European Commission

sesar JOINT UNDERTAKING

METROPOLIS

EU Drone Days

Launch of the European Drone Strategy 2.0

SESAR U-space Showcase

Brussels, 29-30 November 2022

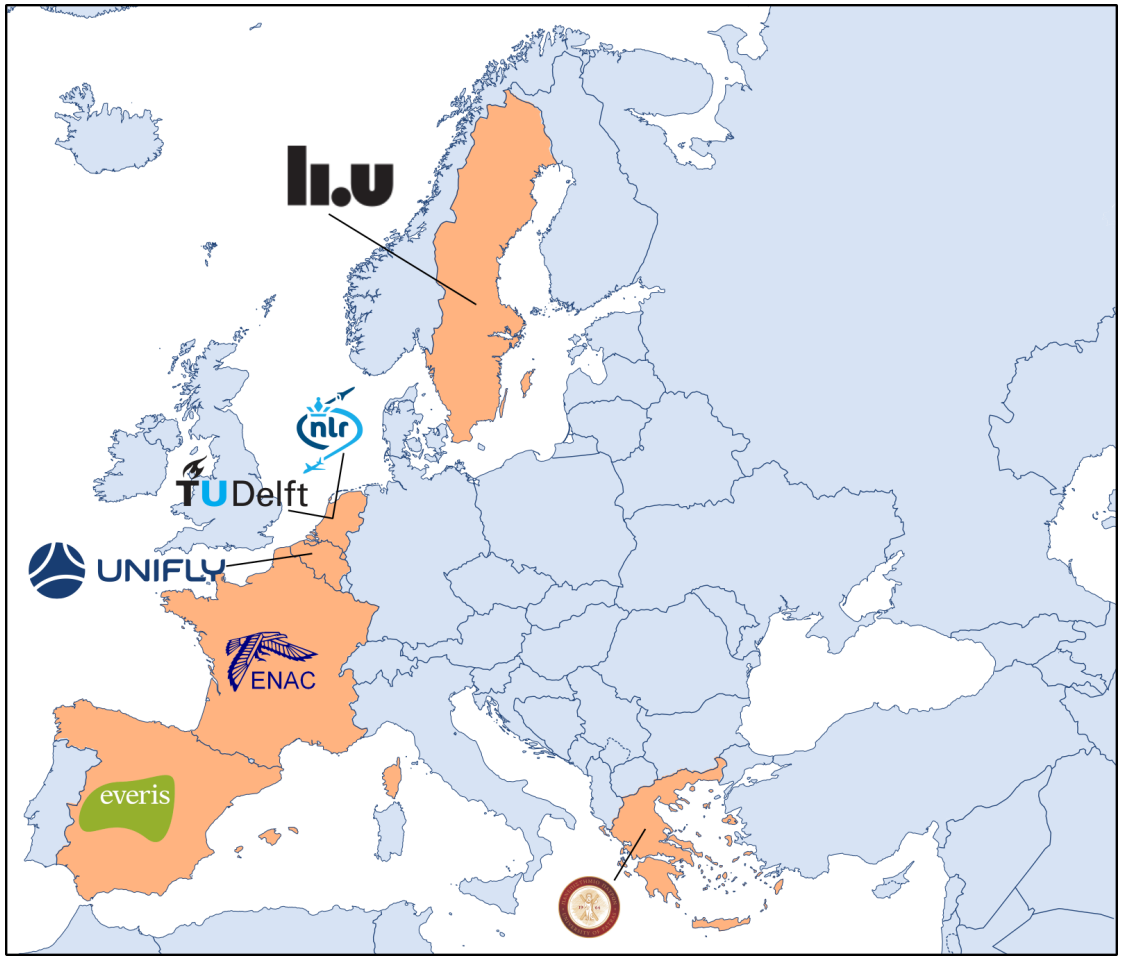
#EUDroneDays

Metropolis 2

SESAR Exploratory Research project 892928

Călin Andrei Badea
PhD candidate TU Delft

Metropolis 2 consortium



- TU Delft (coordinator)
- Linkoping University
- NLR
- Unifly
- ENAC
- Everis / NTT Data Spain
- University of Patras

