

FREQUENTIS

FOR A SAFER WORLD

Communication and information solutions for a safer world

Digital UTM / ATM data exchange platform (SWIM MosaiX)

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Grupo Frequentis 2018

Lider Mercado Mundial



*) Science, Technology, Engineering, Math

~300 M EUR

Total operating performance 2018*

~1,700

Employees



75% STEM*

12%

R&D

Headquarters Vienna



95%
Export

Solutions partners and regional offices in 50+ countries

1947

Established

+


Keeping 3 billion passengers safe each year

Air Traffic Management solutions for a safer world


Deep commitment to innovation

#1 Market leader in VCS


1st  Virtual centre worldwide


1st  ED-137 end-to-end IP voice communication

1st  Deployed SW-defined network (SDN) in ATM

1st  Regional AIM system worldwide

#1 Market leader in AMHS

Largest AIM worldwide  System  Network  Solution for airport cluster

 **2015**
SESAR SWIM Master Class Award

2016
IFACTA Technical Award

2017
IHS Jane's ATC Technology Award

2017
ATCA Annual Industry Award


Proven industry experience


Strong partnerships drive growth

3B 

330+ aviation customers 

3 regional  AIXM databases

100+ surveillance systems in int'l surveillance distribution systems 

6 continents equipped with Frequentis ATM and AIM technology 

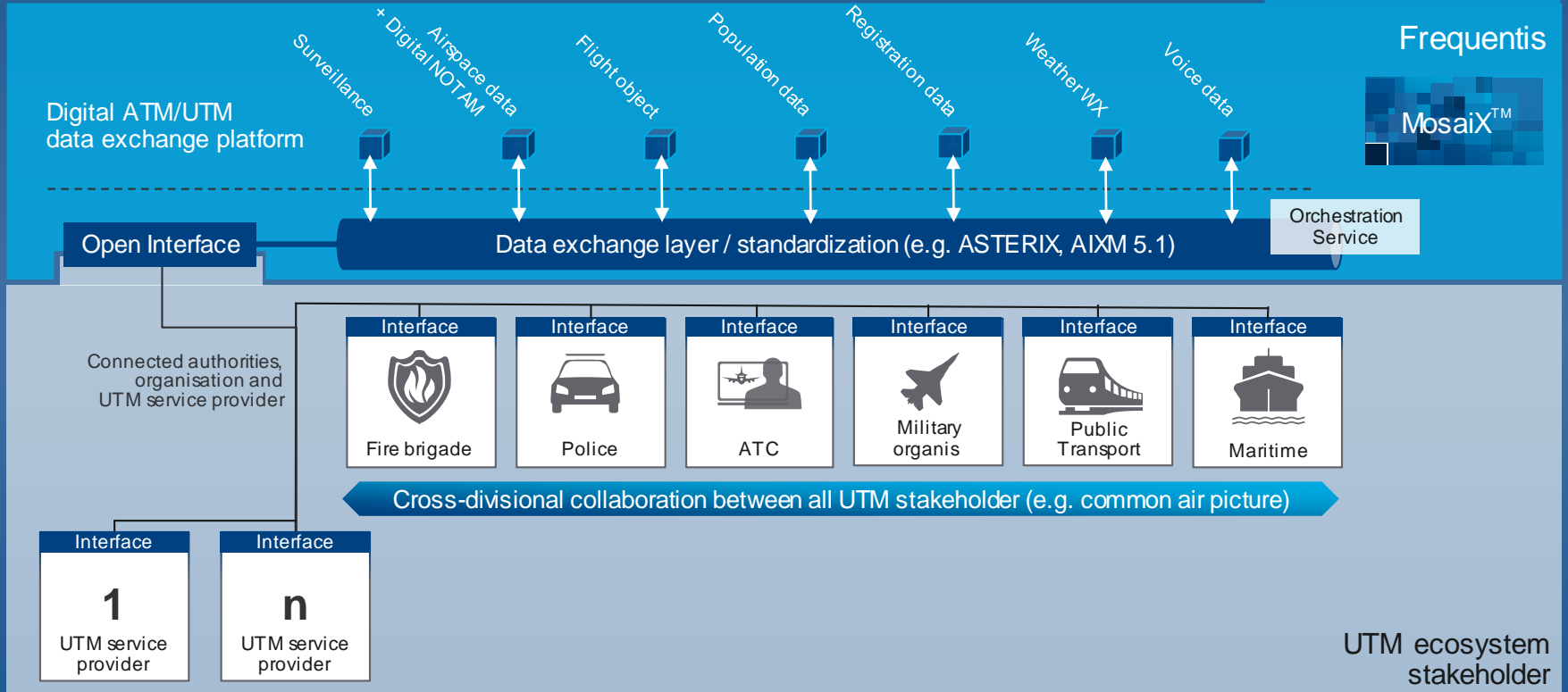
Projects in **130+** countries

Digital UTM / ATM data exchange platform (SWIM MosaiX)

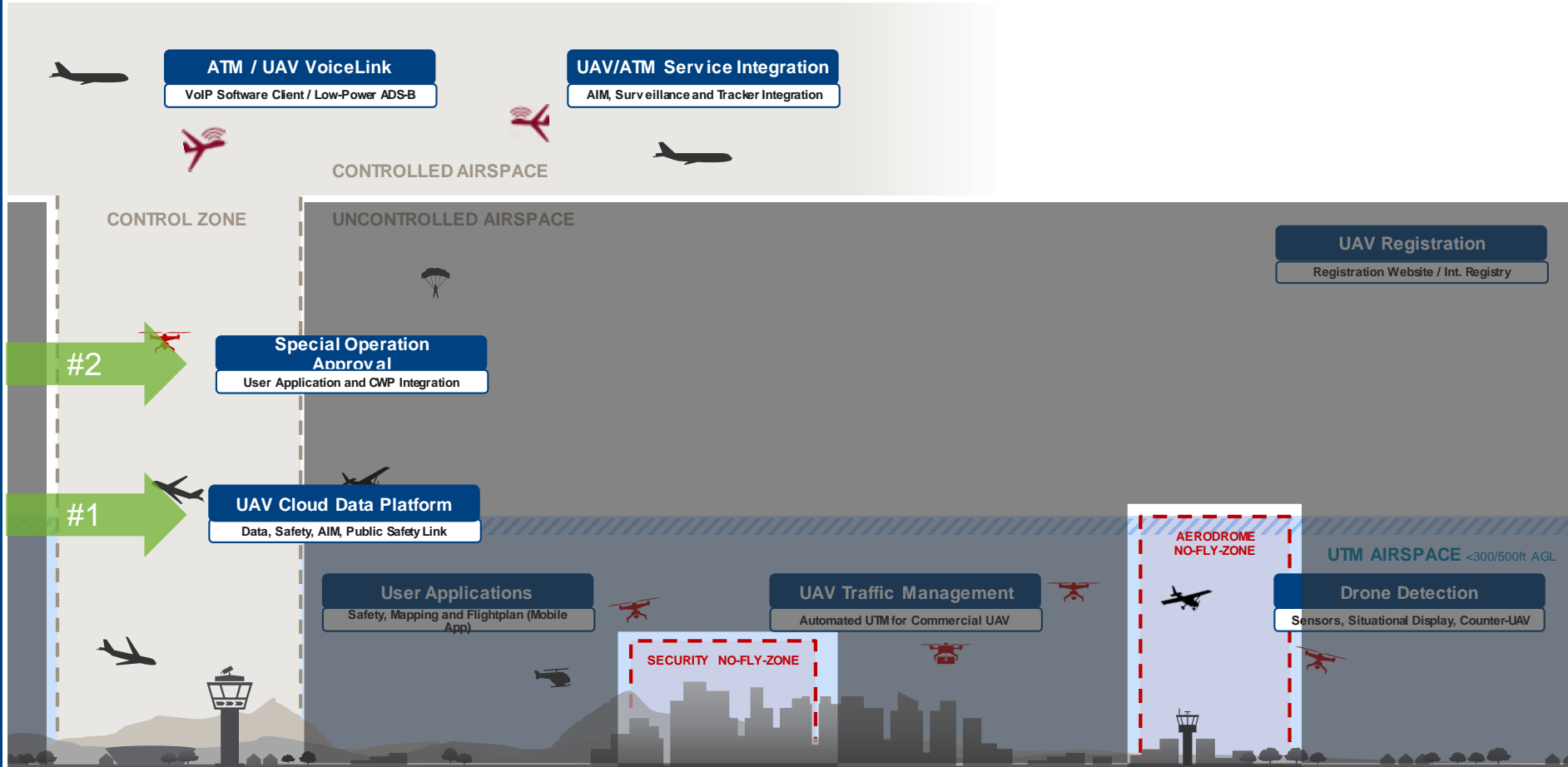
Future proven and fully expandable system design



