



EU Drone Days

**Launch of the
European Drone Strategy 2.0**

SESAR U-space Showcase

Brussels, 29-30 November 2022



#EUDroneDays

GOF2.0 Integrated Urban Airspace VLD



This project has received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017689.



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GOF2.0 Objectives

GOF2.0 VLD demonstrated combined UAS, eVTOL and manned operations in a unified, dense urban airspace using current ATM and U-space services and systems

1. To demonstrate the operational and regulatory acceptability, i.e., ability to fly and operational acceptability of GOF2.0 demonstrated solutions on end users
2. To demonstrate 4D data quality and availability to accelerate the flight approval process and integration capabilities
3. To evaluate the potential for technical and economical scalability of the GOF2.0 system of systems to be rollout on European level
4. Demonstration of how the demonstrated performance of U-space services and capabilities meet the operational expectations of all relevant stakeholder groups, such as airspace users and air traffic control, in mixed airspace.

GOF2.0 validation approach

Trial

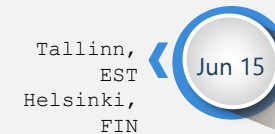
1 Large number of mixed operations in CTR



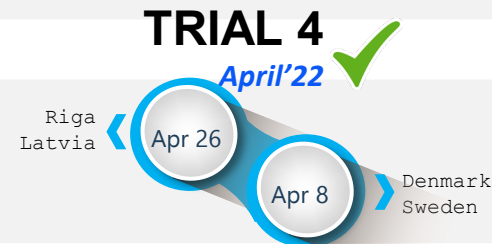
2 Entering and leaving airspaces/CTR



3 Cross-border flights



4 "Roadshow" to validate international scalability



GOF2.0 UAM use cases



Scenario	Description	Trial 1	Trial 2	Trial 3
1: Scenario 1a	Large number of automated parcel delivery drones operating <120m AGL inside and in and out of CTR	X	X	
2: Scenario 1b	Individual automated parcel delivery drones below and above 150m; flights in U-space end-to-end in two different CIS			X
3: Scenario 1c	Drone delivery from city harbour to ship under international flag	X		
4: Scenario 2a	Drone surveillance flights "long endurance" above 150m		X	
5: Scenario 2b	Drone surveillance flights in urban area <120m (Multiple drones monitoring facilities)	X	X	
6: Scenario 3	Drone mapping flights <120m (construction, infrastructure, agriculture etc.)	X	X	
7: Scenario 4	Unexpected HEMS/helicopter general aviation VFR flights	X	X	
8: Scenario 5	Tourist doing ex tempore "selfie" and scenic drone photography flights	X		
9: Scenario 6a	eVTOL intra-urban and peri-urban flights	X	X	
10: Scenario 6b	eVOTL intercity international flight			X
11: Scenario 7	Airline traffic arriving and departing from international airport	X		X



Drone delivery



Perimeter inspection



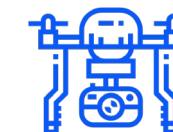
Surveillance



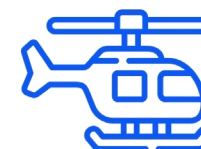
Infra inspection



Commercial traffic



Tourist drones



HEMS



Air taxis (eVTOL)

