Market snapshot - Smart Mobility Finland

Business Sweden
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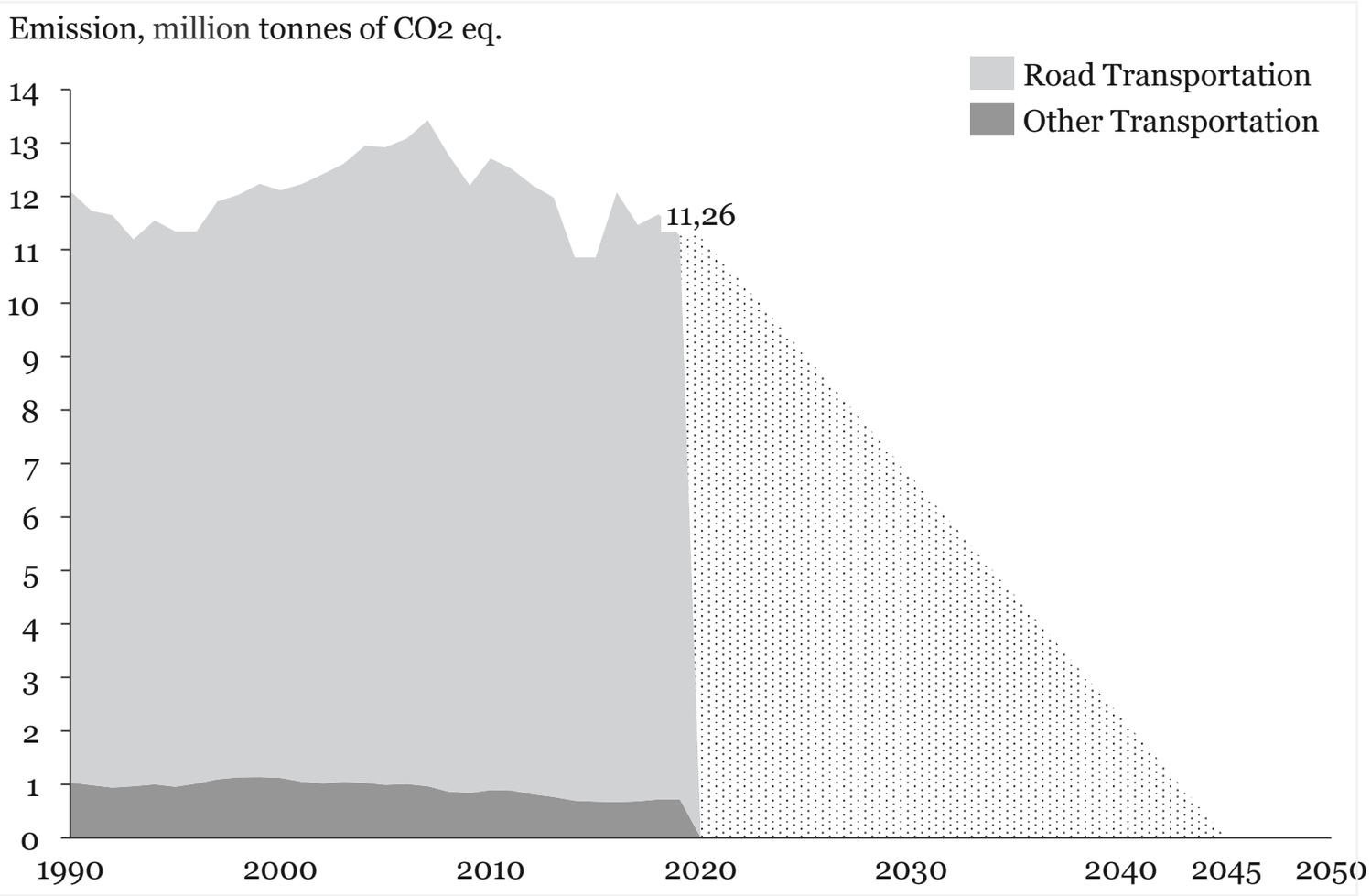
THE SWEDISH TRADE & INVEST COUNCIL

Finland's national policies aim to cut greenhouse gas emissions in the domestic transport sector in half by 2030 and brought to zero by the end of 2045

