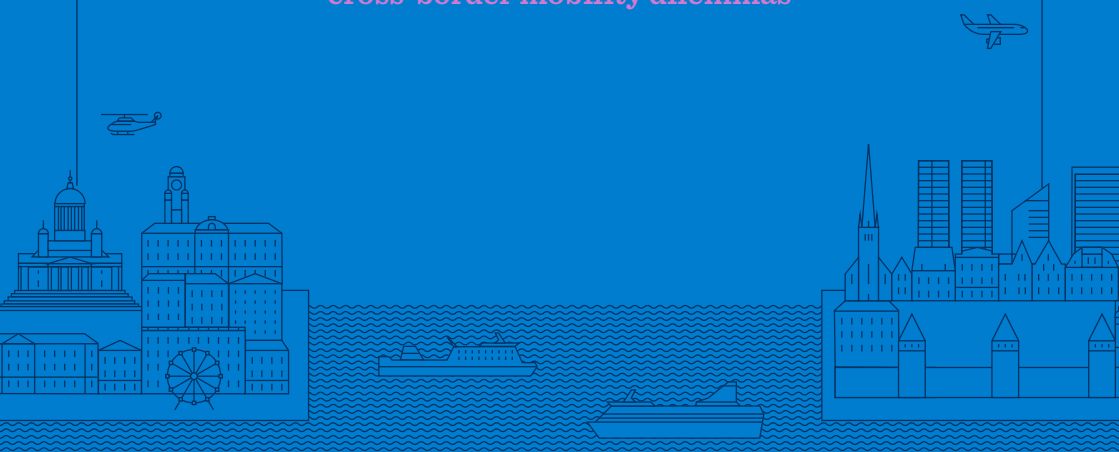
FINEST SMART MOBILITY

Sustainable intelligent transport solutions
and cooperative mobility planning to solve
cross-border mobility dilemmas



EUROPEAN UNION
European Regional Development Fund

Interreg
Central Baltic

FinEst Smart Mobility

The ferry connection between Helsinki West Harbour and Tallinn Old City Harbour is one of the busiest in the world, serving over 8 million passengers annually and generating a great deal of economic growth and well-being in the twin city area.

However, the traffic leaving and arriving at our centrally located ports creates substantial congestion, noise, pollution and other negative externalities on both sides of the gulf.

The aim of FinEst Smart Mobility is to find smart solutions through which these persistent mobility challenges can be tackled in places where changes to physical infrastructure alone are not enough.

Thanks to the development and testing of smart mobility solutions, this project has enabled integration between different transport modes in the cross-border environment, while providing means and tools for managing existing traffic flows.

A full deployment of these pilot projects reduces the transportation time for both passengers and cargo, which means a faster and a more pleasant individual passenger journey and valuable time shifted back to businesses and their core activities. An improved flow of people and goods equals lower levels of CO2, noise and pollution in the ports and in the surrounding residential areas of both Helsinki and Tallinn.

The FinEst Smart Mobility pilot projects have been developed actively since spring 2017 and they are being finalized during spring 2019.

EUROPEAN UNION
European Regional Development Fund

Interreg
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- 2016–2019; €1.8 M budget
- 3 partners in both Estonia and Finland
- Helsinki West Harbour and Tallinn Old City Harbour
- Solutions to cross-border mobility dilemmas
- 4 different smart mobility pilots
- Innovation partnership procurement
- Mobility planning for sustainable urban environment

This brochure is a product of FinEst Smart Mobility, a project on smart mobility innovations, co-funded by the Interreg Central Baltic 2014–2020 programme.

The aim of this brochure is to guide you through the project's shared work and pilot projects in a pragmatic manner, and to place the results into a wider context in the fast world of digital innovation.

For more information, please visit:

www.finestsmartmobility.com

FinEst Smart Mobility partners:

City of Helsinki, City of Tallinn, City of Vantaa, Maanteeamet, Forum Virium Helsinki and ITL Digital Lab

Tallinn
Helsinki
Vantaa
FORUM VIRIUM HELSINKI
ITL
MAANTEEAMET

Innovation ecosystem

So far, there has been limited evidence on how local governments can be more adaptive to the changing environment and introduce agile methods. Apart from developing smart mobility solutions, FinEst Smart Mobility has produced knowhow on how to design and implement innovative pilot projects in an open ecosystem, in order to respond to real, detected challenges in urban landscape.