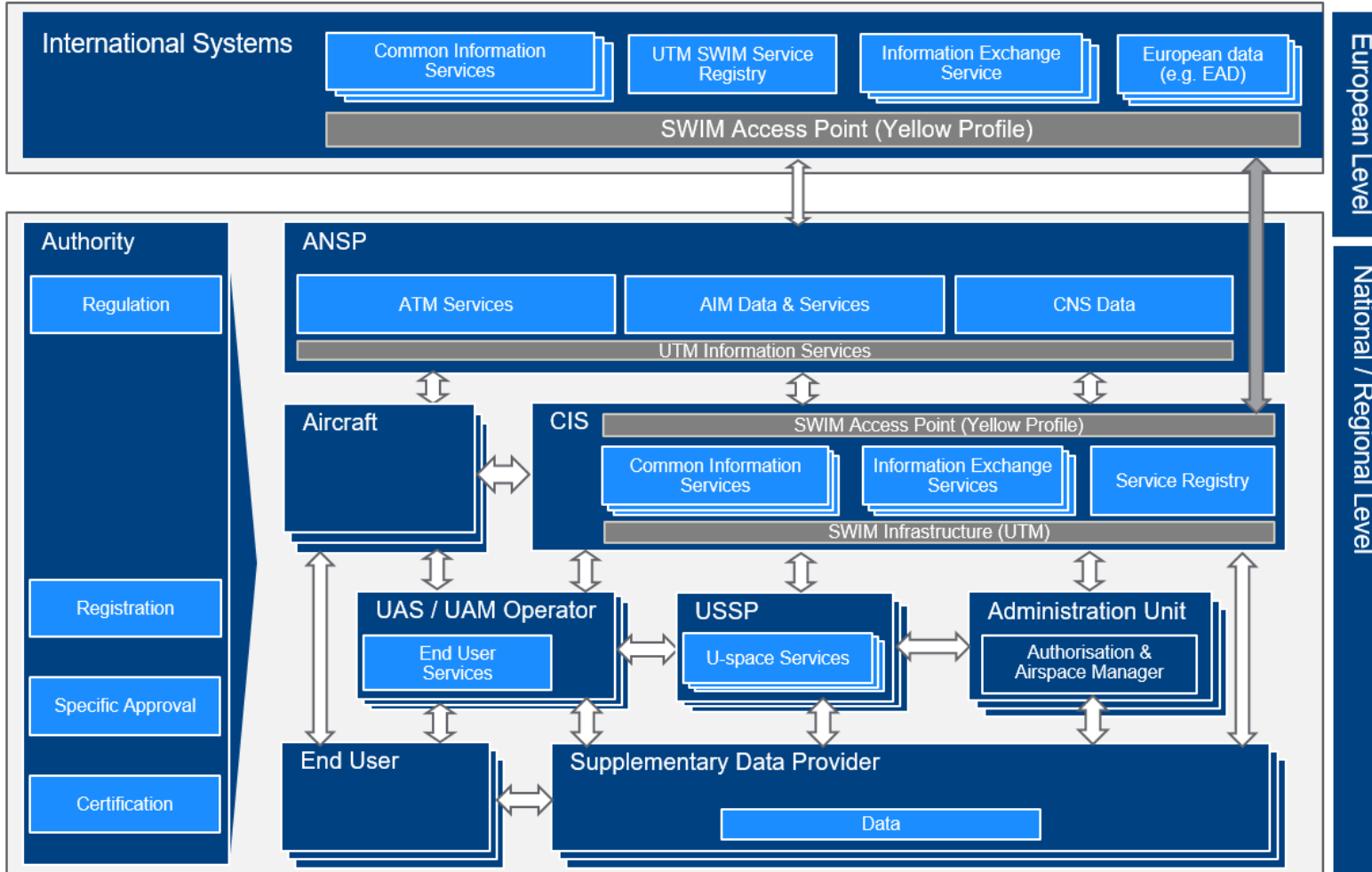


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GOF2.0 solution



GOF2.0 delivered 8 service descriptions for information exchange services (IEX):

- Traffic telemetry
- Operational messages
- Network coverage and population density
- Operation Plan
- Geozones
- Registration
- Weather information
- Drone Flight

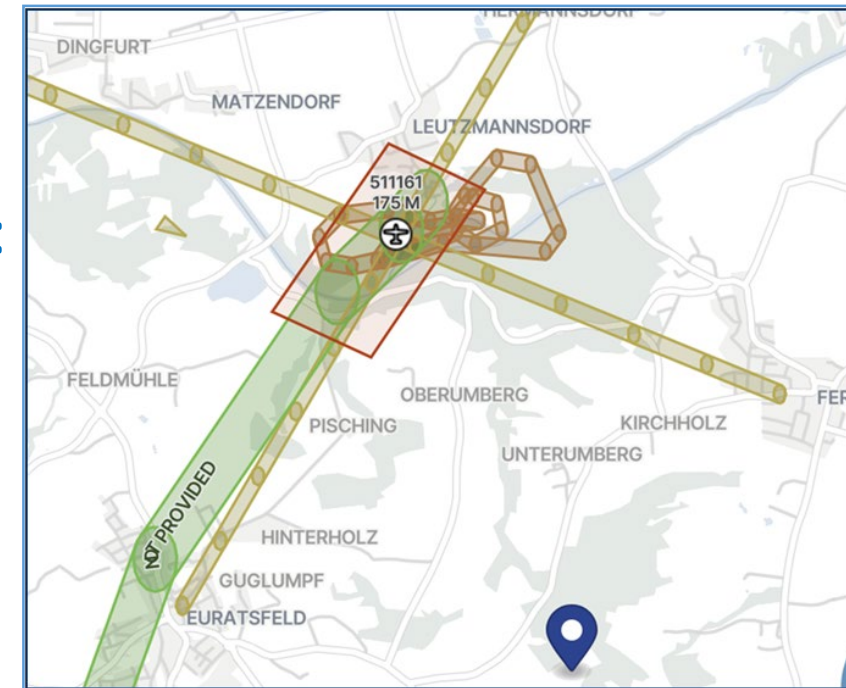
GOF2.0 results

GOF2 proposes a new U-space capability – Multistakeholder approval:

- Areas of Responsibility (AoR) can either be stacked or adjacent
- Any operation plan that intersects more than one AoR will need both Approval and Activation of Operation Plan from both AoR managers

GOF2.0 implemented segmentation of operation plans:

- Only take-off and landing operation plan volume segments reach the ground
- All other segments have a safety buffer around the planned trajectory, which reflects the operational needs of the flight
- The safety buffer is also relevant in the vertical dimension to allow other trajectories to be routed under and above



GOF2.0 outcomes

- Scalable interoperability across Europe requires standardised information exchange services to enable UAS operators, USSPs, CIS and ATSPs to share data
- Efficient use of airspace for mixed Operations in and out of airport environments requires ATC to be able to directly interact with U-space, but only on a must-know, exception basis
- Integration between USSP and UAS fleet management systems is operationally a safer and more efficient way to ensure data quality and pilot attention



www.gof2.eu

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