Stakeholder centric view

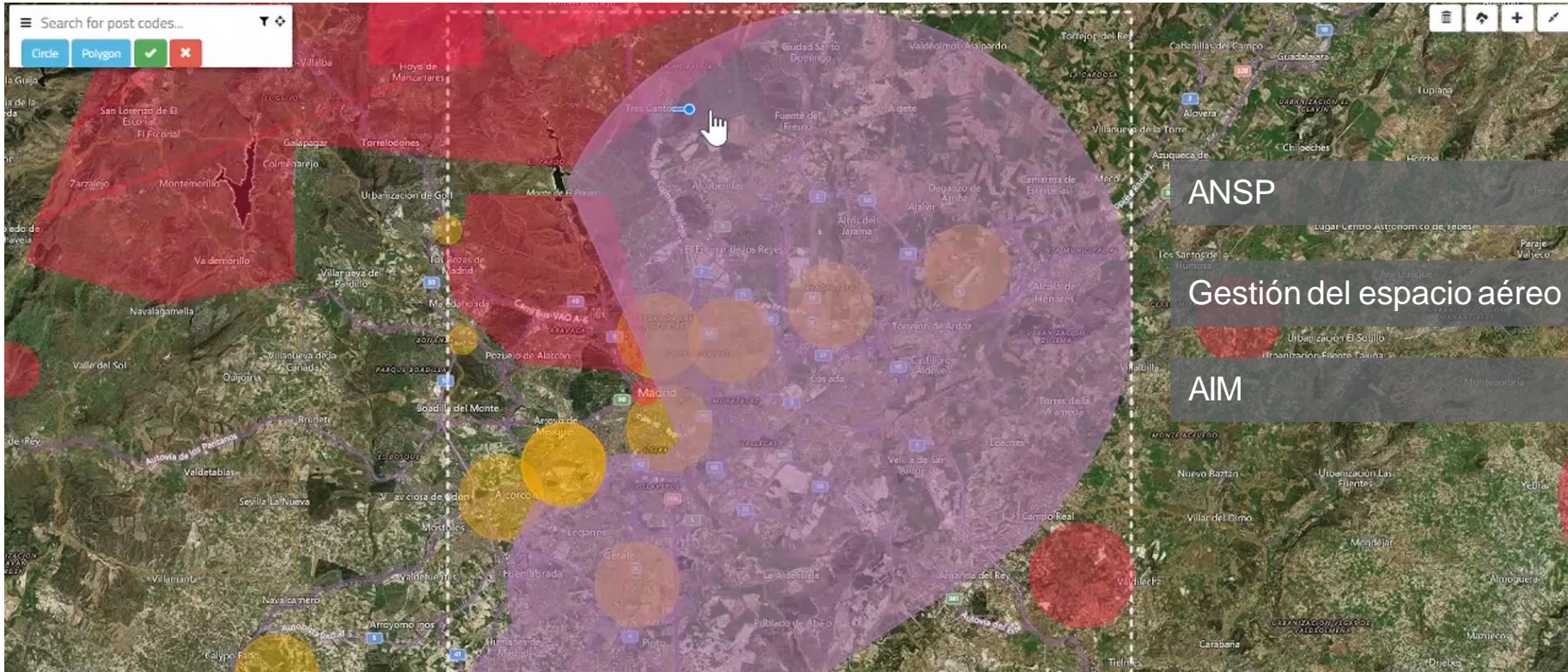


El desafío: Drones operando dentro o cerca