

FREQUENTIS

FOR A SAFER WORLD



Uniting the things that fly –
How to integrate ATM and UTM
for a safer APAC sky

Thomas LUTZ
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Uniting the things that fly – for a safer APAC sky



Thomas Lutz

New Business Development



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- System Architect - Frequentis New Business Development
- Currently active in UTM, U-space and safe unmanned traffic management
- Leading Frequentis Drones Team and driving innovation with cloud, automation and information management expertise
- 20+ years experience on large and distributed systems in different domains like water management, finance, maritime, air traffic management and public safety.
- Technical Lead in research, validation and commercial projects (e.g. GOF, GOF2, Avinor UTM, ...)

Air Traffic Management

Digital.
Sustainable.
Safe.

+ more

25,000+

Working positions worldwide

330+



95%

of all passengers worldwide supported by Frequentis

130+

Countries

FROST & SULLIVAN

Recognised as tier 1 ATM leader

+ more

Digitalisation

Virtualisation

Integration

Automation

Air navigation service providers



Flight information service providers



Aeronautical data service providers



Airports



Unmanned traffic service providers

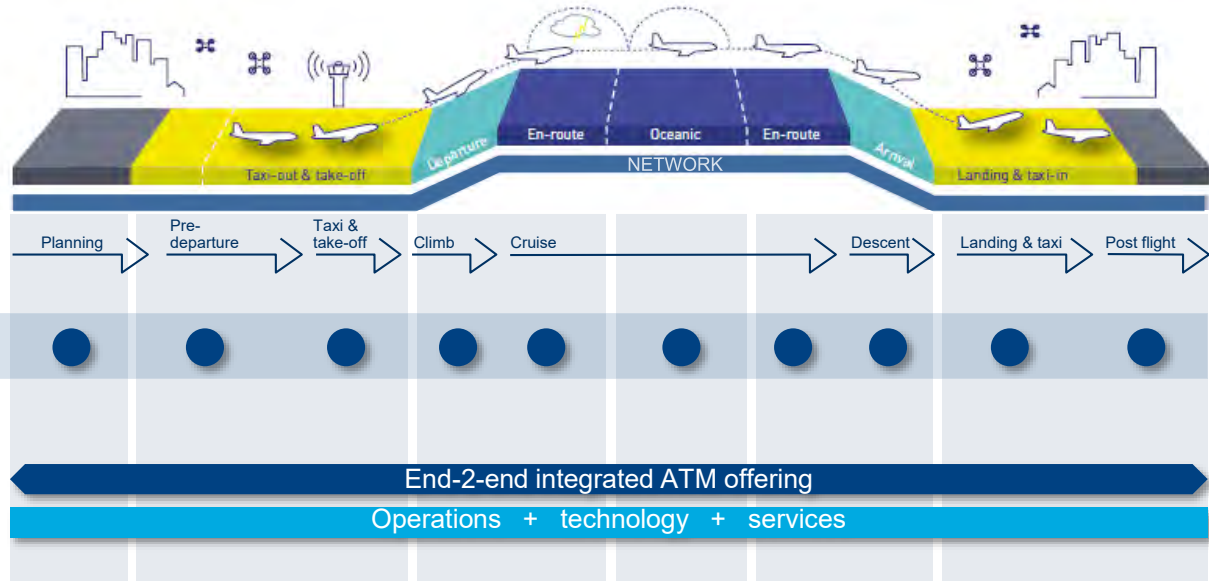


Space agencies



A reliable partner in turbulent times

