UTM/ATM integration for Situational Awareness

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

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Increase Situational Awareness

- Before flight
  - Drone pilots: State Intentions = +/- flight plan
- During Flight
  - Track position of drones
  - Track position of A/C
  - Resolve potential conflicts.
  - Communicate with Drone operators & Aircraft Pilots

Unifly’s UTM Software Architecture

UTM solution : roles & responsibilities

Regulations

GIS Data

ATM

Asterix

AIXM

Web-application for UAS pilots

Admin Regulator: FAA, State DoT

ATM

- Registration
- Special Authorizations

Admin Supervisor: FAA, State DoT, airports, emergency services, ...

Mobile application for UAS pilots

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- Map Manager
- Flight View

Drone Tracking Infrastructure

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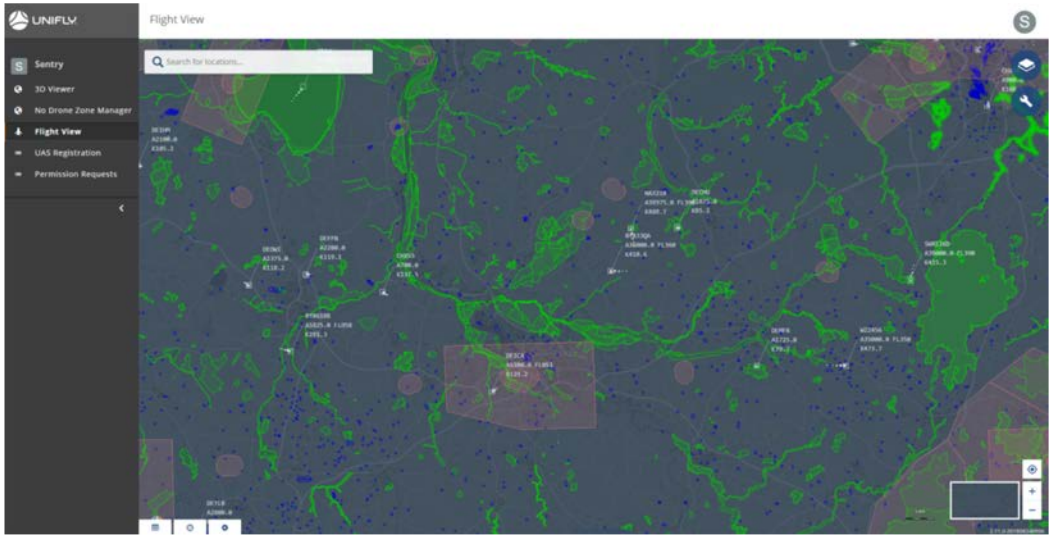
Ultimate Situational Awareness for ATC

