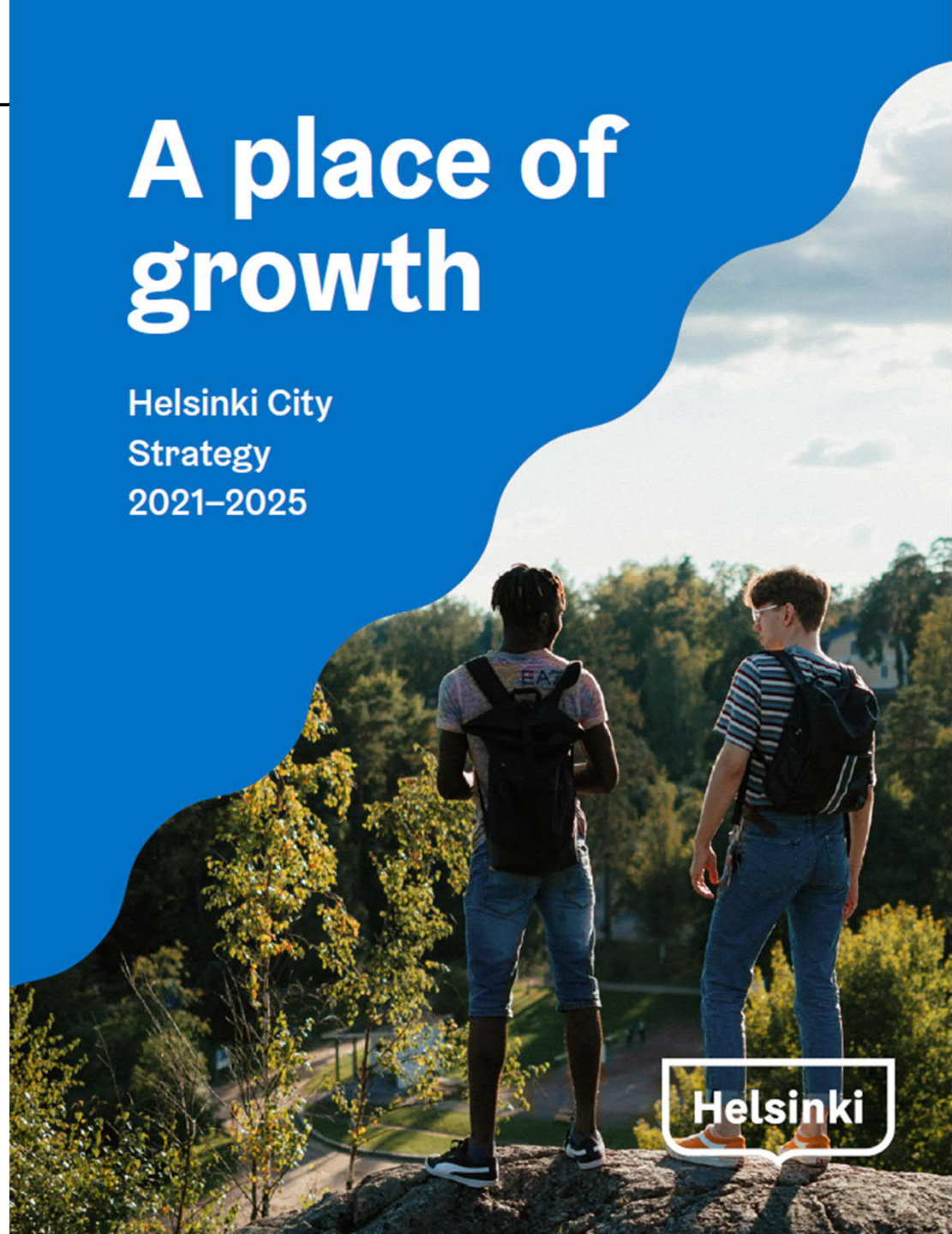
MOBILITY LAB HELSINKI

From Helsinki City Strategy:

Helsinki will be an attractive city for people and companies that work to make the world a better place. At the same time, we will continue our work to make our everyday life more smooth, pleasant and enjoyable.

Helsinki actively cooperates with universities and businesses in research and innovation projects.

Helsinki must be an enticing place for testing out new solutions in an urban environment.



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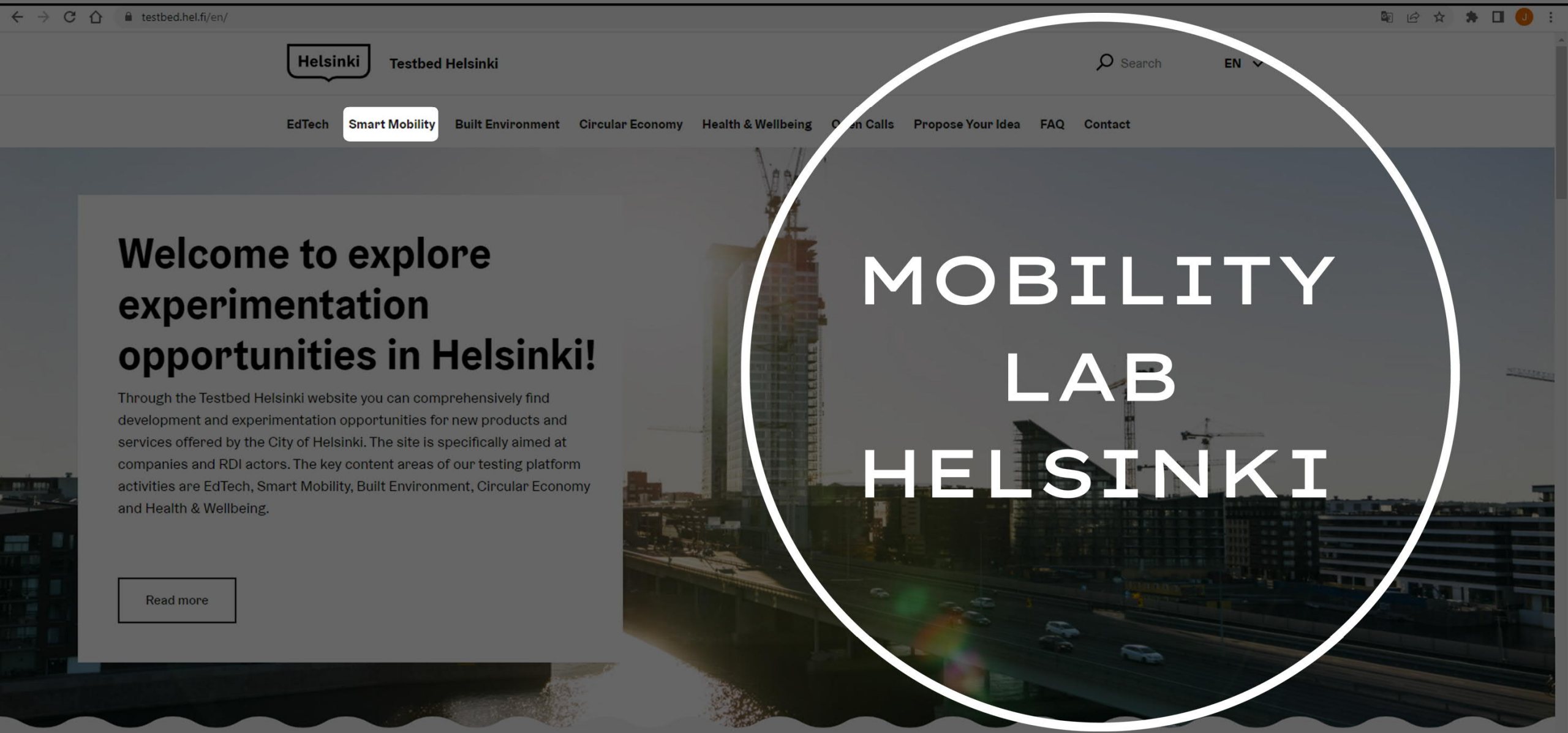