All operational and technology know-how under one roof



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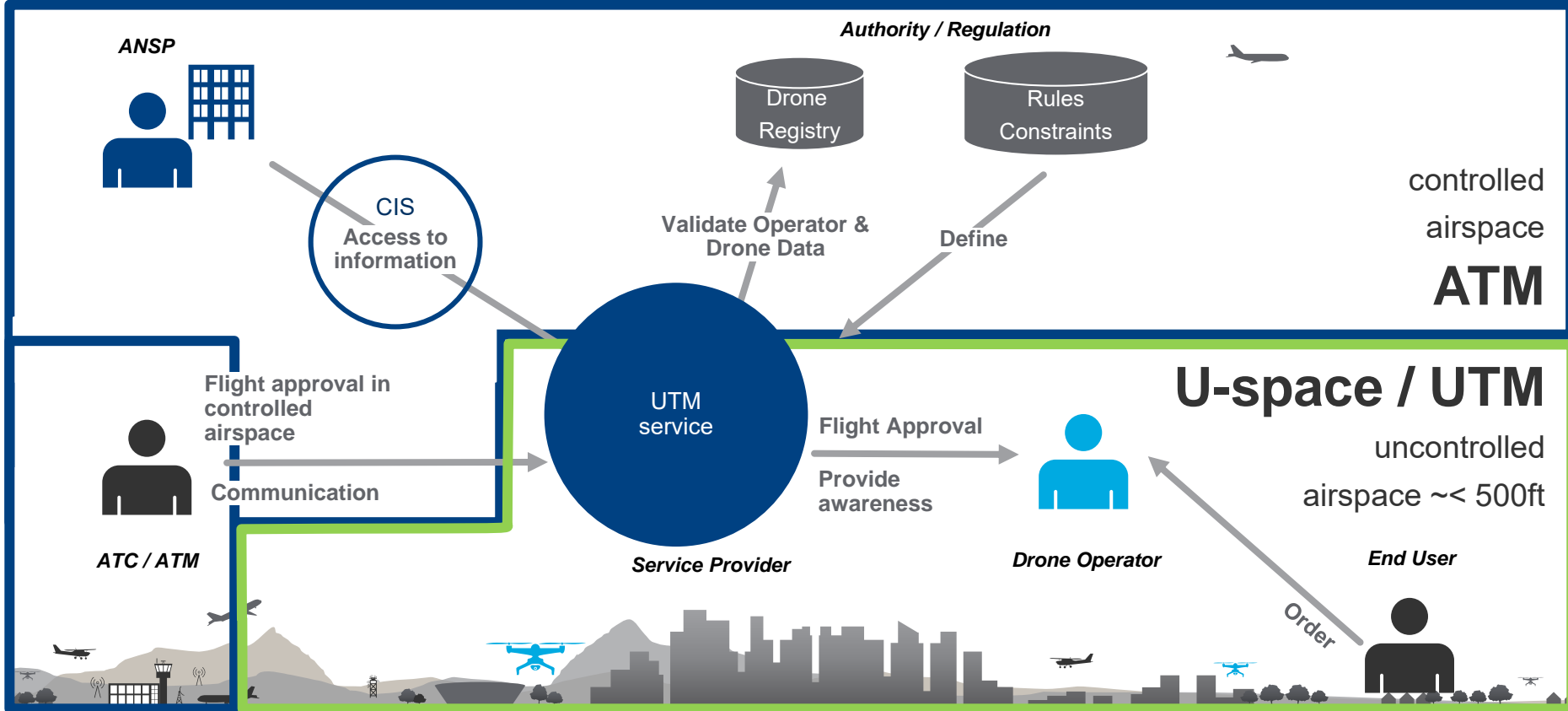
FREQUENTIS
COMSOFT

FREQUENTIS
— ORTHOGON —

FREQUENTIS DFS
AEROSENSE

ATRiCS

UTM / ATM – Access to airspace – current view





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Frequentis & Drones – Our Mission

Frequentis inter-agency UTM solution – part of the European U-Space initiative


Demonstrating the fitness of a digital data exchange platform for cross-border drone operations

- ⇒ Integration of UTM and ATM systems
- ⇒ Cross-agency / country drone (UAV) information management system
- ⇒ Accessibility of a Common operational picture
- ⇒ Enable Joint Operations / authority collaboration

Large scale demonstration




UAV use-case demonstrations



Urban drone fleet ops in Helsinki with Police intervention



Co-operation with Search and Rescue forces and general air traffic (GA)



Maritime traffic surveillance combined with border guards over Gulf of Finland



International parcel delivery between Helsinki and Tallinn



Urban drone fleet ops in Tallinn in controlled airspace



100km+ inspection flights in forestry and utility inspection



First ATM/UTM integration system in the EU for Avinor

Leveraging the advantages of as-a-Service delivery




AVINOR

- 17 airports
- multi cloud
- ...