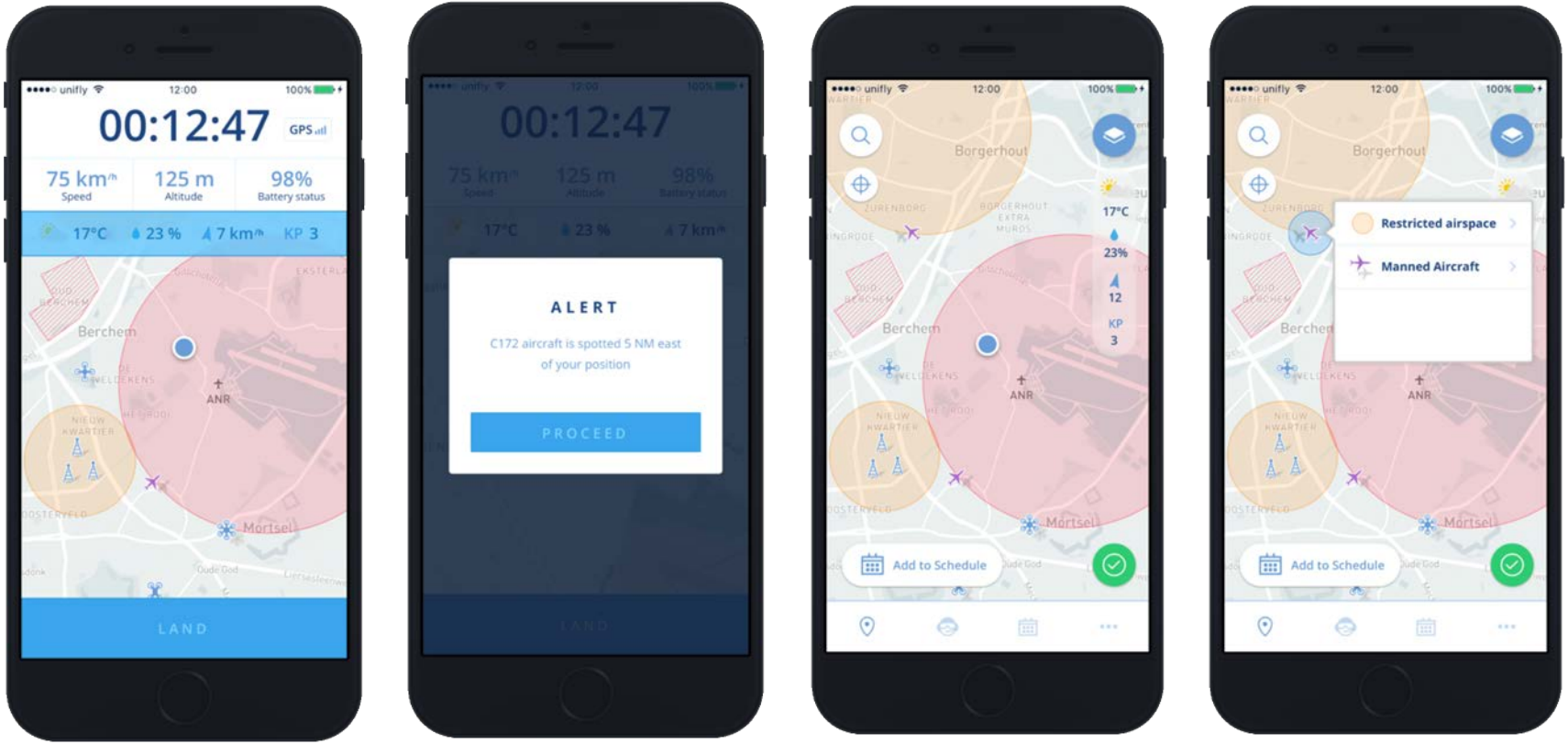
Visualisation
- Manned
- Unmanned
- (Dynamic) Airspace
- No-drone Areas

