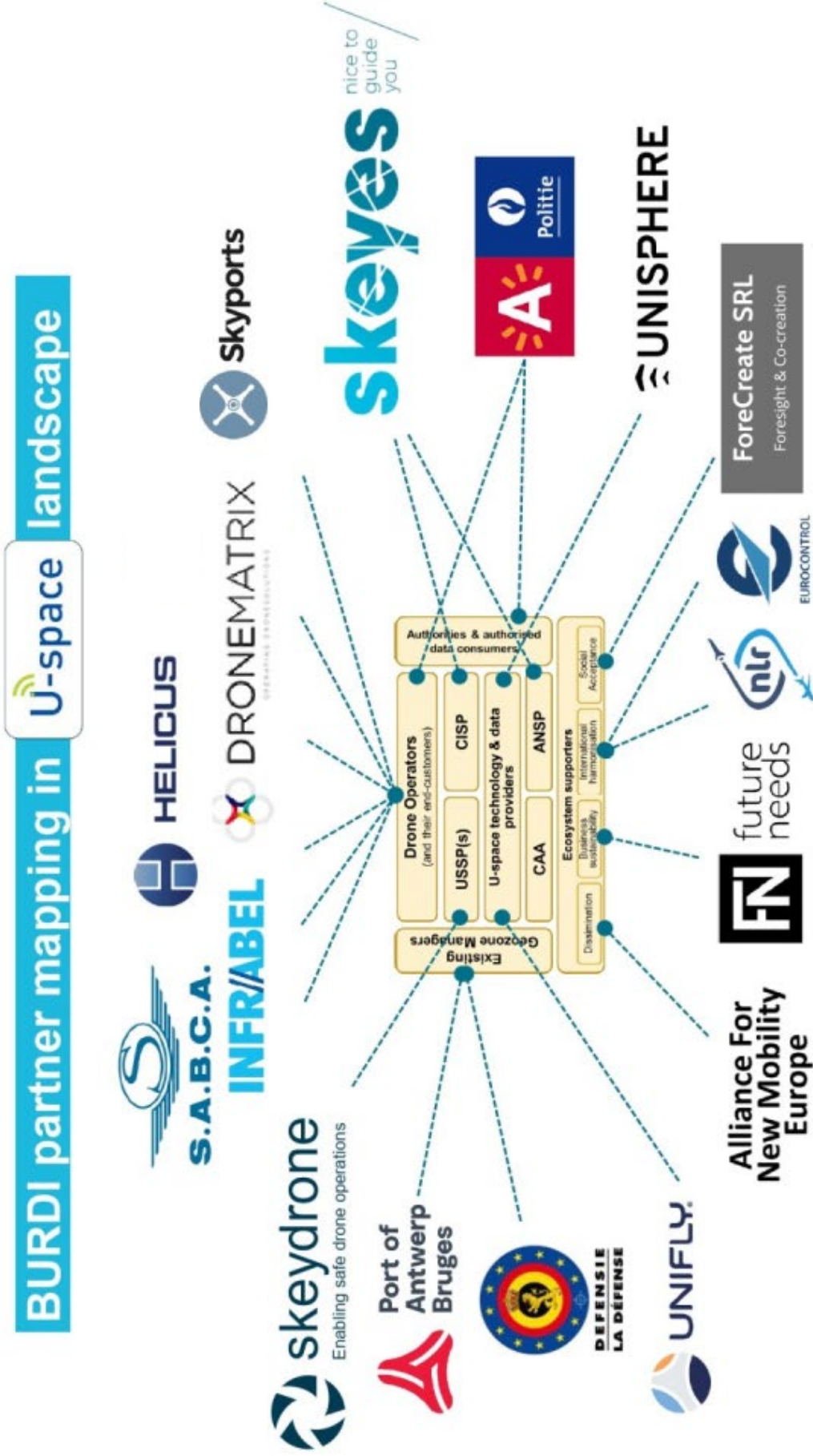
Supporting drone strategy 2.0: results from U-space digital sky demonstrators
EUROCONTROL HQ, Brussels - 24 October 2025

- How we started, where we are now and what's next?
Simon Devoldere, UTM Manager, skeyes
- Key challenges for USSPs, today and in the future
Jean-Pierre De Muyt, Regulatory UTM Expert, SkeyDrone
- U-space public benefits
Manolis Pantelidis, Economics Researcher, Future Needs Management Consulting
- Social acceptance and multilevel governance - On implementing the U-space Coordination Mechanism: Lessons learnt in Belgium
Vassilis Agouridas, Founder & Managing Director, ForeCreate

How we started, where are we now and what's next?

Simon Devoldere, UTM Manager, skeyes
24/10/2025







SESAR SOLUTIONS

1

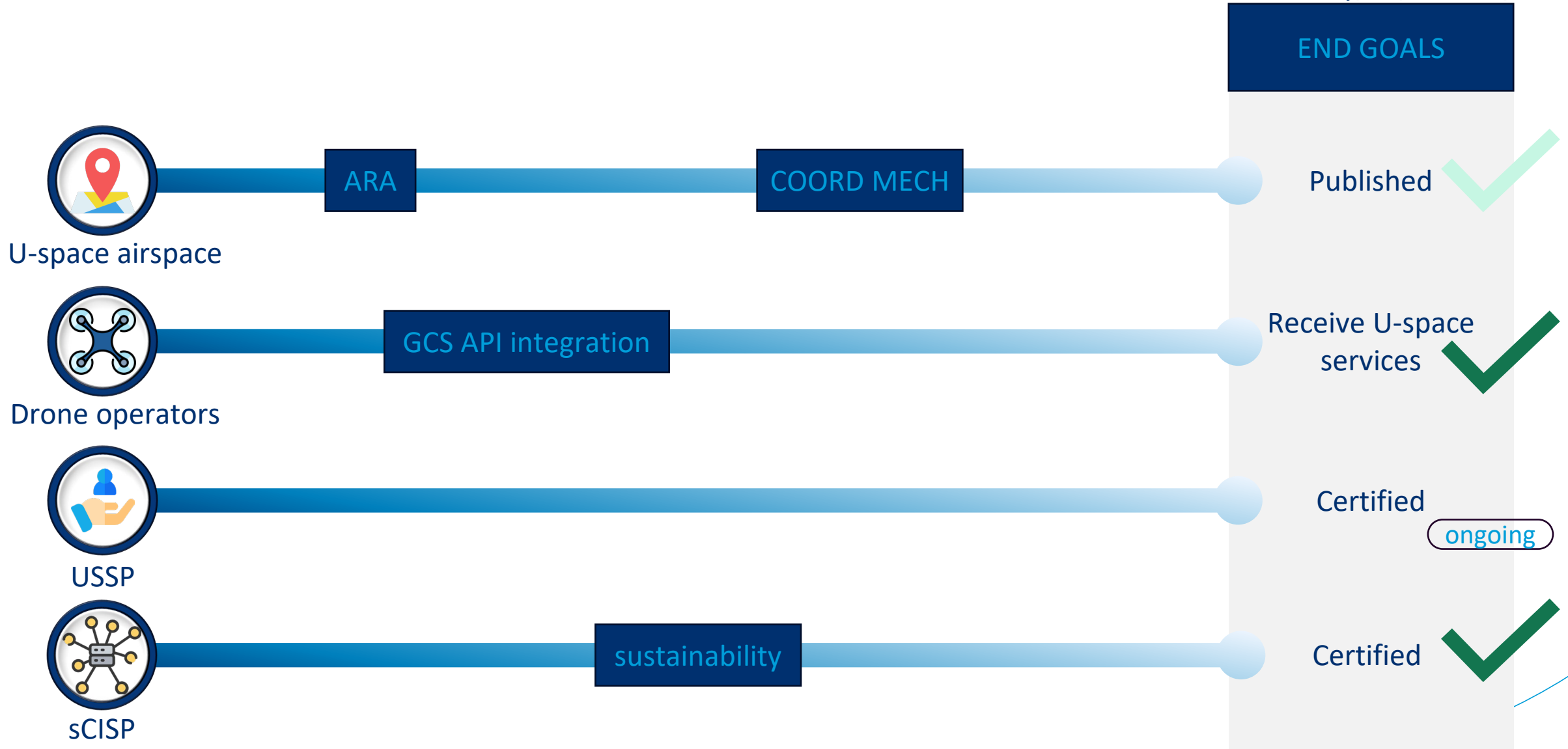
U-space airspace
in a restricted
area, in
uncontrolled
airspace

2

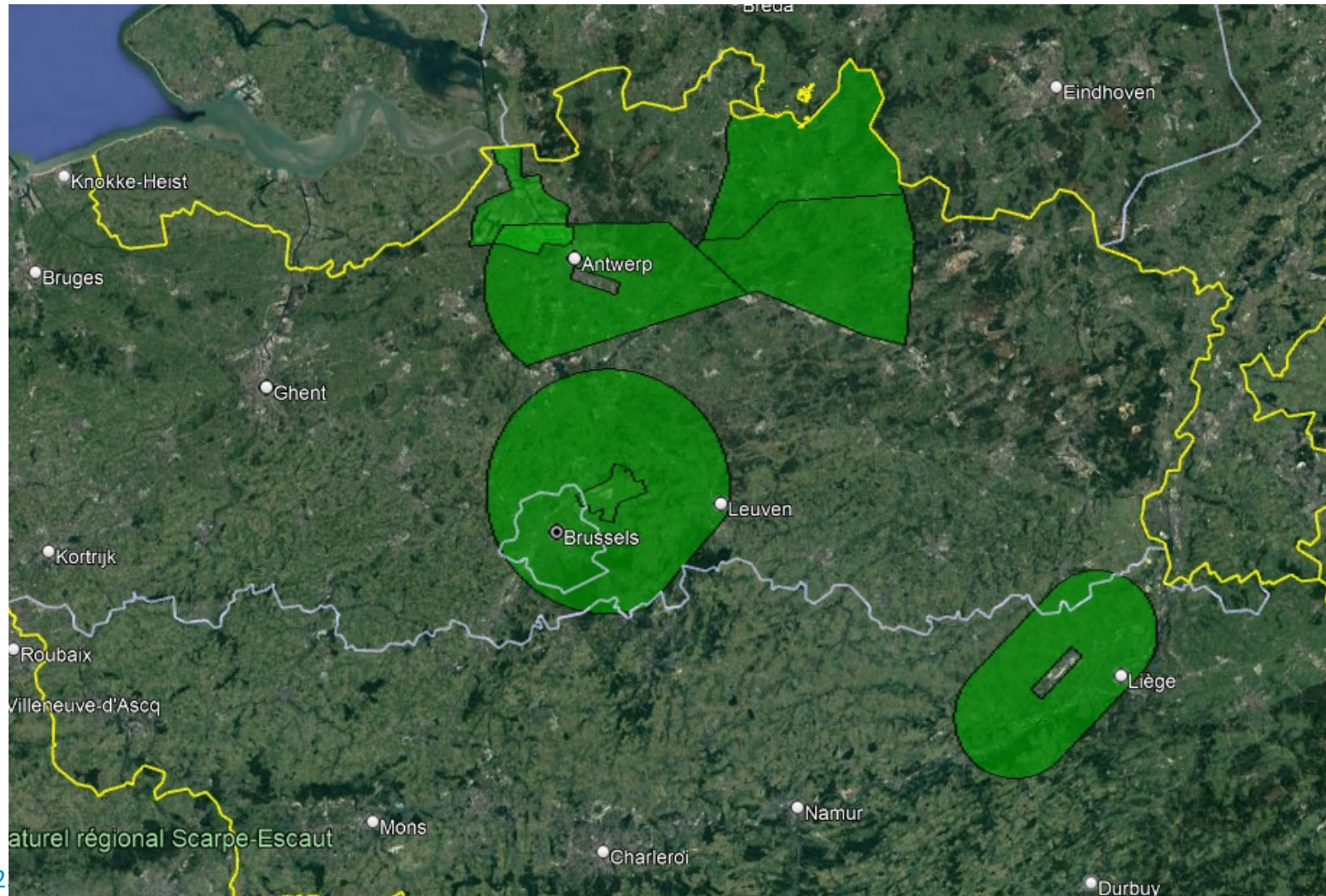
U-space airspace
in uncontrolled
airspace
established
outside any
reserved airspace

3

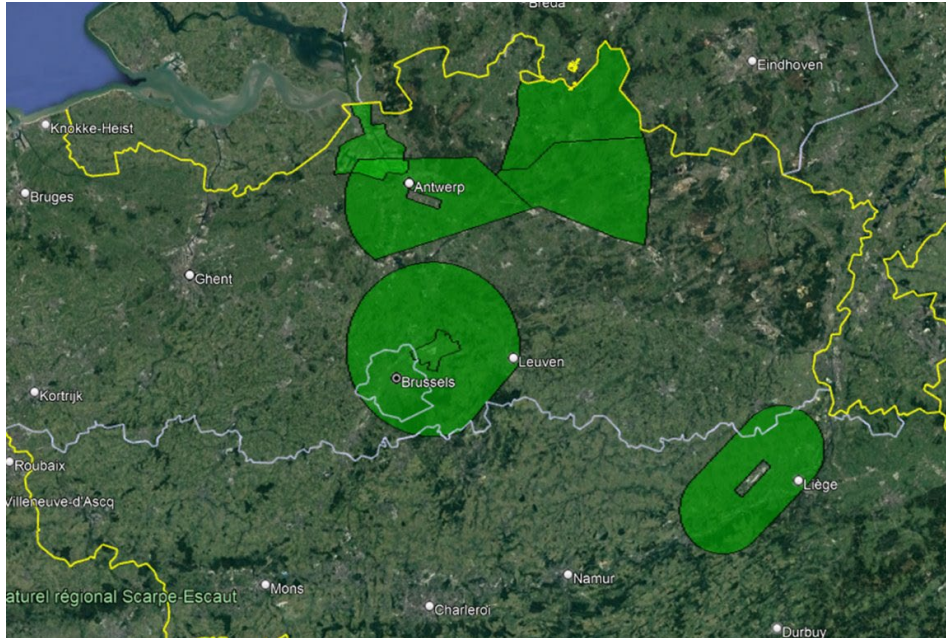
U-space airspace
within civil CTR,
Class D,
controlled
airspace