Greenhouse gas emissions from the domestic road transport sector in Finland



- Finland's national policies aim to cut greenhouse gas emissions in the domestic transport sector in half by 2030 and brought to zero by the end of 2045
- Finland recently adopted a road map for fossil-free transport which includes a number of subsidies and incentives to promote low-emission transport
- Consumer EV market is picking up pace as 30% of newly registered passenger cars are BEV or PHEV
- Finland has exceeded the 2020 goal but still needs 20 000 public EV charging points to reach 2030 goal
- Electrification of bus transport has just started, and EU directive will further accelerate public procurement in the coming years
- The share of alternative fuels in the logistics sector is still marginal and needs to be addressed
- Finland is the first country in the world to have a law integrating all modes of transport and thus enabling new, user-oriented transport services
- Finnish testbeds focus on autonomous vehicles in arctic conditions and smart mobility solutions in urban areas

Source: Statistics Finland, Finnish Government

Finland recently adopted a road map for fossil-free transport which includes a number of subsidies and incentives to promote low-emission transport

National Energy and Climate Strategy

The strategy outlines the actions that will enable Finland to attain the targets specified in the Government Programme and adopted in the EU for 2030.

- The minimum aim is to have 250 000 electric and 50 000 gas-powered vehicles

Decree on infrastructure support for electric vehicles (2018)

The objective of this support is to promote the use of electricity and biogas in road transport by driving investment in the expansion of the electric vehicle (EV) charging and gas refuelling network.

Road map for fossil-free transport (2021)

The roadmap consists of three different phases, the first of which includes a number of subsidies and incentives to promote low-emission transport.

National Growth Programme for the Transport sector (2018-2022)

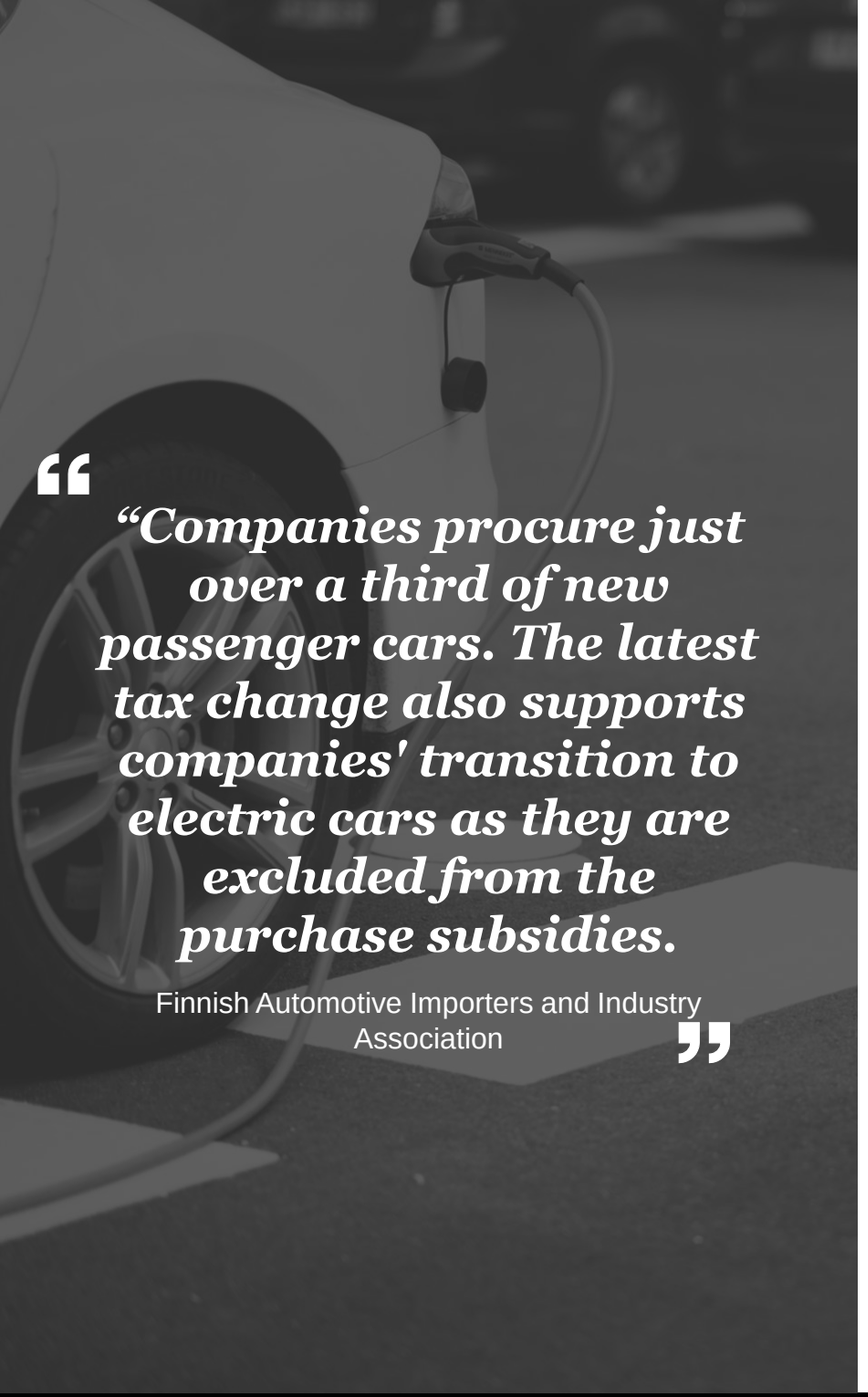
The main aim of the National Growth Programme for the Transport Sector is the promotion of the transport sector's business-driven growth as a collaboration with the public and private sectors.