Deconflicting
- Unmanned/Unmanned
- Unmanned/manned
- Unmanned/ No drone zones

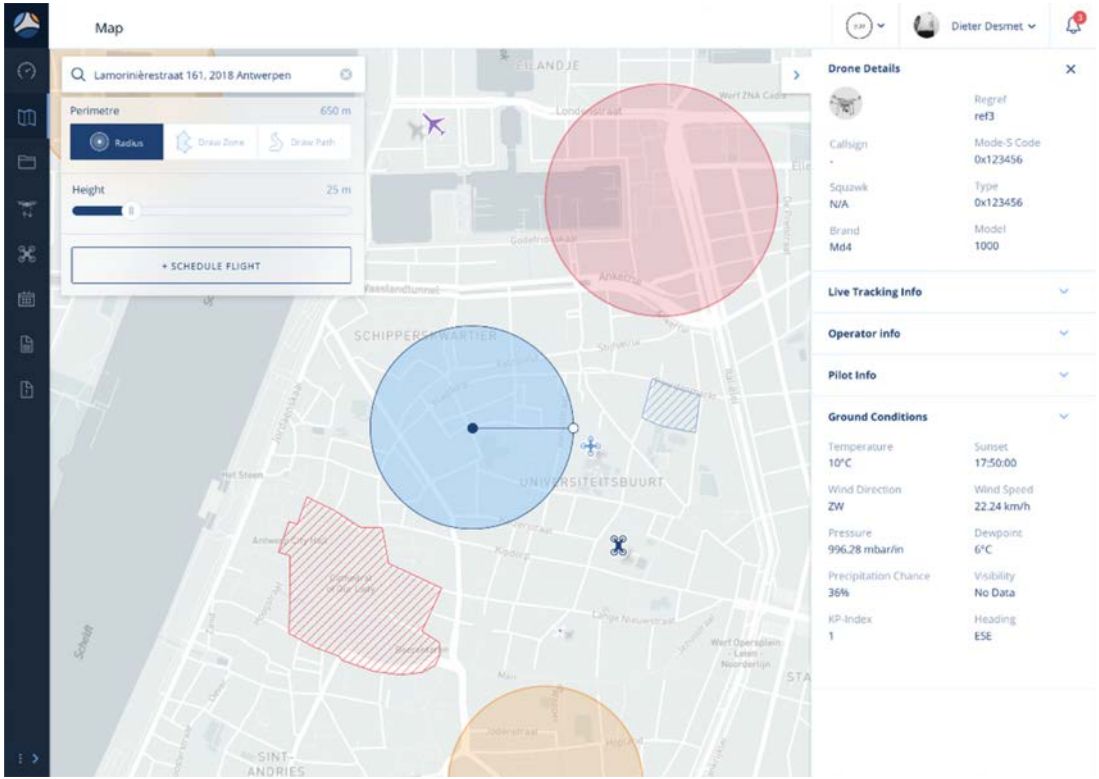
Replay



Situational Awareness & Alerting for users (1)



Situational Awareness & Alerting for users (2)



Tracking Technologies

- No “fit for all”
- Depending on the situation
    - Satellite
    - Low Power ADSB
    - GPS location via LTE network
    - FLARM
    - Wifi via GCS
    - Drone Radar
    - Tracking app

Regulator’s Challenge

- How do you regulate “Tracking”
- Prescriptive : Use XYZ technology
- Performance based regulation
  - situation A needs X availability / precision
  - Situation B needs Y availability / precision
  - Situation C needs Z availability / precision
- Acceptable means of compliance
- Test / Validate / Certify – e.g. NUAIR Test Site

References: National Deployments

50 000 + registered Users

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References: Unifly & Europe's U-Space