Service concept

- 24/7 technical operation
- Cloud security
- Cloud orchestration
- ...


Enablers

	3	1	
	4	50+	services

Project highlights

Stakeholder	Interoperability	Service provisioning
Tower controller	MosaiX/SWIM 	as-a-Service 
Private drone pilots	SmartSIS	Hybrid cloud
	Customer forum	3 rd party Service Integration
	End-user application	

of drones ↗
→ Efficient solution to manage any flying object

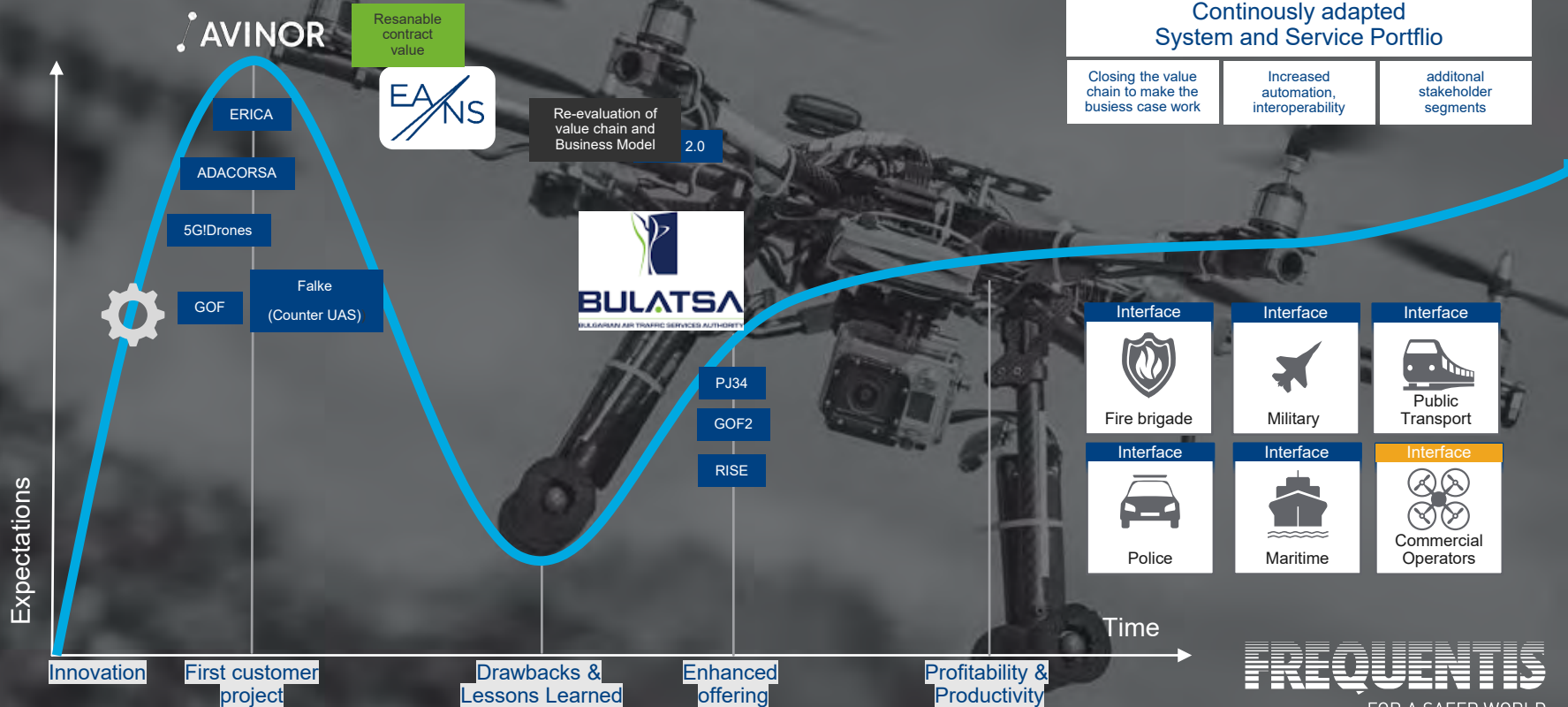


Frequentis will have long breath to sustainable success in UTM

Impact on UK economy:

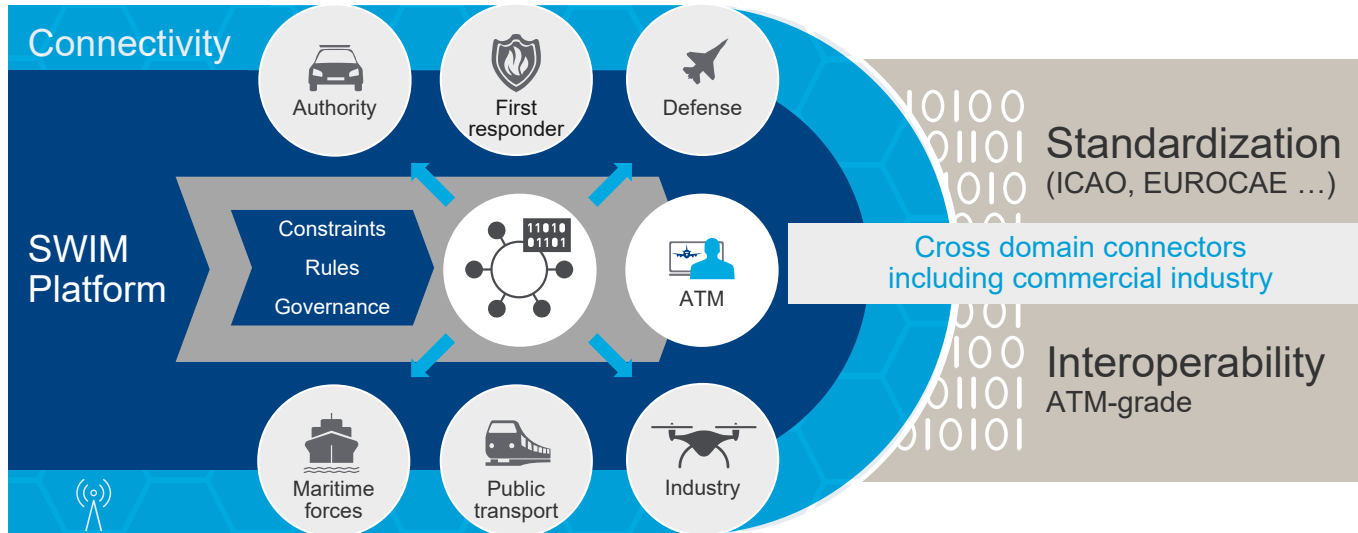
There is predicted to be a 1.8% increase in GBP and £16bn in net cost savings to the UK economy by 2030 through drone services.