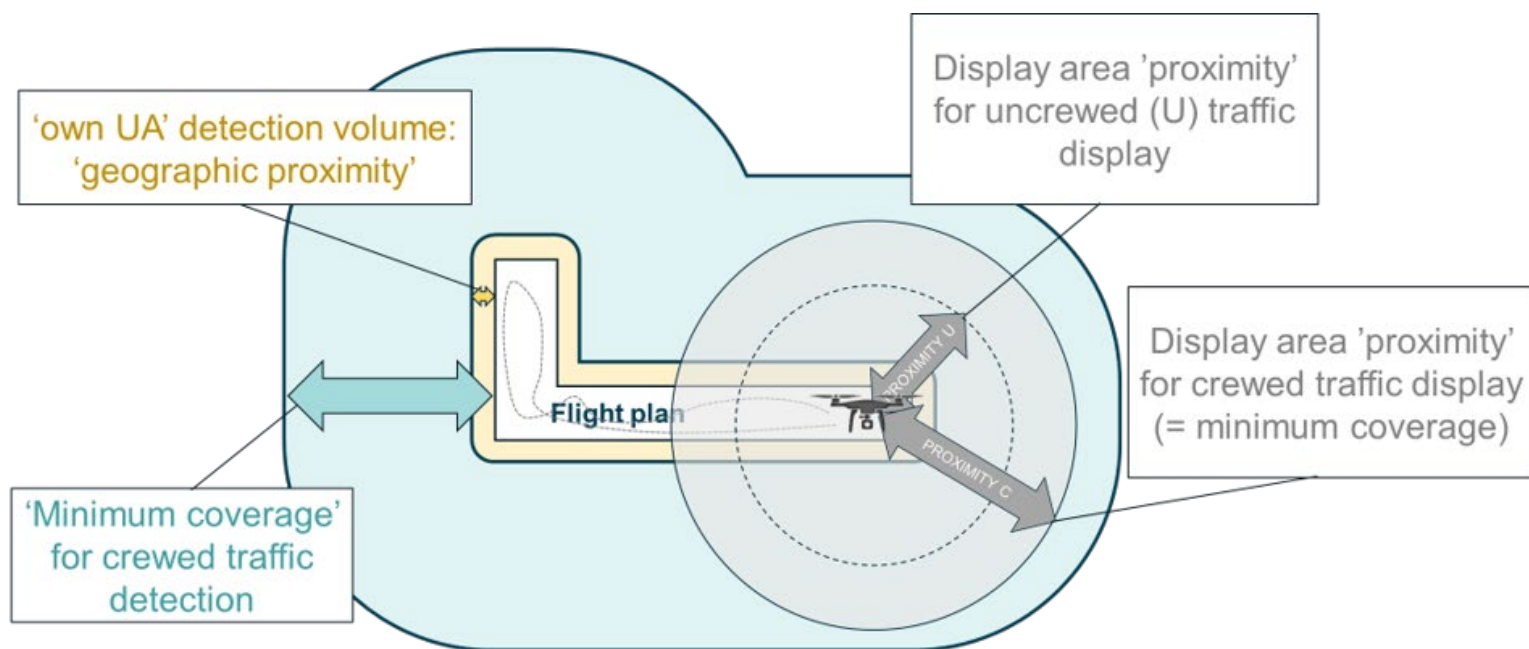
Geographical scope



Geographical scope



	U-space ConOps	ARA			Coord Mech	Publica tion
		Reference Scenario	ConOps	Final Report		
POAB	✓	✓	✓	✓	✓	✓
EBAW CTR	✓	✓	✓	✓	✓	✓
HTA 14	✓	✓	✓	✓	✓	✓
EBBR CTR	✓	✓	✓	✓	✓	✓
EBLG CTR	✓	✓	✓	✓	✓	✓



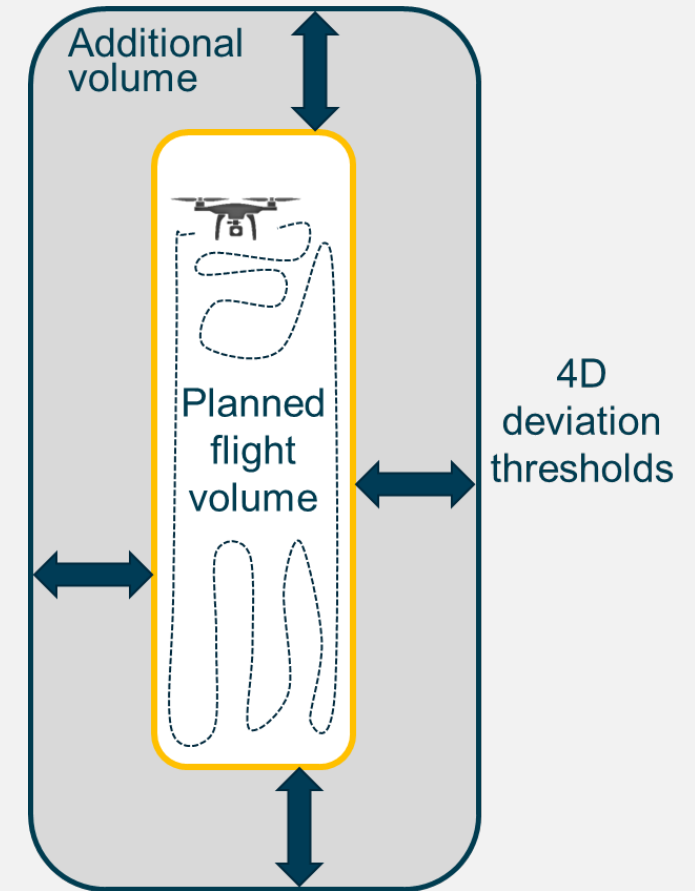
U-space ConOps

➤ HOW TO

ARA documents

➤ VALUE

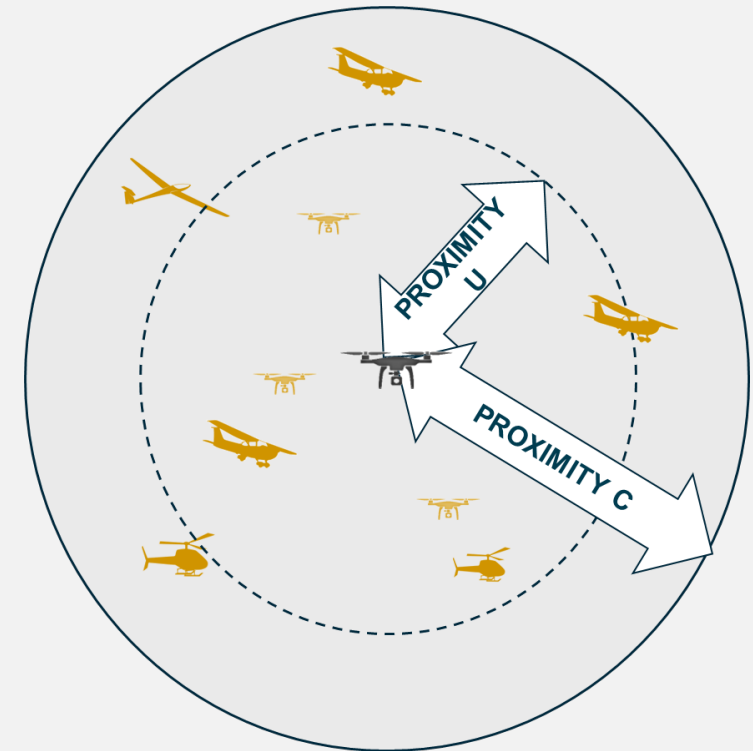
- **Deviation threshold**
- Proximity
- Geographic proximity
- Minimum coverage



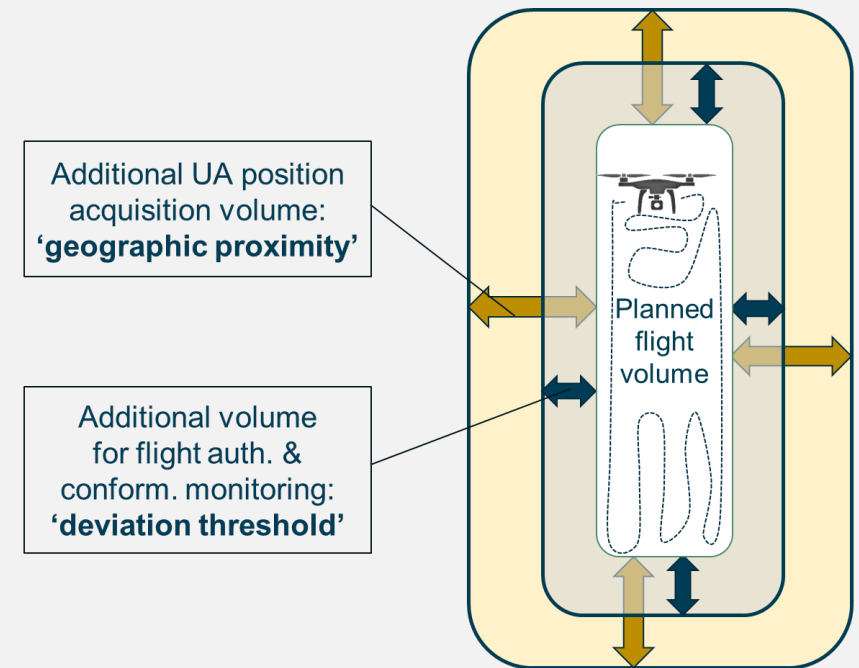
- Deviation threshold
- **Proximity**
- Geographic proximity
- Minimum coverage

‘Proximity U’:
to define the area for displaying uncrewed traffic

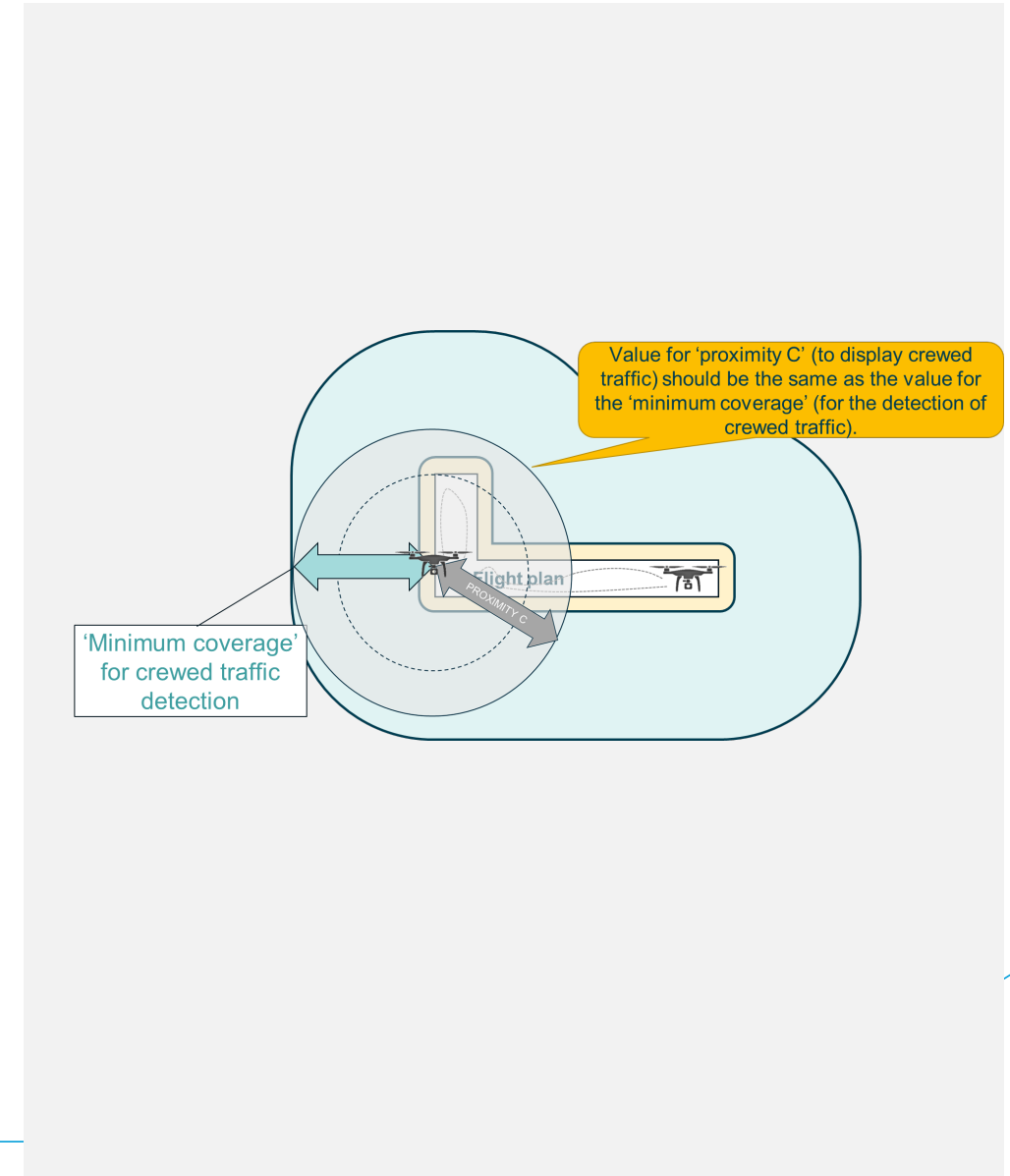
‘Proximity C’:
to define the (bigger) area for displaying (faster) crewed traffic