Government program (2019)

The government will amend the Climate Change Act in a way that will enable Finland to achieve the target of carbon neutrality by 2035

Act on clean and energy efficient vehicles in public procurement (2021)

The act defines minimum percentages for alternative fuel vehicles in public procurement tenders for cars, buses and heavy vehicles in accordance with the EU Clean Vehicles Directive.



“Companies procure just over a third of new passenger cars. The latest tax change also supports companies' transition to electric cars as they are excluded from the purchase subsidies.”

Finnish Automotive Importers and Industry Association

EV market is picking up pace as 30% of newly registered passenger cars are BEV or PHEV

Battery electric & plug-in hybrid passenger car market

National targets

- 700 000 vehicles by 2030, min. 50% BEV
- All new passenger cars and vans sold in Finland to be able to use an alternative propulsion system by 2030

Car fleet

- About 2,2% of the 2.7 million passenger car fleet in Finland are BEV or PHEV
- PHEV stand for 80% of the market which has been growing at a GAGR of 88% between 2016-2021

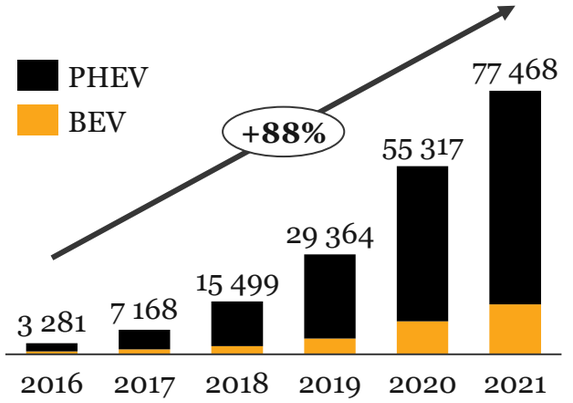
Sales of electric cars

- About 30% of newly registered cars in 2021 are BEV or PHEV

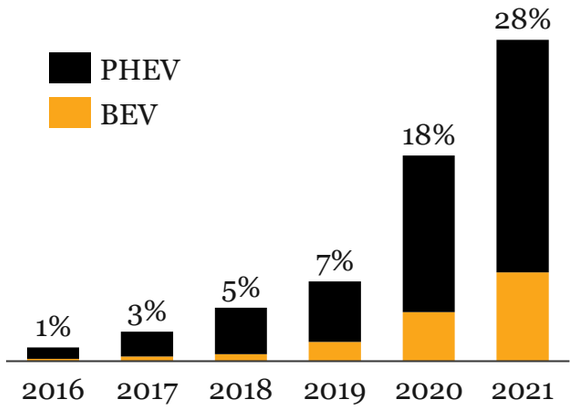
Incentives and Legislation

- Direct purchase subsidy of EUR 2 000 for a BEV < EUR 50 000
- No registration tax and ownership tax benefits for fully-electric cars

Nr. Of BEV & PHEV passenger cars



Yearly registrations of BEV & PHEV



Source: European Alternative Fuels Observatory, Finnish Government

Finland has exceeded 2020 goal but still needs 20 000 public EV charging points until 2030

EV charging infrastructure

National target

- 2000 charging points by 2020
- 25 000 charging points by 2030
- 2 500 fast charging points by 2030

