

POLIS

CITIES AND REGIONS FOR TRANSPORT INNOVATION

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2024

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KARLSRUHE (DE)



Baden-Württemberg
Ministry of Transport



Karlsruhe



NextETRUCK Project

A potential solution for zero-emission urban freight

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**Efficient and affordable Zero Emission logistics
through the Next generation of Electric TRUCKs**





CONNECT

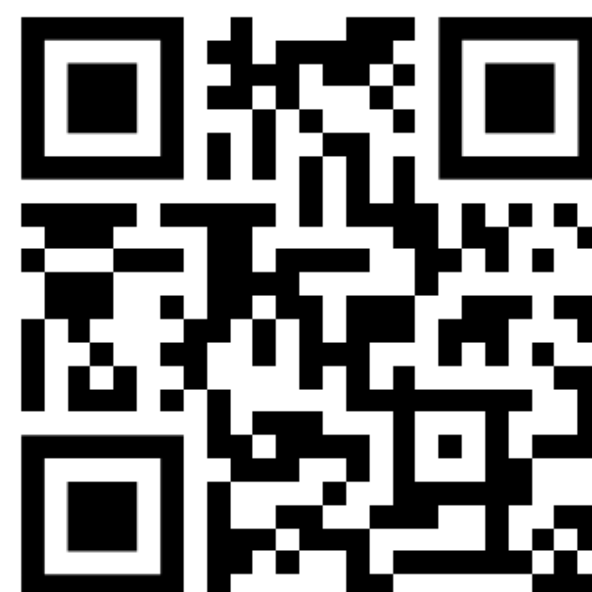
Website

nextetruck.eu



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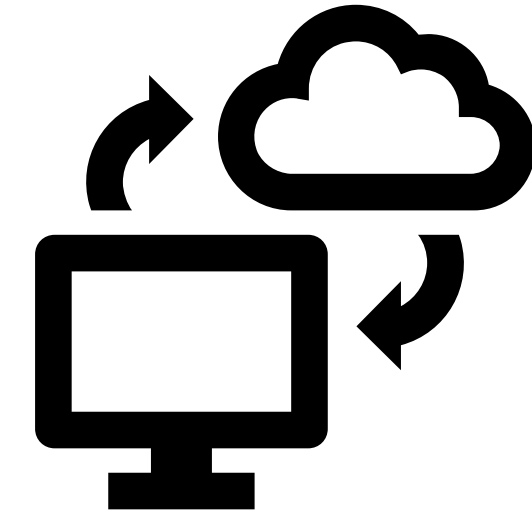
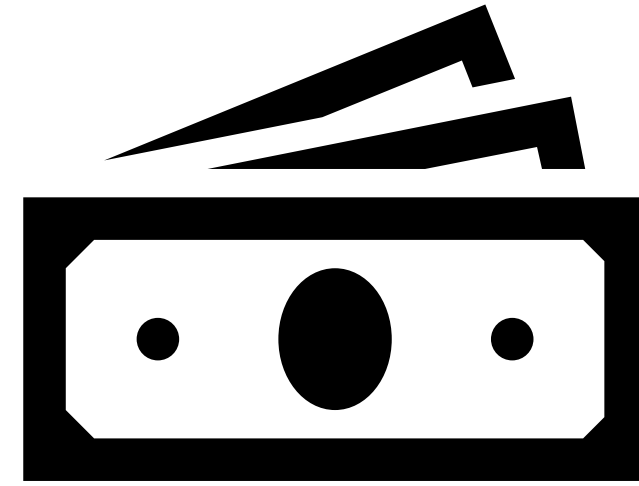
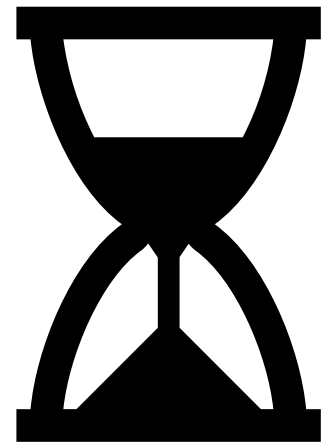
x.com/nextetruck



