



AVIATION TWIN TRANSITION CLUSTER

A EUROPEAN INITIATIVE FOR A SUSTAINABLE FUTURE

RefMap Clustering Event 2025

Advancing Sustainable Aviation & Urban Air Mobility

Local Digital Twins: The Aerial Advantage for Sustainable Urban Futures

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The Urban Challenge & The EU's Vision

The Urban Imperative: Climate Crisis, Urbanization, Resource Scarcity



Climate Crisis



Urbanisation



Resource
scarcity

The EU's Strategic Response:



Climate neutrality
as core
commitment



Foundational tech
for transformation

What is a Local Digital Twin?

- A Digital Twin is a continuous learning digital copy of real-world assets, systems and processes...
 - **NOT** a static 3D map.
 - **IS** a dynamic, real-time platform for simulation and decision-making.



UAS as Data Engine

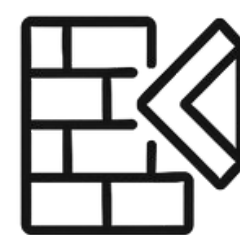
More than just 3D Mapping



High-precision
3D models of
urban environments

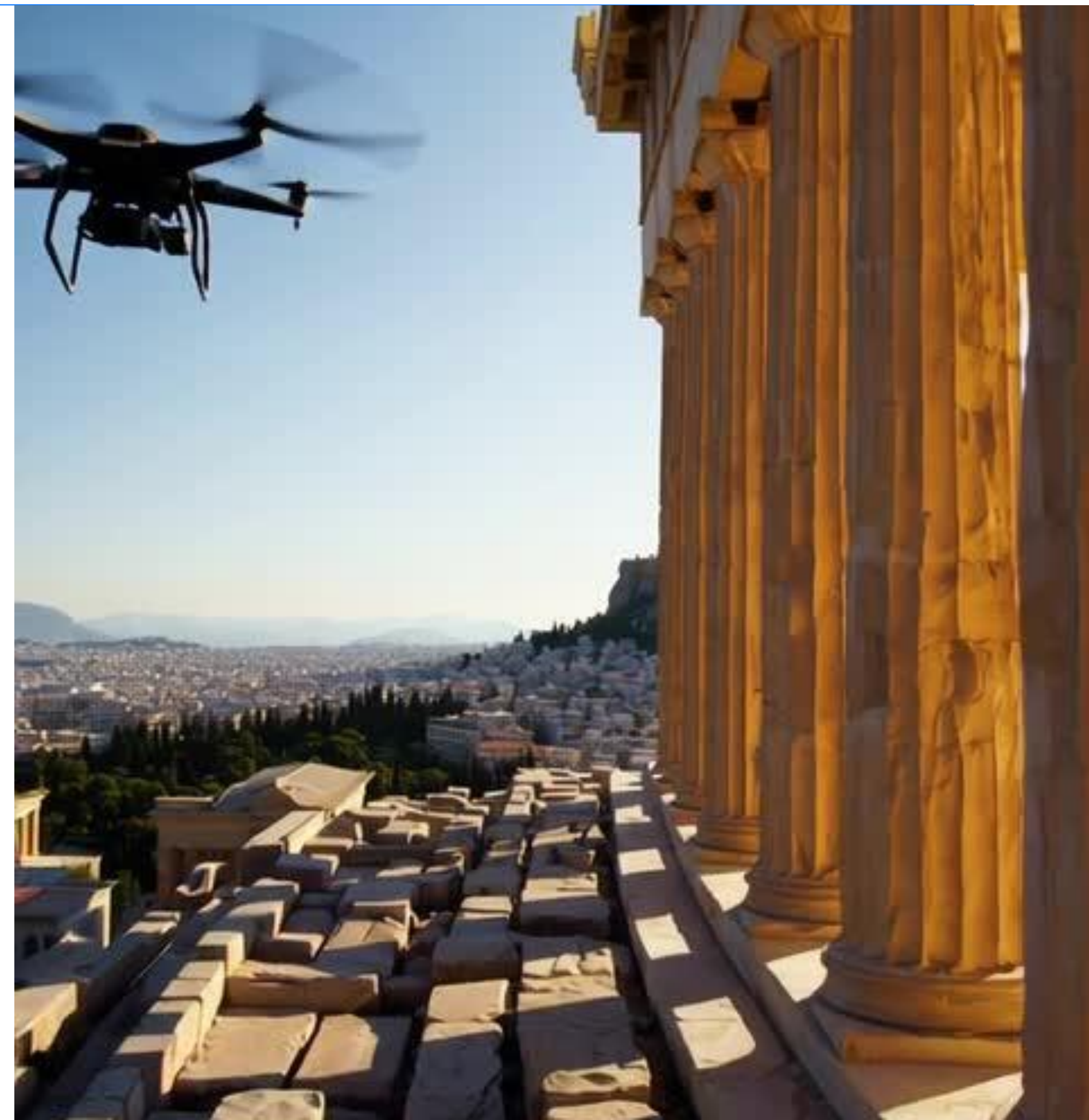
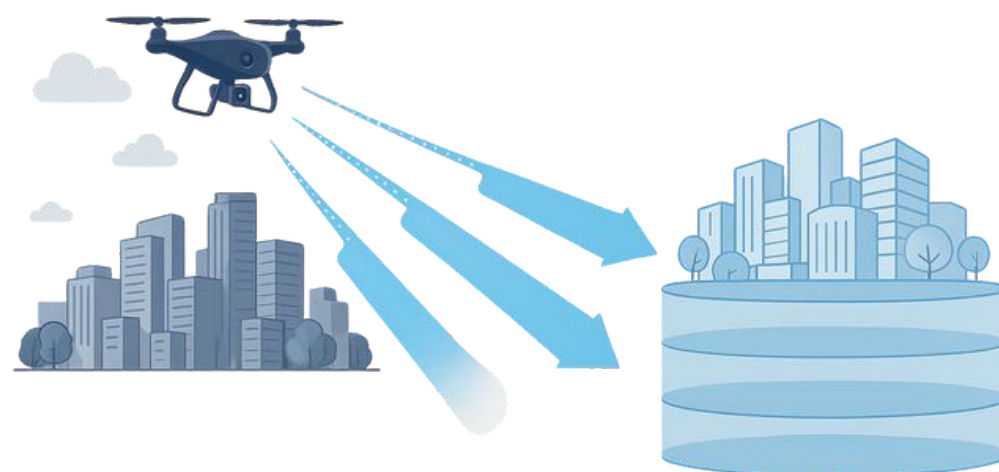