Source: Future Flight Challenge



Enable service provision to airspace users

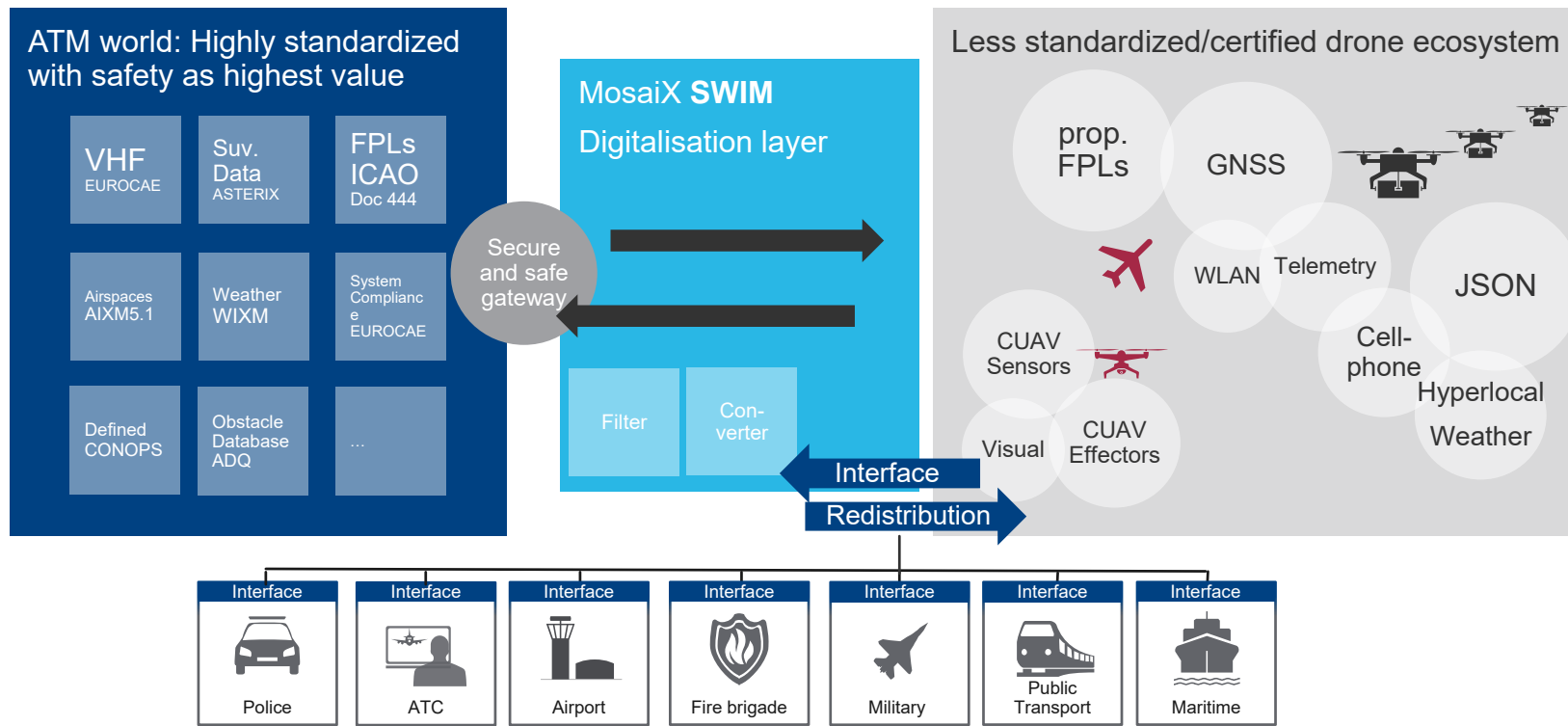
Interoperability and standardization are key enablers to build a digital ecosystem



- SORA**
Automated risk management
- Identification**
Who is where (US: RemotID)
- Geo-Awareness**
Conditions/Constraints/Zones
- Flight Authorisation**
From service provider to oper.
- Traffic Information**
Air situat. provided to operator
- Weather Information**
Incl. QNH
- Conformance Monit.**
make operator aware
- Registration**
Who

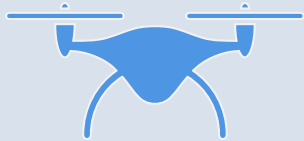
Integrate, move, shape

Cloud based integration



What about mobile network ? Reliable enough ?