de espacio aéreo controlado



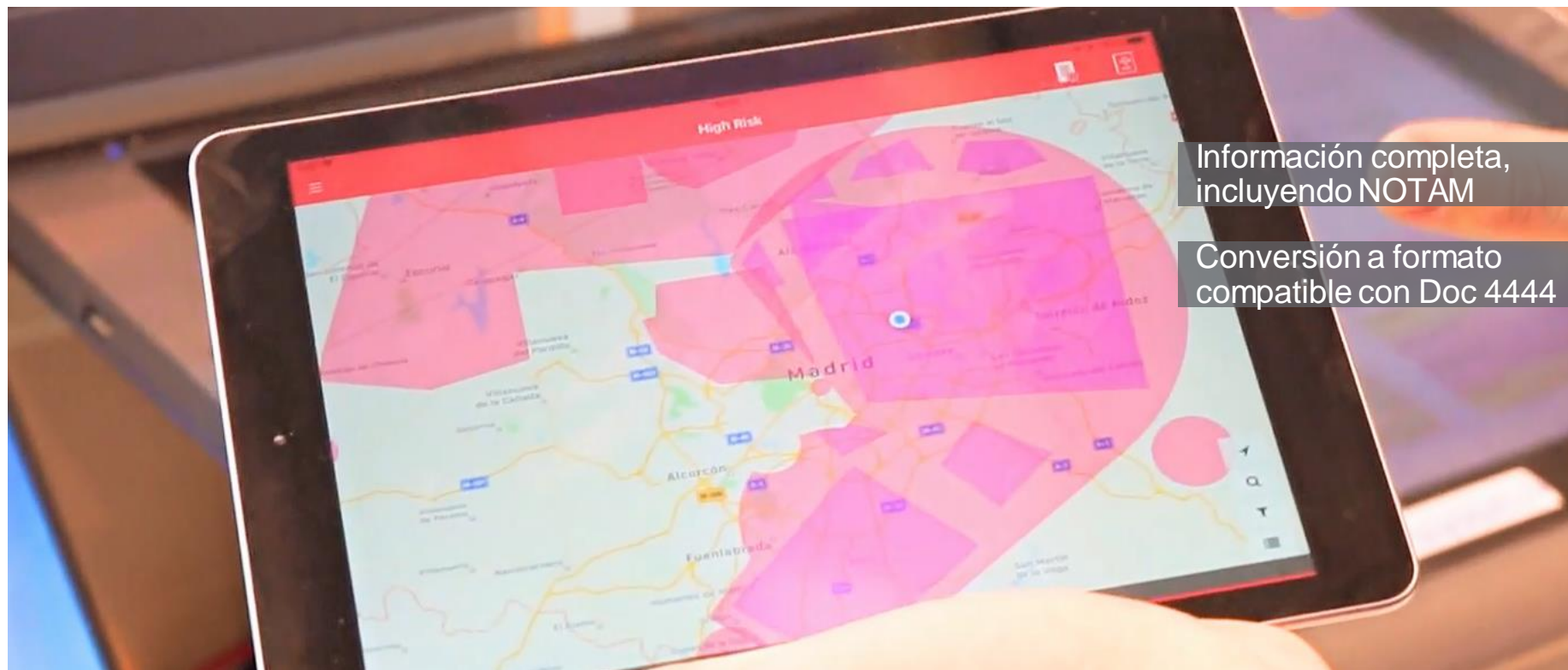
Integración UTM/ATM en aeródromos: Paso 1