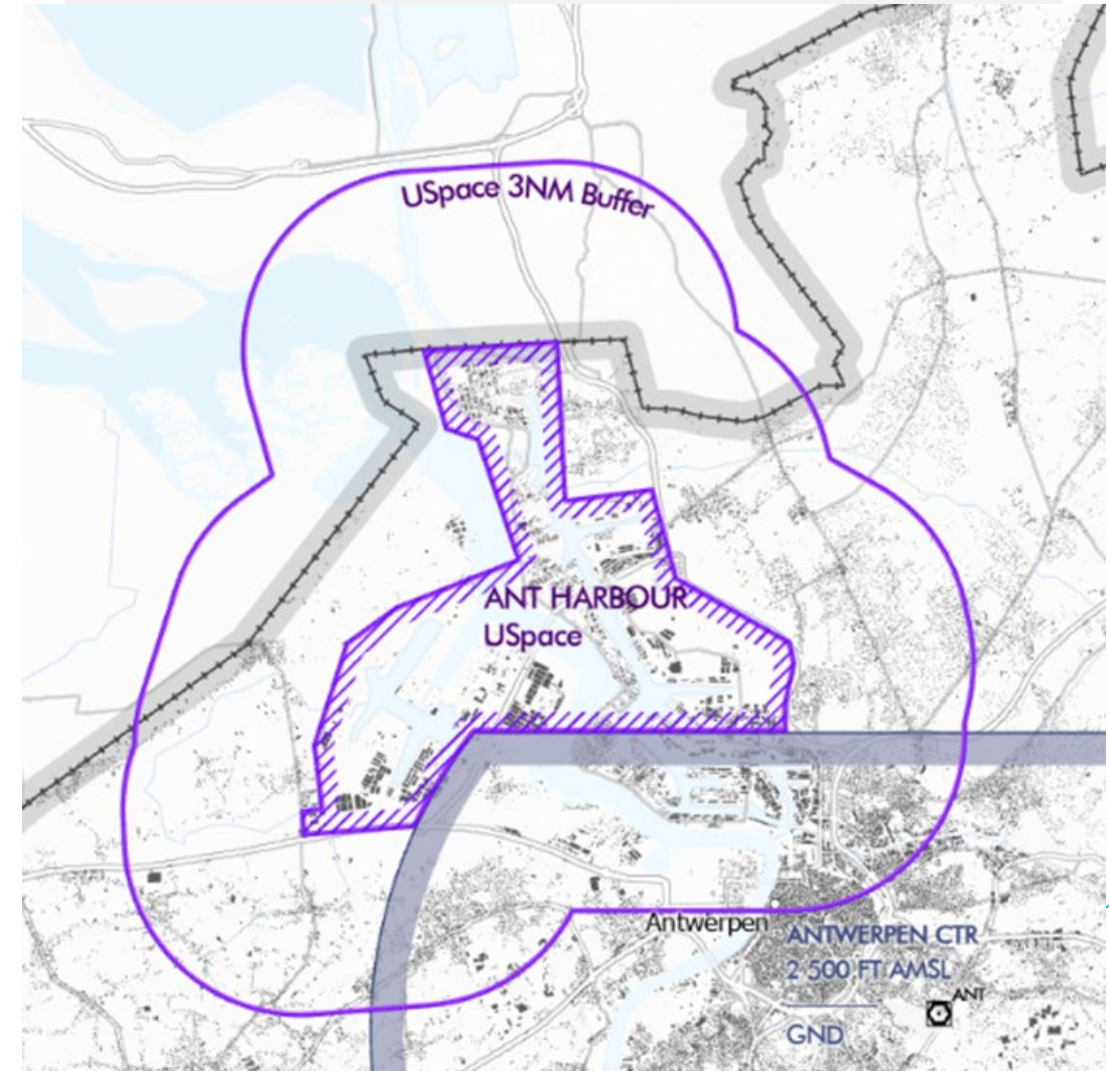
- Deviation threshold
- Proximity
- **Geographic proximity**
- Minimum coverage



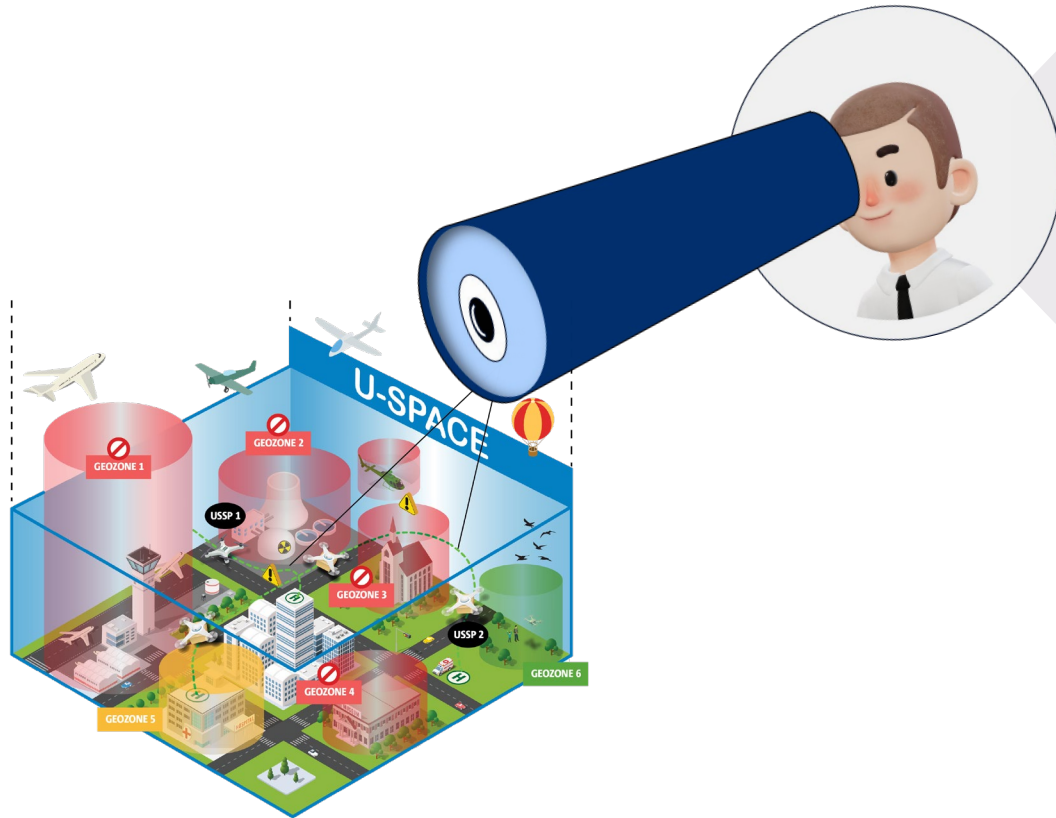
- Deviation threshold
- Proximity
- Geographic proximity
- **Minimum coverage**



- Deviation threshold
- Proximity
- Geographic proximity
- **Minimum coverage**



What's next



UAS geographical zones

Belgium = 649 UGZ
1 flight = 9 requests

Registration operator >< drone

Link drone detection

Cost > direct link with the volume

Initial costs remain > small spots of U-space =
small chance on return

THANK YOU FOR
YOUR ATTENTION



Key challenges for USSPs, today and in the future

Jean-Pierre De Muyt, Regulatory UTM Expert, SkeyDrone
24/10/2025

**BECOMING
STAYING
UPSCALING**

The why of the need and the why of a small market

BVLOS flights require
approvals that are slow
and complex

**Limited
BVLOS
Operations**

The why of the need and the why of a small market

BVLOS flights require approvals that are slow and complex

**Limited
BVLOS
Operations**

**Small Market
& Business
Cases**

Without approvals, only a small number of BVLOS flights take place

The why of the need and the why of a small market

BVLOS flights require approvals that are slow and complex

**No Urgency
for
Regulators**

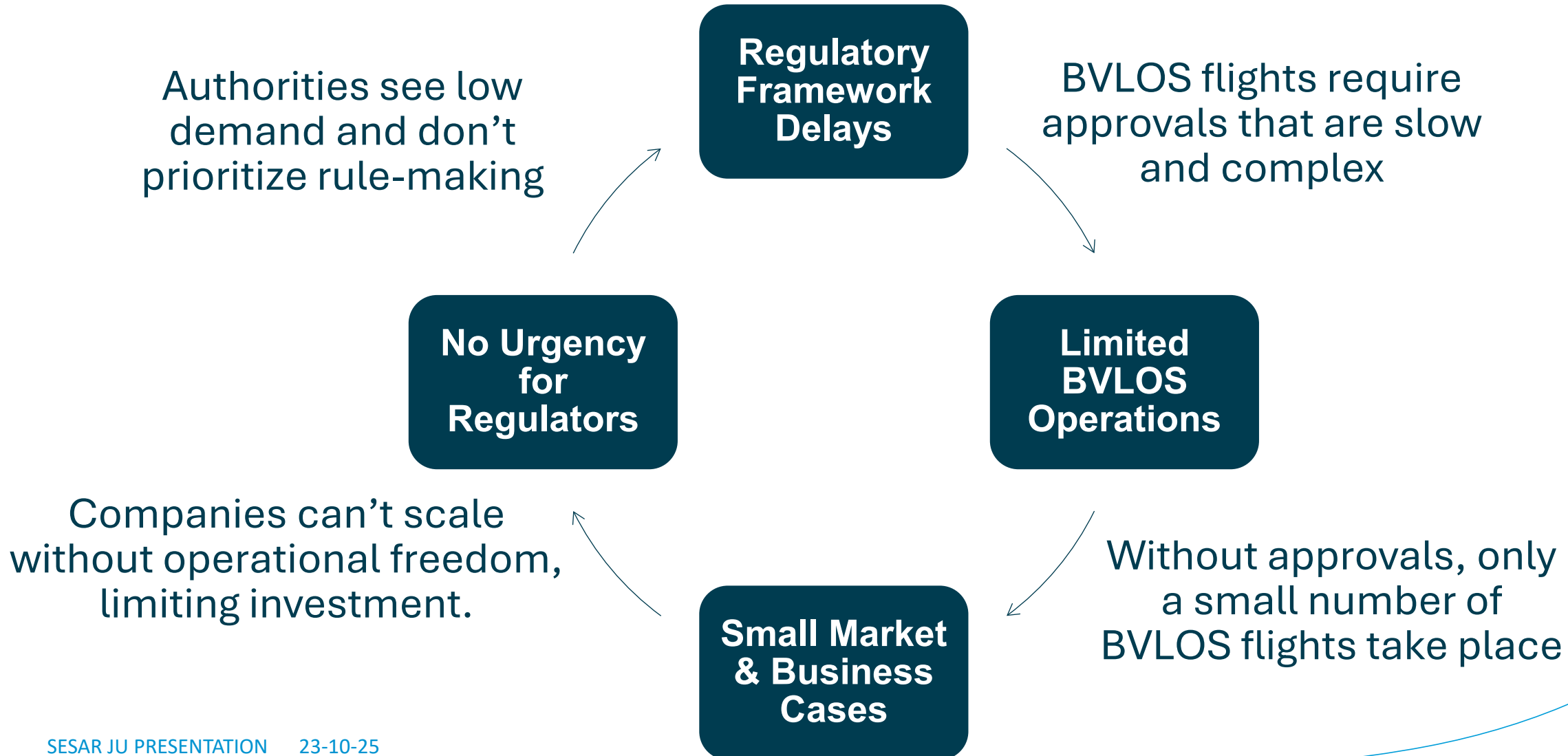
**Limited
BVLOS
Operations**

Companies can't scale without operational freedom, limiting investment.

