

Case Study:

# AiRMOUR

EU Multi-City  
Project on  
Sustainable Urban  
Air Mobility for  
Medical Services



Coordinated by VTT Technical Research Centre:  
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**LOCATION:** Multiple European cities in Finland,  
Germany, Luxemburg, the Netherlands, Norway  
and Sweden

**TEAM:** International partnership with  
healthcare organizations, aviation authorities,  
and research institutions

**SET-UP:** Urban, Suburban

**SYSTEM READINESS LEVEL (SRL):** 7

**FOUNDING YEAR:** 2021

[airmour.eu](http://airmour.eu)



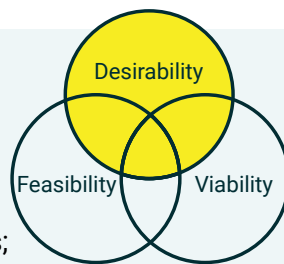
## At a Glance

The three-year AiRMOUR Project, launched in 2021, is one of the largest EU demonstration projects on urban drone delivery, exploring technologies and processes required to deploy UAM for emergency medical services. Four use cases were developed and demonstrated in Stavanger, Helsinki, Nord-Hessen, and Groningen, and simulations were conducted in Luxembourg. The project also contributed to U-Space regulations for integrating drones into low-altitude airspace for medical deliveries. For cities and municipalities, the AiRMOUR project developed the Guidebook for UAM Integration, which compiles best practices on safety, public acceptance, and regulatory frameworks for sustainable deployment.

### Use Case: Emergency Medical Services (EMS)

1. Using UAS for inter-facility transportation of medical products;
2. Using UAS to bring medical products to an ad-hoc location;
3. Using eVTOL for inter-facility transportation of medical passengers;
4. Using eVTOL for transportation of medical staff to or from an ad-hoc location.

In critical cases like cardiac arrest, drones equipped with defibrillators or blood transfusion supplies can reach emergencies faster than traditional transport, significantly reducing response times in congested or remote areas.



### Regulatory:

- The project identified regulatory gaps in the implemented Emergency Medical Services (EMS) scenarios, assessed the impact of UAM on aviation regulations, provided recommendations to EASA, and conducted online training on the topic.
- Practical experiments, validation and demonstration exercises were conducted within the UAS and U-space regulatory frameworks that gradually came into force during the project time.



“Collaboration between city representatives and stakeholders is crucial to maximize UAM’s potential. It is important to prioritize safety, efficiency, and timely delivery, positioning drones as enhancers of existing services to foster public trust for successful integration.”

**Vadim Kramar**, Seniors scientist

## Technology

- U-Space air corridors were developed for urban areas to integrate drones with other airspace users, enabling BVLOS operations for direct and autonomous deliveries.
- A GIS tool was developed for city planners to visualize air corridors, incorporating data such as noise zones, population density, and landing sites for dynamic route planning.
- Simulation tools and models were refined to ensure safe validation, assess noise and visual pollution, and support demonstration activities.

## Drones

- **UAS:** EHang Falcon-B drones, equipped with advanced technologies to securely transport sensitive medical materials such as blood and diagnostic samples, were used in the project as the primary aircraft.
- **eVTOL:** The EHang 216 piloted aircraft, with one passenger seat, was used for simulation and validation activities.



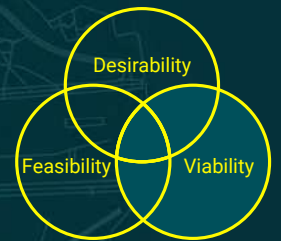
## Business Model

### EMS UAM:

Six business model scenarios have been developed and validated for different use cases: Regional UAM Arena Business Model, UAM EMS – Life-Saving Packages Business Model, UAM EMS – EMT Personnel Business Model, Medical UAM – Material Relief Logistics Business Model, Medical UAM – Pathology Sample Logistics Business Model, and UAS/eVTOL Service Operator for UAM EMS.

### Grant funding:

The project received funding from the European Union's Horizon 2020 research and innovation program.



## Impact

The AiRMOUR study is the first to independently assess public acceptance of Emergency Medical Services and Urban Air Mobility, detailing citizen concerns. It also explored market potential and socio-economic impacts. AiRMOUR's CO2 Life Cycle Assessment shows reduced emissions and faster response times, highlighting the benefits of drone-based urban transport. Live demonstrations have increased public trust in using drones for medical emergencies. Several courses, master classes, and workshops organized by AiRMOUR made the project's achievements widely available, while the Guidebook for UAM integration continues to serve cities and municipalities.

“Investors and organizations keen on venturing into the UAM domain, especially within the Emergency Medical Services (EMS) framework, should be acutely aware of the significant capital requirements associated with UAM integration. While the transformation of the EMS sector offers promising returns, a strategic approach is essential.”

**Vadim Kramar**, Seniors scientist

## Conclusion

The AiRMOUR Project is leading the way in demonstrating the feasibility and importance of using drones for emergency medical logistics. By focusing on the safe integration of drones into urban airspaces, AiRMOUR is setting a precedent for the future of urban air mobility in healthcare. This initiative not only improves emergency response times but also advances Europe's vision for sustainable, efficient transport solutions in cities.