The network does not need to be perfect – drones need to know its performance



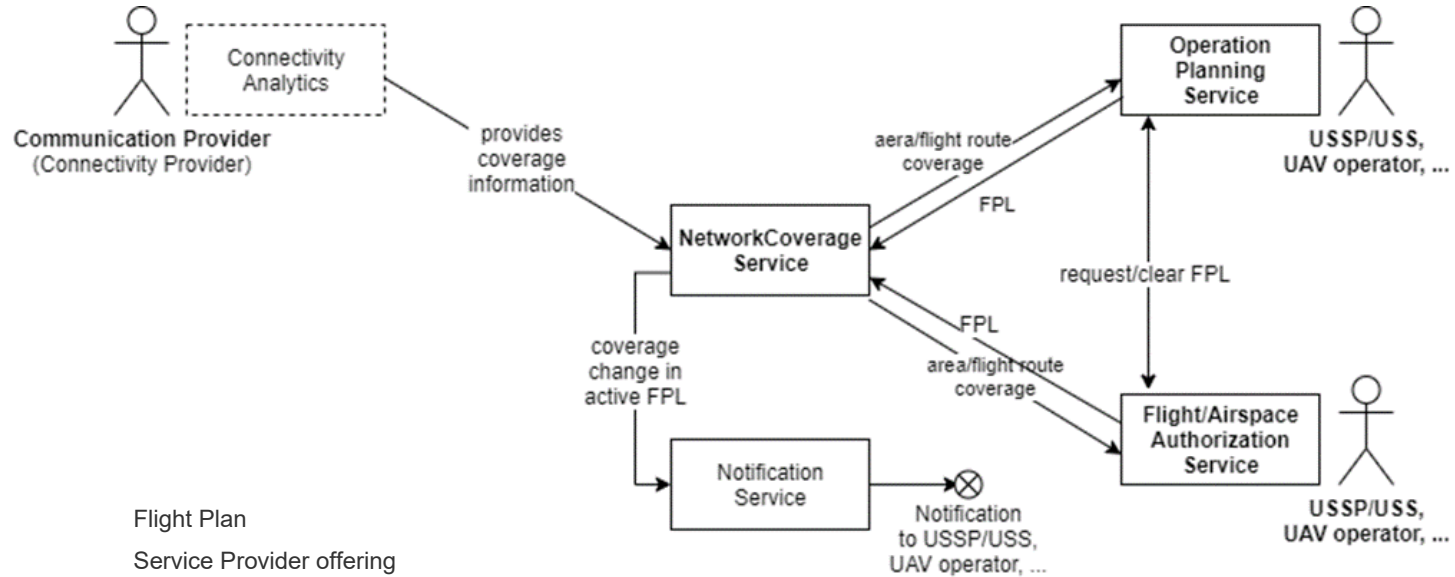
Enable safe & efficient drone flights

by sharing information between

Mobile Network Operators and UAS/UTM Ecosystem

5G

Operational model of a network coverage service



- FPL Flight Plan
- USS Service Provider offering services to drone operators
- USSP European term for USS
- UAV Unmanned Aerial Vehicle

And this is how it looks like...



<https://www.gof2.eu>

The screenshot displays the GOF 2.0 software interface. The main map shows a flight plan over Klagenfurt, Austria, with various colored zones and drone icons. A sidebar on the right lists plans with their status: PENDING PLANS (1), APPROVED PLANS (2), ACTIVE PLANS (5), UPCOMING PLANS (1), ACTIVE DRONES (37), and NDZ (0). A detailed view of a plan is shown on the right, including fields for Operator Name, Phone, Planned take off/landing times, Max. Height, Drone Plan Type, Public title, Location Alias, and Organization. A group photo of people with a drone is shown in the bottom left corner. The bottom of the interface shows a timestamp of 2021-10-05 11:58 UTC and a status bar with the number 463544N 0141618E and the time 11:59:00 UTC.

Map Layers:

- Drone Plan
- Network coverage
- Active Drones
- Static Layers
- NDZ
- Alert Message

Plan Details:

- Operator Name: UML_1 (4)
- Phone:
- Planned take off: 05 Oct 12:03
- Planned landing: 05 Oct 12:12
- Max. Height: 859.58 FT AGL
- Drone Plan Type: Remotely Piloted BVLOS
- Public title: Trial
- Location Alias:
- Organization: UML_1 (4)

Plan Details (2):