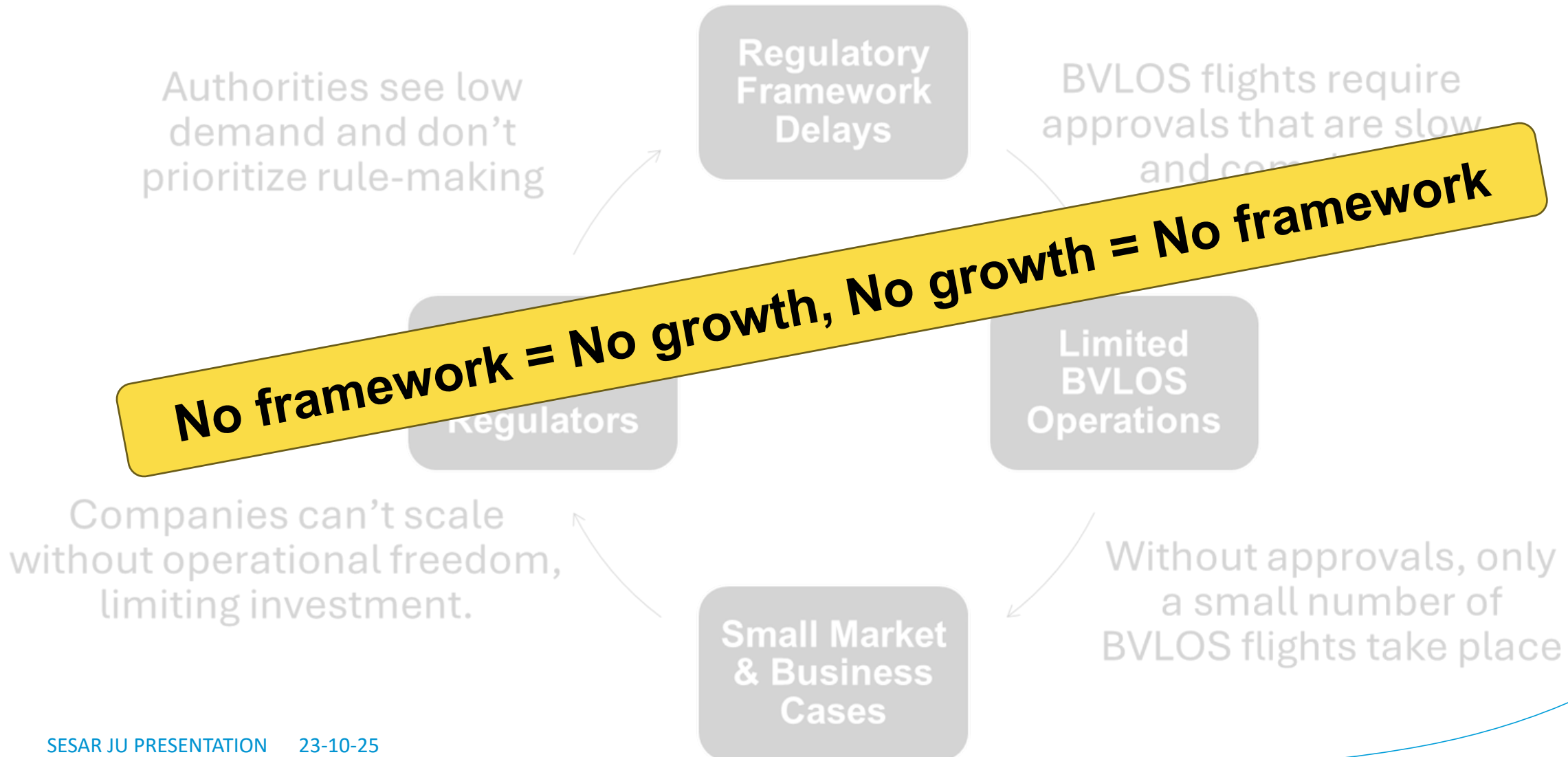
**Small Market
& Business
Cases**

Without approvals, only a small number of BVLOS flights take place

The why of the need and the why of a small market



The why of the need and the why of a small market



Becoming USSP



Becoming USSP

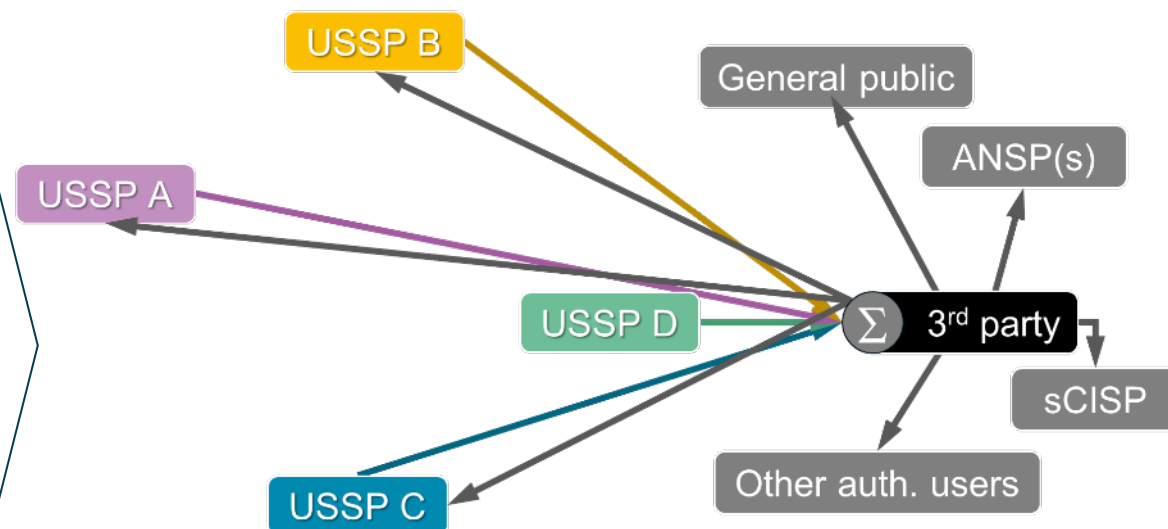
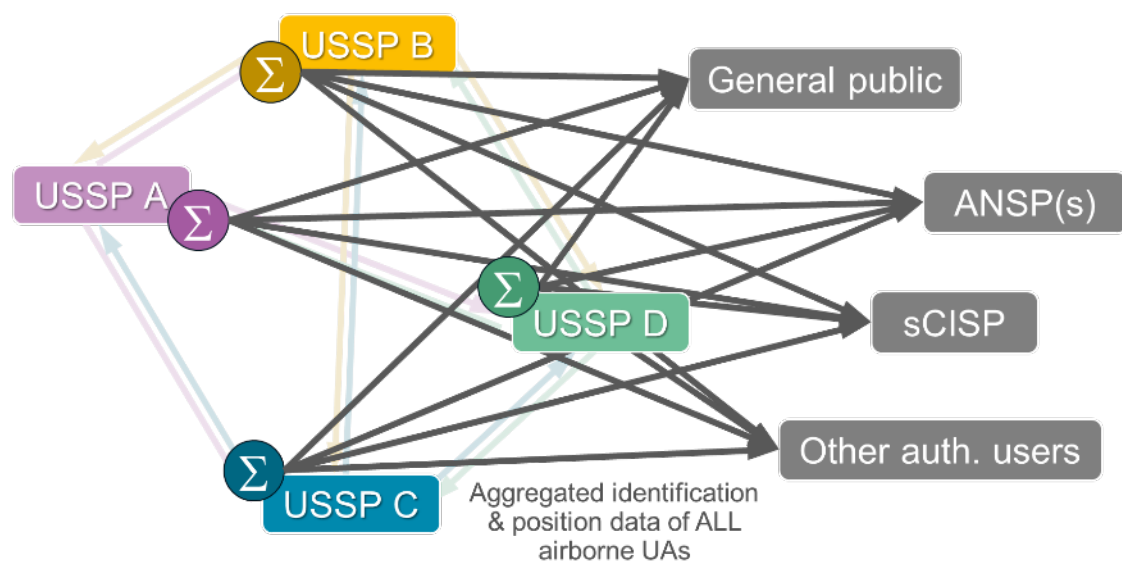
The ConOps challenge

Evolution of the AMC/GM, the timeframe

- Feedback on the AMC/GM published December 2022 is being consolidated
- Discussions on the AMC/GM will be re-engaged begin 2024
- NPA and publication of the updates are expected in **2025**
- Update will bring:
 - Clarifications on the existing content
 - Adjustments, when necessary, but should not change the existing approach
 - Complementary items
- Update approach and team is being discussed, but will required support of the U-space stakeholders

Becoming USSP

The ConOps challenge

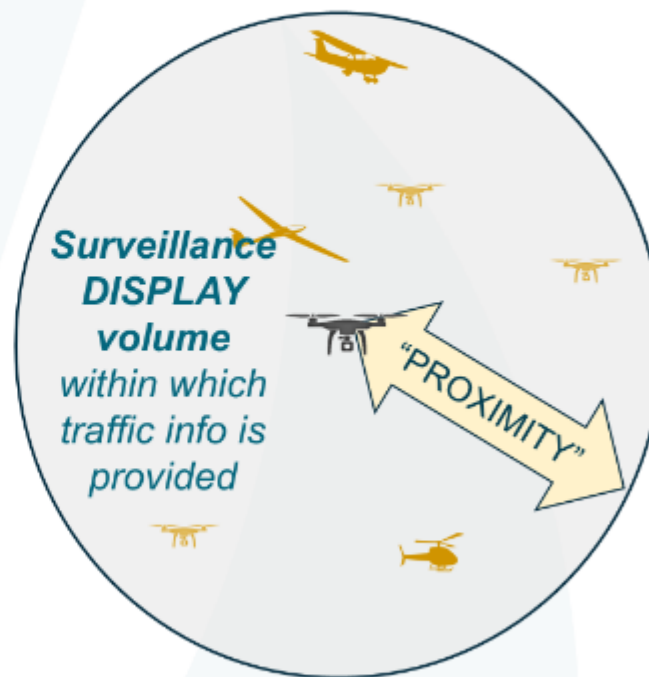


Becoming USSP

The ConOps challenge

■ Traffic information service: DISPLAY AREA

Area in the 'proximity' of the (real time) UA position within which drone operators can "see" all other traffic

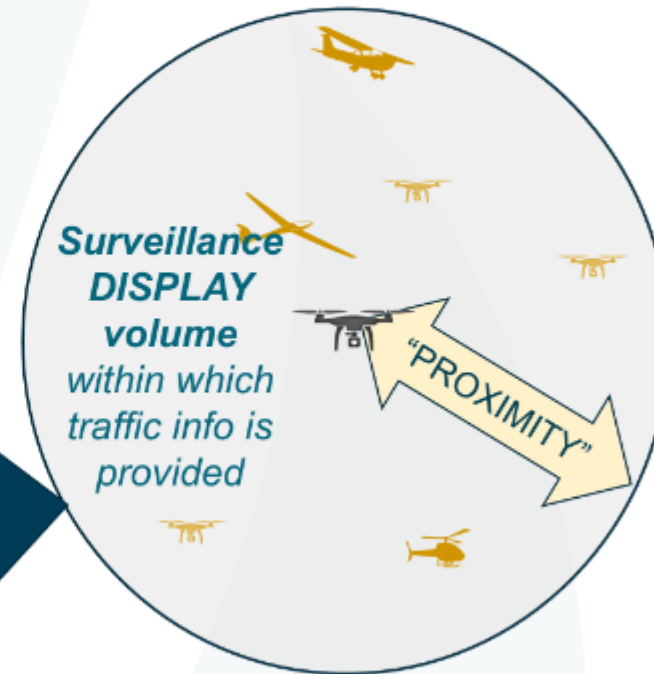


Becoming USSP

The ConOps challenge

Traffic information service: DISPLAY AREA

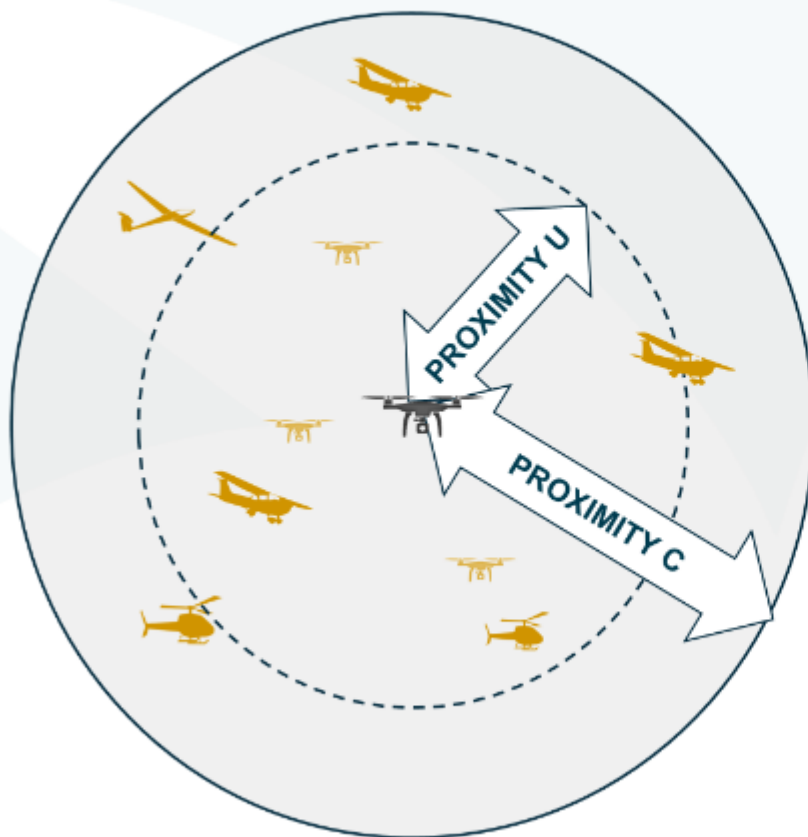
Although reference is made in the AMC to the ASTM standard F3411-22A 'Standard Specification for Remote ID and Tracking' it makes more sense to have this area be circular rather than a rectangle, as in U-space the Traffic Information Service is **an omni-directional risk mitigation measure** used by the drone operator, while the TIS in ASTM is merely a display intended for the public and law enforcers.



Becoming USSP

The ConOps challenge

Traffic information service: DISPLAY AREA



'Proximity U':
to define the area for
displaying uncrewed traffic:

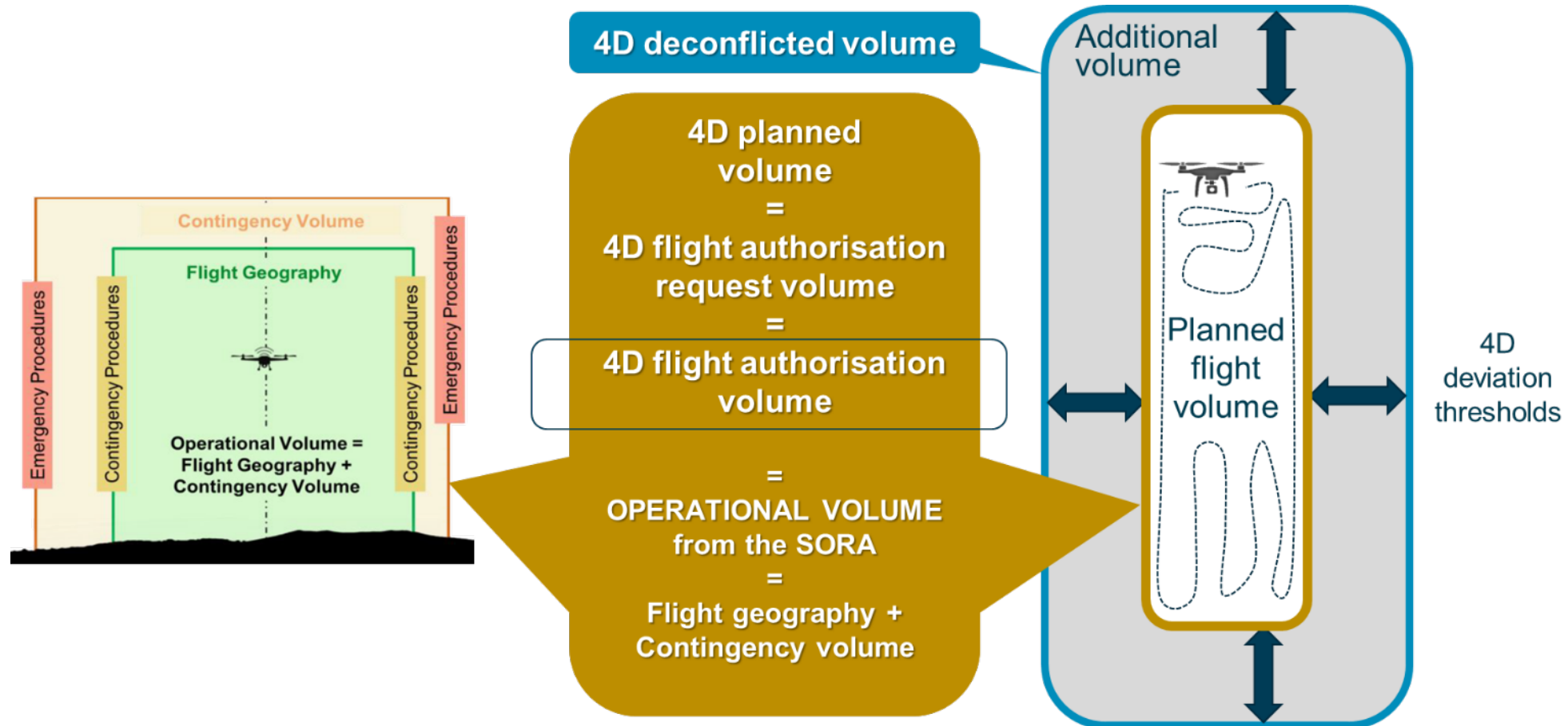
DRAFT ARA:
hor.: 1.5NM, vert.: 500ft

'Proximity C':
to define the (bigger) area for
displaying (faster) crewed
traffic:

DRAFT ARA:
hor.: 3NM, vert.: 700ft

Becoming USSP

The ConOps challenge



Becoming USSP The ConOps challenge

Airspace 'Restrictions' versus
Airspace 'Limitations' versus
Airspace 'Constraints'

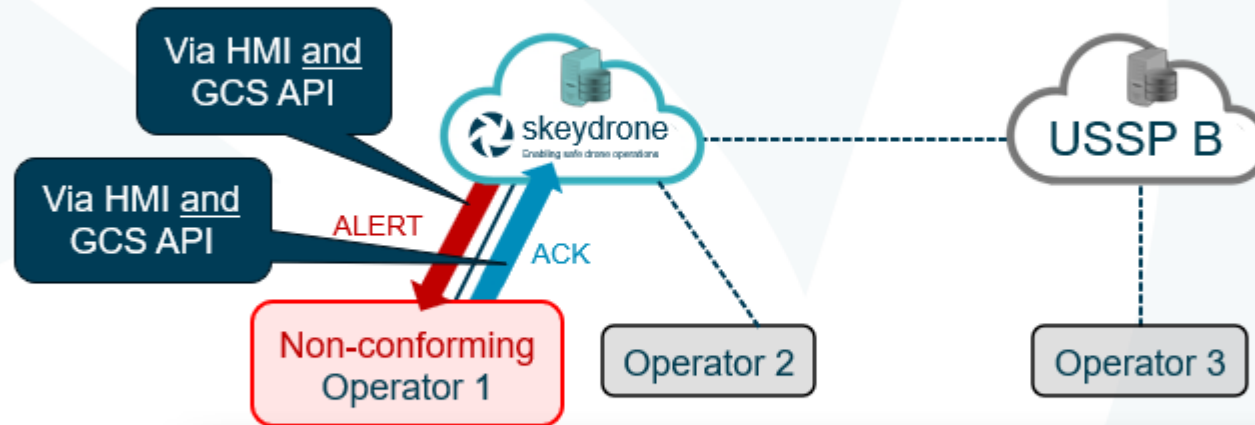
Becoming USSP

The ConOps challenge

Non-conformance ack

Becoming USSP The ConOps challenge Non-conformance ack

SkeyDrone customer 'Operator 1' outside planned flight volume but still within deviation threshold is being alerted.