Real-time monitoring
of air quality, noise,
and temperature ...



Infrastructure
inspection & change
detection from above

Scalable services for cities building Local Digital Twins



From Data to Decisions: The Power of Simulation

Simulate Before You Operate



Model environmental impacts
(noise, emissions, visual disturbance)

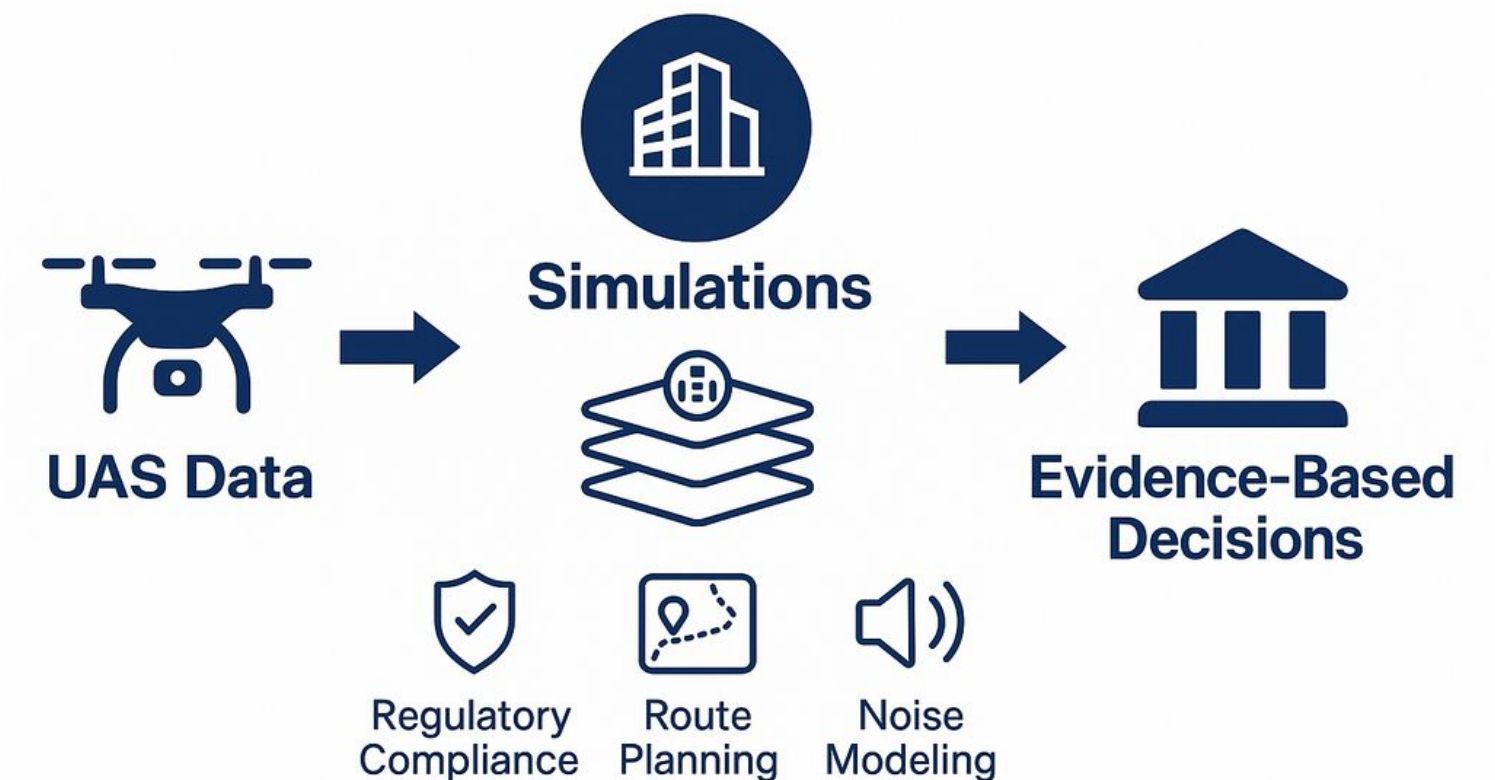


Design safe & efficient air routes
(‘urban air roads’)