Open data

The public-private collaboration has also shown the importance of open data to the further development of digital services and the end-user experience. By maximizing the transfer of knowledge and data, FinEst Smart Mobility has allowed the companies participating in the pilot projects to utilize collective knowhow gained in the project and to develop tailored innovations to meet the needs of Helsinki West Harbour and Tallinn Old City Harbour.

> *"Streamlining traffic is a very concrete example of how one can utilize openly shared data collected from multiple sources and harness it to serve the city's residents and companies."*
>
> Pekka Koponen, Development Director, Forum Virium Helsinki

Solid preparations and agile trials

Instead of directly implementing a number of pilot projects, FinEst Smart Mobility created a unique framework and a procurement model to strengthen the quality of the pilot projects, the application of the most up-to-date technologies and the synergies born out of a shared testing environment.

With innovation labs as partners, a particular specification and preparation work was carried out before the procurement of the actual pilot projects. The planners, mobility users and technology stakeholders were all engaged in the co-designing of the use cases to ensure the quality of the pilot projects from the user perspective and the best exploitation of emerging technologies.

A central part of the preparatory work was the setting up of agile trials i.e. mini-pilot projects, the purpose of which was to probe new mobility-related innovations during a 3-month period. The establishing of user groups to provide essential information about the mobility choices of the ferry users was also conducted during this phase.

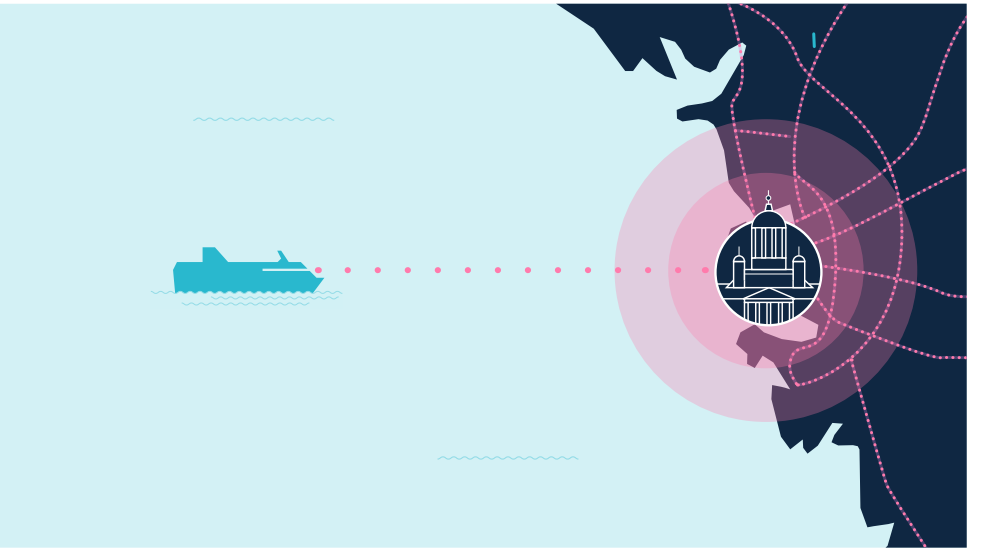
Four pilot projects in all were developed and executed by external companies during the project. You can read more about these projects in the following pages.

FinEst API

One-stop-shop for ferry traffic data

Real-time and open APIs are like roads in a city, forming parts of the vast data infrastructure network that is essential for smart mobility solutions. As one of the four innovation pilot projects of FinEst Smart Mobility, **Fleetrange Ltd.** developed the FinEst API, an application programming interface to provide machine-readable and real-time tracking, schedule and arrival time estimations for the ferry traffic.

It was the lack of qualitative data that spurred Fleetrange to create an API that refines existing open data with further calculations (Arrival Estimation Engine). In broader terms, the goal of this pilot project was to provide developers with easy and open access to data so they could apply new data to additional products and services.



"Ferry schedules are only available on web pages, the ship tracking data from Finnish Digitraffic lacks real-time and accurate arrival time calculation data and even the open weather data is difficult to access for a developer. We wanted to change this and create an easy one-stop-shop for all this information."

Henrik Ramm-Schmidt, CEO and Founder of Fleetrange.