AMC3 Article 6(1)(b) UAS operators

ACKNOWLEDGEMENT OF NON-CONFORMANCE

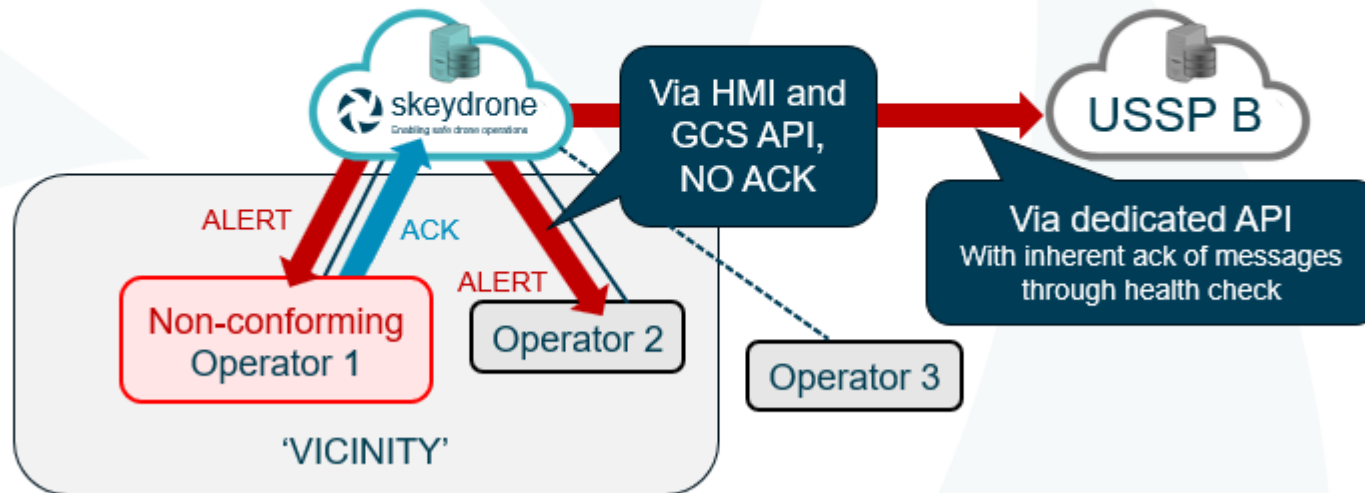
When relevant, and as per Article 13(2) of Regulation (EU) 2021/664, UAS operators should acknowledge receipt of the notification that they are non-conforming by using the means provided by their USSPs.

Becoming USSP

The ConOps challenge

Non-conformance ack

**KeyDrone customer 'Operator 1' OUTSIDE DEVIATION THRESHOLD
> alerting operator 2 within the VICINITY of operator 1**

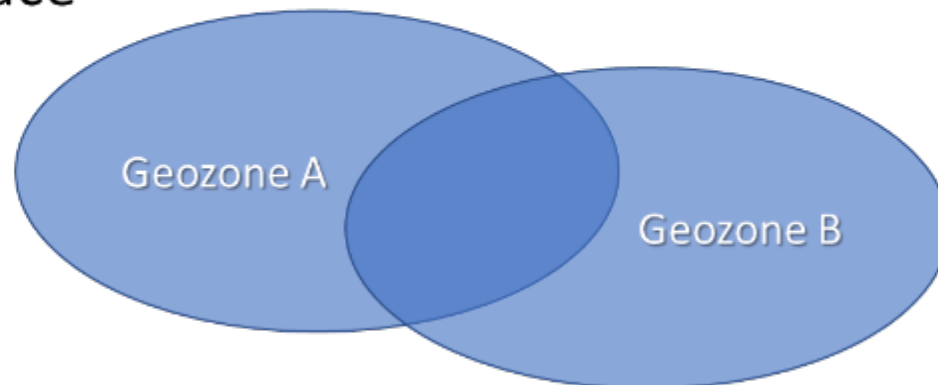


Staying USSP The VAS race?



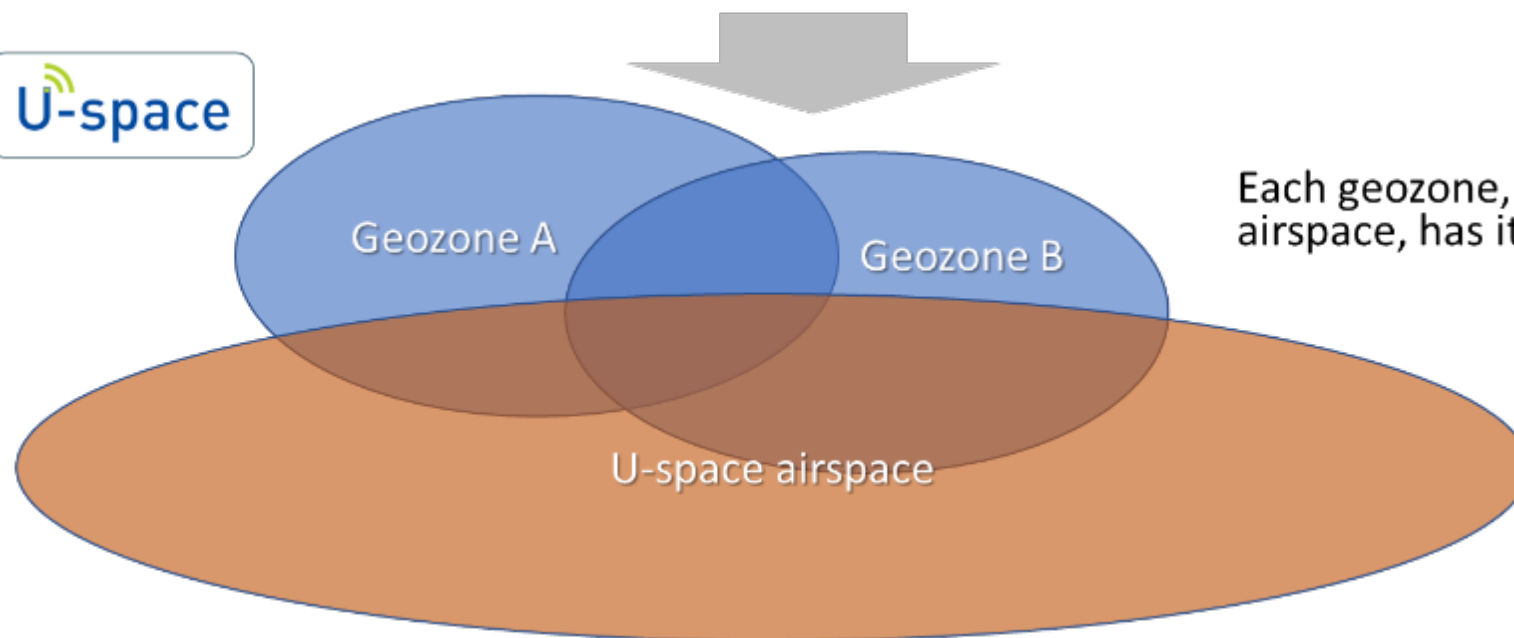
Scenario A

Pre- U-space



Geozones can overlap and in the overlap the sum of access conditions applies

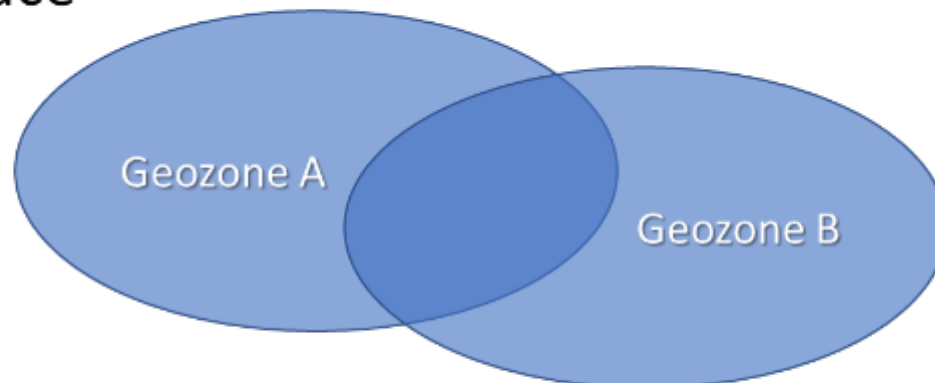
 **U-space**



Each geozone, including the U-space airspace, has its very own access conditions, and it is up to the drone pilot to respect the sum of all access conditions if/where overlap occurs

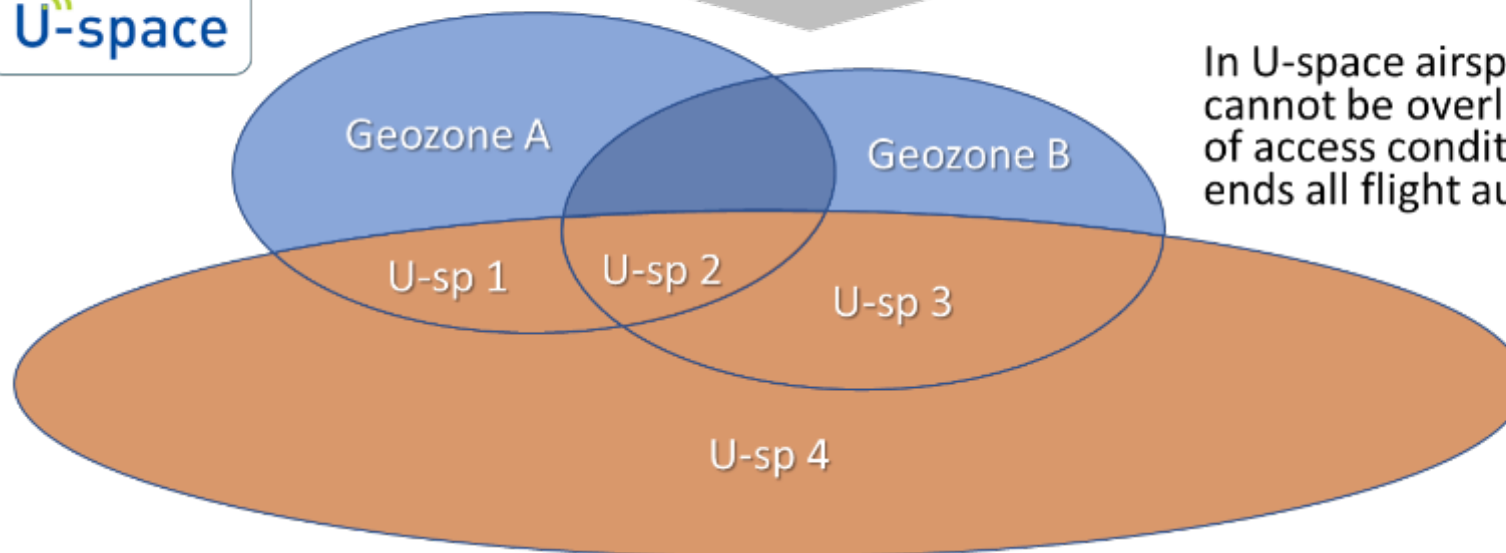
Scenario B

Pre- U-space



Geozones can overlap and in the overlap the sum of access conditions applies

U-space



In U-space airspace (depicted as U-sp x) there cannot be overlaps and each has its own set of access conditions whereby the USSP front-ends all flight authorisation aspects.

E.g. in U-space 1 : access conditions based on the sum of 2 risk analyses, one from geozone A and one from the U-space airspace risk assessment

