



AVIATION TWIN TRANSITION CLUSTER

A EUROPEAN INITIATIVE FOR A SUSTAINABLE FUTURE

RefMap Clustering Event 2025

Advancing Sustainable Aviation & Urban Air Mobility

What users want from tools addressing sustainability in aviation and UAM?

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29–30 July 2025, Athens, Greece

Methodology and Sample

Interviews

23

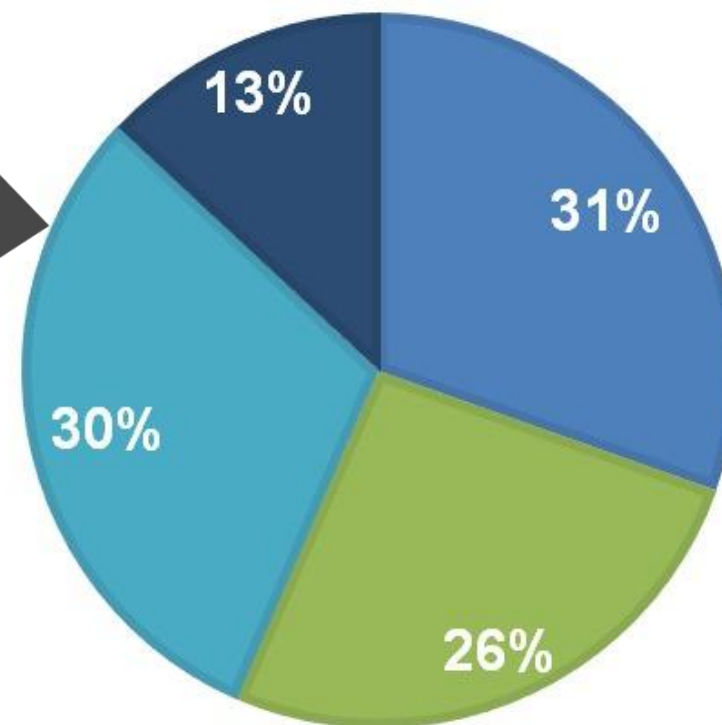
Survey no demo

16

Survey with demo

23

**62 participants
so far...**

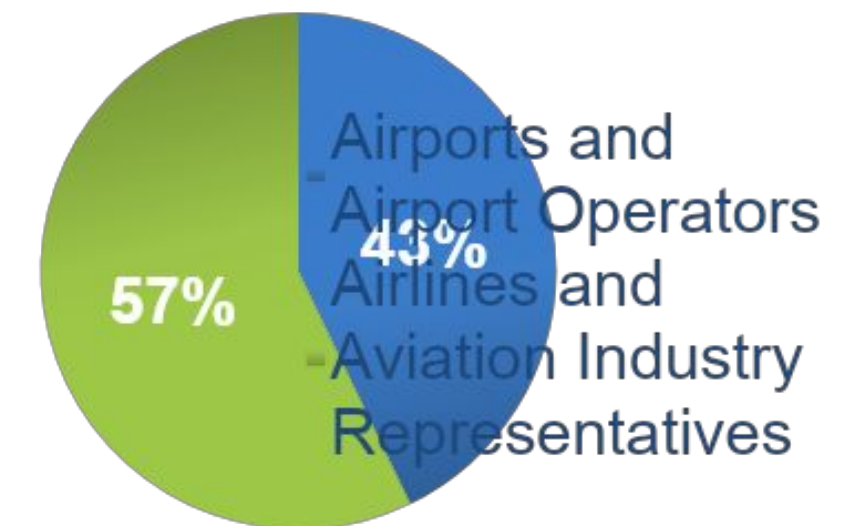


Aviation Industry

UAM

Academia

Regulatory
Authorities



Airports and
Airport Operators
Airlines and
Aviation Industry
Representatives



Traditional Aviation

How can aviation reduce its impact on public health and the environment?