Definición de las normas para el espacio aéreo



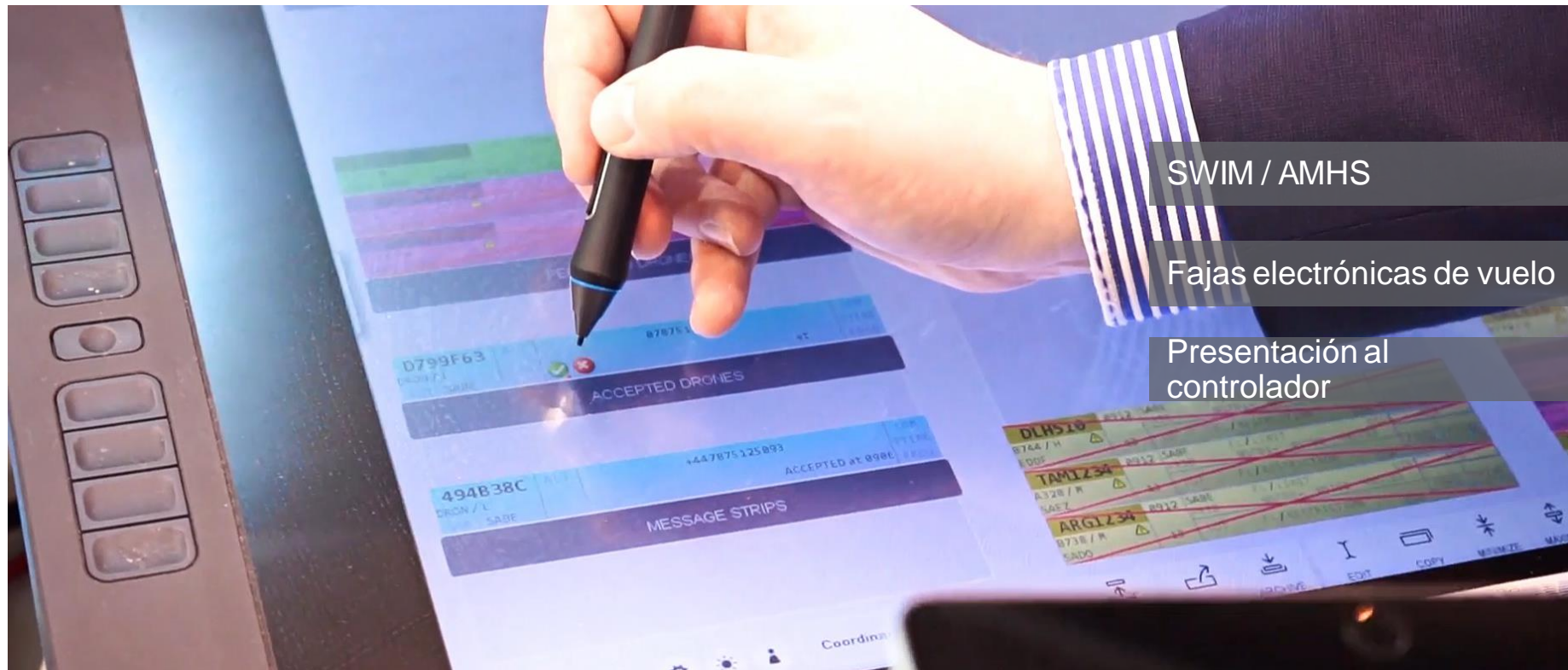
Integración UTM/ATM en aeródromos: Paso 2