"We love Open Data APIs and highly value the possibilities they offer to smart mobility developers. However, this was not available for the ferry traffic between Tallinn and Helsinki so we set out to change that with our FinEst API. The fact that Infotripla uses our API in their own solution indicates that we have achieved our target."

Henrik Ramm-Schmidt, CEO and Founder of Fleetrange Ltd.

FinEst API is like a virtual bridge between ferry traffic and land traffic. The API makes it possible to integrate ferry traffic to existing journey planners while improving multimodality and serving logistics companies and other businesses in need of careful transport planning and accurate travel time data.

Real-time open data traffic APIs are valuable investments for smart mobility solutions. In terms of traffic management, they can provide tracking of vessels, schedules, and even access to ticketing services. FinEst Smart Mobility promotes the use and development of such infrastructure, encouraging cities and other actors alike to explore the possibilities for improving the data services, as was done in the nexus of seaborne and land traffic in this case.

FAST FACTS

- Real-time Open Data
- API for ferry tracking, schedules, ETA and weather
- Improves sea-land multimodality
- Tool for better traffic management in the port
- Allows integration to journey planners

Harbour's PSO

Real-time and predictive traffic information system for traffic management

In FinEst Smart Mobility, **Infotripla Oy**, has introduced a real-time and predictive traffic information system in the West Harbour area. This concept makes traffic management more efficient and reduces the congestion caused by trucks and cars leaving the port every few hours.

Moreover, the Infotripla pilot project will provide an opportunity to support travellers with information about the current traffic situation and offers the most suitable routing based on the passenger's final destination, before driving off the ferry or leaving the nearby parking.

The real-time and predictive traffic information system developed within the project is based on a traffic fluency model, incident information, routing suggestions, and information delivery tools. This package will help traffic management professionals gain an improved understanding of the rapidly changing traffic situation in a specific district and help them operate and steer the traffic accordingly.

"FinEst Smart Mobility provides a good opportunity for co-development with the public sector and replication of the company's proven solutions to other use cases. The pilot project has already shown improvements in the traffic management processes regarding reactivity to sudden but predictable changes in traffic. Additionally, it has shown potential in supporting individual drivers departing the harbour."

Kimmo Ylisiurunen, Managing Director, Infotripla

The pilot project's solution is likely to have a wider influence on traffic management processes. The improvements detected so far in Helsinki West Harbour indicate a strong potential to a future scale-up of this innovation to other targeted areas – and not only to ports, but also to other areas in the world that suffer from environmental and economical disadvantages caused by regular or irregular congestions.

One of the remaining challenges after the pilot project will be to reach out to potential users: traffic management and other end-users such as car owners. This means continued cooperation between stakeholders such as ferry operators, harbours, traffic management and companies.

FAST FACTS

- Comprehensive traffic fluency model based on open data and analytics
- Snapshot to traffic situation at a predefined area
- Routing suggestions for smoother traffic flow in peak hours
- Improved reactivity of traffic management in mitigating traffic congestion

Kyyti

Shared rides from West Harbour to Helsinki Airport

Vantaa is the location of both Helsinki Airport and Aviapolis airport city, attracting millions of annual visitors for both business and leisure. Based on findings from a survey conducted earlier in the project, a number of Estonian visitors start their airborne travels to far-off destinations from Helsinki airport, or visit the Aviapolis area for business.

For those arriving to the airport from the south, there was, however, no direct transport link available between the ferry terminal of West Harbour and the airport area. In practice, this meant that the travellers heading in that direction needed to spend time changing between several modes of transport, or take a taxi, which was neither economic nor the most environmentally friendly option available.

When looking for a suitable solution, the objective was to find a service that would improve the mobility flows from Estonia to the Aviapolis region and Helsinki Airport, while prioritizing sustainable mobility choices. The solution will also help promoting public transport, including the railway connection to the airport, reduce travel time, and offer a new innovative service and a service model for the travellers.

To make this happen, **Kyyti Group** was selected to develop a smart co-riding service from West Harbour in Helsinki to the airport located in Vantaa. The selected solution was the Kyyti MaaS platform, with an integrated on-demand ride sharing technology. In practice, Kyyti aims to integrate different mobility modes into one platform: urban transit, intercity buses, trains, car rental & sharing and payments & ticketing.

During the actual pilot project, the number of trips made between the harbour and the airport remained low. The main outcome from the testing was the need for earlier and wider marketing, and emphasis on the 25–50% savings in the travel time brought on by the new solution compared to public transport. Not being able to offer combined ticketing (shared taxi + public transport) due to technical barriers, and not having enough drivers available for shared taxi rides, also meant that the scaling up of the service was unsuccessful.

From a technical point of view, the conclusion was that a national public transport database and a route planner would be essential digital infrastructure to boost the market for Mobility-as-a-Service solutions in Finland and beyond.

FAST FACTS

- Ride sharing service between West Harbour and Helsinki airport
- App available in FI, EE, EN, RU
- Can be ordered in advance
- 25–50% faster rides compared to public transport

FinEst Mobility app

Just-in-time guidance service for truck drivers

Helsinki West Harbour and Tallinn Old City Harbour share one of the busiest port connections in the world, with more than 300,000 heavy goods vehicles heading to the ports and back on an annual basis.

While trucks continue to arrive to the ports, the valuable city land near the ports is becoming more sought-after, while undergoing heavy property development and construction works. The increase in the land value creates a situation where parking lots are being removed from the port surroundings and drivers have to start planning their arrival to the port accordingly.

An increased need to plan one's travel, in addition to the ferry companies' concern that disappearing parking lots will affect the number of late arrivals, meant that there was a clear demand for a smart mobility solution.

As part of FinEst Smart Mobility, **GoSwift** developed a smart, just-in-time guidance solution that assists truck drivers in planning their route to the West Harbour while matching their arrival time with a specific ferry departure. The service has been available for Android users through the 'FinEst Mobility' app on Google Play, as well as through SMS.

When used by several drivers, the solution automatically distributes the arrivals evenly throughout the check-in time slot. During the testing, it became apparent that there was also a need among the dispatchers and drivers for additional service features, such as real-time traffic information and parking facilities. Especially the dispatchers emphasized the importance of easy access to fleet bookings, together with a high level of automation.

For GoSwift, the FinEst Smart Mobility pilot project has been the first, and the most critical part in starting a remote check-in service for truck drivers. With a wide deployment of the extended service, the solution can save valuable time for truck operators, result in less congestion in port areas and possibly decrease the need for staff in ports, as the check-ins will, at least to a certain extent, be handled remotely. This kind of service would undeniably have an effect on CaaS (Corridor as a Service) in general, and on the competitiveness of the Finnish-Estonian transport corridor in particular.

"FinEst Smart Mobility has made it possible to test new services, to learn how real customers are thinking, and to find out their true needs and limitations that determine whether a service has potential to thrive or not."

Madis Sassiad, Sales Director, GoSwift

FAST FACTS

- Just-in-time guidance app and SMS service for truck drivers
- Distributes check-in time slots evenly among users
- Dispatchers have access to fleet bookings
- Timely arrival = less congestion at the port and more time for core business

Sustainable Urban Mobility Planning in Tallinn region

One particular sector that has an immediate effect on both regions is the transportation of people and goods in the twin city area. **The implementation of a sustainable urban mobility plan (SUMP)** for the City of Tallinn is part of FinEst Smart Mobility, and will as such come to define the future framework for mobility development in the Tallinn region. In the future, Tallinn SUMP will set the criteria for any transport infrastructure project that takes place in the Tallinn capital region, following the guidelines set by the European Commission.