Staying USSP The C-UAS challenge



Staying USSP The C-UAS challenge



Need to Differentiate Friend from Foe

The scaling challenge



THANK YOU FOR
YOUR ATTENTION

Q&A

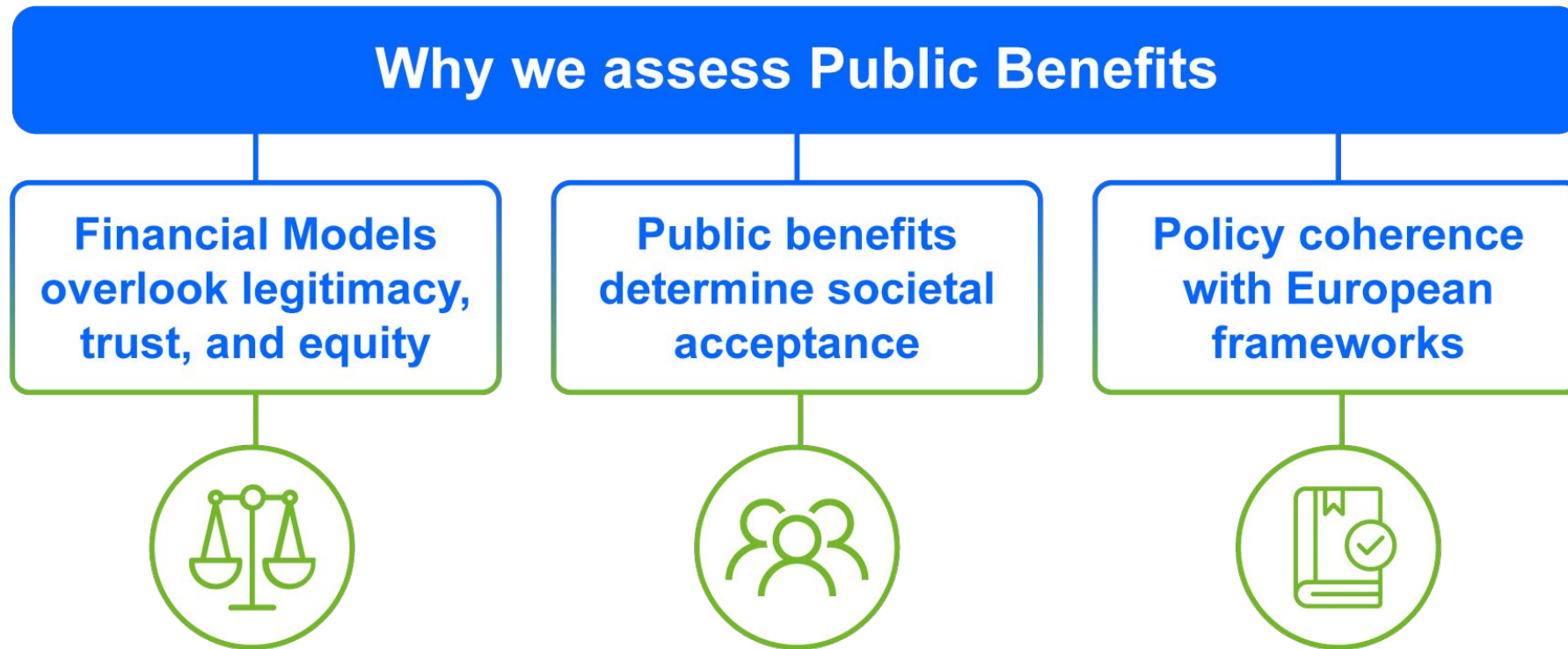


U-space public Benefits

Presenter: Manolis Pantelidis

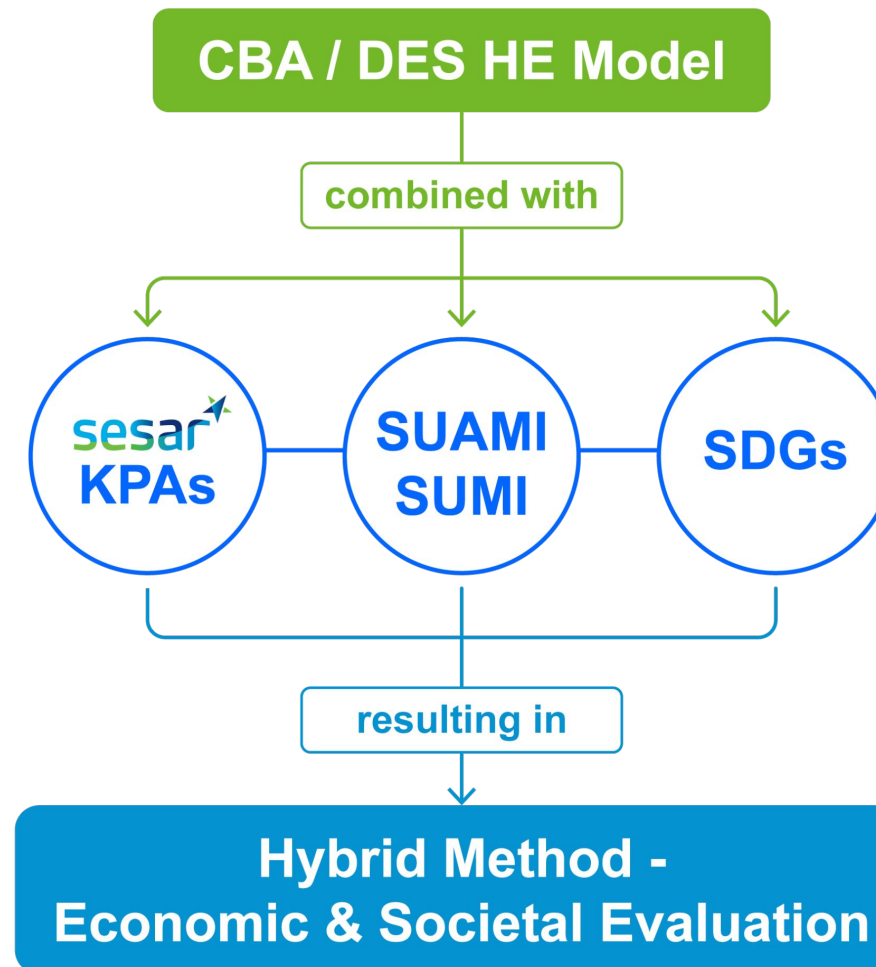
**Research Team: Anna Palaiologk, Nikoleta Krousouloudi, Lina Giannivasili, Ioannis Koutsos, Ioannis Kitsos, Akash Mishra,
Eleftheria Georganti**

24/10/2025

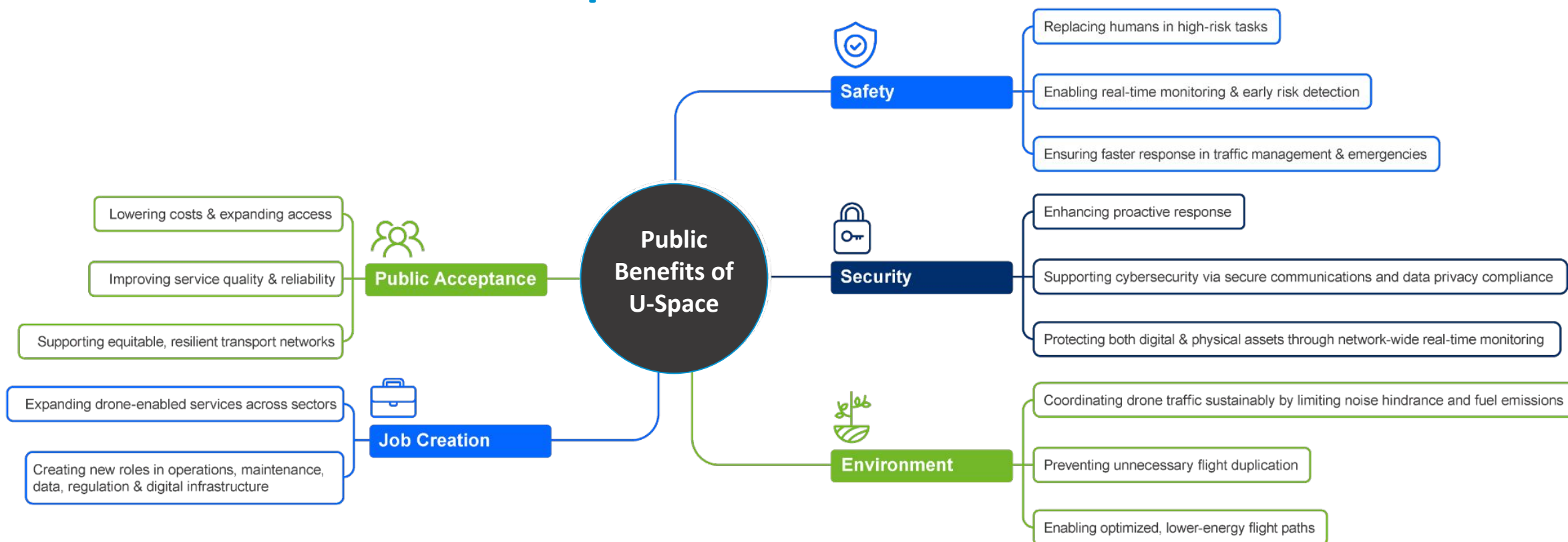


How we assess Public Benefits

- Cost–Benefit Analysis (CBA) based on the *European Commission’s 2015 Guide* and SESAR’s DES HE model.
- Combined with:
 - SESAR Key Performance Areas (KPAs)
 - SUMI → SUAMI Indicators (developed by Future Needs)
 - UN Sustainable Development Goals (SDGs)
- This hybrid method allowed both economic and societal evaluation.

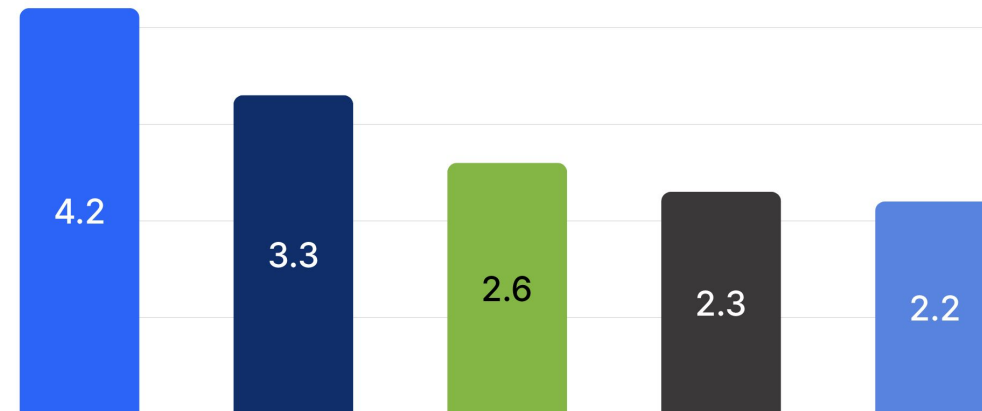
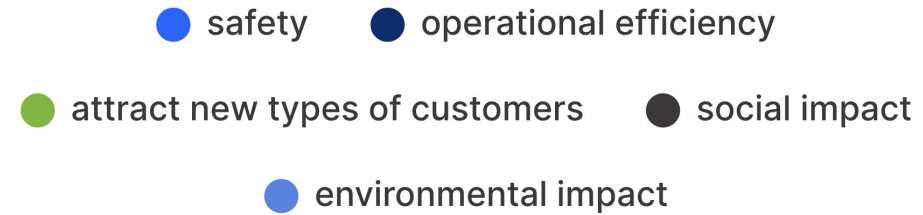


Public Benefits of U-Space



The BURDI Analysis Results

- 42 respondents
- 75% cite regulatory compliance
- 50% safety
- High interest (64%) in further U-space development.



Ranking of the expected benefits from the implementation of U-space services
(Scale 1: Not Important to 5: The most important)

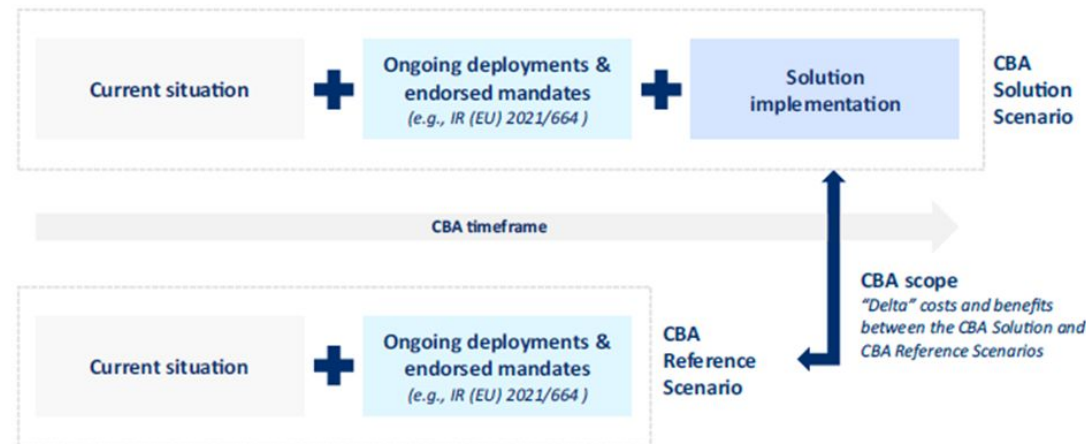
Scenarios Compared in BURDI

The CBA used a **delta approach***,**, measuring the difference between the two following scenarios:

- **Scenario 1 – “Reference scenario”**: UAVs operating without U-space (limited coordination, isolated operations) - *state of today*.
 - In order to derive a benefits assessment of Scenario 1, we compared it against a theoretical scenario where no UAVs operate at all (*not included*).
- **Scenario 2 – “Solution scenario”**: UAVs integrated under U-space (coordinated, automated, safe).

*This benefit assessment has been limited to a **qualitative comparison** between the two scenarios as research on the monetisation of these benefits is still at a very early stage.

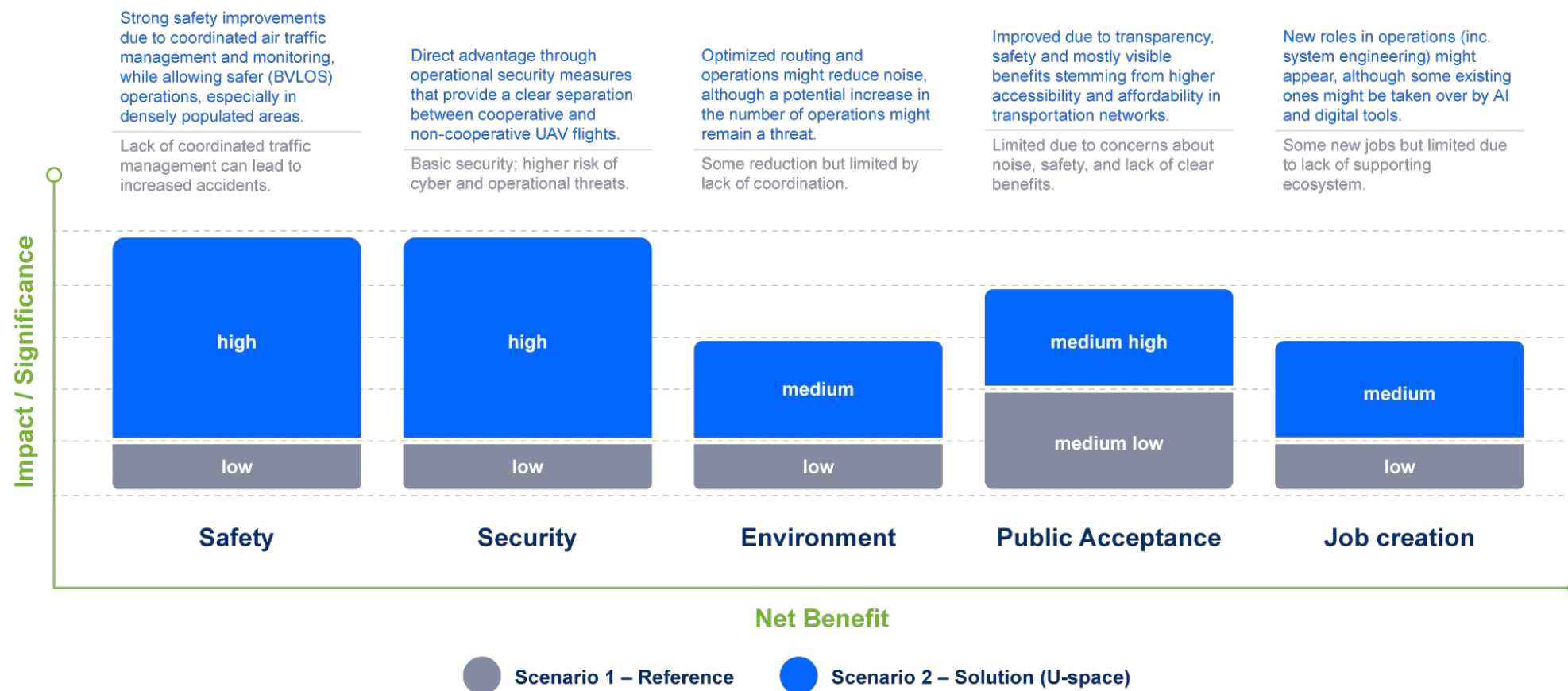
**A quantitative assessment of the U-space costs (only CISP & USSP elements) was also undertaken - please refer to the full BURDI report



Source: SESAR Joint Undertaking. (2025). DES HE U-space cost benefit analysis (CBA) model guide. SESAR

U-space has a positive impact on local communities

Public Benefits Assessment



Conclusions: U-space as a Societal Investment

U-space is both a technological and a societal project — its success depends on the balance between cost efficiency, operational sustainability, and the delivery of apparent public benefits.