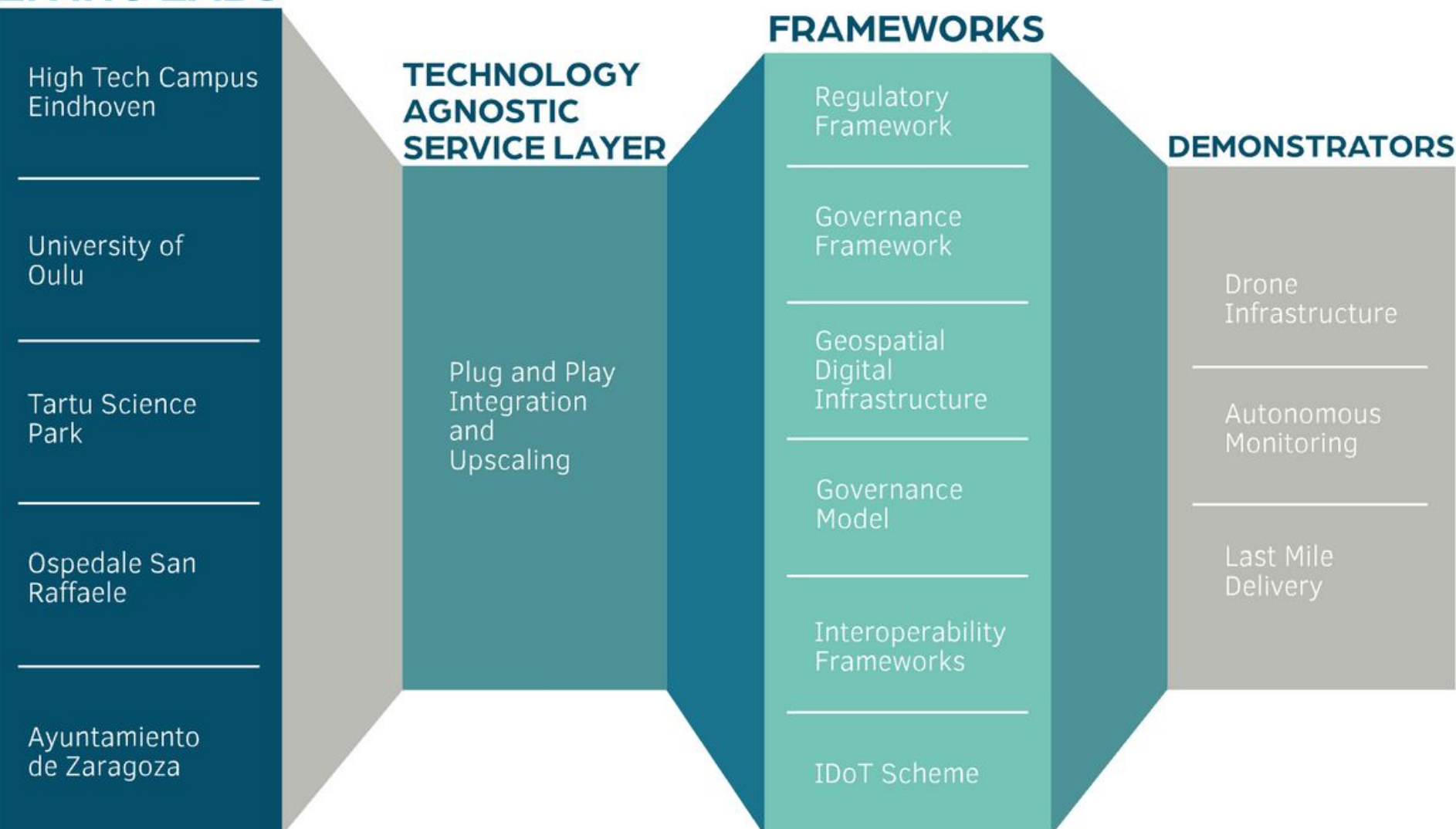
Test regulatory compliance
(before real-world deployment)

De-risk & speed up procurement of
UAM public services
Stronger public trust and smarter
urban mobility decisions



Flying Forward 2020

LIVING LABS



FF2020 laid the groundwork for drone-enabled urban innovation.



5 Living Labs – Real-world pilots tested UAM integration with city systems.

- Governance frameworks for safe, scalable drone operations
- Procurement templates to support public sector adoption
- Interoperability and regulatory blueprints
- A Digital Toolbox and Spatial Web Platform
- Identity of Things (IDoT) and autonomous

Cities now have the tools and guidance to bring drone services into their LDTs and everyday operations.

The Path Forward: Key Takeaways



Main Message 1

UAS are essential data engines for Local Digital Twins, a key enabler for achieving Net Zero Cities



Main Message 2

Local Digital Twins empower evidence-based decision-making and streamline public sector procurement for sustainable urban development and transport

thank you
for your attention!

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For more information:
www.refmap.eu

Q&A /
Closing



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