www.mobilitylab.hel.fi

Helsinki as a testbed

- Utilising city's resources (infra, buildings, street environment, …), procurements, investments and service units as a testbed for developing new innovations, see testbed.hel.fi
- The objective from economic development point of view:
  - Supporting companies' research, development and innovation (RDI) activity and growth
  - Supporting creation of new business, and
  - Producing better services for the city and citizens

Objectives

1. Ecosystem:
   Collaboration with different stakeholders, development and innovation community and creating new projects and pilots.
2. Digital twin:
   Improving the usability and usefulness of data and APIs, developing tools for a mobility digital twin.
3. Testbed:
   Enabling and supporting testing and developing new smart mobility solutions in practice, in the real urban environment.

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Collaboration, communication, concrete piloting

Locations and implementations

- Finding suitable places for ideas
- Complementary data
- Installation possibilities
  - e.g. power, permits
- Traffic arrangements

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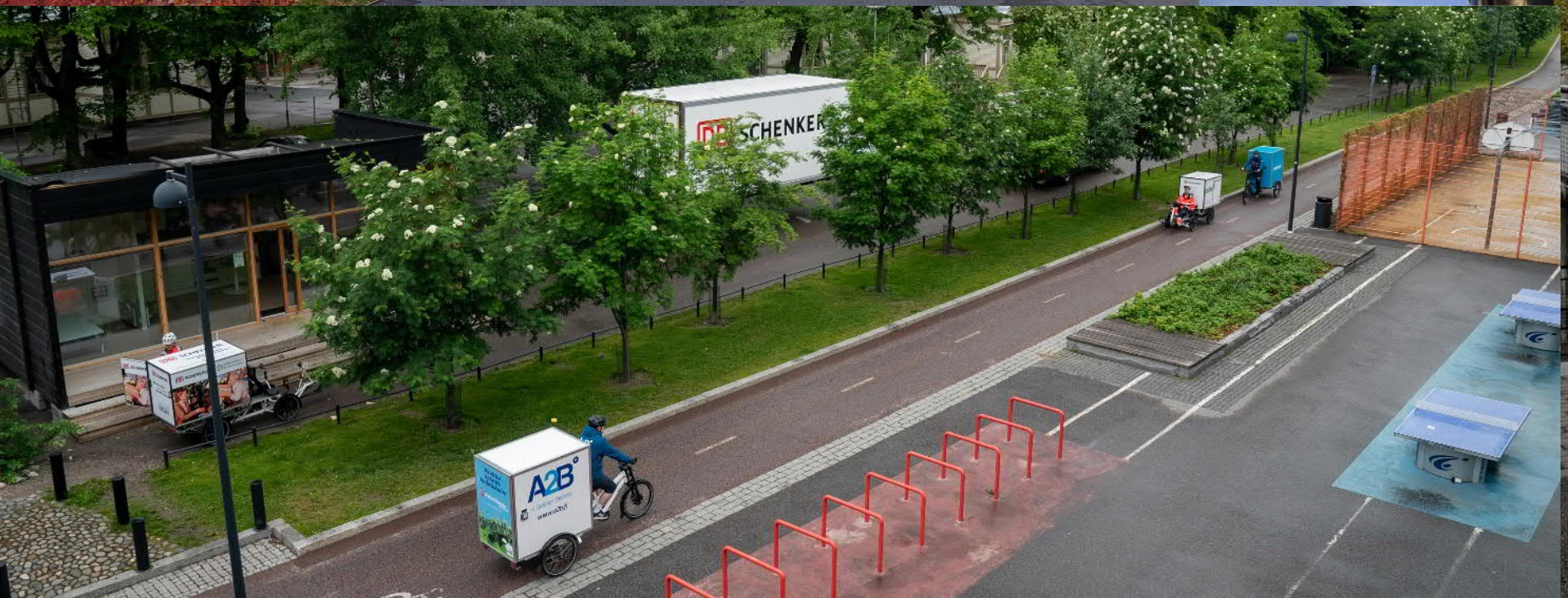
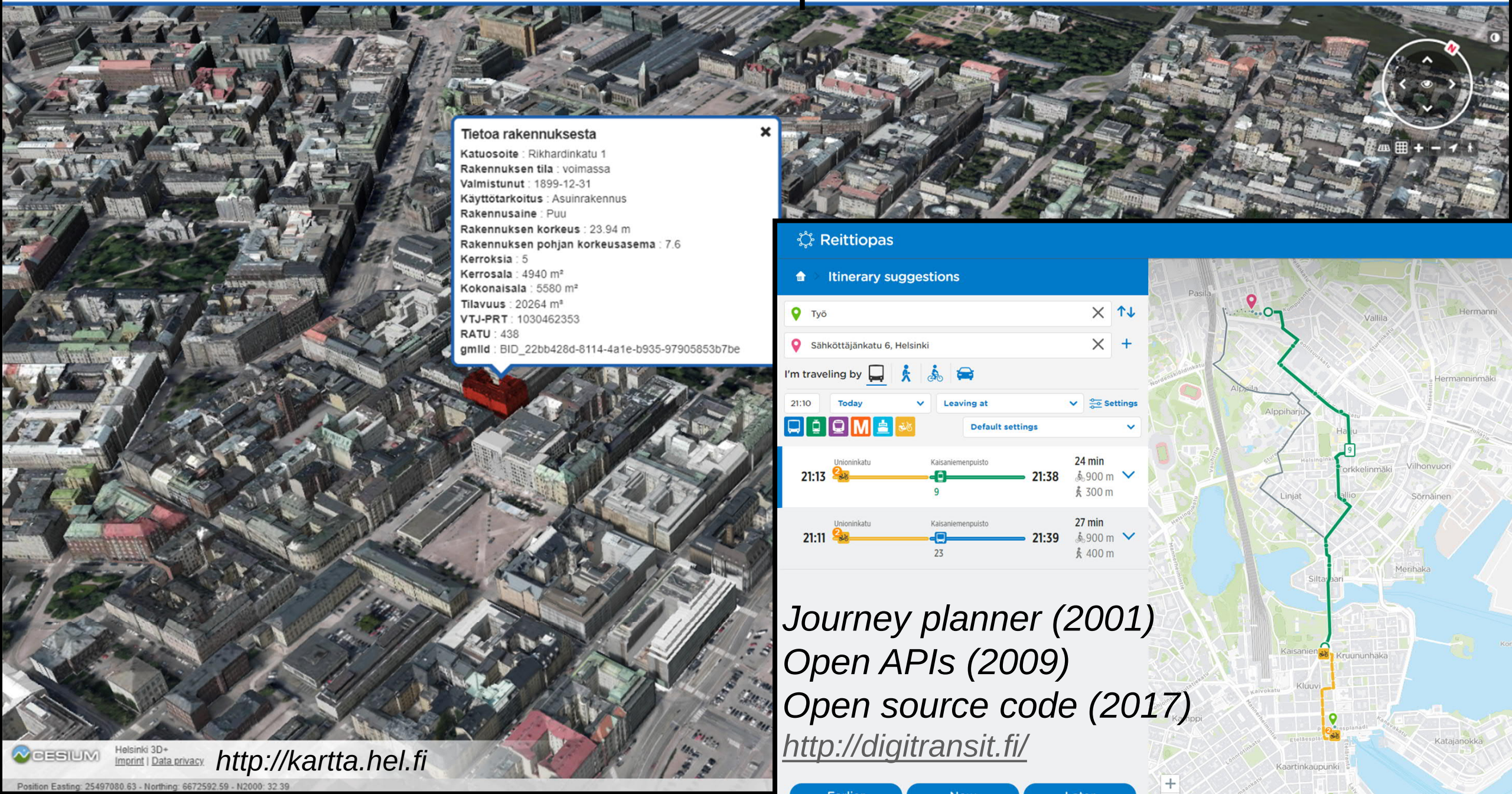