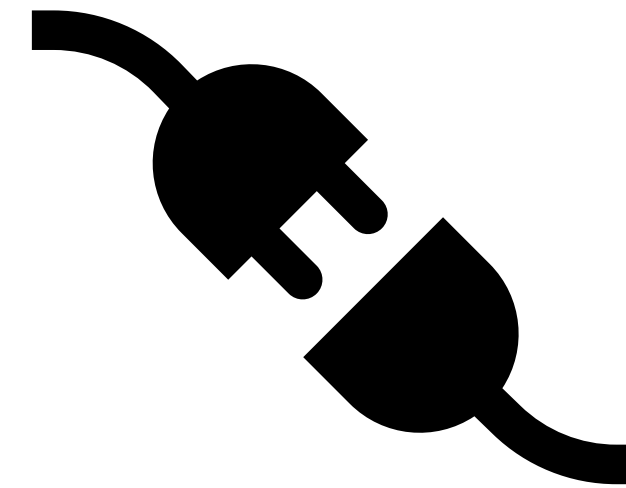
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Road Freight Industry Challenges





Road freight industry challenges

■■■■ Systemic challenges:

Family businesses & SMEs

Low margins & investment capacity

Slow fleet overhaul

■■■■ Missing planning security:

Fuel

Infrastructure

Access

Costs





Zero-emission HGVs: challenges everywhere...

■■■■ Total cost of ownership calculation variables:

Vehicle acquisition costs

Charging patterns

Charging locations

Thermal management

Battery depletion

External factors (wind, temperature change etc.)

Charging locations & costs (depot vs. public)

...

... how to assess & track this information?





Zero-emission HGVs: Opportunities somewhere...

