

# The future of ATM



The future  
of unmanned traffic  
management,  
**applied today.**



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# New Entrants in the Airspace: Drones

- Risk !
- Early reaction
  - Embrace them or not ?
- Today
  - Drones: driver for economic growth – “flying robots”
  - Worldwide Initiatives to integrated drones in the airspace
- Why not just use existing ATM infrastructure ?

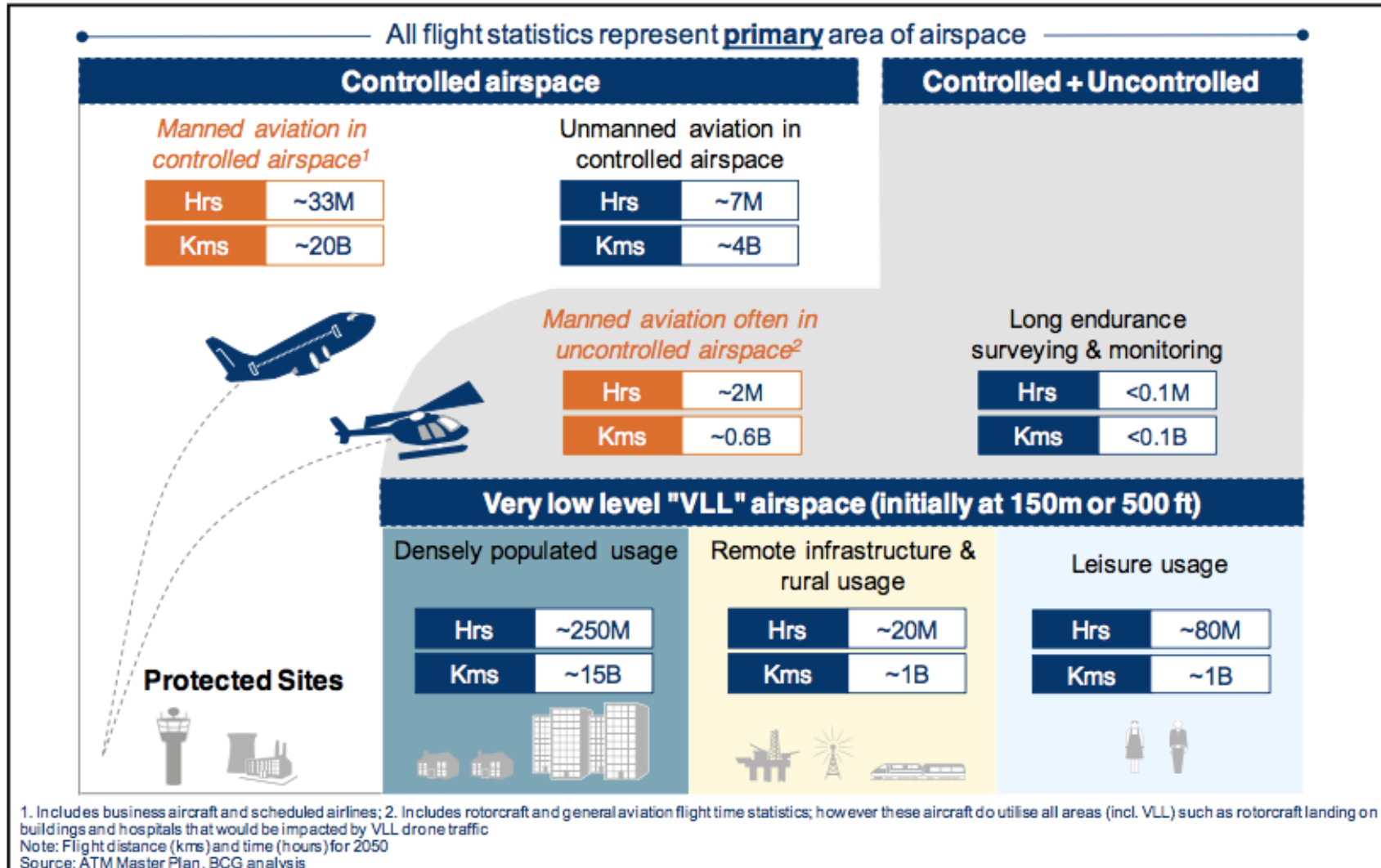
# Drones by the numbers

Study	Type of Use	2020	2025	2030	2035
Sesarju Outlook Study *	Recreational		7 000 000	7 000 000	7 000 000
	Professional		200 000	300 000	395 000
Porsche Whitepaper	Non-Passenger	8 500 000	21 300 000	21 400 000	21 500 000
	Delivery Drones	7 000	25 000	95 000	125 000
	Passenger Drones		500	2 000	15 000
Unmanned Aviation.info **	Professional	287 617			
Roland Berger - UAM study	Passenger Drones		3 000	12 000	28 000

\* = “Base” numbers for Europe Only

\*\* = forecast for 2022: 738 000 commercial drones

# Expected Amount of Traffic



# Urban Aerial Traffic Estimates

- Paris ( 2.2 mio inhab.)