Current infrastructure

- About 30 per cent of all public charging points are in the greater Helsinki metropolitan area
- 54 high-power public recharging points per 100 km highway
- 16 personal electric vehicles (PEV) per public recharging point

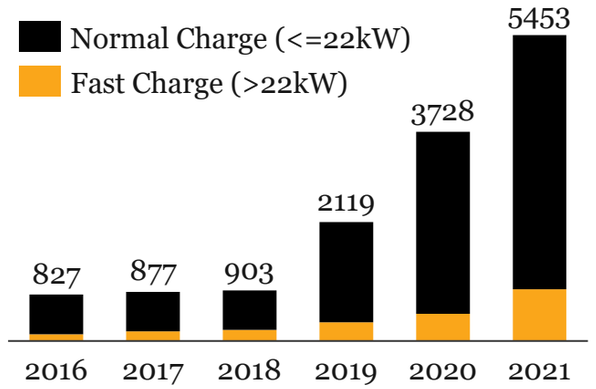
Planned investments in public infrastructure

- During 2021–2024, the S Group plans to build a nationwide charging point network at its ABC petrol stations

Investments in private infrastructure

- The Finnish government har budgeted EUR 5,5 million in 2021 to support for the construction of charging infrastructure at housing companies

Total number of public charging points



Main infrastructure providers

fortum, Lataus, HELEN, TESLA, VIRTA, HOK-ELANTO, ABC, LIDL

Source: European Alternative Fuels Observatory, Government of Finland, Statistics Finland

Electrification of bus transport has started, and EU directive will further accelerate public procurement

Sustainable public urban transport

National targets

- No specific targets for buses
- Public procurement targets for heavy-duty vehicles:
  - 49% of alternative fuel buses procured until 2025
  - 59% of alternative buses procured until 2030

Local bus service market structure

- The Helsinki metropolitan area stands for 80% of the urban public passenger traffic in Finland
- Bus services are outsourced to 3 major operators

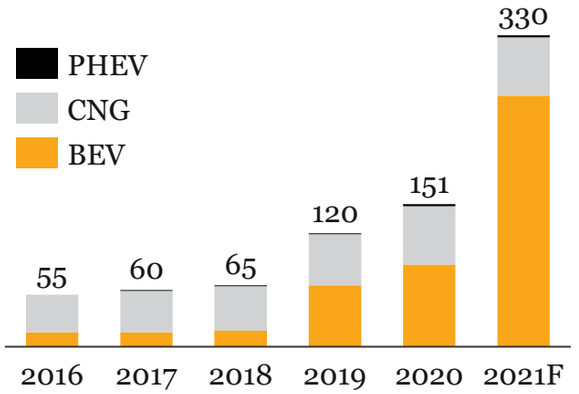
Current situation

- 85 electric buses about 4% of the urban bus fleet and 62 natural gas (CNG) buses are currently operating in Finland
- In 2021 a further 132 electric buses will start operating in Helsinki and 47 in the city of Turku

Planned investments

- Helsinki Region Transport (HSL) plans to increase the share of electric buses to 30% by 2025
- The city of Turku plans to be carbon neutral by 2029

Total nr. of electric buses 2016-2021



Local transport authorities

HSL HRT — Helsinki

NYSSE — Tampere

FÖLI Turun seudun joukkoliikenne — Turku

Main bus operators & Nr of buses

Nobina

Helsingin Bussiliikenne Oy

Pohjolan Liikenne

Source: European Alternative Fuels Observatory ,Helsinki Regional Transport Authority (HSL)

The share of alternative fuels in the logistics sector is still marginal

Heavy-duty & light commercial vehicles

National targets

- 45 000 electric vans by 2030
- No specific targets for trucks

- Public procurement targets for heavy-duty vehicles:
  - 9% of trucks procured until 2025
  - 15% of trucks procured until 2030

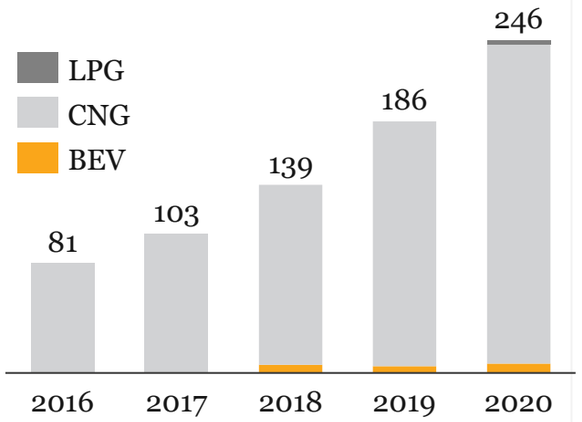
Current situation

- At the end of 2020, alternative technologies accounted for 0,26% of all trucks on the road (94 700)
  - CNG is the dominant alternative fuel in freight transport
- About 0,4% of the 340 000 vans on Finnish roads uses alternative technologies
  - Share of BEV and PHEV is increasing but CNG stands for 2/3 of all alternative fuels

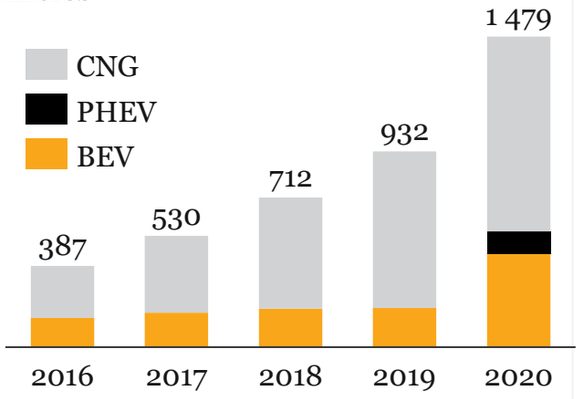
Planned investments

- Finnish government plans to introduce subsidies for electric and gas trucks in accordance with the Road map for fossil-free transport 2021

Total number of AF trucks



Total number of AF light commercial vehicles



Source: European Alternative Fuels Observatory, Government of Finland, Statistics Finland

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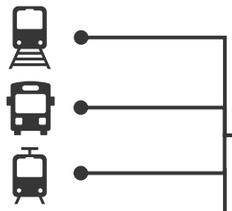


Mobility as a Service (MaaS)

- Finland is the first country in the world to have a law mandating all transport service providers to provide not only data on their schedules, routes etc. but also to open their ticketing APIs for third parties

Providers

whim KYYTI

Car sharing

- 24 Rental Network is the largest remaining operator with a traditional pay-per-minute car sharing service
- Danish start-up GreenMobility started in December 2020 as the only all electric pay-per-minute service
- Finnish start-up Omago focuses on shared cars for housing associations public actors and business
- Blox Car is a P2P car renting platform that enables car sharing between private people

Providers

GreenMobility 24GO BloxCar omago

Bike sharing

- The Finnish bike sharing market is dominated by City Bike Finland a joint venture of Spanish mobility solutions provider Moventia and French bike sharing company Smoove
- Helsinki transport authority awarded a 10 year contract to the Moventia and Smoove consortium in 2015 and the city of Espoo awarded a 8 year contract in 2018
- In 2020, a Finnish free-floating bike sharing service JURO started operation in the capital

Providers

CityBikeFinland moventia Smoove

E-scooters

- Six electric scooter companies entered the Finnish market in 2019
- Hoop, Float and HSL quietly packed up their vehicles and left 2020
- Three electric scooter companies (Voi, Tier, Lime) are still active in 2021 and have about 3 000 scooters in Helsinki
- Last year, people made some 2,5 million trips on e-scooters - over half of them on Voi's fleet

Providers

voi. TIER Lime

Finnish testbeds focus on autonomous vehicles in arctic conditions and smart mobility solutions in urban areas