■■■■ Toll exemption

■■■■ Tax exemption

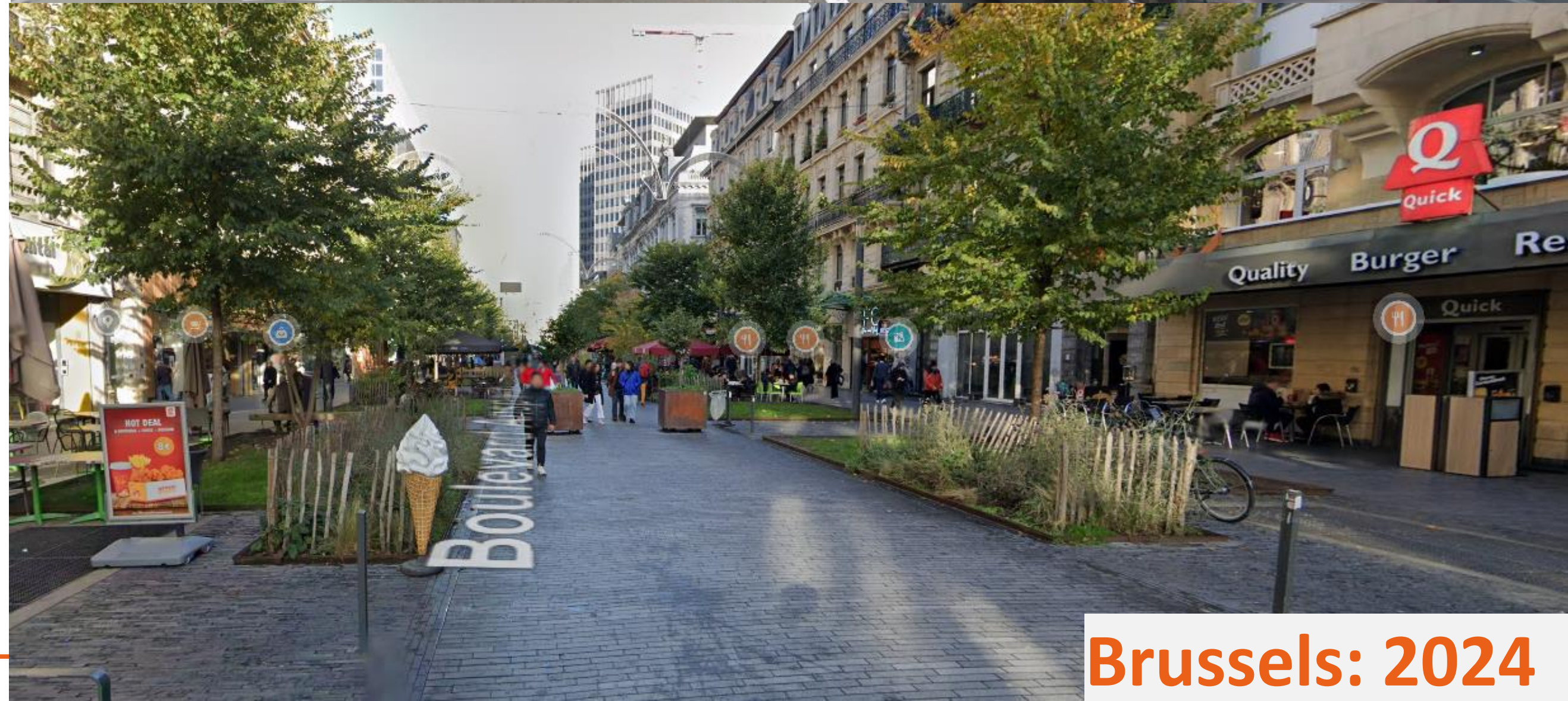
■■■■ Subsidies



Challenges for Cities



Brussels: 2014



Brussels: 2024



Challenges for cities: choosing the right vehicle

40+ ton trucks might be too large 😊





Challenges for cities: choosing the right vehicle

■ ■ ■ ■ Fancy & modern solutions!

Failed or don't exist



■ ■ ■ ■ Cargo bikes have limitations!

Thought experiment:

- Pre-pandemic Berlin: 400k packages daily
- 1600 cargo bikes deliver 250 packages each
- Package every 2min (8h work day)





Challenges for cities: create accessible & lively centres

What is the right weapon in your arsenal?

Access regulations?

Time restrictions for delivery?

ICE ban?

Dynamic curbside management?



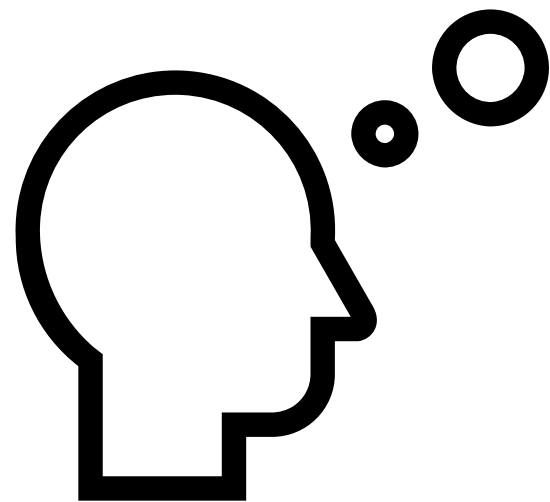


Is NextETRUCK the silver bullet?





Maybe...



16t trucks

100-200km
daily

Sweet spot between
long-haul and last mile



HOW?

Real-world tests

6+ months pilots

Depot charging

(Peri-)urban routes

Truck development

Pilot start in early Q2 2025



Problems

40t trucks: oversized for city centres

Cities lack info about investment strategies

Lack of adequate eHGV charging

Uncertainties from end users

- TCO & LCA
- Battery performance & depletion
- Utility in different climate & temperature zones

NextETRUCK Solutions

Medium-sized 16t trucks

Barcelona: waste collection truck

Test of fast charging solutions

Vehicle tests & business model calculations

- TCO & LCA calculations to be published
- Digital twinning
- Data points over >6 months



WHAT & WHERE?

Zero Emission Electric
Medium Freight Trucks



3 Use Cases



5 key innovations



Ultra-fast
charging



Optimised
Total Cost
of Ownership



New business
models and
market uptake



e-powertrain



Digital twin,
fleets management
tools, and ZEV
virtual integration

Istanbul
Vehicle components
delivery between
two production sites



Barcelona
Refuse eTruck with
modular vehicle
architecture (adaptable
to delivery truck)



London
Transport logistics
from the main depot
to the satellite depot,
followed by last-mile
deliveries





Use Case #1: Barcelona - Routes

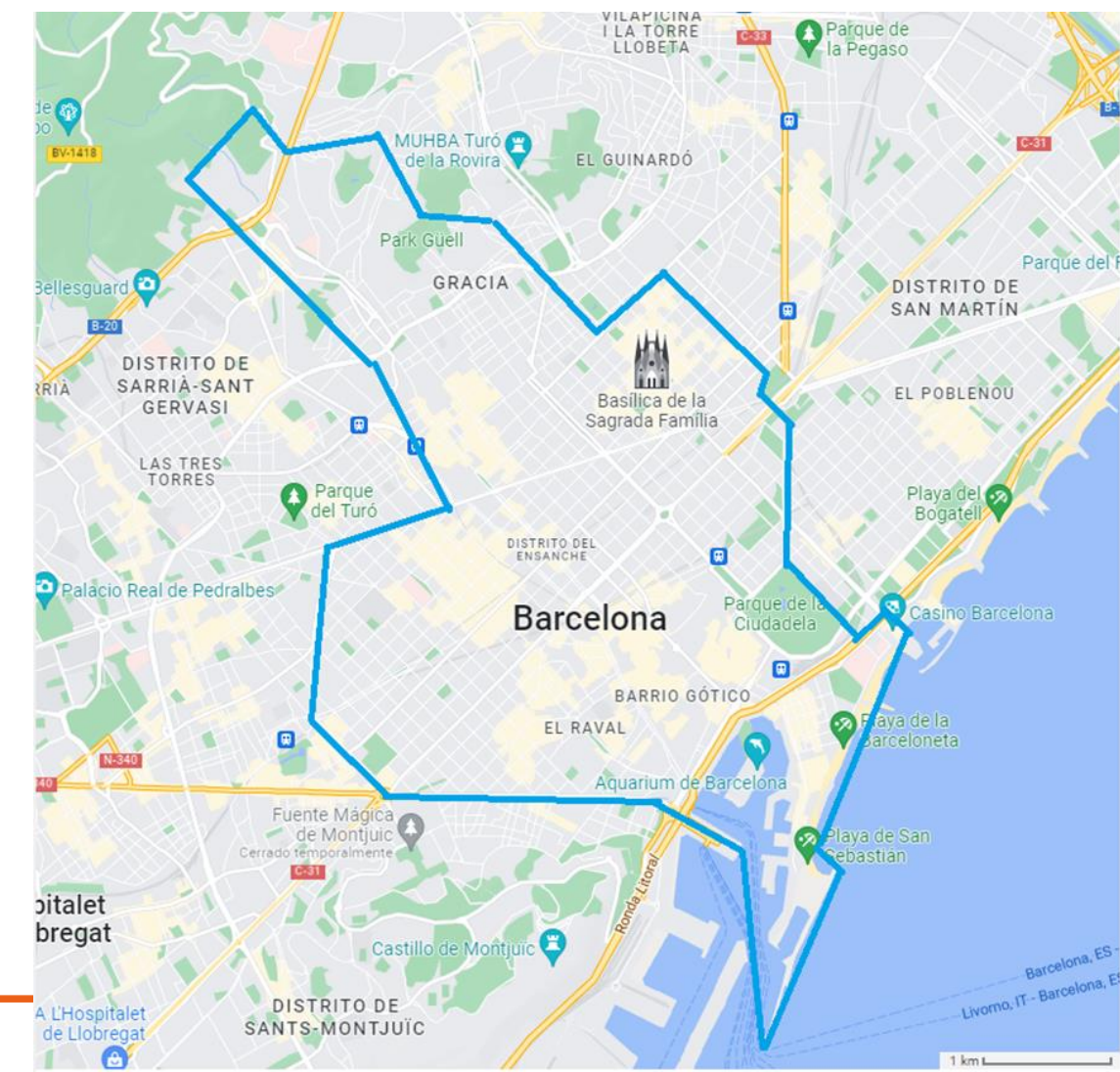