From on-demand electric ferries...

8K-tarkkuuden videokuvaa dronesta Helsingin Jätkäsaaresta. *Source: mobiili.fi 2.3.2020*

...to streaming 8K video over 5G from drones

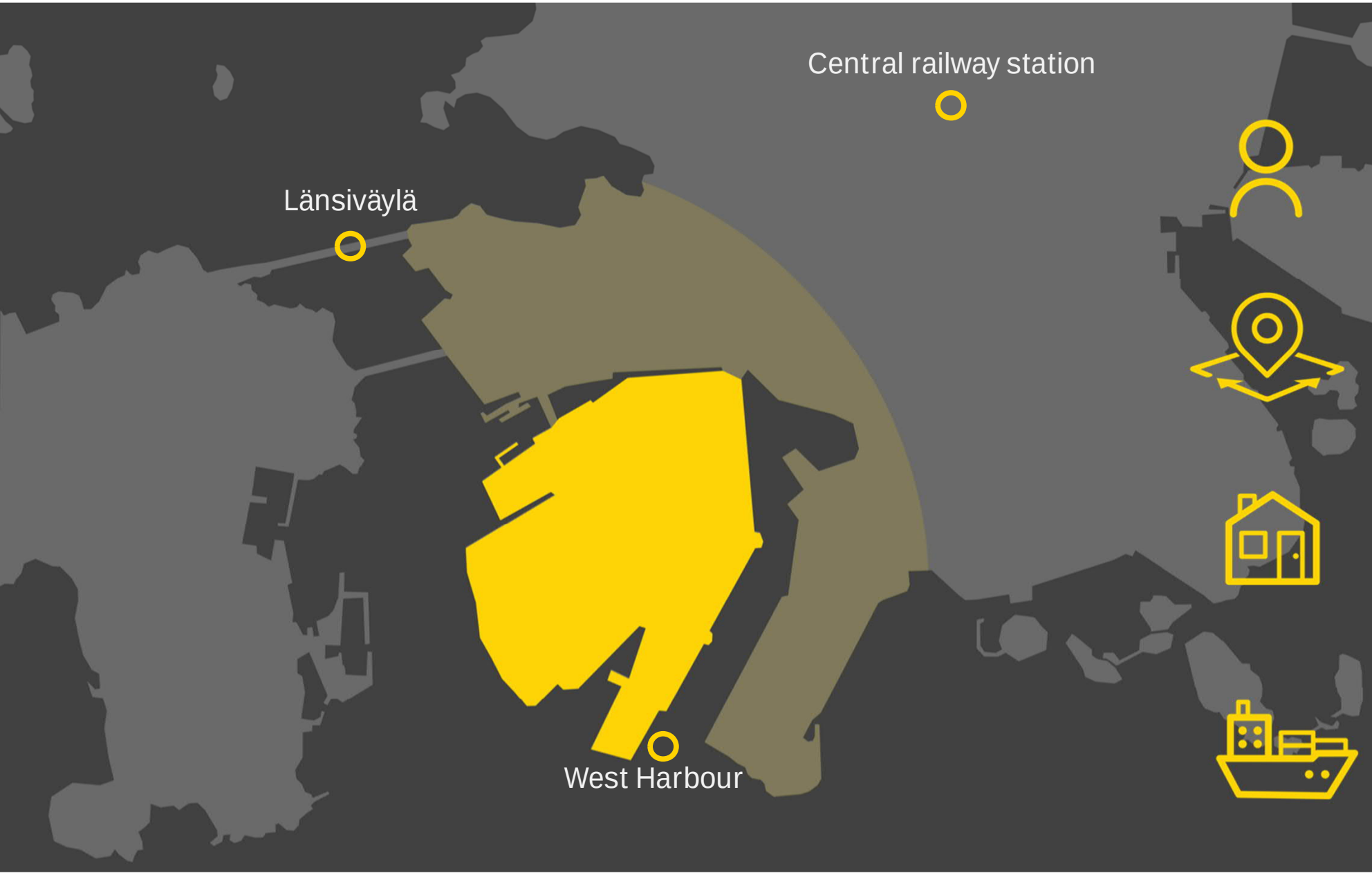
Helsinki & open data



http://kartta.hel.fi

Journey planner (2001)
Open APIs (2009)
Open source code (2017)
http://digitransit.fi/

- Public transportation
  - Schedules, routes, real-time information, …
- Parking
  - Parking payment zones
  - Residential and corporate parking zones in Helsinki
  - Tourist traffic stops and parking places in Helsinki
  - Real-time parking spot usage (information from parking ticket machines and all private mobile payment operators)
  - Parking violations issued
- Safety
  - Pedestrian slip warnings
  - Statistics on traffic accidents
- Emissions
  - Traffic and industry noise zones
- Urban environment
  - 3D city model, 3D buildings and lidar datasets of the city
  - Road map (center lanes for roads, sidewalks, pedestrian crossings, main park paths, etc.)
  - Crossings with traffic lights
  - Prioritised winter maintenance network for pedestrians and cyclists
- Activities
  - Nature trails and nature information (e.g. conservation areas)
- Traffic volume
  - Statistics on e.g. traffic volumes, number of cyclists
- …



Jätkäsaari

Population

ca. 10 000 (2020) > 18 000 (2025)

116ha/1,16km2

Building rate (2019)

1300 apartments ready

600 building permit granted

Harbour

Regular connections to Tallinn

8M passengers / year

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Jätkäsaari Smart Junction project