Interacción con el usuario del drone



Integración UTM/ATM en aeródromos: Paso 3

Integración con ATC



SWIM / AMHS

Fajas electrónicas de vuelo

Presentación al controlador

Integración UTM/ATM en aeródromos: Paso 4

Decision en ATC



Decisión manual o automática

Integración con voz

Confirmación inmediata

Portafolio de Frequentis Soluciones para la detección de drones

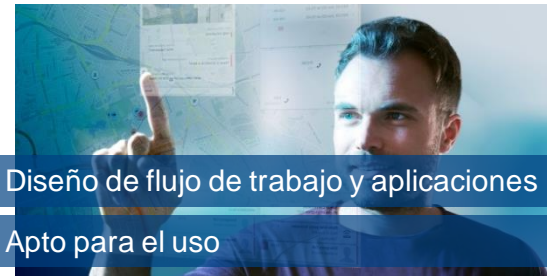
Situación aire / tierra integrada



Gestión de incidentes y comms



Diseño de Centros de Control



Fusión de múltiples sensores



Aprendizaje automático y algoritmos

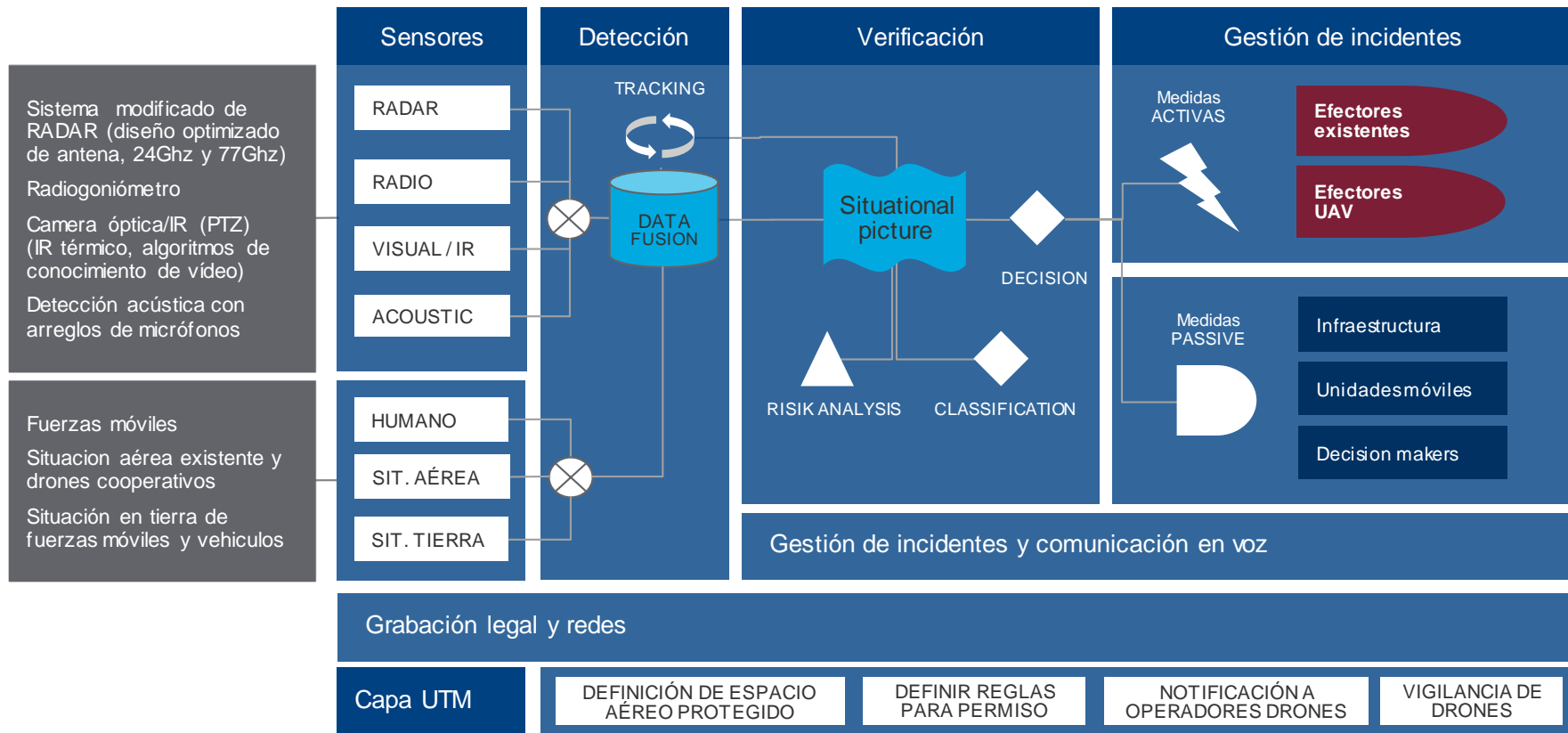


Efectos / actores múltiples



Grabación legal y redes

Proceso Detección de Drones y Defensa



Effective drone detection and defence



Fast (<25s)

Eficiente

Reuse of sensor/effector

Research and standardization activities



TWR / UTM Integration
ATM/UTM digital data
exchange platform



UTM Safety Nets
TWR / UTM Integration
UTM Surveillance cloud



Frequentis Location
Information Service (LIS)