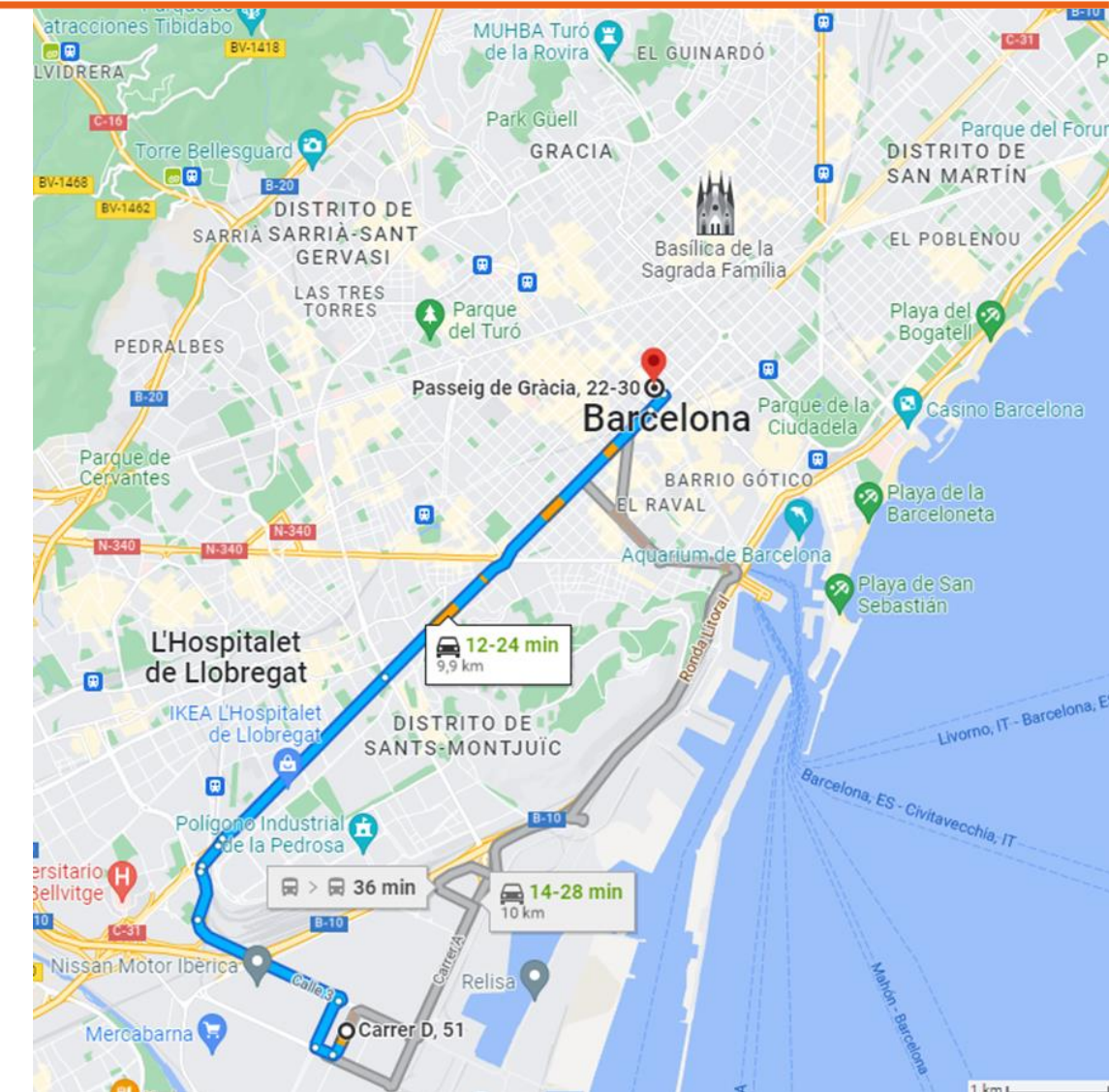
■■■■ Varying garbage pick-up routes

