



Integrated Digital Airspace

Conclusions from the
SESAR GOF2.0 Integrated Urban Airspace VLD




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SESAR 2020 SHOWCASE



- 1 Large number of mixed operations in CTR
- 2 Entering and leaving airspaces/CTR
- 3 Cross-border flights
- 4 "Road tour" to validate international scalability



-  Wave 1
-  Roadshow
-  Wave 2



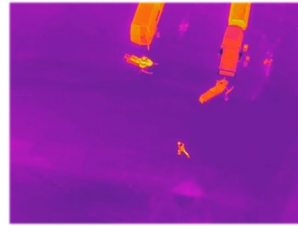
UAM use cases scenarios



**Drone
delivery**



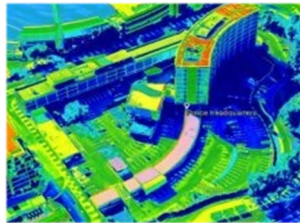
**Perimeter
inspection**



Surveillance



HEMS



**Infrastructur
e inspection**



**Commercial
traffic**



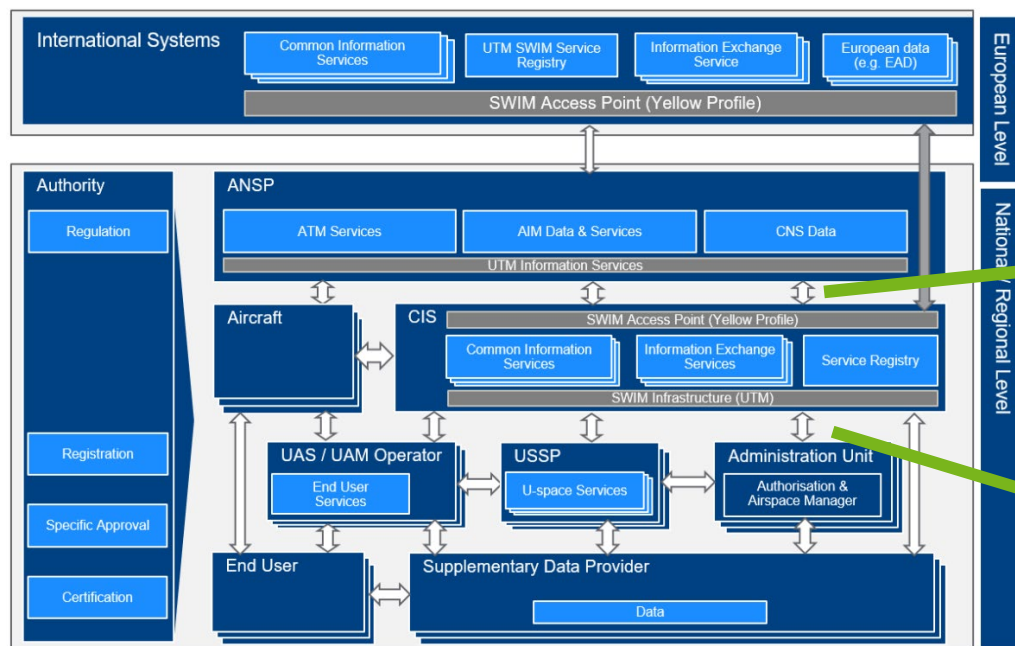
**Tourist
drones**



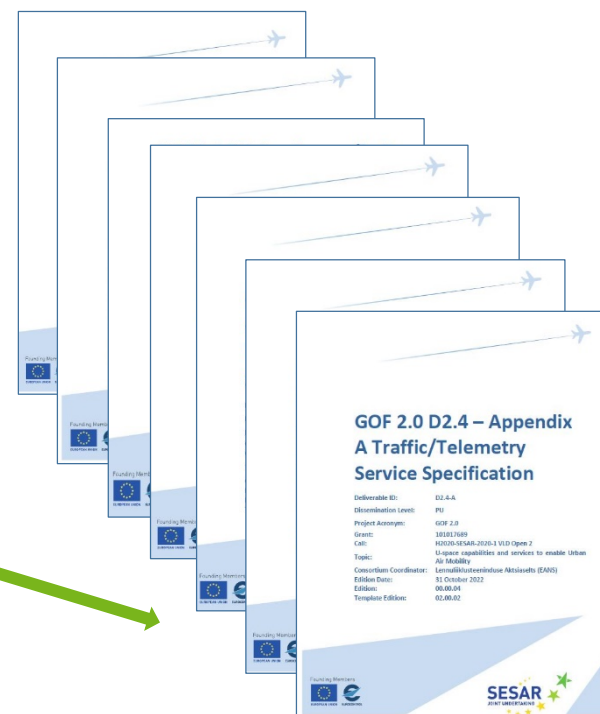
**Air taxis
(eVTOL)**



Common Information Services (CIS) Open Standard-Ready Specification



GOF2 Architecture



Service Specifications

Contents

- Interfaces
- Operations
- Payload definition
- Features
- Properties/attributes
- Data types
- Associations
- Dynamic behaviour



Digitalization and Integration for Efficiency

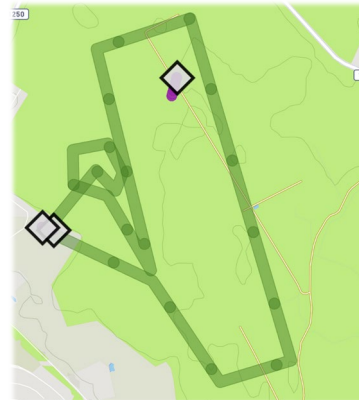
Finding #1: Avoid Monolithic Operation Plans



- More efficient, but:
 - Must follow path closely
 - Must be exactly on time
 - Depends much on operator
 - Depends much on drone



Finding #2: Drones may behave differently during flight



- Difficult to plan drone-specific behavior
 - Example: Link loss + link re-establishment



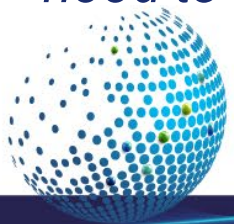
Domain-Adapted (User) Integration

Finding #3: Dense Drone Ops May (Over-) Load Manual ATC

"If there are lots of operation plans, situation awareness gets lost." Georg, EANS

"Need to automate as much as possible, and systems need to help controllers as much as possible." Steen, Navair

"In VLL, ATC should not have to worry, and drones need to separate themselves." Gustaf, LFV



Integrated Digital Airspace

GOF 2.0 – Conclusions

Must have *truly integrated* airspace

- Stakeholders must have consistent common situational awareness BUT
- Require adequate domain-adapted view to operate

Must have *truly digital* airspace

- Thorough automation required for H2M, M2M communications to work
- As the foundation for the integrated airspace

GOF2 Achievements

- GOF2 applies SWIM principles successfully (What – How – Where)
- GOF2 offers solid basis for UTM standardization to the community
- GOF2 proves viable foundation for integrated digital airspace





(Gulf of Finland 2.0 – <https://gof2.eu>) are:

