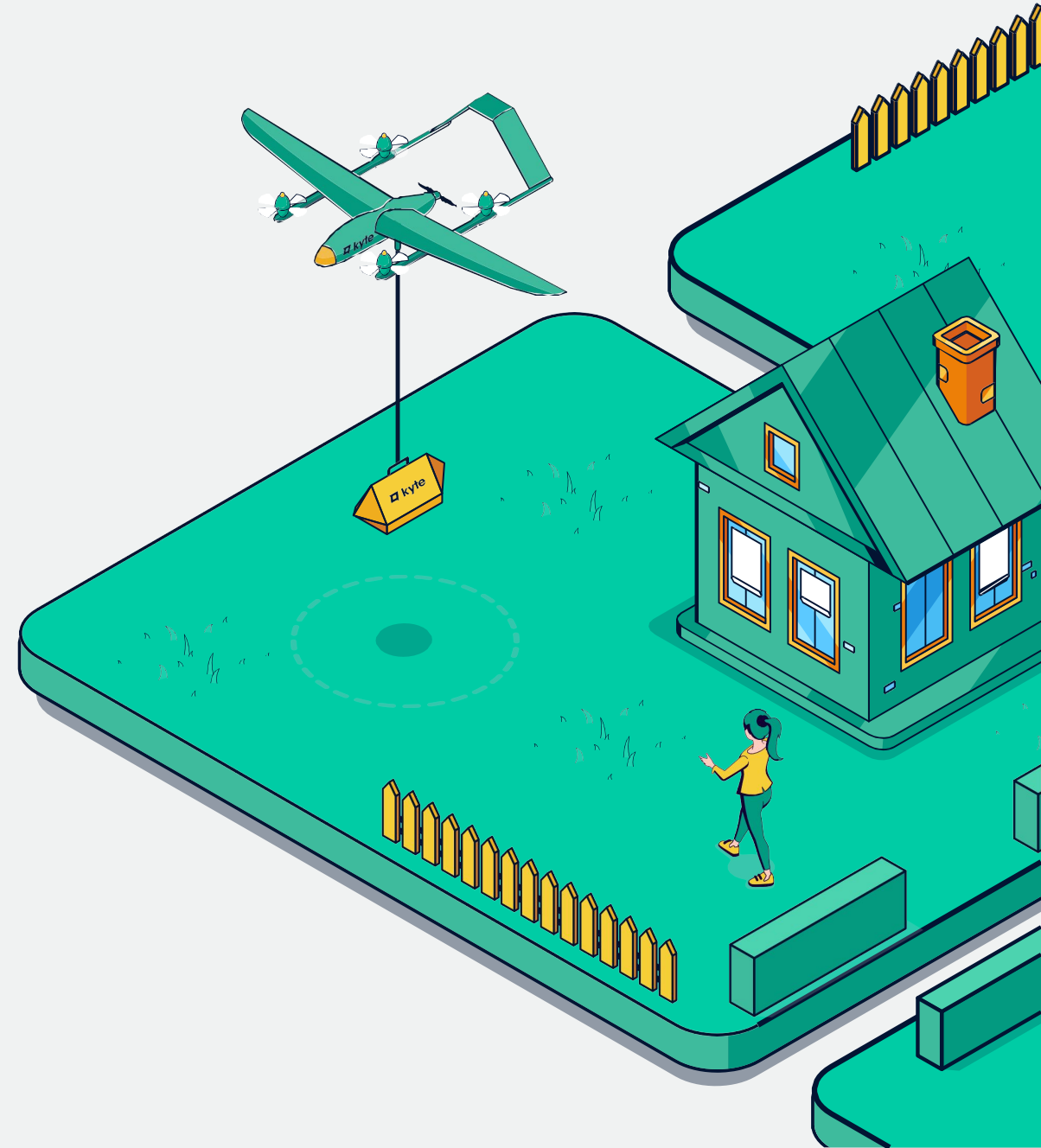


Engage 2



MEDUSA Project

Modeling the Economics of Delivery UAS
in airspace Surrounding Airports



A wide-angle photograph of an air traffic control room. In the foreground, three people are seated at a long desk with multiple computer monitors. The room is dimly lit, with the primary light source being the monitors and the natural light from the large windows. The windows provide a panoramic view of an airport tarmac and surrounding landscape during sunset or sunrise. The sun is a bright, low orb on the horizon, casting a warm glow. Several aircraft are visible on the tarmac and in the sky. The text 'Stian W. Helgesen' is superimposed in the center of the image.

Stian W. Helgesen





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MIT News

ON CAMPUS AND AROUND THE WORLD

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SEARCH NEWS

Developing drones to address pandemic-related challenges in Scandinavia

After meeting in an Advanced Study Program at MIT, three Norwegian students began working together to transport biological samples using autonomous vehicles.

MIT Professional Education
June 23, 2021



Lars Erik Matsson Fagnæs, Bernhard Paus Græsdal, and Herman Øie Kolden (l-r) met in Cambridge, Massachusetts, during orientation for an MIT Professional Education program in 2019. In 2020, in response to the Covid-19 pandemic, they teamed up to improve medical supply chains in their home country of Norway and throughout Scandinavia.

Photo courtesy of MIT Professional Education.

The onset of the Covid-19 pandemic spurred an immediate need to develop new, innovative systems in supply chains and infrastructure. And for three Norwegian graduate students enrolled in the MIT Professional Education Advanced Study Program (ASP), spring 2020 was the moment when technology, innovation, and preparation met opportunity.

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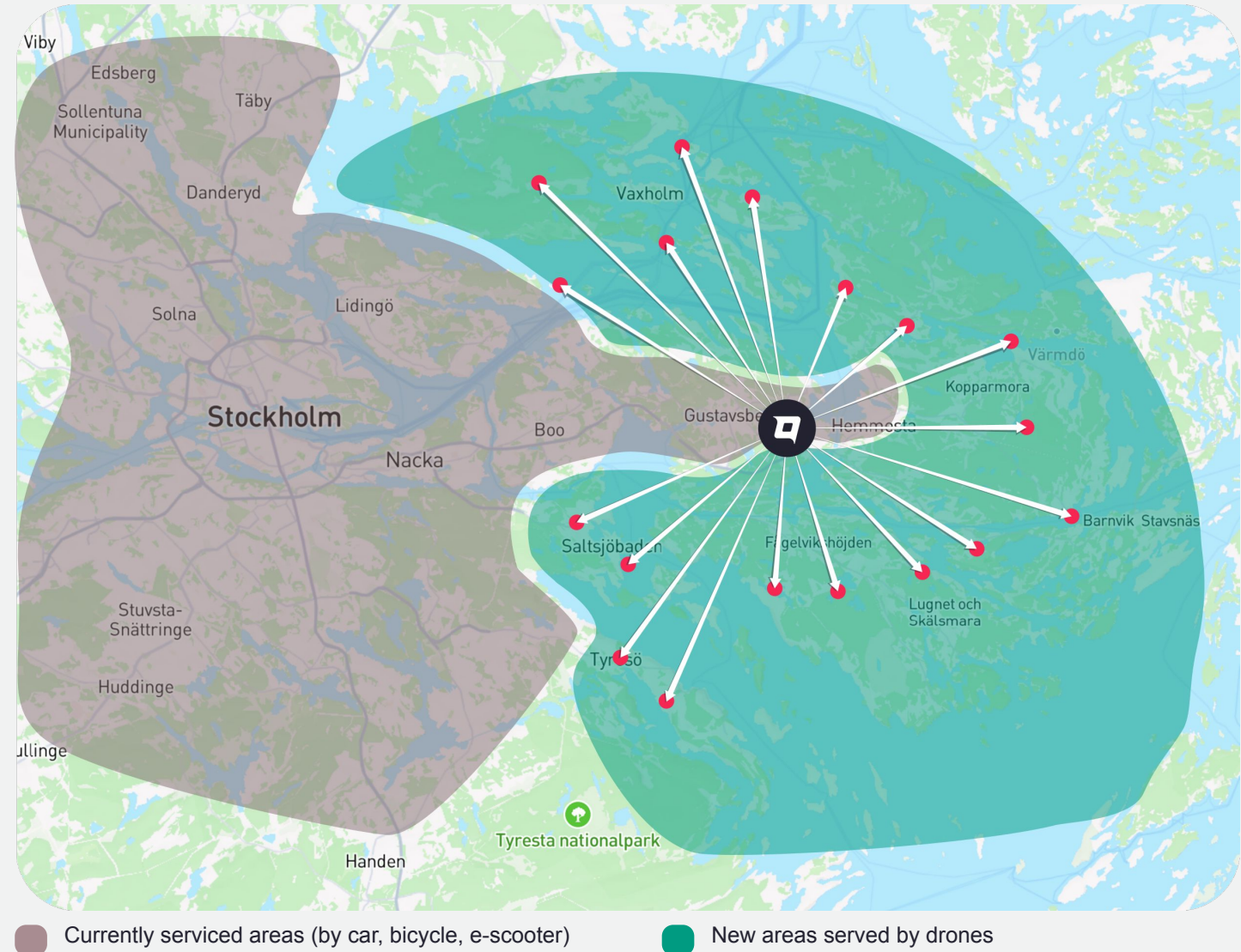
Aviant is now live with a commercial drone delivery service – helping Delivery hero expand its market



>5,000 flights

\$1 Million revenue

Live w/Delivery Hero

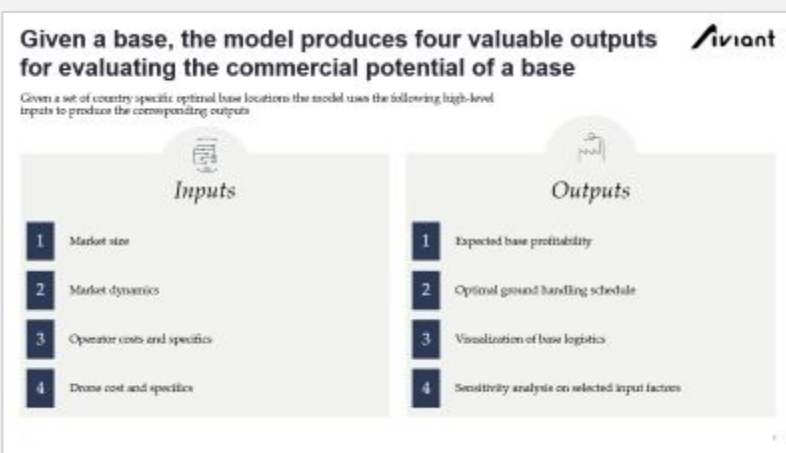


Our project aim to predict drone hotspots throughout Europe

By looking at at market data and operational models

... we simulate where drone delivery is likely to commercially profitable...

... to predict where commercial drones will populate European skies first



1. Economics

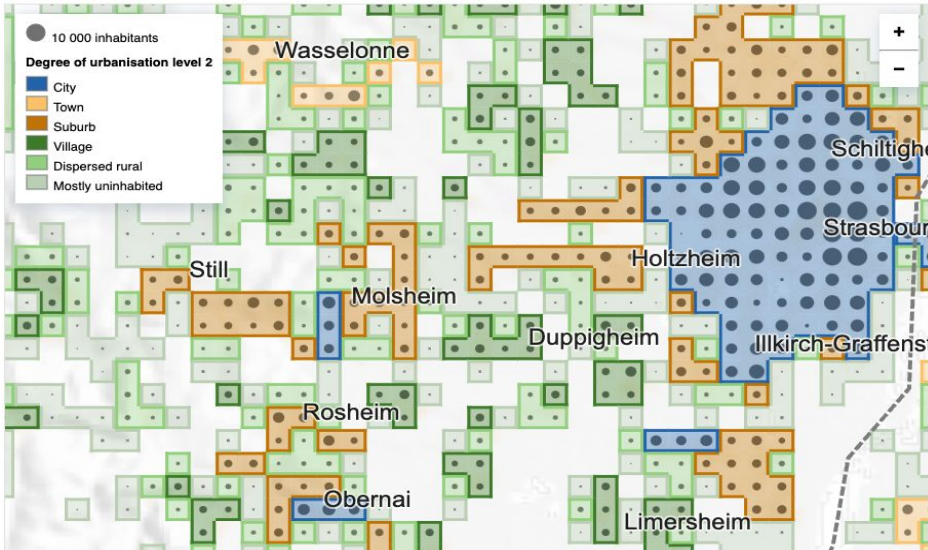


Operational models and costs

Drone cost, regulatory fees, etc.

Sensitivity analysis

2. Market Potential



Market reach

Custom urbanization clustering

Market dynamics

Given a base, the model produces four valuable outputs for evaluating the commercial potential of a base

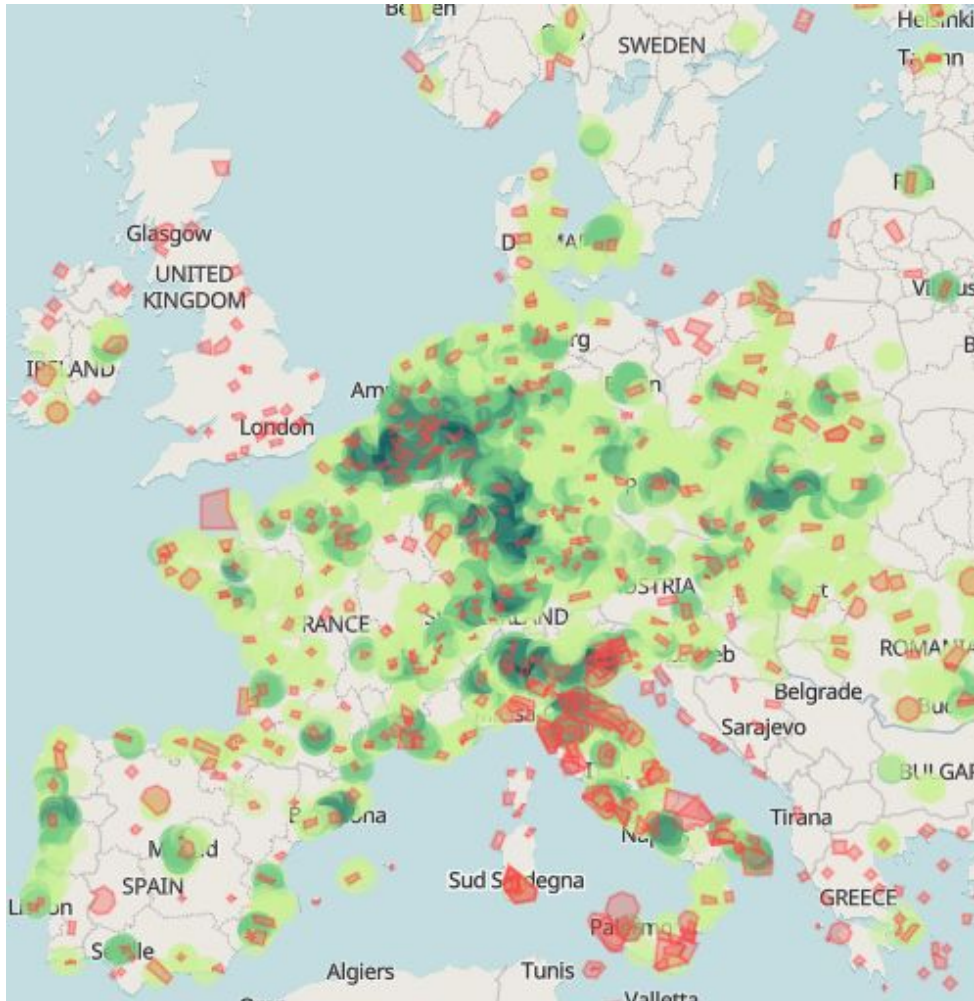
Inputs

- 1 Market reach (population distribution)
- 2 Market dynamics
- 3 Operational models and costs
- 4 Drone cost, regulatory fees, etc.