Large waste items (old fridges, TVs, dishwashers)

Delivery to waste treatment facility in peri-urban area

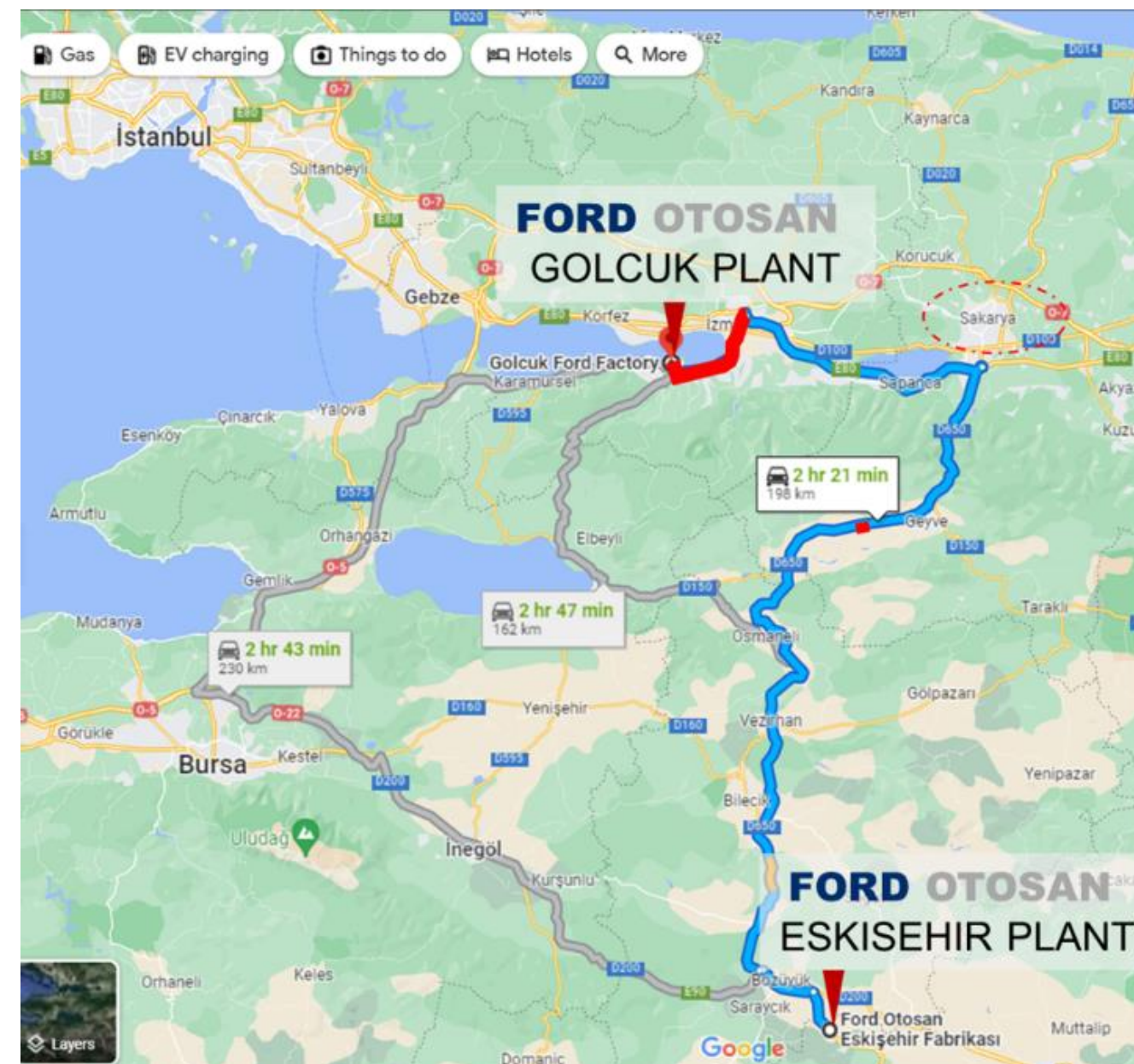
10-20 large goods per trip

■■■■ Changing routes provide data variety

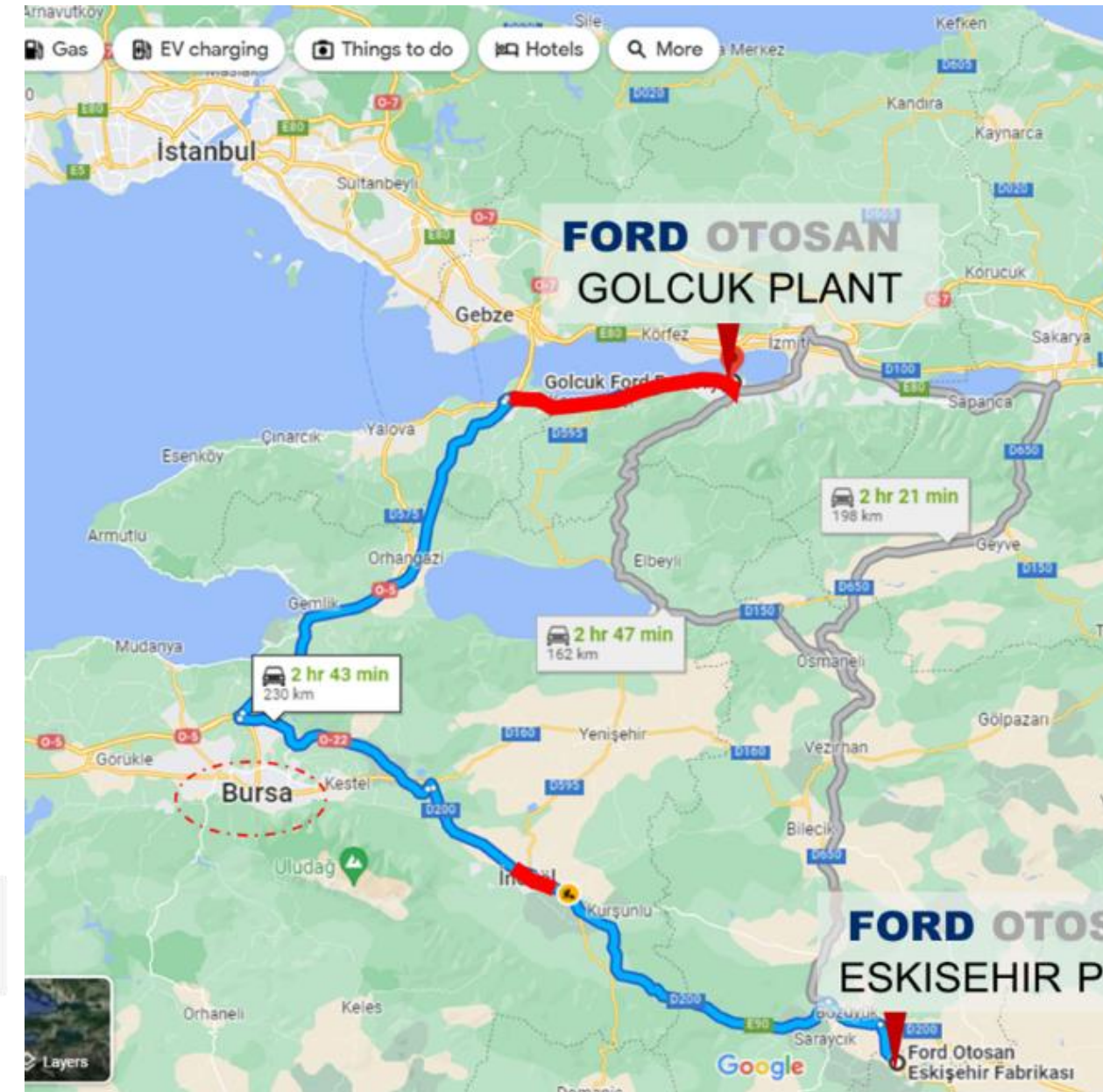




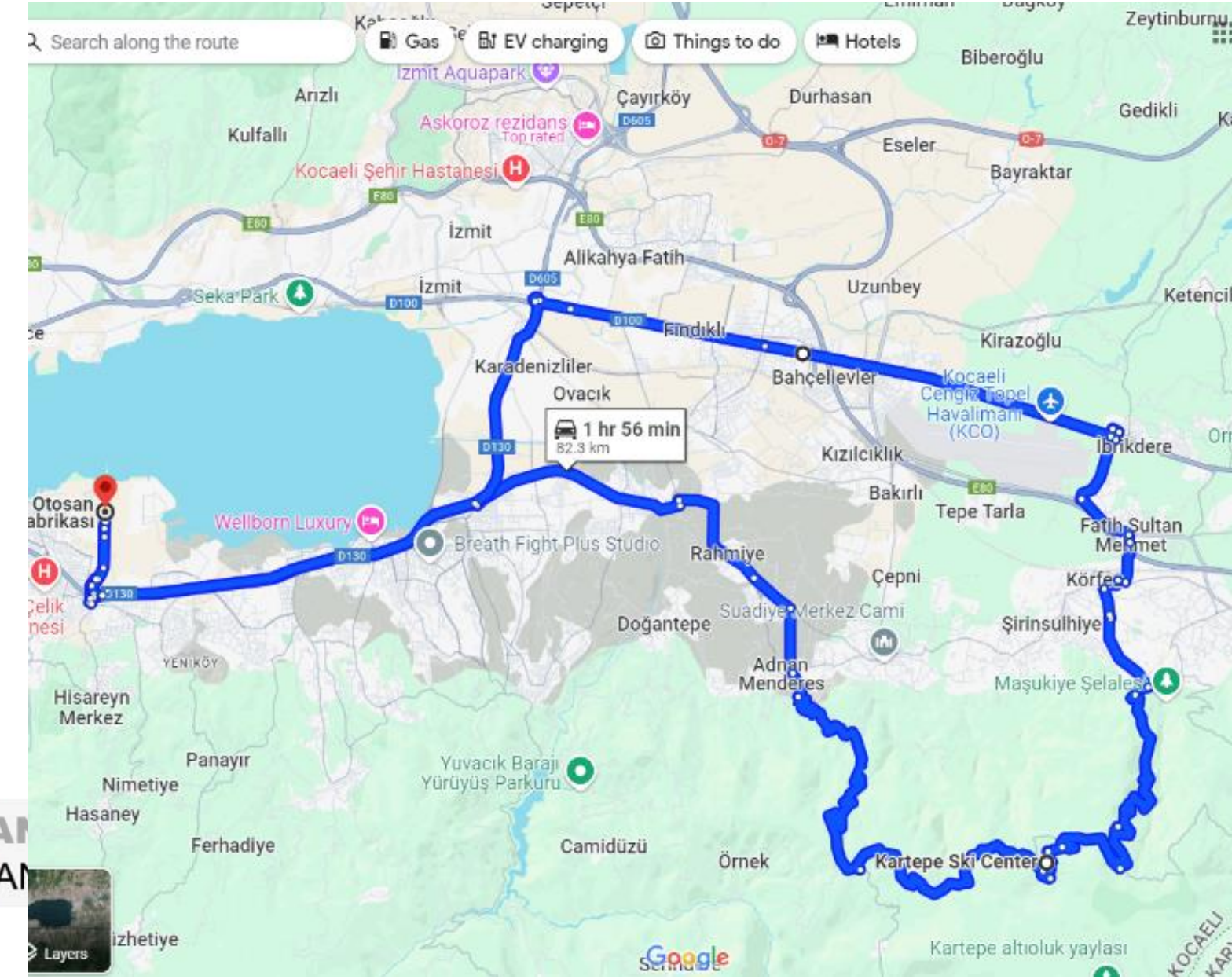
Use Case #2: Istanbul (Ford Otosan) – Routes



200km trip
10% urban