Aalto University
School of Engineering

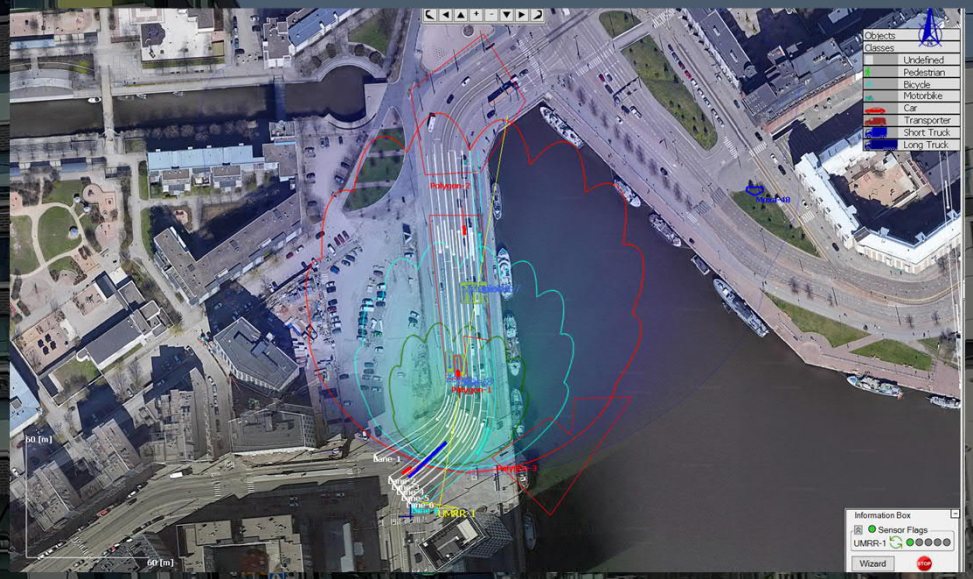
conveqs

Jätkäsaari 1

Jätkäsaari Smart Junction project

Aalto University
School of Engineering

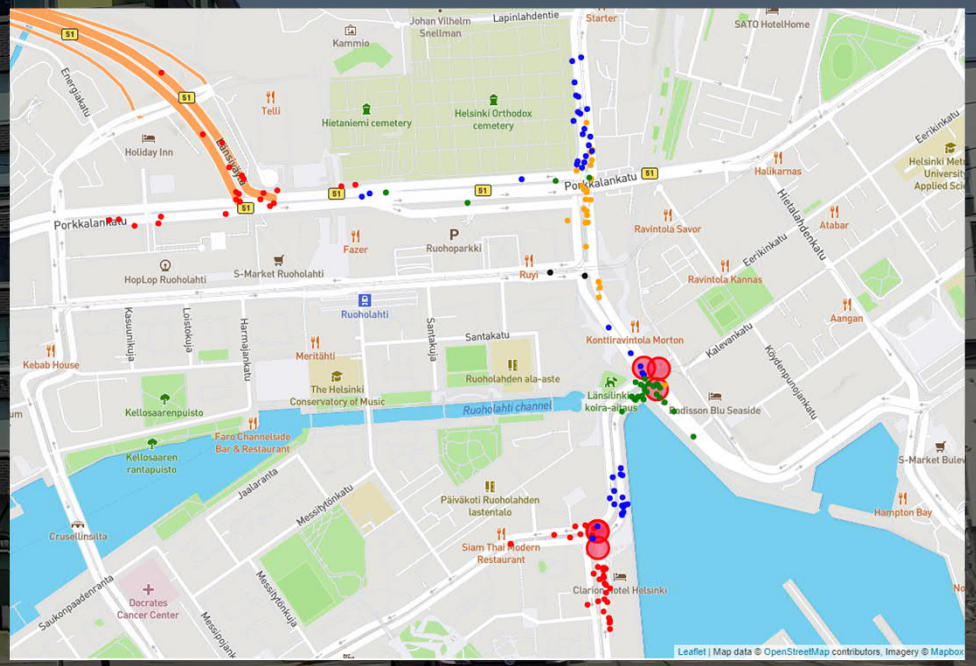
conveqs

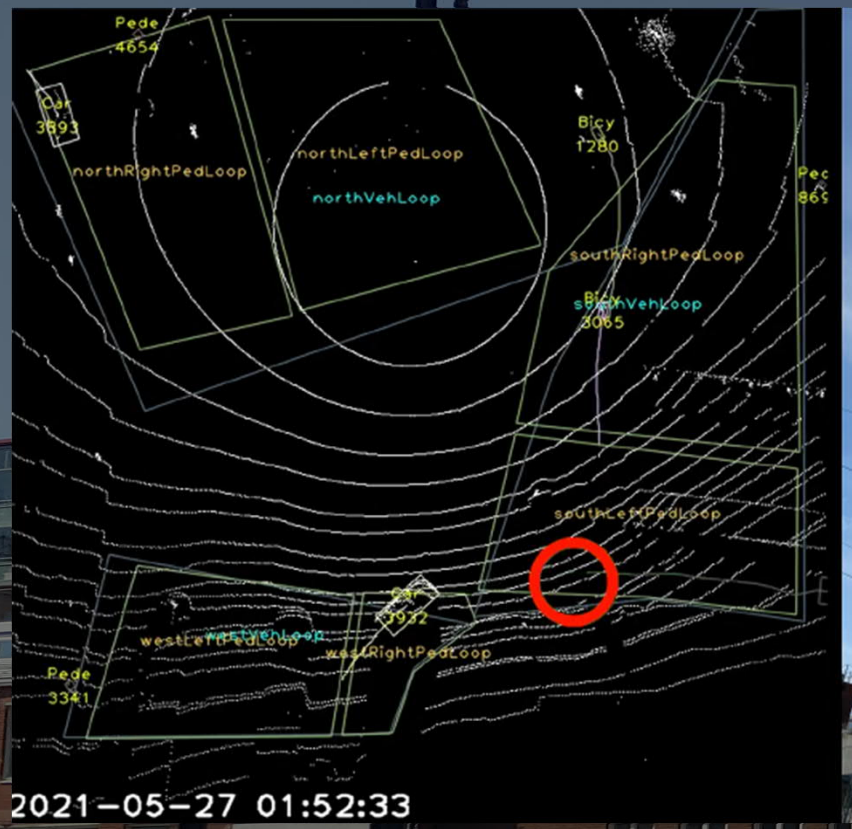


Jätkäsaari Smart Junction project

Aalto University
School of Engineering

conveqs



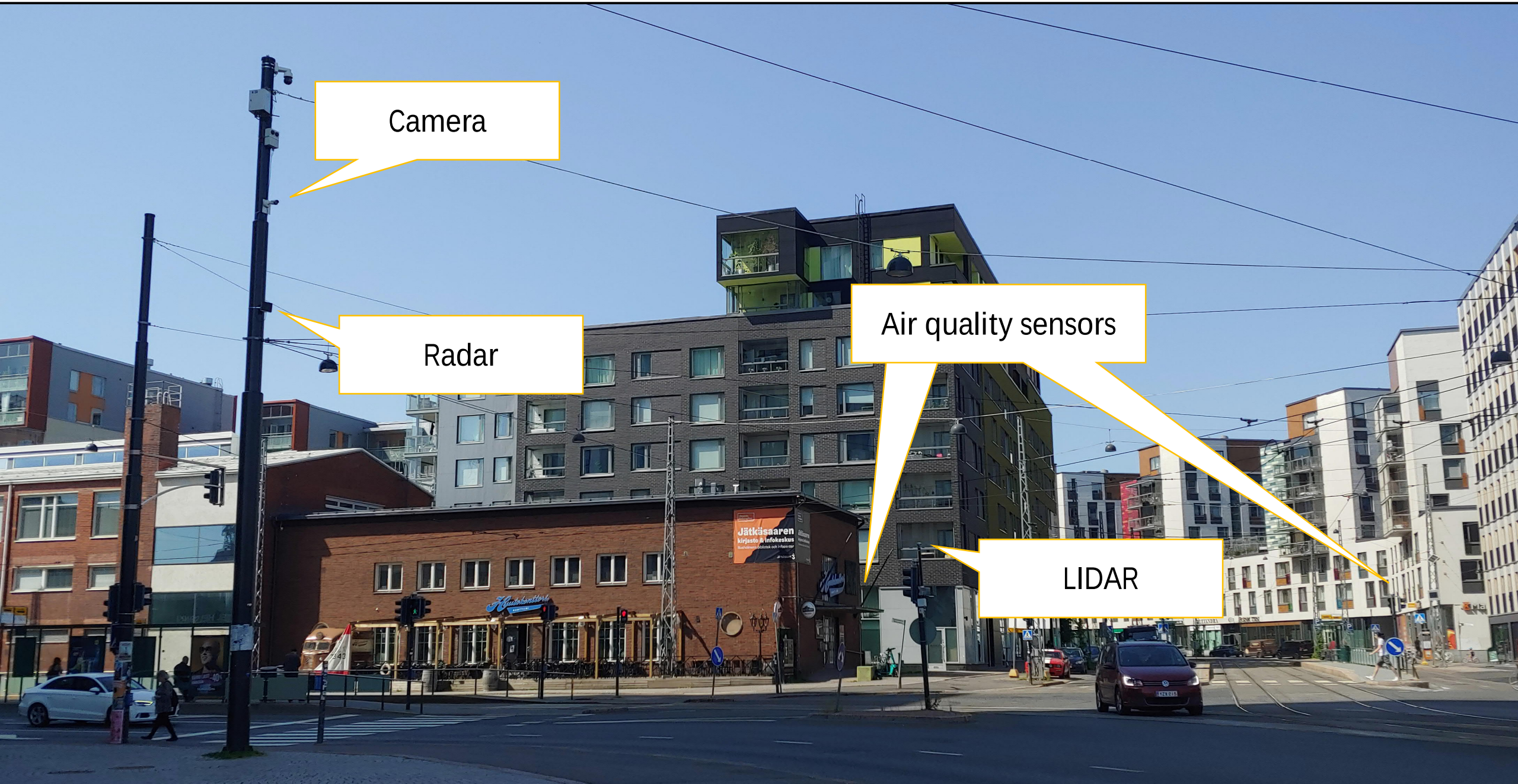


Jätkäsaari Mobility Lab's agile pilot, LIDAR for traffic and conflicts

Jätkäsaari Mobility Lab NODEON

HOPE project,
Air quality sensors

hope ilman laatu.eu


Camera
Radar
Air quality sensors
LIDAR
Jätkäsaaren
kirjasto & infokeskus

Key	Type	Unit	Description
source	string	-	Data source identifier
status	string	-	Sender status message
tstamp	int	Unix time	
nobjects	int	count	Number of objects in message

After the header there is a list of detections containing following fields:

Key	Type	Unit	Description
lat	float	Degrees	Latitude degrees
lon	float	Degrees	Longitude degrees
v_n	float	m/s	Speed towards north
v_e	float	m/s	Speed towards west[?]
len	float	meters	Length of the object
id	int	-	Internal id-number cycles from 0 to 254
lane	int	lane id	Lane id number
class	int	object type	Object type determined by the radar *)
cyc_ago	int	-	Number of cycles since last detection
quality	float	percentage	Detection quality determined by the radar

Sample data


```
{
    "source": "radar.1.objects_geo.json",
    "status": "OK",
    "tstamp": 1601279853465,
    "nobjects": 1,
    "objects_geo": [
        {
            "lat": 60.16093739873581,
            "lon": 24.92177615985368,
            "v_n": -1.05,
            "v_e": -0.25,
            "len": 1.0,
            "id": 137,
            "lane": 0,
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            "cyc_ago": 3,
            "quality": 58.82
        }
    ]
}
```