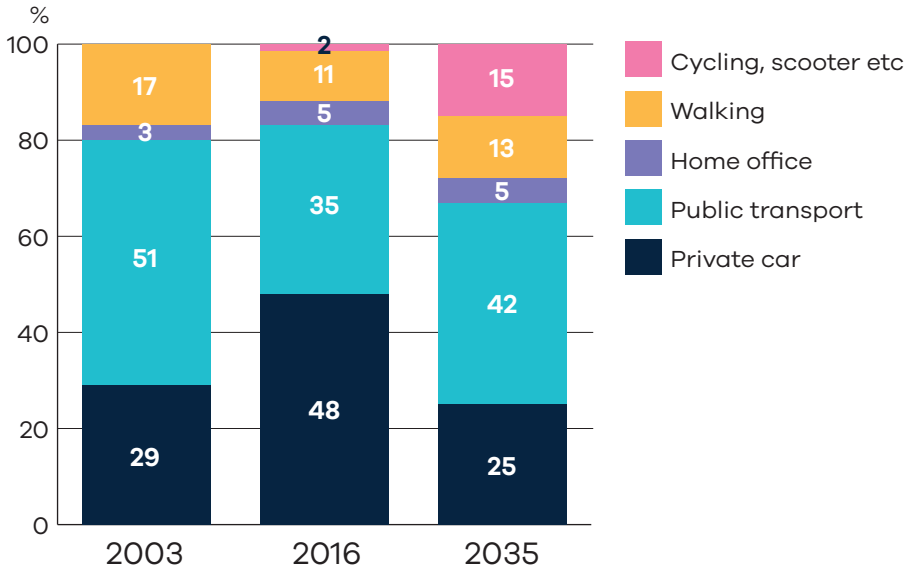
Open dialogue between important stakeholders and organisations is a prerequisite for SUMP as it covers a number of different fields of interests and responsibilities. The cross-border nature of FinEst Smart Mobility promotes the adoption of best practices, and improves the collaboration between the capital regions of Tallinn and Helsinki. A handful of SUMPs has already been approved in Helsinki, and the Tallinn SUMP work is coordinated to maximize the exchange of knowledge throughout this project.

Tallinn SUMP focuses on analysing the mobility needs of the region and sets sustainable transport priorities for its transport investments. This is done by setting up common objectives and indicators for mobility in the region, carrying out studies and data analyses to support the decision-making, organising seminars and workshops with relevant stakeholders, getting the strategy approved in the Tallinn City Council, and compiling a roadmap with immediate actions towards the agreed objectives.

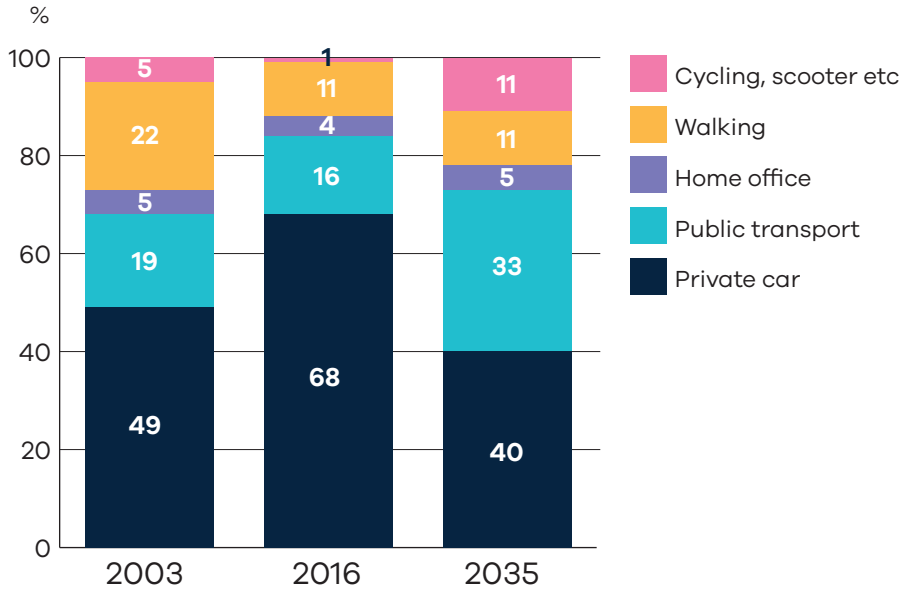
Contributing to the SUMP, a separate **Traffic Management Plan (TMP)** for Tallinn ring road no 11 was conducted. Extensive roadworks are going to transform the Tallinn ring road into a divided highway in the upcoming years and this survey forms a basis for the developing of ITS solutions that promote safety and smoother traffic. TMP will also help the traffic management centre of Estonian Road Administration to run everyday operations when accidents take place and to solve traffic disturbances. The aspiration is that this plan will contribute to a new traffic management ecosystem in Tallinn ring road in the near future.

Modal split of trips to work

Tallinn



Harju region



Collaborating across borders

FinEst Smart Mobility has improved the project's collective competence concerning the development and practical application of agile digital services. The accumulated knowhow is especially valuable in areas where the rigid and traditional physical environment calls for flexible and digital solutions to ensure a high-quality living and business environment for our citizens.