- State: ACTIV.
- Operator Name: UML_1 (1)
- Phone:
- Planned take off: 05 Oct 11:32
- Planned landing: 05 Oct 11:41
- Max. Height: 859.58 FT AGL
- Drone Plan Type: Remotely Piloted BVLOS
- Public title: Trial
- Location Alias:
- Organization: UML_1 (1)

Drone integration & management

Seamless information exchange between all stakeholders

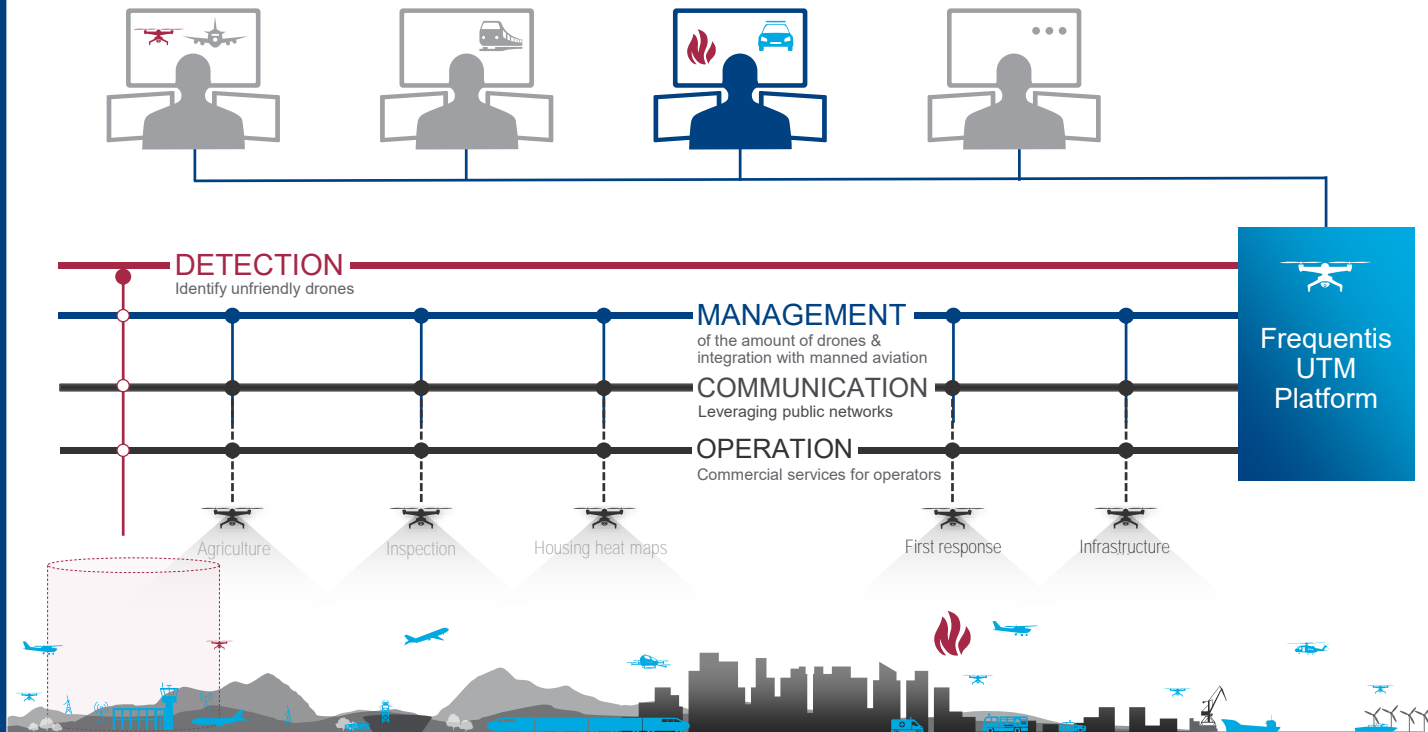
Interoperability and standardisation are key enablers to build the ecosystem.



Large scale demonstration



First ATM/UTM integration system in the EU



← Uniting the things that fly →

Leap frog to a state-of-the-art solution – benefitting from ATM experience

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Thank you !

Q&A