Outputs

- 1 Expected base profitability
- 2 Optimal ground handling schedule
- 3 Visualization of base logistics
- 4 Sensitivity analysis on selected input factors

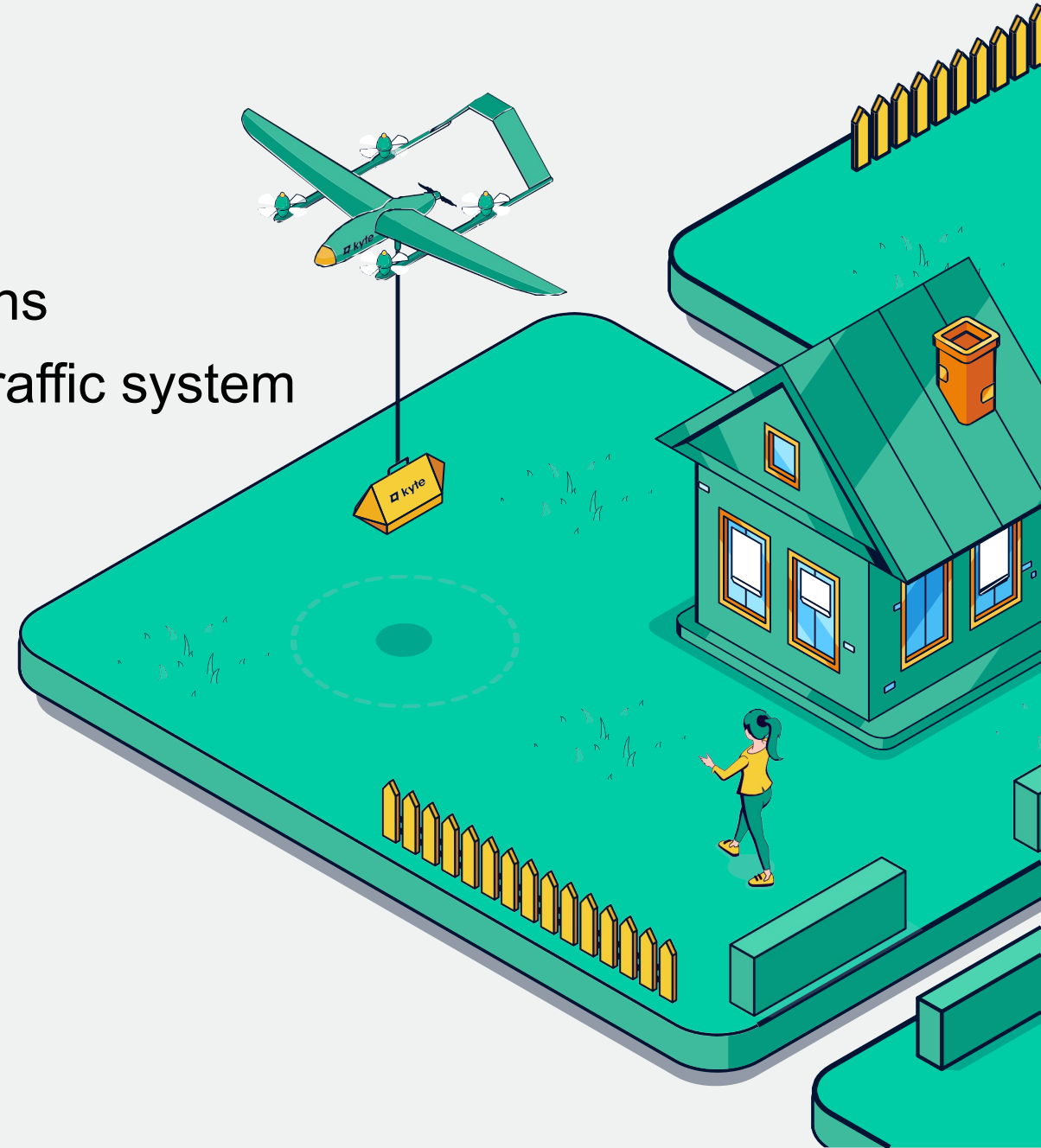
Illustrative



Predicting hotspots for
commercial drone delivery in Europe

Objectives ATM problems

- Airspace categorization
- Business models, incentives and regulations
- The place of drone delivery in the overall traffic system



Thank you

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