90% intercity



230km trip
15% urban
85% intercity



high-altitude
cold climate route
multiple times per day



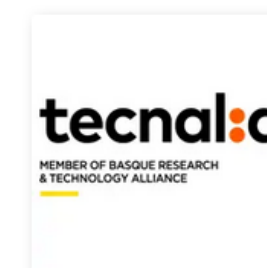
WHO?

Research Organisations

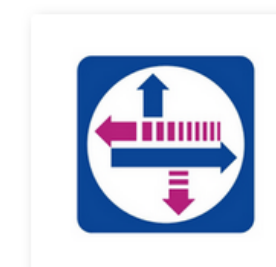
Original Equipment Manufacturers
(OEMs)

Component Manufacturers

Universities, Research Technology Organisations, and Consultancies:



Coordinator



Vehicle Manufacturers:



Component Manufacturers:





Conclusions

- ■ ■ Road freight industry is uncertain
- ■ ■ Cities to consider logistic investments & SULPs
- ■ ■ Projects like NextETRUCK can provide answers



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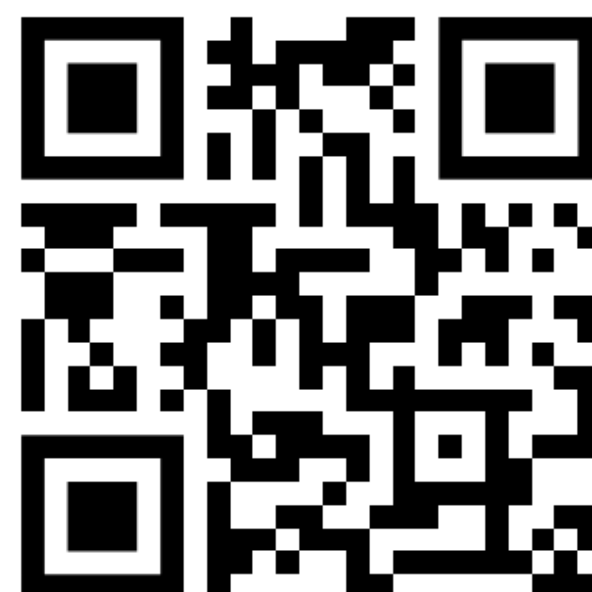
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