Aurora Snowbox

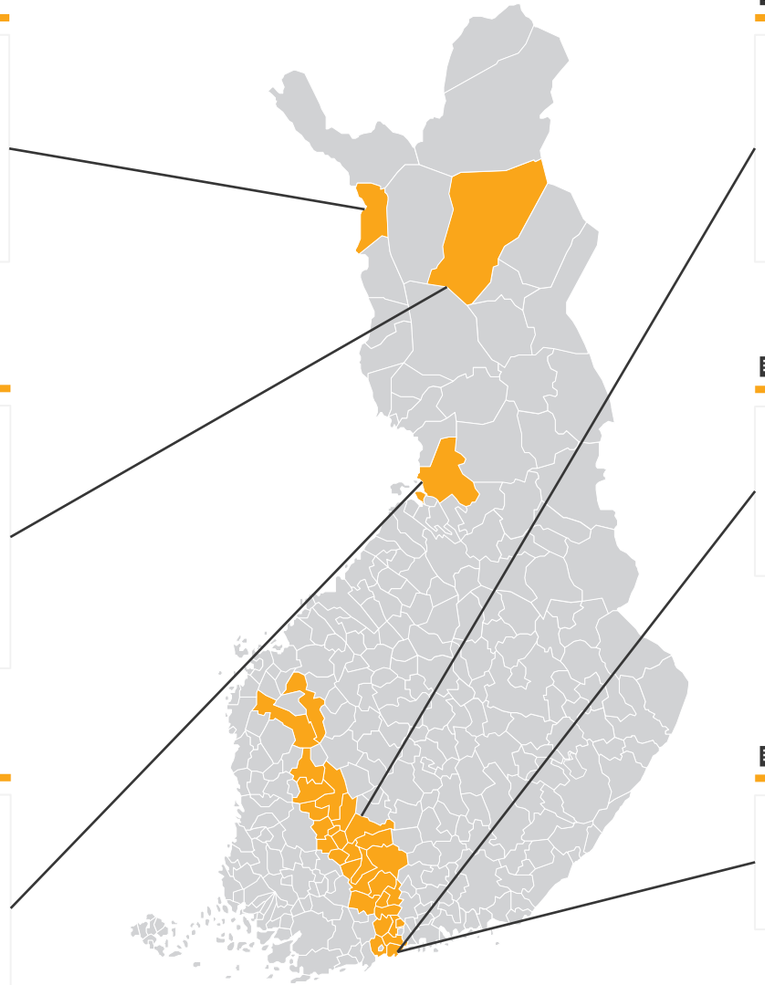
- Snobox is a comprehensive winter testbed and ecosystem for connected and automated vehicle technologies
- It provides testing on public roads, cross-border corridors, and safe proving grounds

Sod5G

- Sod5G in Sodankylä is a winter testing area for intelligent traffic systems, advanced road weather services and 5G-networking
- The track serves as a testbed of all intelligent traffic projects of the Finnish Meteorological Institute

OuluZone+

- OuluZone+ is a 5G enabled research and training center for infra BIM, autonomous vehicles and heavy trucks
- The centre offers a high speed 5G network in arctic test environment



Growth Corridor Finland

- The Growth Corridor Finland is a collaboration network comprising over 20 cities and municipalities
- The main target is to become the leading pilot platform for new, smart and sustainable mobility

Smart Kalasatama

- Smart Kalasatama is a district of Helsinki, developed into an experimental innovation platform to co-create smart and clean urban infrastructure and services

Jätkäsaari Mobility Lab

- Jätkäsaari Mobility Lab is a multi-actor testbed that facilitates piloting of smart and digital solutions in Helsinki

Source: Future Mobility Finland / Intelligent Transportation Society of Finland (ITS)

Finnish smart sustainable transportation ecosystem

National government bodies

- Ministry of Transport and Communications
- Finnish Transport Infrastructure Agency
- Traficom – Finnish Transport and Communications Agency

Local transport authorities

- HSL HRT
- Nysse
- FÖLI – Turun seudun joukkoliikenne

Universities

- Metropolia University of Applied Sciences
- Tampere University
- Helsingin yliopisto
- Aalto-yliopisto

Test beds

- Snowbox – Arctic autonomous driving
- Jätkäsaari Mobility Lab
- ITS Factory – Innovative Tampere site

Regional & local authorities

- Helsinki-Uusimaa Regional Council
- Helsinki
- Espoo Esbo

Initiatives & platforms

- Future Mobility Finland
- RAAS
- ITS Finland

Technical research institutions

- VTT
- Ilmatieteen laitos – Meteorologiska institutet – Finnish Meteorological Institute
- NLS – Finnish Geospatial Research Institute FGI

Business promotion & innovation

- Business Finland
- Forum Virium Helsinki
- Helsinki Business Hub

Charging infrastructure

- fortum
- Helen
- Tesla
- Virta
- HOK-Elanto
- Lidl
- K Lataus

Bus operators

- Helsingin Bussiliikenne Oy
- Pohjolan Liikenne
- Nobina

Smart infrastructure & automated driving

- RoadScanners
- sensible 4

Mobility clusters

- mobility launchpad

Mobility service providers

- omago
- GreenMobility
- CityBikeFinland – moventia – Smoove
- Kyyti
- voi.
- Lime
- BloxCar
- 24GO
- whim
- TIER

Consultants

- tieto Evry
- Sitowise
- Traficon
- WSP
- Sweco