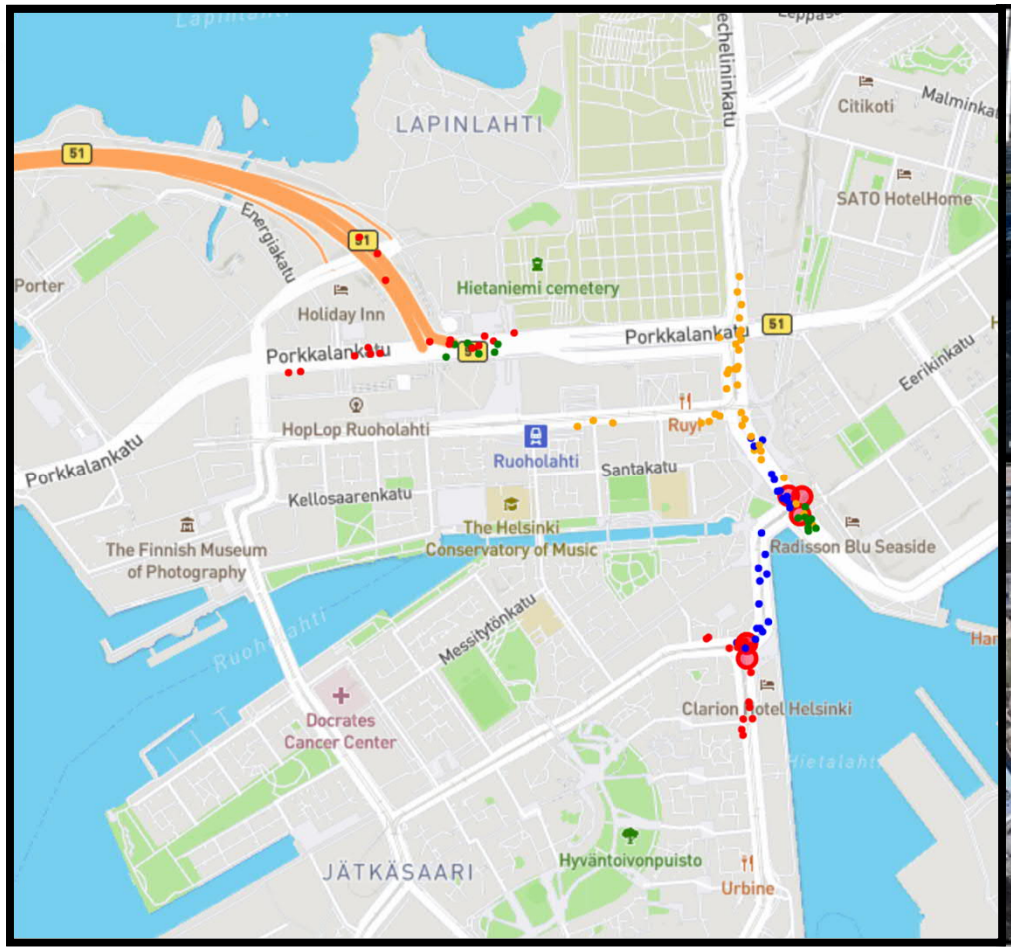

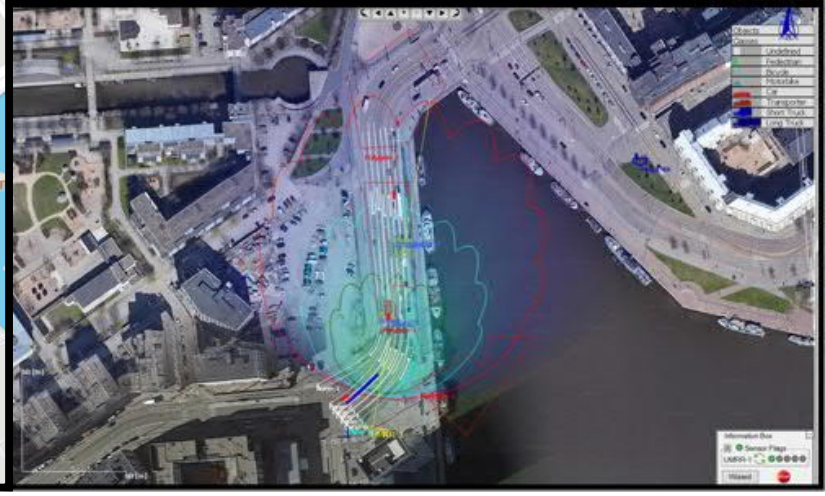

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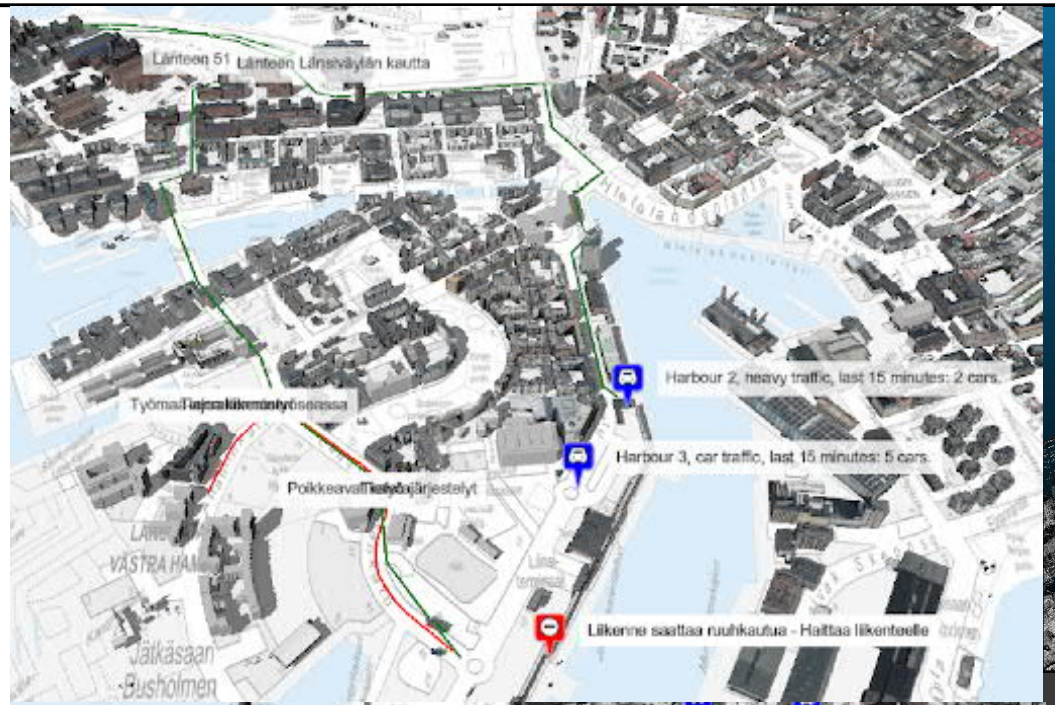