Top 1 “want” per emphasized stakeholder

Airlines

- Evaluate **flight paths** by **fuel use, emissions, navigation costs**, and environmental impact

Public health

- Optimize **flight paths** to reduce **air pollution** and **noise around airports**

Regulators

- Calculate **airport-area air pollution** based on **flight paths and fuel type**

How can we help airlines become more sustainable?

1

Evaluate **flight paths** by **fuel use**, **emissions**, **navigation costs**, and environmental impact



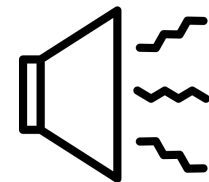
3

Optimize flight routes by identifying and avoiding **climate-sensitive hotspots** for eco-efficient planning



2

Calculate **noise footprints** to optimize routes and **reduce climate** and **air pollution**



4

Provide comprehensive **assessment of environmental impacts**



How can we reduce impacts on public health?

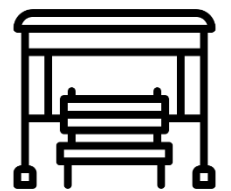
1

Optimize **flight paths** to
reduce **air pollution**
and **noise** around
airports



4

Simulate **terminal area**
operations to assess
fuel use, emissions,
and **noise**



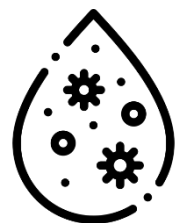
2

Map **pollution sources**
like traffic and aviation



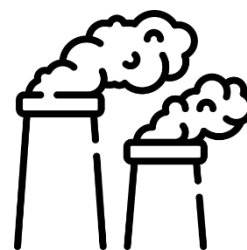
5

Create high-resolution
maps of **key pollutants**
using measurements
and modelling



3

Simulate how **airport**
operations affect **local**
pollution



How can regulators better manage aviation's footprint?

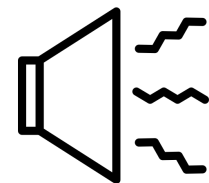
1

Calculate **airport-area
air pollution** based on
flight paths and **fuel
type**



2

Assess **noise impact** of
flight paths near **urban
areas**



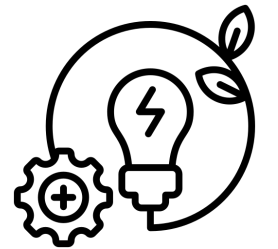
3

Identify regions where
flying conditions
affect emissions



4

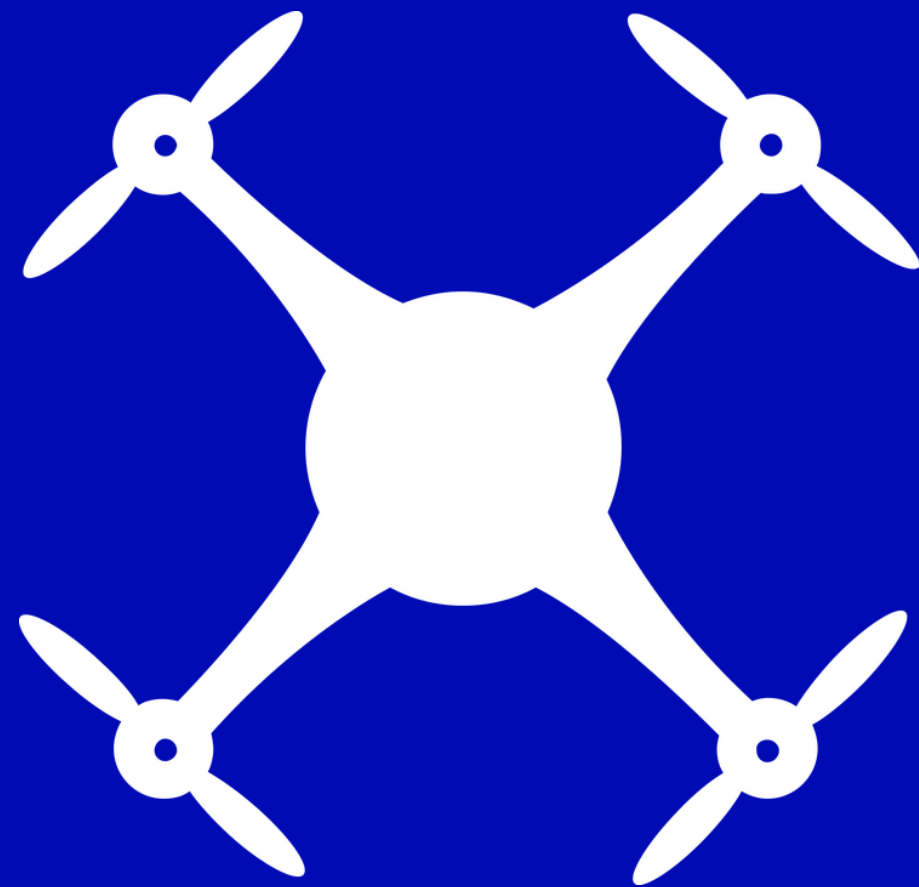
Calculate **fuel use and
emissions** for different
flight scenarios