Metropolis 2 Objectives and approach

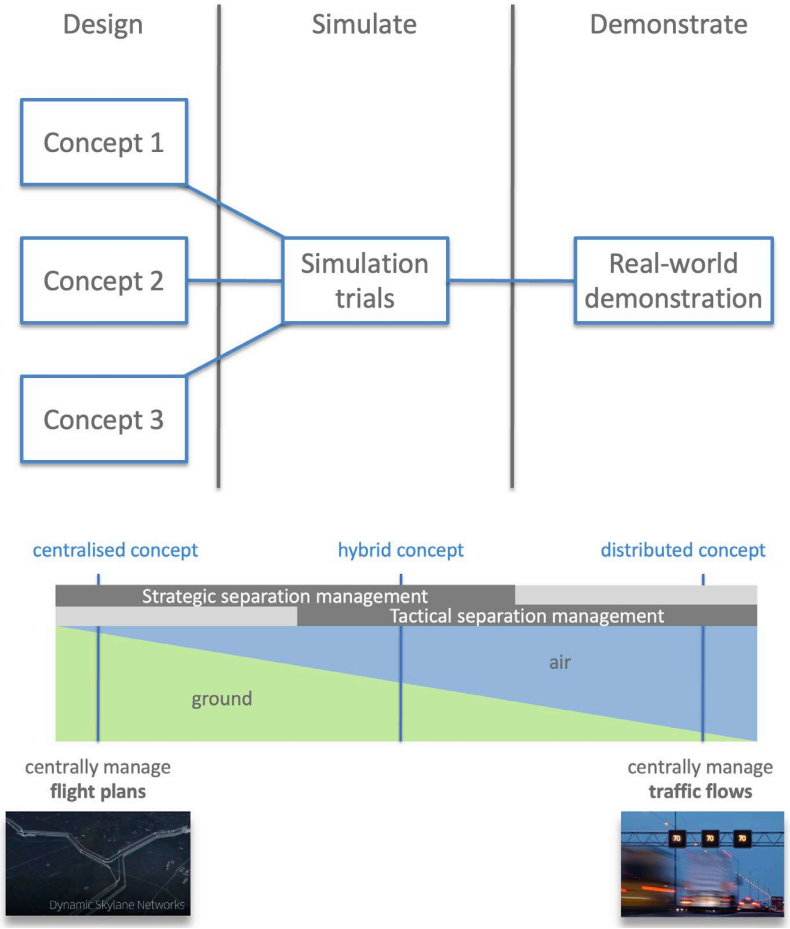
- The project's main research question:

  What degree of centralisation is required (and achievable) to cater high-density traffic in an urban setting, with a large proportion of impromptu demand?

- Tested by subjecting three concepts to a variety of **settings**, **demand scenarios**, and **levels of uncertainty**, in a set of fast-time simulation scenarios

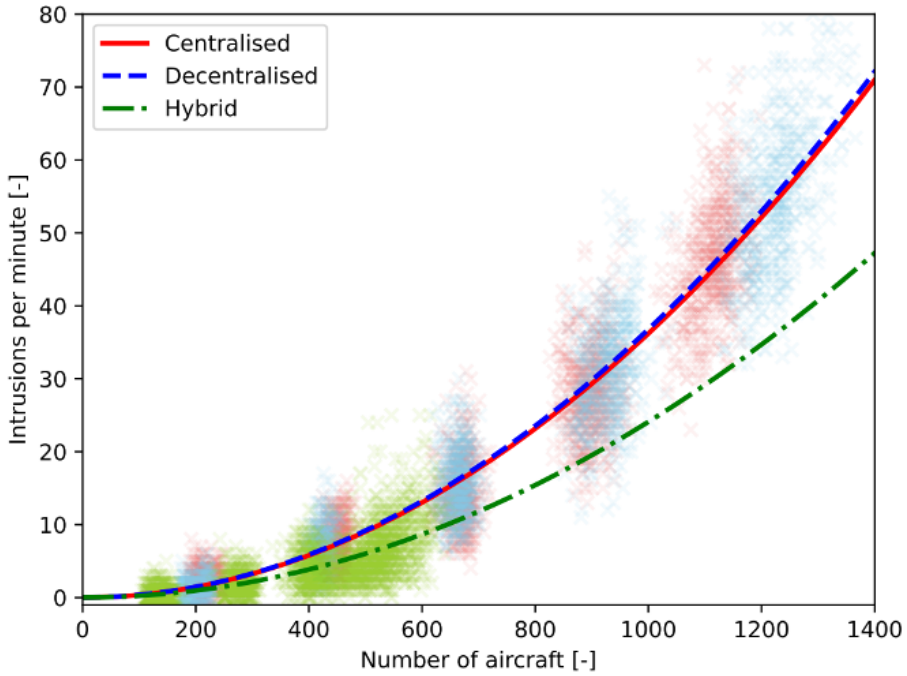
- Comparing their performance in several **key performance areas**

- Identifying the best concept/approach in a **trade-off** based on the results, and demonstrating it with live trials



Metropolis 2 results

Intrusions per minute vs number of aircraft



Safety:

- The degree of centralisation was **not a main contributing factor** to safety
- **Aligned airspace** structuring can bring significant reduction in conflicts and intrusions
- Pre-deconfliction is most beneficial in constrained airspace

Efficiency:

- Airspace structuring and strategic routing should consider efficiency impact

Access, equity and capacity:

- Strict pre-planning can diminish accessability and capacity
- Predictability and plannability are key determinants in the effectiveness of, and requirements on strategic separation

Contact details

Website: metropolis2.eu

LinkedIn: @metropolis2

E-mail: Joost Ellerbroek

j.ellerbroek@tudelft.nl