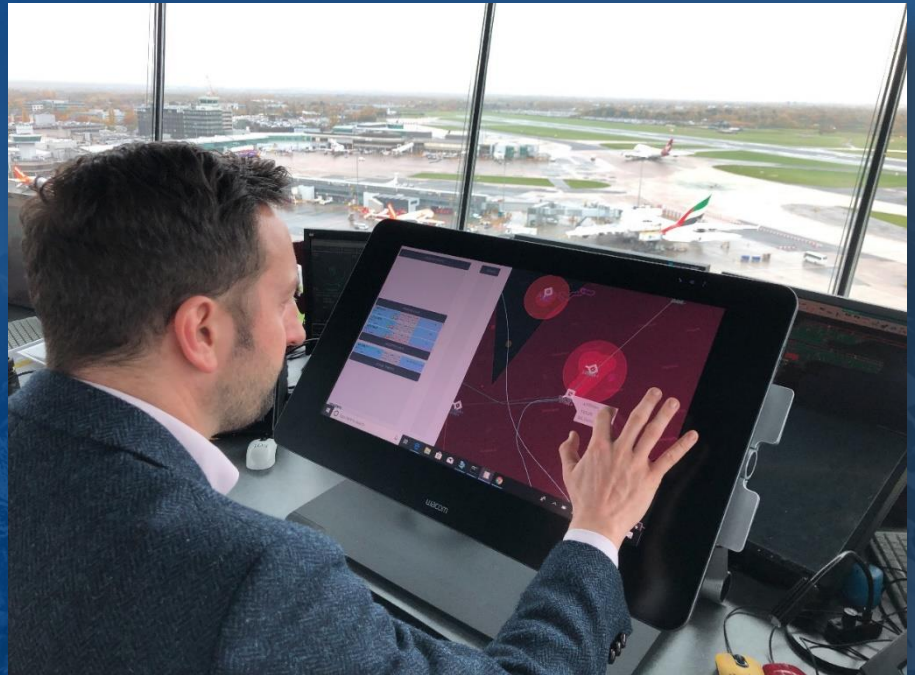
OPERATION ZENITH

Presented by

NATS



MAN
Manchester
Airport



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



Model flyers, general aviation and drones sharing same airspace



Maritime traffic surveillance combined SAR exercise in 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



Urban Air Mobility flight from Helsinki-Vantaa airport to downtown Helsinki

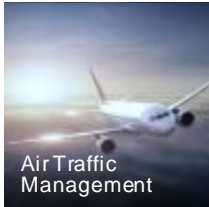
SESAR U-space Demonstrations Gulf Of Finland GOF One of the broadest demonstrators

U-space		U-space demo coverage									
Project	Country	Environment	Area survey	Parcel delivery	Linear survey	Point survey	UAM	Leisure	Emergency / SAR	External	
DIODE		-Rural -Sub-urban -Airport	-Agriculture -Archaeo -Road traffic	Ad-hoc	Electricity rail	-On airport -Photography	n/a	Yes	-Firefighting -SAR	-Manned a/c -ATC -V21	
DOMUS		-Rural -Urban -Maritime -Airport	-Terrain -Construction -Road traffic -Maritime patrol	-Medical -Urgent delivery	n/a	-3D modeling -Building inspection	n/a	Yes	-Firefighting -Road traffic accident	-Manned a/c -ATC -V21	
EuroDRONE		-Urban -Airport	No	-Commercial	-Long distance utility	-On airport	n/a	Yes	n/a	-V2V -V21 -ATC	
GOF		-Urban -Maritime -Forestry -Airport	-Drone fleet management	-International parcel delivery	-Long-range sensory data collection 100km+	-Drone fleet management	Air taxi form airport to city centre	Yes	-Maritime traffic surveillance -SAR -Police	-Manned a/c -ATC	
SAFIR		-Urban -Airport	-Inspection for Port Authorities	-Commercial -Medical	-Oil spill -High tension line	-Line incident intervention and Pylon inspection	n/a	Yes	-Port inspection on criminal offenses	-Manned a/c -ATC -V2V -V21	
VUTURA		-Rural -Urban	-Agriculture	-Commercial	n/a	n/a	n/a	Yes	-Drone interception -Firefighting -Police	-Manned a/c -ATC	
GEOSAFE		-Rural -Urban	-Agriculture	-Commercial	n/a	-On airport -Security surveillance	n/a	Yes	-Police	-ATC -V2V -V21	
PODIUM		-Rural -Urban -Airport	-Agriculture	-Commercial -Urgent delivery	n/a	-On airport -Security surveillance	n/a	Yes	-Police -SAR	-Manned a/c -ATC	
SAFEDROME		-Rural -Sub-urban -Airport	-Agriculture -Drone fleet management	-Commercial	n/a	-Drone fleet management	n/a	Yes	n/a	-Manned a/c -ATC -V2V -V21	

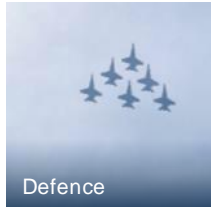


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Air Traffic Management



Defence



Maritime



Public Transport



Public Safety