With people and goods constantly on the move between the Helsinki and Tallinn region, the two areas face similar challenges related to traffic flows. Operating on both sides of the gulf, FinEst Smart Mobility has been able to improve the end-to-end experience regardless of one's location in the twin city area, and the cross-border cooperation has made it possible to learn and share ideas beyond national borders. By working together, the project has enabled knowledge transfer on innovation procurement and partnerships beyond our closest target group, and deepened the knowhow on the role of digital innovation for the transport sector.

"The FinEst Smart Mobility Project has been a great example of how smart mobility innovations can be planned and implemented in an active cross-border collaboration to solve common problems between cities. By co-developing the solutions we are not only making sure that our transport systems work well together but also that our different cultures are embedded and regarded within that framework which, in the end, builds a great setting for truly user-centric services."

Kalle Toivonen, Senior Specialist, City of Helsinki

Expanding horizons beyond the twin city area

The transferability of the smart mobility solutions developed in the project is expected to be high.

Dense traffic and its negative impact on living and business environment affect urban agglomerations around the world, and the solutions of this project can be further developed to answer to these challenges.

Being able to predict peaks, bottlenecks and possible chaos in traffic is on demand around the world, whether it is a city centre, harbour, airport, or a sports arena that calls for our attention. Applying smart solutions to traffic management translates into less time spent on the road, cleaner air and safer roads for businesses and individuals alike.

The integration of ferry departures to regional and national journey planners and to traffic management results in smoother traffic flows and an improved user experience, while providing valuable data for entrepreneurs whose operations are closely interlinked with the arriving and departing ferries.

Offering truck drivers a service that assists them to the harbour at the right time means more time for core operations, less traffic on the city streets and a reduced need to find parking in central locations. Combined with a remote check-in solution, the service would make the boarding experience even smoother.

Ride sharing to a specific destination complements the existing public transport network: with a digital solution, passengers can share the costs and the ride without coordination efforts. This flexible solution can be targeted at ferry passengers, but also to commuters, visitors to popular events, or other groups with similar mobility patterns.

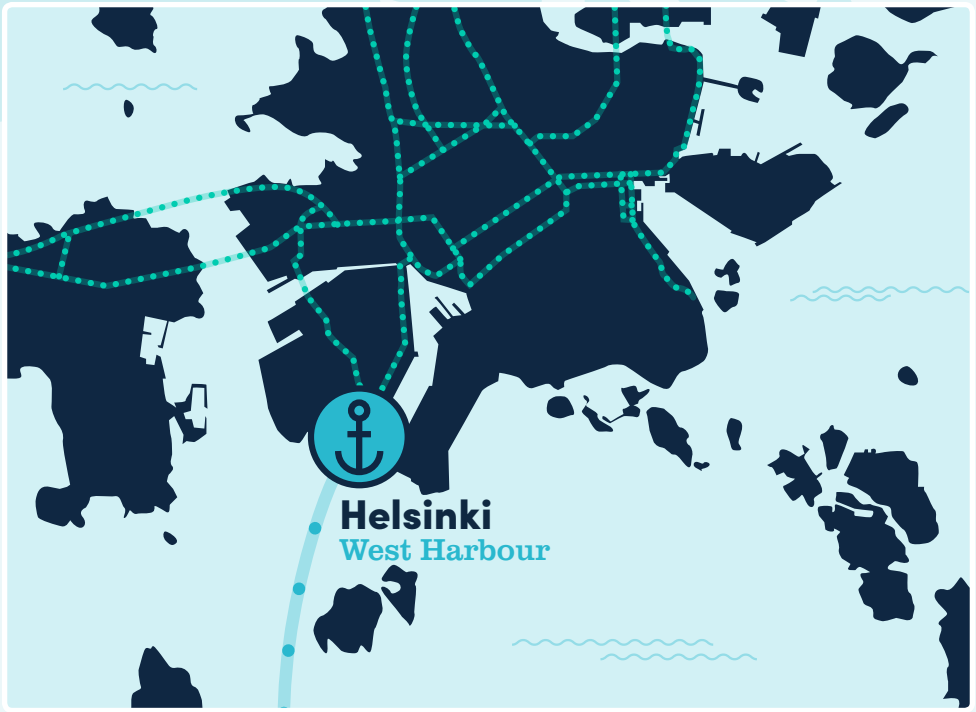
These are all just examples on what the smart mobility solutions developed as part of FinEst Smart Mobility could provide tools for, serving the ultimate goal of smoother traffic in our neighbourhoods and beyond.