Type of Flight	2018	2035
Commercial Aircraft	80	156
UAM	0	2 500
Delivery	0	16 666
Inspection	1	56
Hobby	12	44
Total	93	19 422

Source: Airbus UTM Blueprint / Altiscope drone volume model

- Comparison:
  - Manned Aviation in 2017: Daily World Average =100 000 flights

# A new “system” is needed!

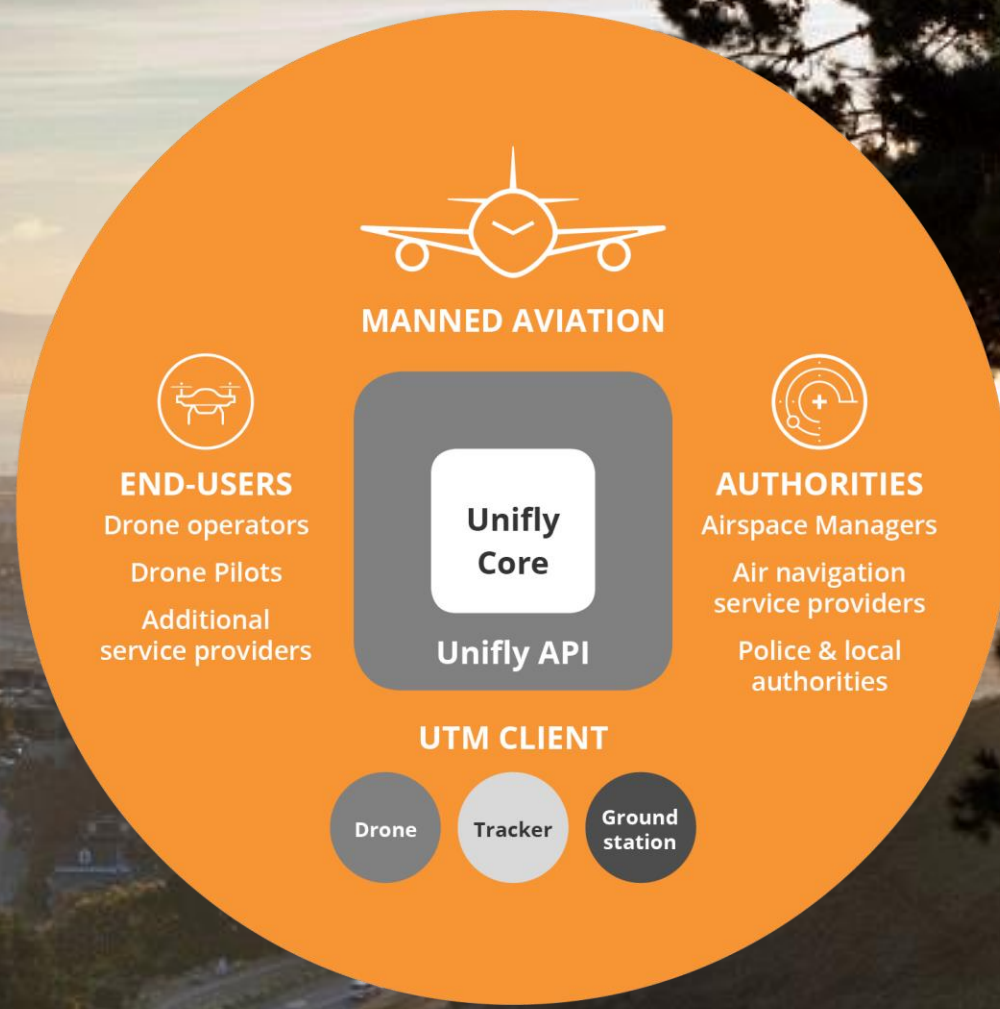
- Solution for all Stakeholders:
  - ANSP, CAA, Local Authorities , Police & Rescue Services, Large Drone Operators, Drone Users
- Scalable
- Extensive capacity planning / flow control capabilities
- Highly Automated

# International Initiatives

- USA
  - NASA-UTM
  - LAANC
  - IPP
  - UPP
  - FAA/NASA UAM Grand Challenge
  - FAA/NASA ATM- X
- Europe
  - U-Space
    - 6 Exploratory Research programs
    - 10 Very Large Scale Demonstrators
    - 12 Urban Aerial Mobility projects
- Japan
  - METI
  - JUTM / JAXA
  - Fukushima & NEDO demo projects
- Singapore
  - Urban Mobility
- Dubai
  - Flying taxi demo