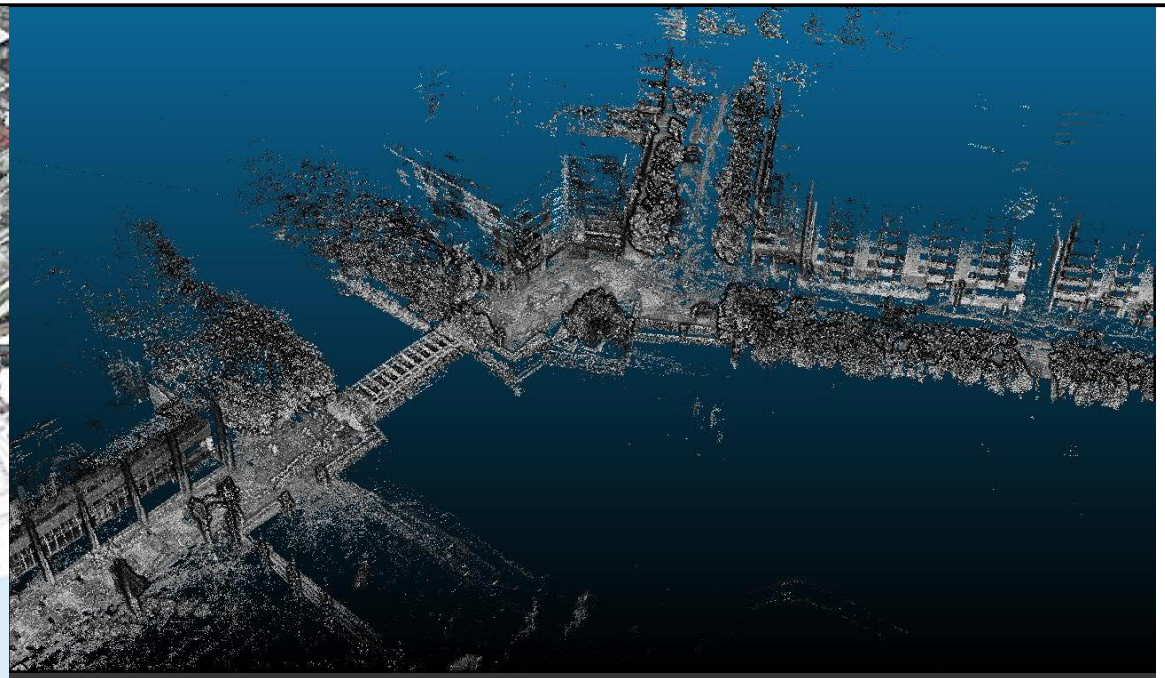

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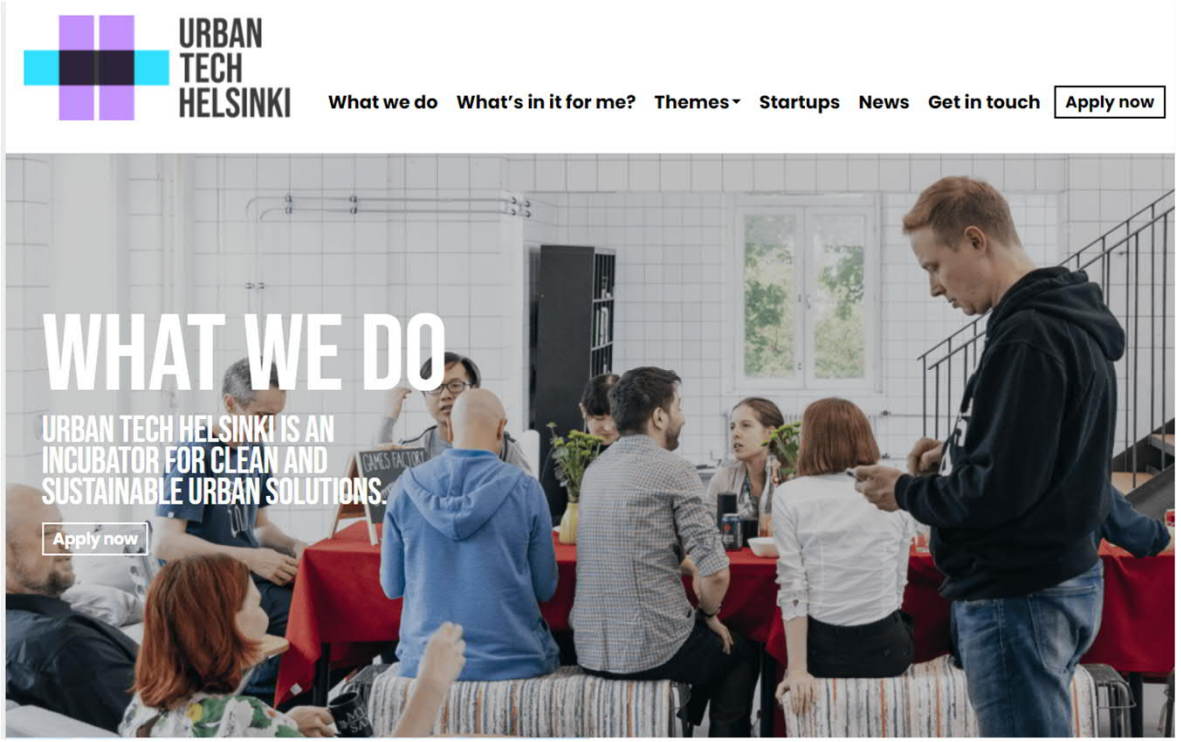
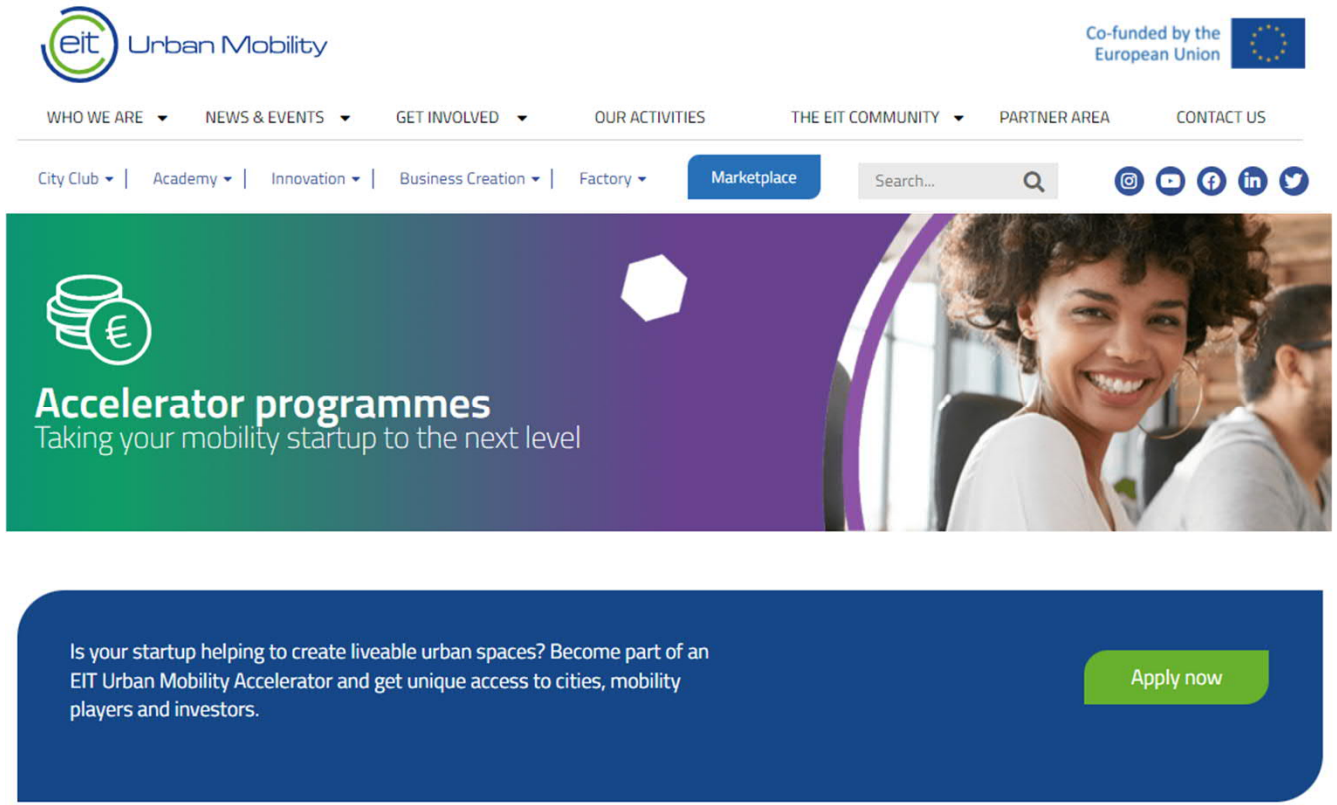
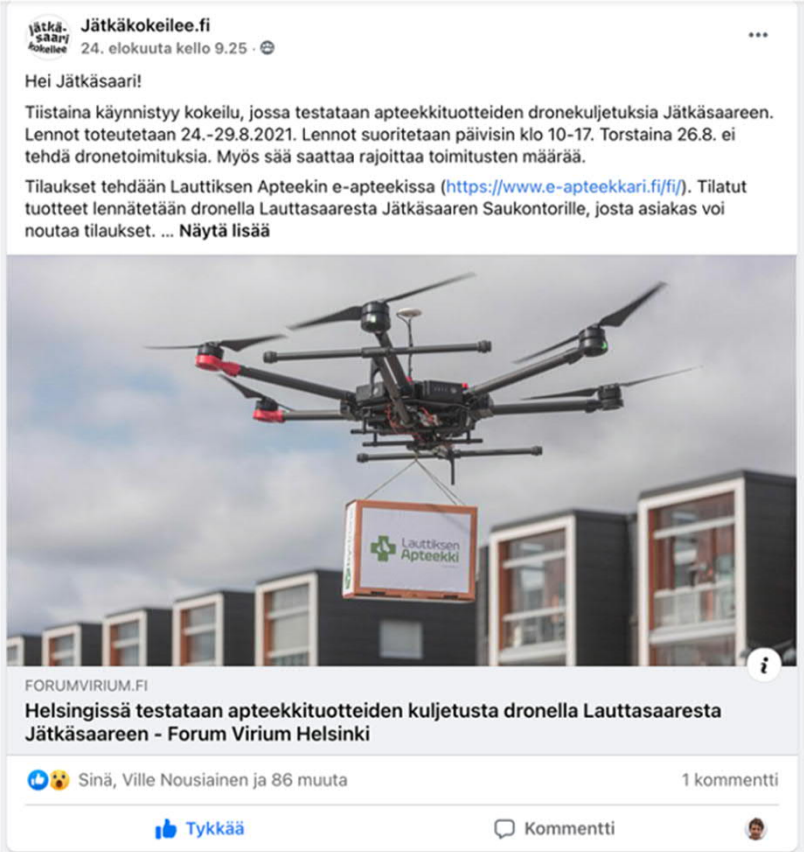
Robotics
SHOWROOM
URBANO