At this stage, only a part of the cost for deploying U-space has been monetised but qualitative results show clear positive outcomes across safety, security, and sustainability — the foundation for future socio-economic benefits:

- U-space enables safe, scalable and sustainable drone operations.
- Safety drives social acceptance and adoption.
- Effective deployment requires multi-level governance and transparent decision-making.
- Aligned with SDGs: Supports health, innovation, sustainable cities, and climate action.
- Looking ahead: From research to a trusted pillar of Europe's air mobility.

THANK YOU

FOR YOUR ATTENTION

Manolis Pantelidis
Economist



www.futureneeds.eu

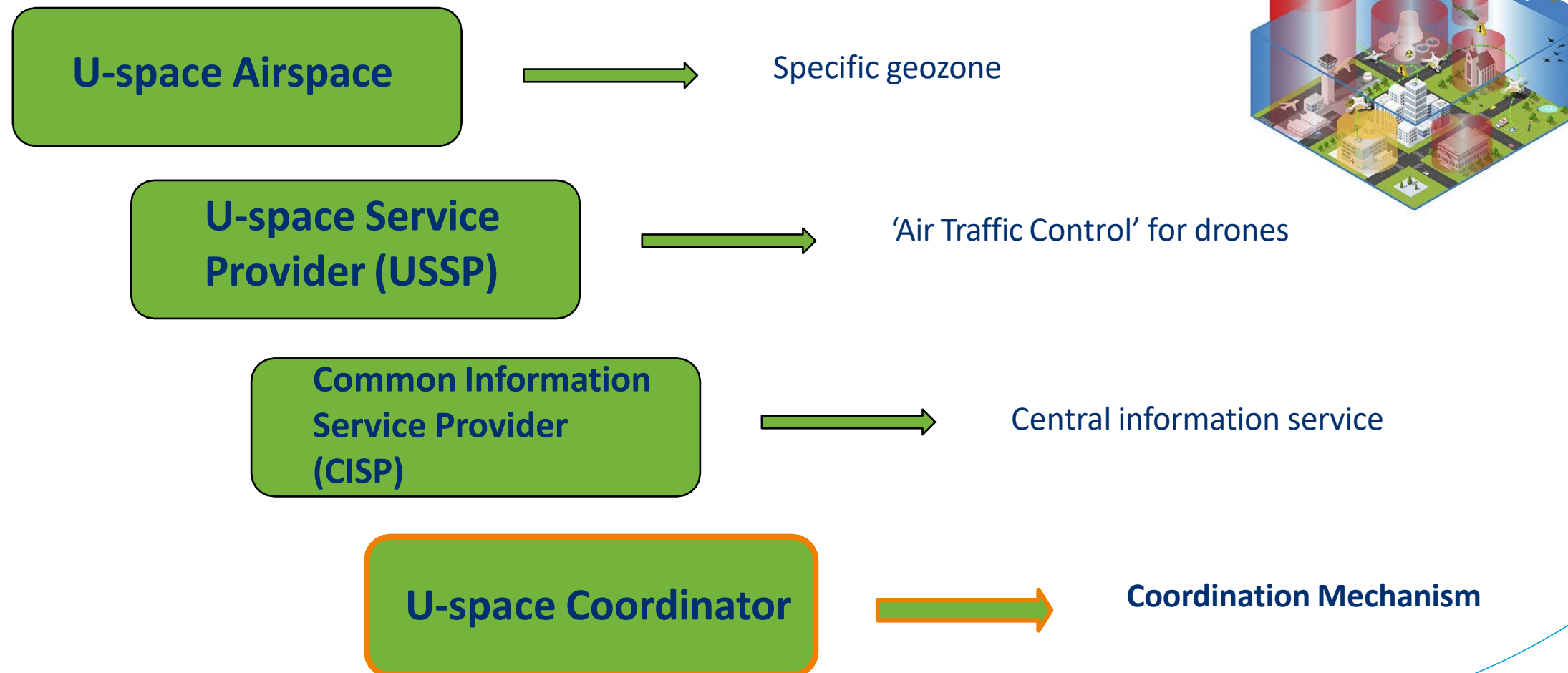


BURDI T7.3: Social acceptance and multilevel governance

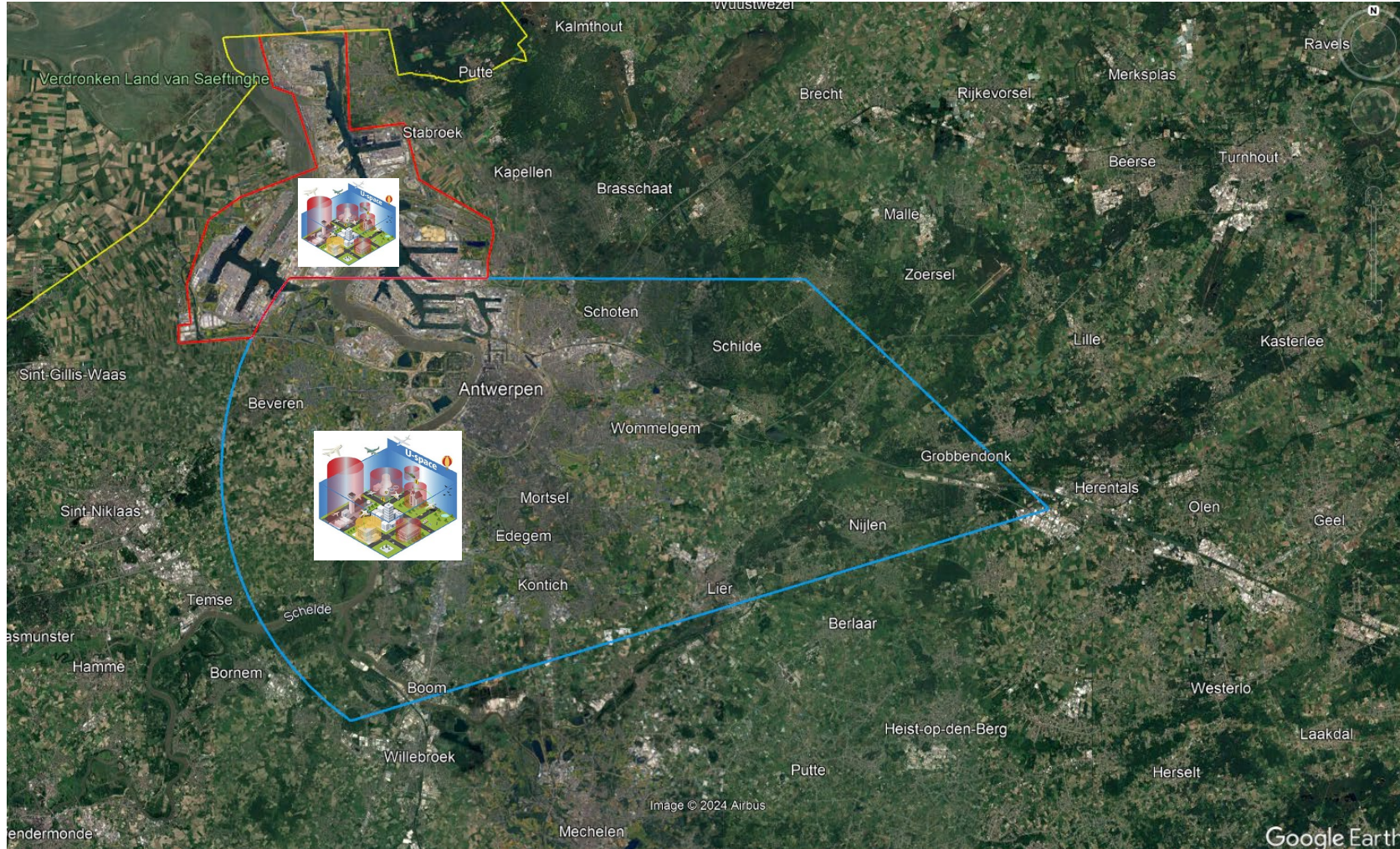
Implementing the U-space Coordination Mechanism: Lessons learnt in Belgium

Dr Vassilis Agouridas, Founder & Managing Director, ForeCreate SRL
24/10/2025

U-space main pillars & roles

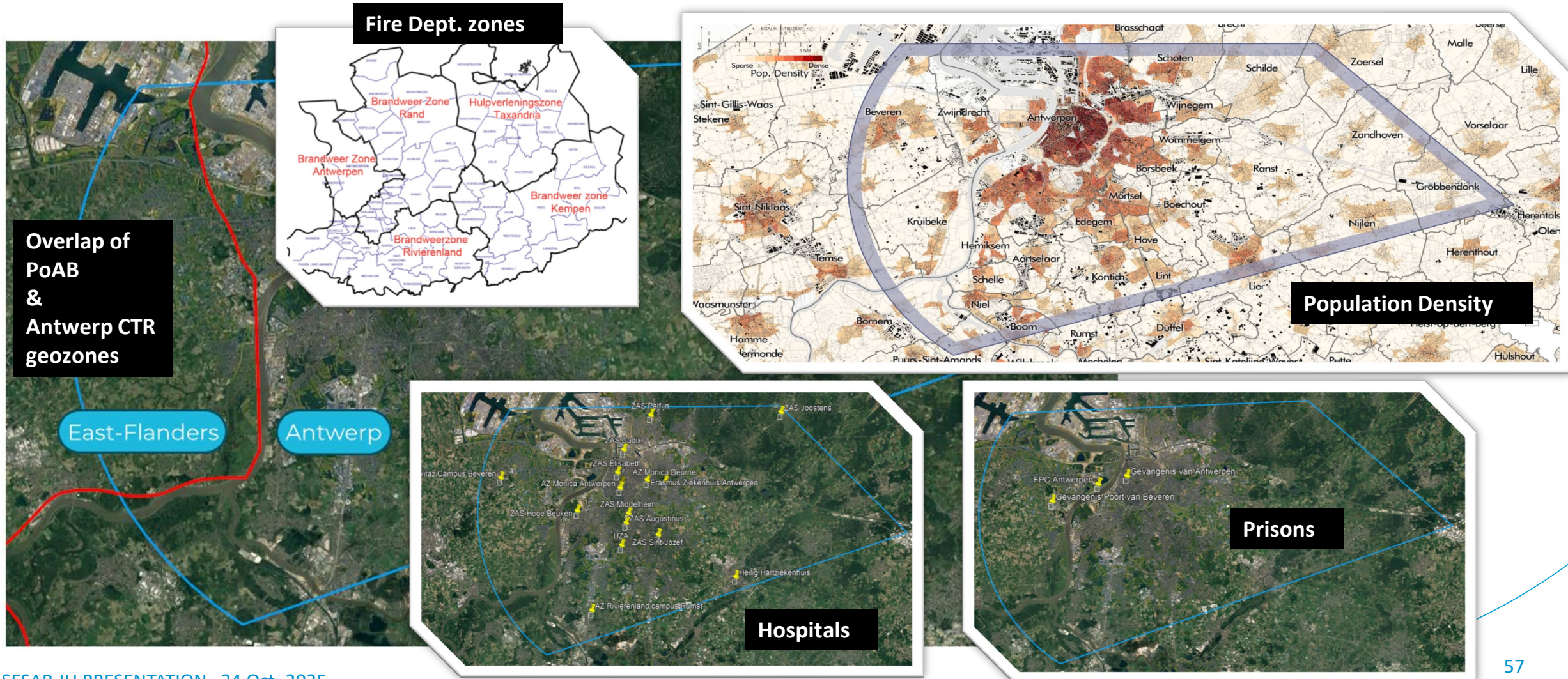


BURDI project's focus on *existing* geozones:



U-space PoAB
&
Antwerp CTR

Various governance considerations beyond aviation: *Antwerp CTR example*



Coordination Mechanism (CM) - Art. 18(f) of (EU) 2021/664

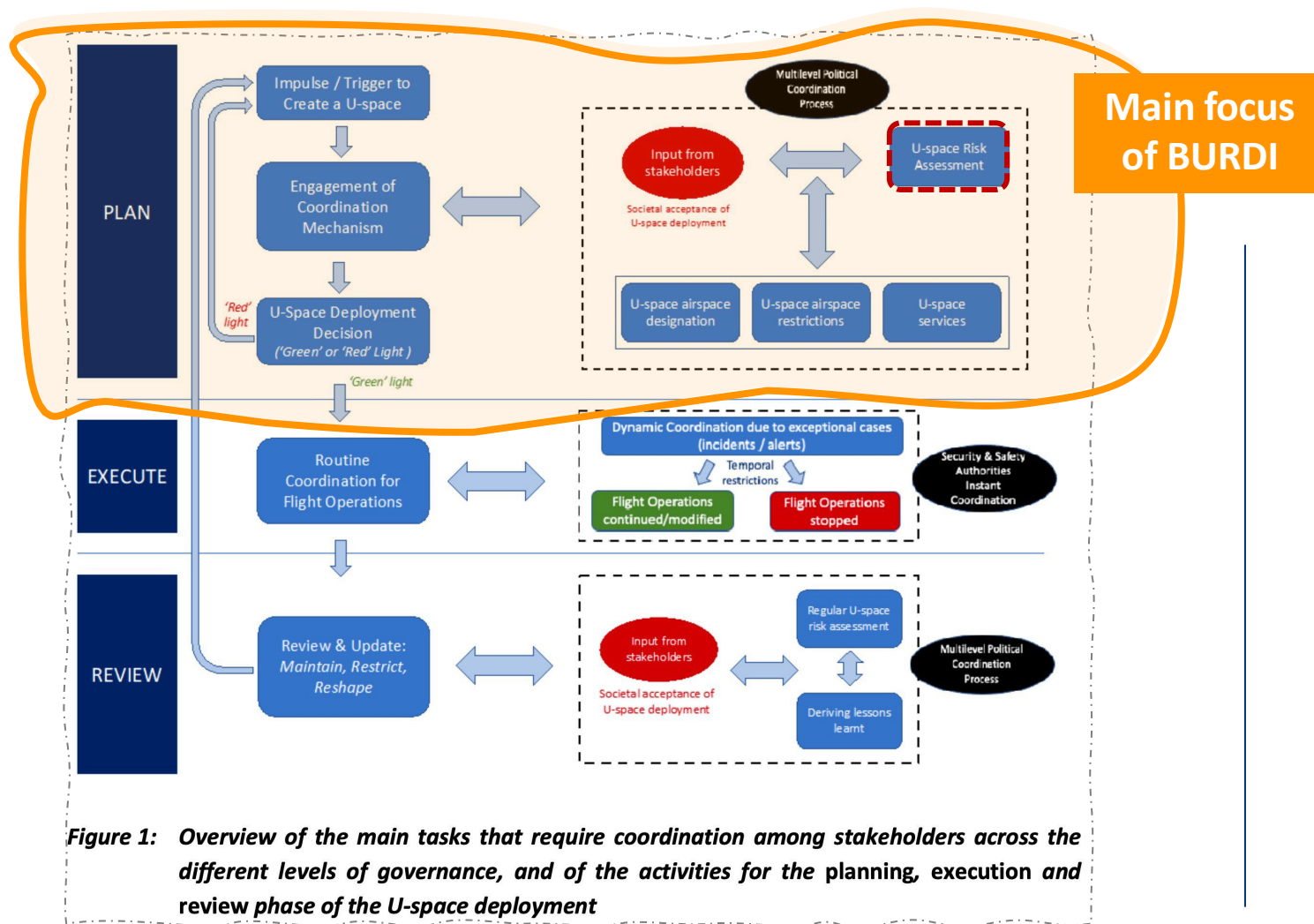
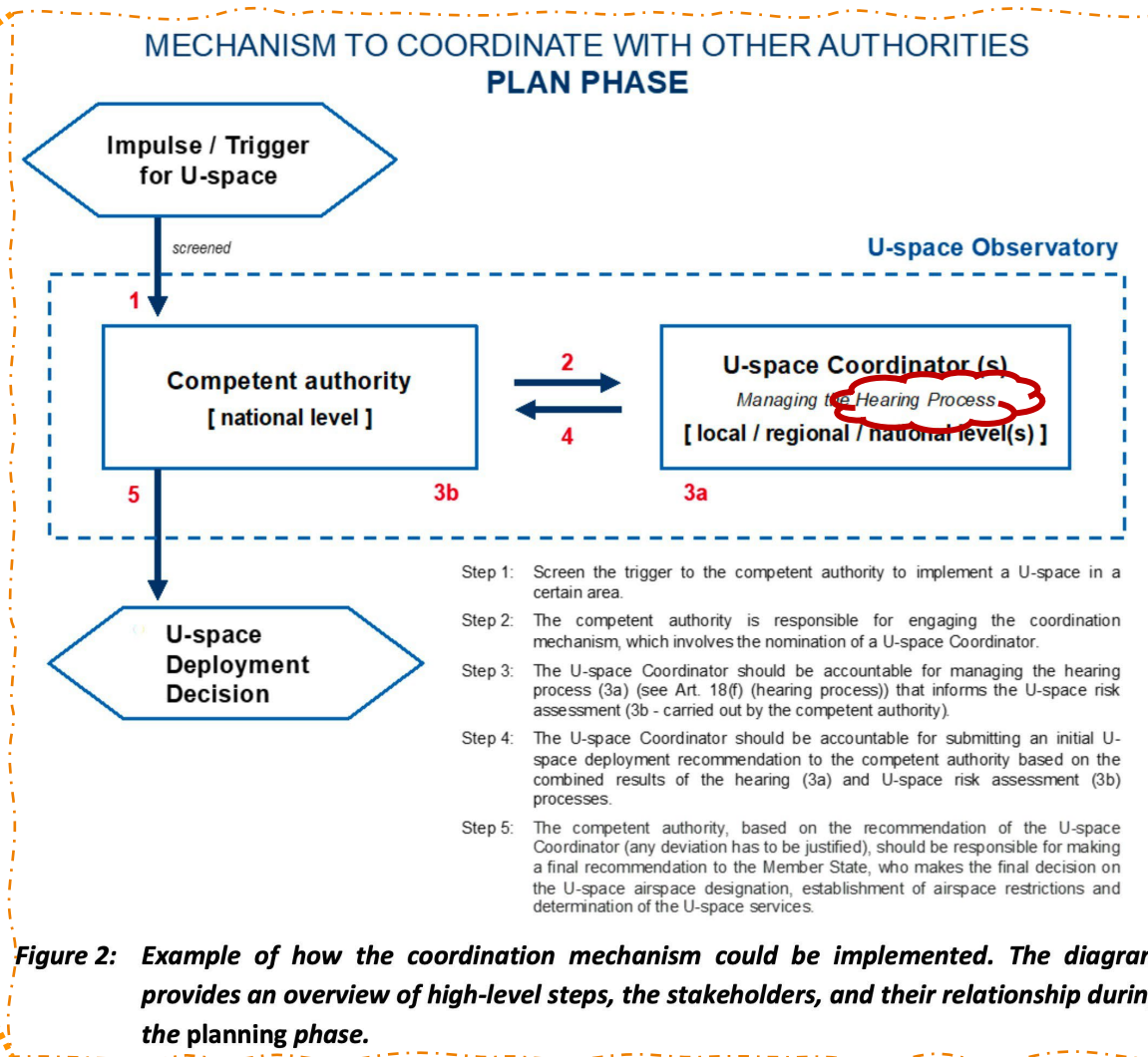
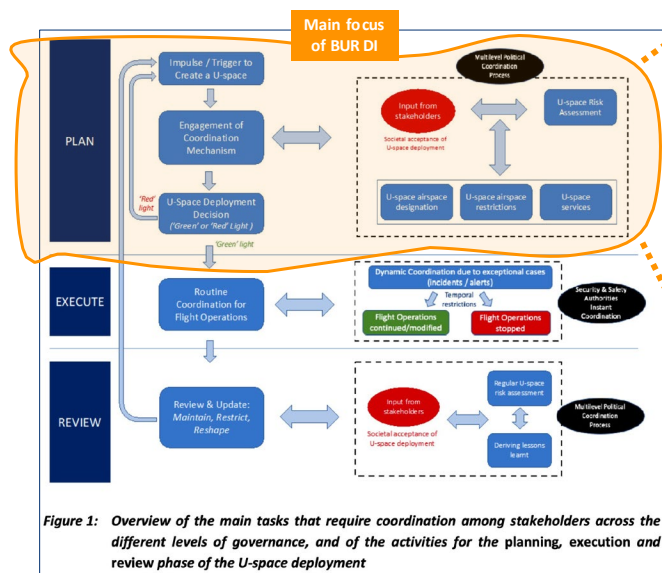


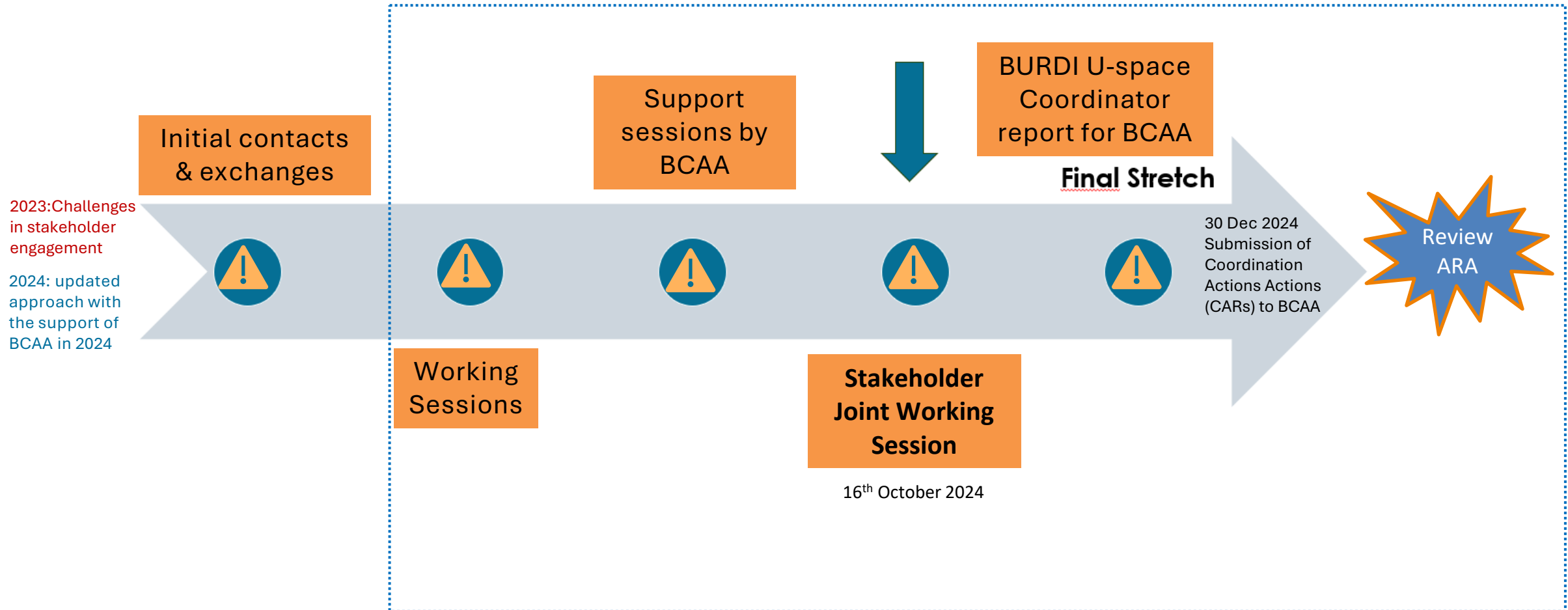
Figure 1: Overview of the main tasks that require coordination among stakeholders across the different levels of governance, and of the activities for the planning, execution and review phase of the U-space deployment



Coordination Mechanism (CM) - Art. 18(f) of (EU) 2021/664



Stakeholder engagement challenges: *PoAB example*



Stakeholder engagement: *PoAB Approach & Challenges example*

The premises of PoAB



The premises of the Province of Antwerp



Lessons learnt and recommendations for corresponding actions

#	Lesson Learned	Short description	Challenge	Enabler	Recommendation
1	CM timelines reflect local governance	Engagement and alignment require time	Pressure to compress steps	Local negotiation of milestones; staged plan	Set realistic schedules; agree any shortcuts locally
1	CM timelines reflect local governance	Engagement and alignment require time	Pressure to compress steps	Local negotiation of milestones; staged plan	Set realistic schedules; agree any shortcuts locally
2	Early ARA integrated with CM Plan Phase	ARA “as-is” and “to-be” informs CM; CM refines ARA.	Seen as disconnected or stand-alone processes	ARA–CM coordination channels	Establish joint kick-off; maintain feedback loops
5	Data responsibilities & visibility	What data U-space actors may access/ use	Unclear data access/limits	Repository policies; data classification & access profiles	Define data access policies; inform and train non-aviation actors/authorities
6	Build competent authority capacity for CM	Dedicated CM team/function in competent authority organisation	Fragmented ownership	Institutional function; role charters	Resource and train a CM team; define roles & interfaces
7	awareness sessions	concrete use cases and answer specific questions	Abstract debate stalls	preparedness on portfolio of themes and questions to deal with	maintain living documents for themes and questions
11	Mind the organisational ‘clockspeeds’	Stakeholders decide/act at different rhythms	Misaligned calendars & policy cycles	Buffering; joint planning	Build time buffers; align action and decision cycles early
12	CM is lifecycle co-creation process	CM stewards’ collaboration and co-creation beyond the Plan phase	Treating CM as a one-off event	Standing fora; review cadence	Maintain forums established during the CM Plan phase; follow up with all CM lifecycle phases
11	Mind the organisational ‘clockspeeds’	Stakeholders decide/act at different rhythms	Misaligned calendars & policy cycles	Buffering; joint planning	Build time buffers; align action and decision cycles early
12	CM is lifecycle co-creation process	CM stewards’ collaboration and co-creation beyond the Plan phase	Treating CM as a one-off event	Standing fora; review cadence	Maintain forums established during the CM Plan phase; follow up with all CM lifecycle phases

Lessons learnt and recommendations for corresponding actions

Start early:

ARA

(incl. Reference Scenario
'as-is' & ConOps ('to-be'))
– Art.3



AND

**Coordination
Mechanism (CM)**
– Art. 18(f)



**CM & ARA inform
each other via
established
channels**

Illustration of CM-ARA high-level layering during preparation of
designation decision for a new U-space airspace

Lessons learnt and recommendations for corresponding actions

Airspace Risk Assessment (ARA)

– Art.3
*(incl. Reference
Scenario 'as-is' &
ConOps ('to-be'))*

Coordination Mechanism (CM)

– Art. 18(f)
*BURDI focus on the
'Plan' phases*

Capacity Building & Institutionalisation

1. CM 'atypical' skills (for competent authorities) require establishment of a CM function/team

2. Multilevel governance with Provinces and Municipalities (*practical structures, working practices and expected outputs*)

3. Recommendations at Institutional level

- a) To EASA: incl. updates/clarifications to AMC/GM for Article 18(f)
- b) To EU Member States competent authorities (civil aviation authorities): incl. institutionalisation of CM function, establishment of CM-ARA channels
- c) To non-aviation authorities (regions, provinces, municipalities): incl. political engagement and support for local societal interfaces

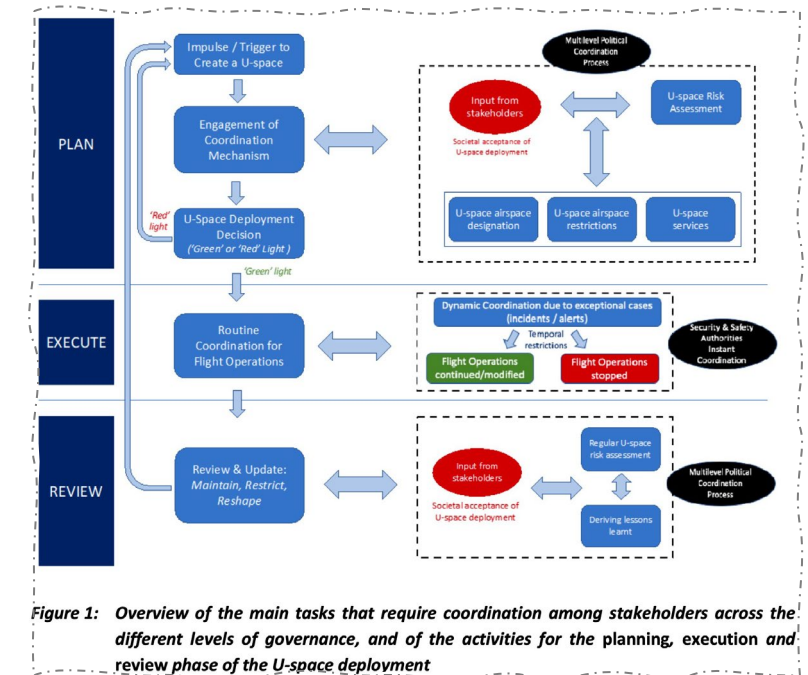


Figure 1: Overview of the main tasks that require coordination among stakeholders across the different levels of governance, and of the activities for the planning, execution and review phase of the U-space deployment

Q&A



THANK YOU FOR
YOUR ATTENTION

Contact:

vassilis_a@forecreate.eu