4

Suggest **optimal flight
routes** to support
**climate-focused
regulations**





Urban Air Mobility

**How can UAM enable
safe and sustainable
operations in populated
areas?**



Top 1 “want” per keyword

Safe and low-impact

- Balance **social, economic, and environmental** impacts

Essential goods delivery

- Estimate **noise-aware route planning**

How can we identify safe and low-impact areas for drone operations in populated environments?

1

Balance **social, economic, and environmental** impacts



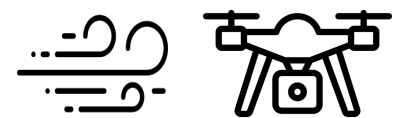
2

Assess **noise and visual pollution** from drones in urban areas



2

Use 3D **wind** data to identify areas with **high travel risk**



3

Estimates **drone noise** to find areas with **less impact** from operations

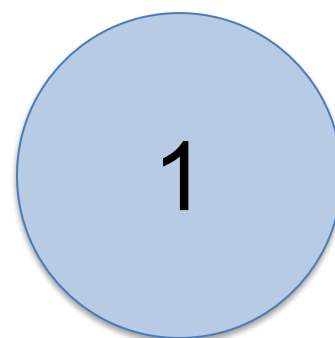




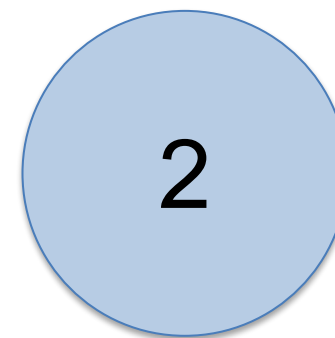
How can drones support essential deliveries alongside existing transport?



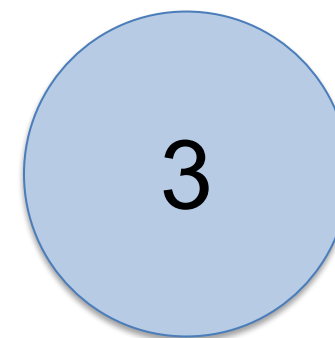
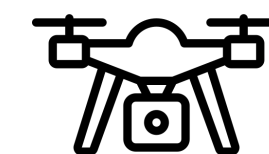
Via tasks like goods delivery, medical transport, and AED flights



Estimate **noise-aware route planning**



Optimize last-mile delivery using **urban wind flow data**



Use urban **wind** data to identify **turbulent airspace** and improve UAM flight **efficiency**



Overall “wants” from open-ended discussion



Optimized Airspace &
Routing Design



Environmental Impact &
Monitoring



Regulatory Compliance &
Green Certification



Integrated Sustainability
Platform



Health Impact & Predictive
Analytics



Early Advantage in Urban
Aviation

**thank you
for your attention!**

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For more information:
www.refmap.eu

**Q&A /
Closing**





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