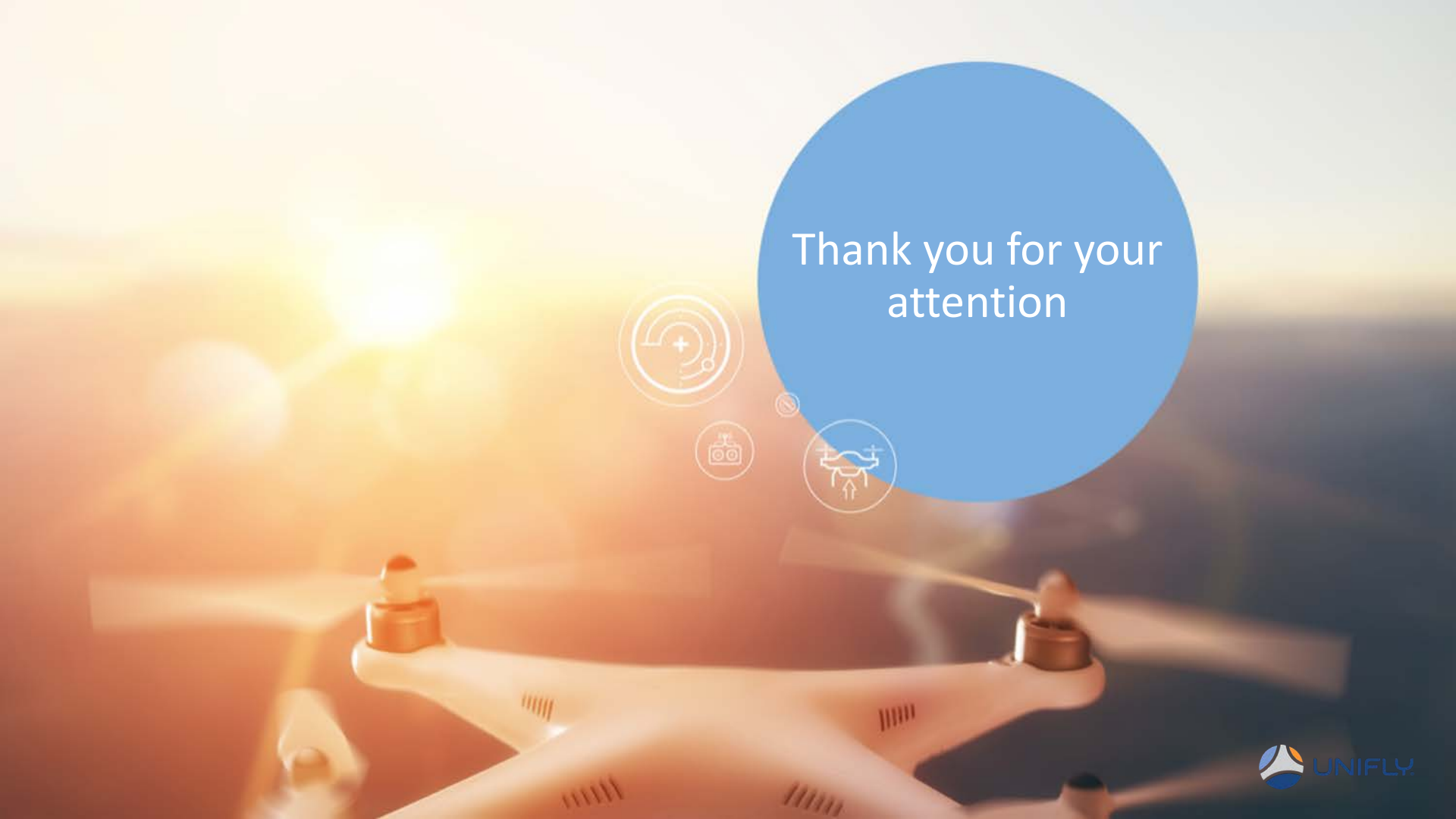
Project	Participants
CORUS	EUROCONTROL, UNIFLY, DLR, enav, dgac DSNA, NATS, Universitat Politècnica de Catalunya BARCELONATECH, HEMAV, DFS Deutsche Flugsicherung
SKYOPENER	ViaSat, Sapienza Università di Roma, m3 systems, skyguide, UNIFLY, Connectiv
PODIUM	EUROCONTROL, AIRBUS, DSNA, delair-tech, UNIFLY, Drones Paris Region, INTEGRA, NAVIAIR, nlr, orange
CLASS (CLEAR AIR SITUATION FOR UAS)	AIRBUS, AVEILLANT, ENAC, NTNU, UNIFLY
SECOPS	nlr, SENSOFUSION, UNIFLY, DelftDynamics
Safedrone	indra, UNIFLY, FADA CATEC, IAI, ENAIRE, CRIDA, Universidad de Sevilla
USIS	THALES, UNIFLY, DSNA, ALTAMETRIS, HungaroControl Hungarian Air Navigation Services, DFS Deutsche Flugsicherung, ENAC École Nationale de l'Aviation Civile

Refereces: Unifly's Global Reach

Project	Participants
UAS Integration Pilot Program – Alaska-Fairbanks	FAA, UNIFLY, UAF University of Alaska Fairbanks
LAANC	FAA, UNIFLY
Drone Corridor Malawi	unicef, UNIFLY, uAvionix, Virginia Tech, FlyPulse Airborne Aid, GLOBHE
Drone Corridor Japan	Terra Drone, UNIFLY, HITACHI

Partners

Global UTM Association, here, Google, HUAWEI, NUAIR – Making Future Skies Safer


Thank you for your attention