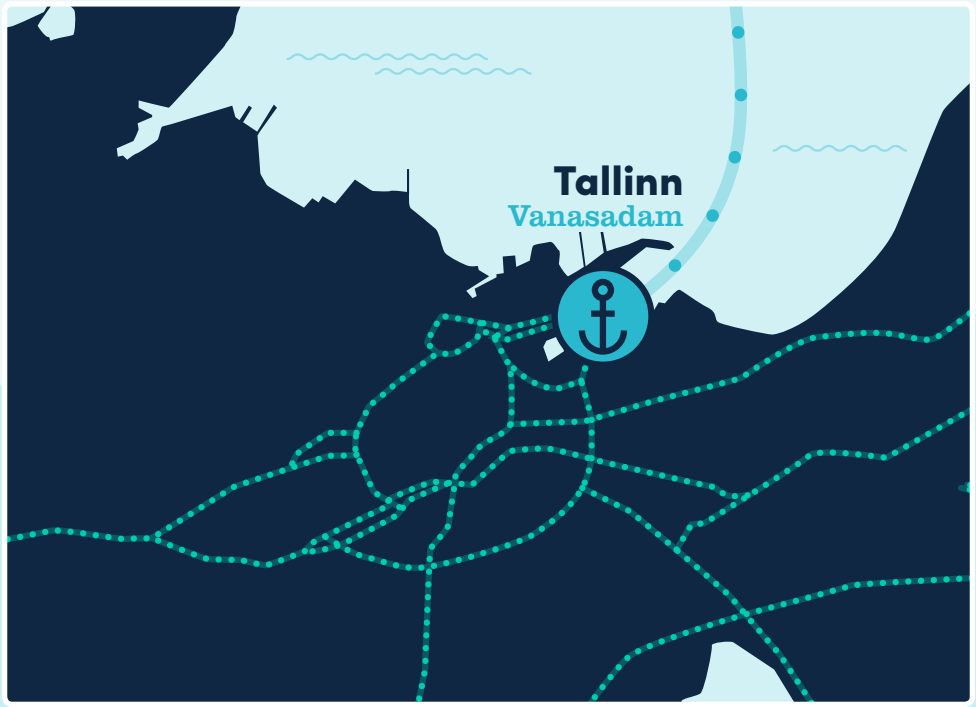
Next steps

The agile nature of digital innovations in terms of a tailor-made experience and the relatively low investment threshold compared to heavy infrastructure development is making way for further expansion of smart mobility solutions in the field of transport management.

FinEst Smart Mobility has given its partners an insight into the application of new technologies in the battling of mobility challenges, and methods with which one can involve and engage local companies to experiment with new solutions for the public good. With proper preparation and introduction of agile trials prior to the actual testing, one is able to specify the procurement framework so that the solutions of the pilot projects have a higher likelihood of incorporating more state-of-the-art technology and become long lasting.

Our hope is that this project brings forth curiosity and boldness to apply agile methods in public sector procurements, as it provides an innovative yet reliable way catering to the needs of the public, while supporting the adoption of novel, co-designed solutions.





Technical project details

FinEst Smart Mobility is co-funded by the Interreg Central Baltic 2014–2020 programme with a total budget of 1.8 million euros. The programme finances results-oriented cross-border cooperation projects in Estonia, Finland, Latvia and Sweden.

www.centralbaltic.eu

EUROPEAN UNION
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Project partners:

City of Helsinki – **www.hel.fi**

City of Tallinn – **www.tallinn.ee**

City of Vantaa – **www.vantaa.fi**

Maanteeamet, Road Administration in Estonia – **www.mnt.ee**

Forum Virium Helsinki, City of Helsinki Innovation Unit – **www.forumvirium.fi**

ITL Digital Lab – **www.itl.ee**

Piloting companies:

Fleetrange – **www.fleetrange.com**

GoSwift – **www.goswift.eu**

Infotripla – **www.infotripla.fi**

Kyyti – **www.kyyti.com**

Associated partner:

HSL, Helsinki Region Transport Authority – **www.hsl.fi**

With support of:

Port of Helsinki – **www.portofhelsinki.fi**

Port of Tallinn – **portoftallinn.com**

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