# Unifly's UTM Software Architecture



MANNED AVIATION



**END-USERS**  
Drone operators  
Drone Pilots  
Additional service providers



**AUTHORITIES**  
Airspace Managers  
Air navigation service providers  
Police & local authorities

**Unifly Core**

**Unifly API**

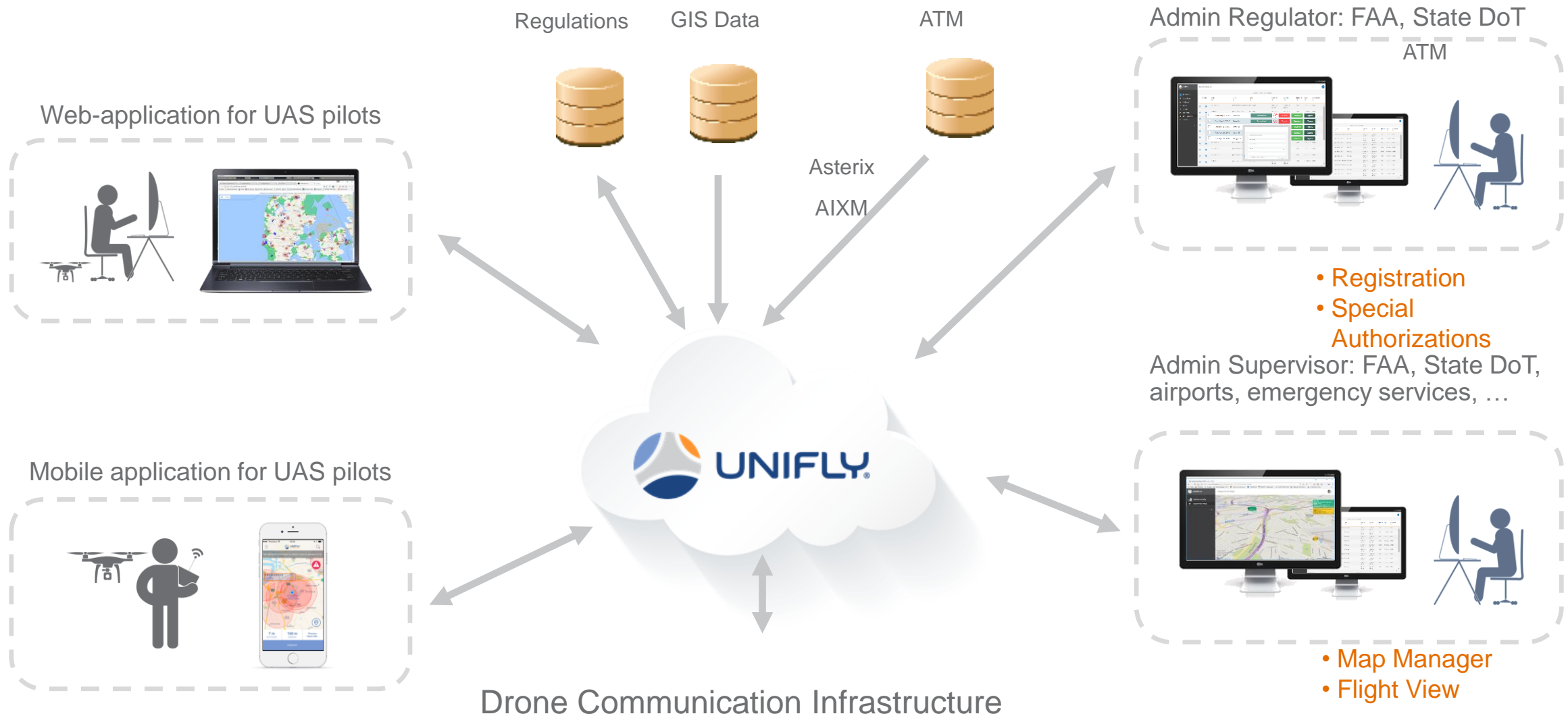
UTM CLIENT

Drone

Tracker

Ground station

# UTM solution : roles & responsibilities



# Evolution

UTM is an abbreviation that will change over time:

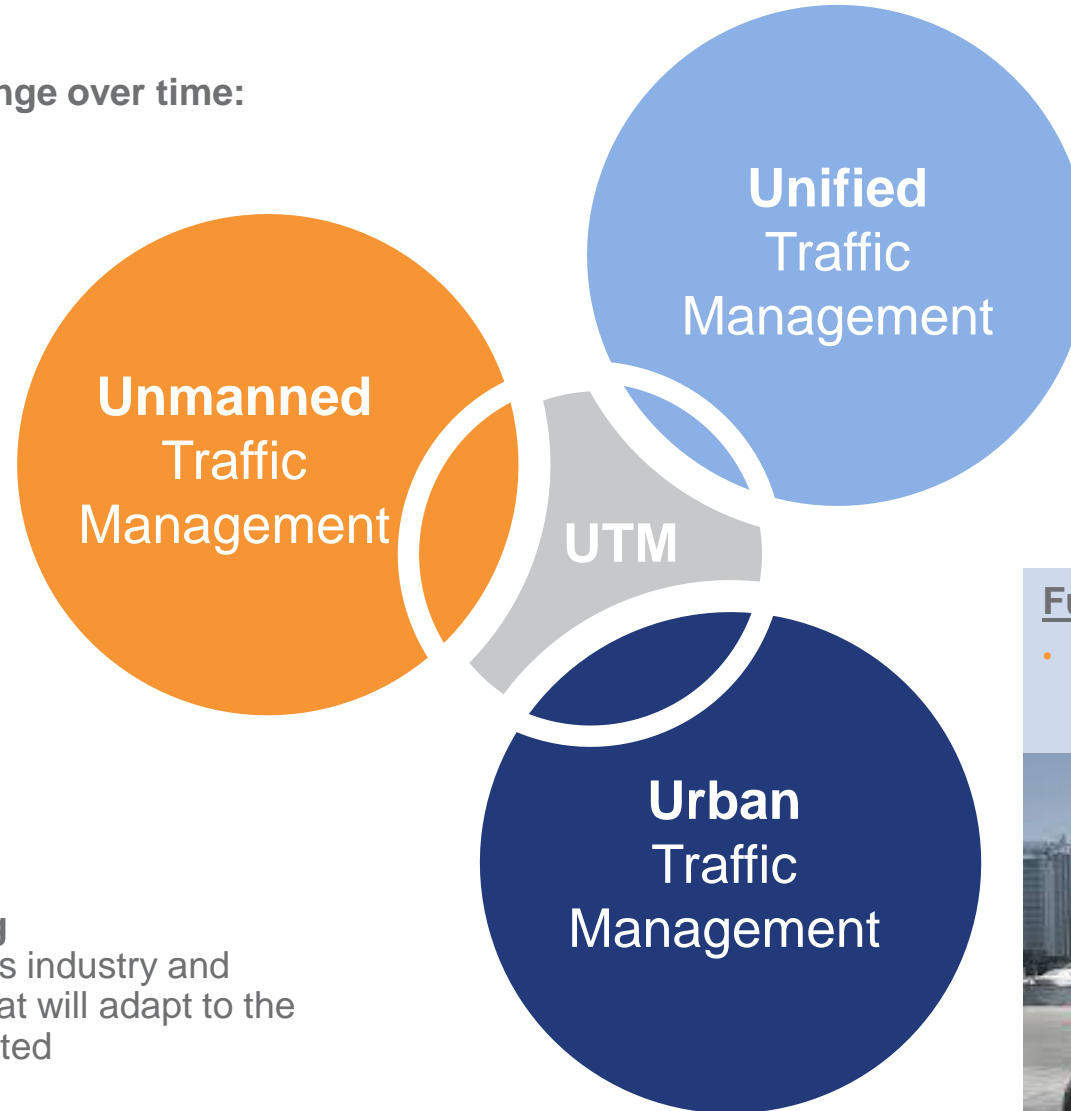
## Today

- Unmanned traffic management with a high degree of automation and a high level of integration with manned air traffic management



## **The UAS industry is rapidly evolving**

Unifly is helping to guide and shape this industry and provides a flexible software platform that will adapt to the standards and conventions being adopted



## Tomorrow

- Replace traditional ATM systems with a highly automated unified traffic management system for all airspace users within the same airspace



## Future

- Combining surface travel and flight into single integrated journeys as urban transport becomes multi-modal



# References: National Deployments



**DFS** Deutsche Flugsicherung

**NAVIAIR**

60 000 + registered Users


























# Unifly & Europe's U-Space

# Unifly's Global Reach

## Project

## Participants

 UAS INTEGRATION PILOT PROGRAM Alaska-Fairbanks 	  
 LAANC 	 
Drone Corridor Malawi 	     
Drone Corridor Japan 	  
Partners	 Global UTM Association     NUAIR MAKING FUTURE SKIES SAFER

<https://www.youtube.com/watch?v=Unld6gY5XPM>

# Reference Material

SESARJU - Outlook Study

PwC - Clarity from Above

Airbus - UTM Bueprint

Porsche Consulting – The future of Vertical Mobility

UnmannedAviation.info – Unmanned Airspace Forecast report



Vragen ?



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