Collaboration with incubators and accelerators

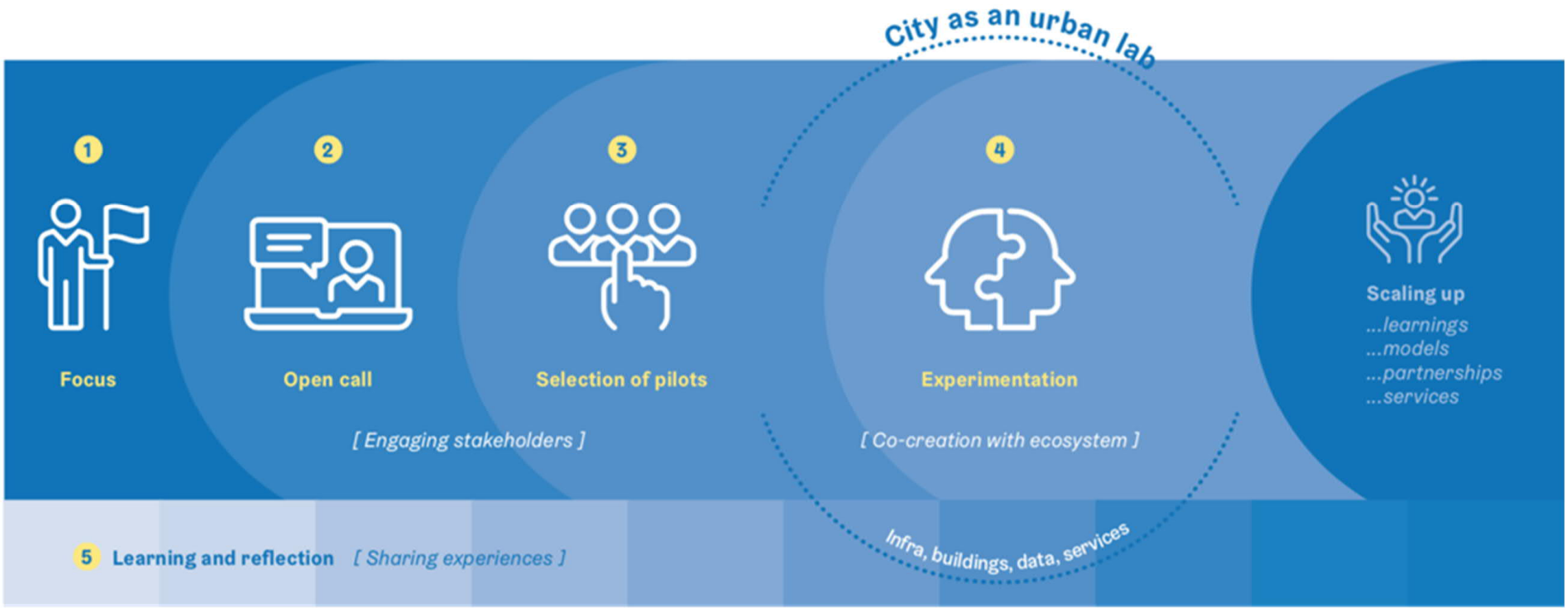





Jätkäkokeilee.fi
24. elokuuta kello 9.25 ·
Hei Jätkäsaari!
Tiistaina käynnistyy kokeilu, jossa testataan apteekkituotteiden dronekuljetuksia Jätkäsaareen. Lennot toteutetaan 24.-29.8.2021. Lennot suoritetaan päivisin klo 10-17. Torstaina 26.8. ei tehdä dronetoimituksia. Myös sää saattaa rajoittaa toimitusten määrää.
Tilaukset tehdään Lauttiksen Apteekin e-apteekissa (https://www.e-apteekkari.fi/fi/). Tilatut tuotteet lennätetään dronella Lauttasaaresta Jätkäsaaren Saukontorille, josta asiakas voi noutaa tilaukset. ... Näytä lisää
Lauttiksen Apteekki
FORUMVIRIUM.FI
Helsingissä testataan apteekkituotteiden kuljetusta dronella Lauttasaaresta Jätkäsaareen - Forum Virium Helsinki
Sinä, Ville Nousiainen ja 86 muuta
1 kommentti
Tykkää
Kommentti

Tools in the city’s testbed and innovation activities

- Agile pilots, innovation challenges
  - Usually based on city’s needs
  - Small pilot of a novel solution procured from a company
- Company-led pilots
  - Initiative from a company
  - The city evaluates feasibility and opportunities
  - The city usually does not fund the pilot
- Innovative procurements
  - Utilizing innovative procurements
  - Promoting the development of a market favourable for innovations
- RDI projects (utilizing different funding sources)
  - E.g. EU projects
- Collaboration with city’s divisions, private sector and RDI actors’ platforms


City as an urban lab
1
Focus
2
Open call
3
Selection of pilots
4
Experimentation
Scaling up
...learnings
...models
...partnerships
...services
[Engaging stakeholders]
[Co-creation with ecosystem]
Infra, buildings, data, services
5 Learning and reflection [Sharing experiences]

Bercman's Smart Pedestrian Crosswalk demo 31 Nov 2019

Jätkäsaari
Liikenne Mechelininkadulle
Liikenne satamassa
Poikkeukset liikenteessä
Jätkäsaari Mobility Lab
Raskas liikenne satamasta
Muu liikenne satamasta
45 / 44
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