Interreg Central Baltic

E-ticketing ESTONIA & FINLAND

European Union
European Regional Development Fund

E-TICKETING PROJECT

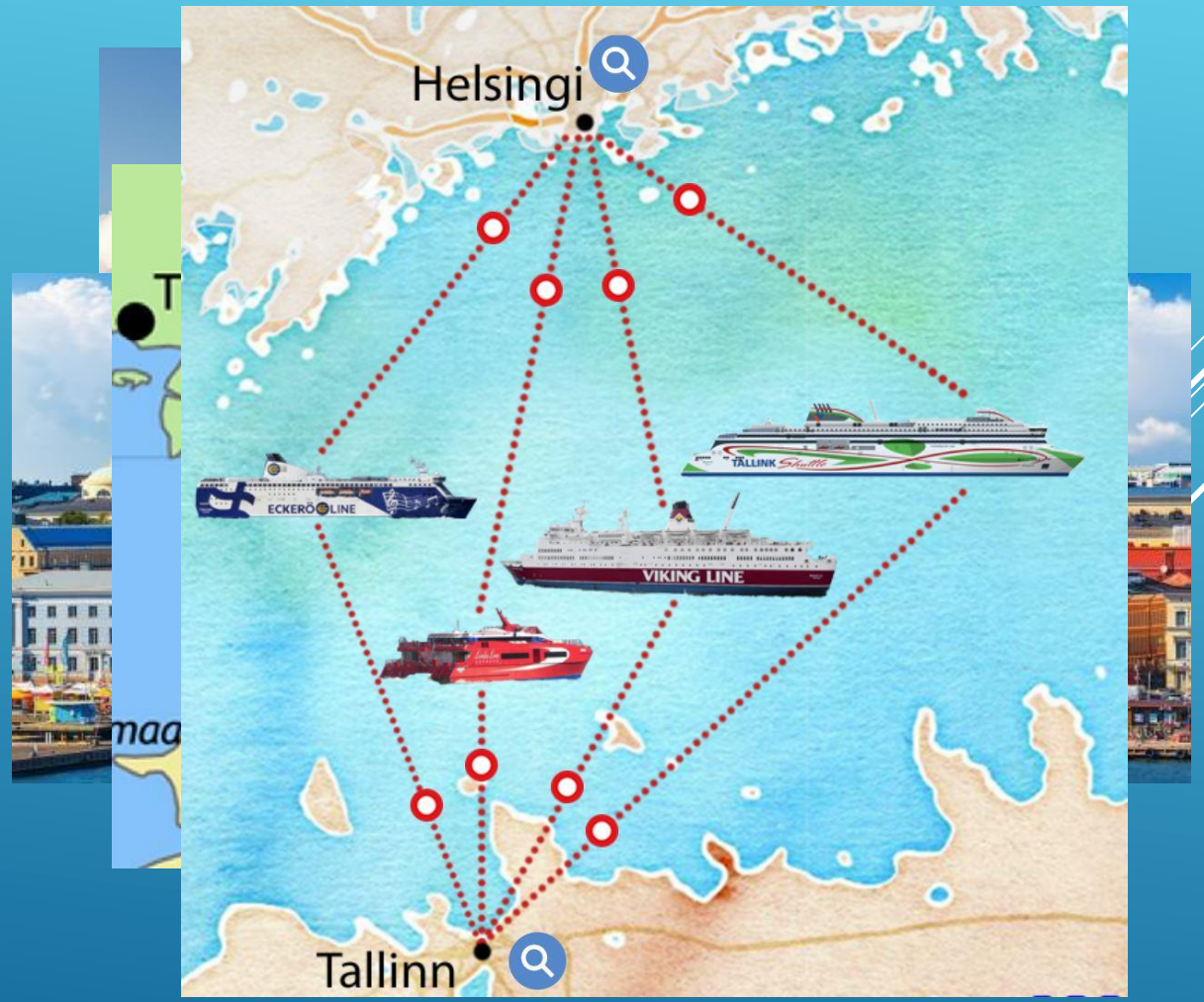
THE CREATION OF SEAMLESS, CROSS-BORDER JOURNEYS: FROM IDEA TO REALITY

TALLINN – HELSINKI – TARTU

2018 – 2021

TWIN CITIES: TALLINN & HELSINKI

- Tallinn – Capital of Estonia
- Population: 443 932 (2020)
- Helsinki – Capital of Finland
- Population: 648 042 (2018)
- Distance between cities: 82 km
- By ferry: ca 20 trips per day
- By plane: 44 trips per week



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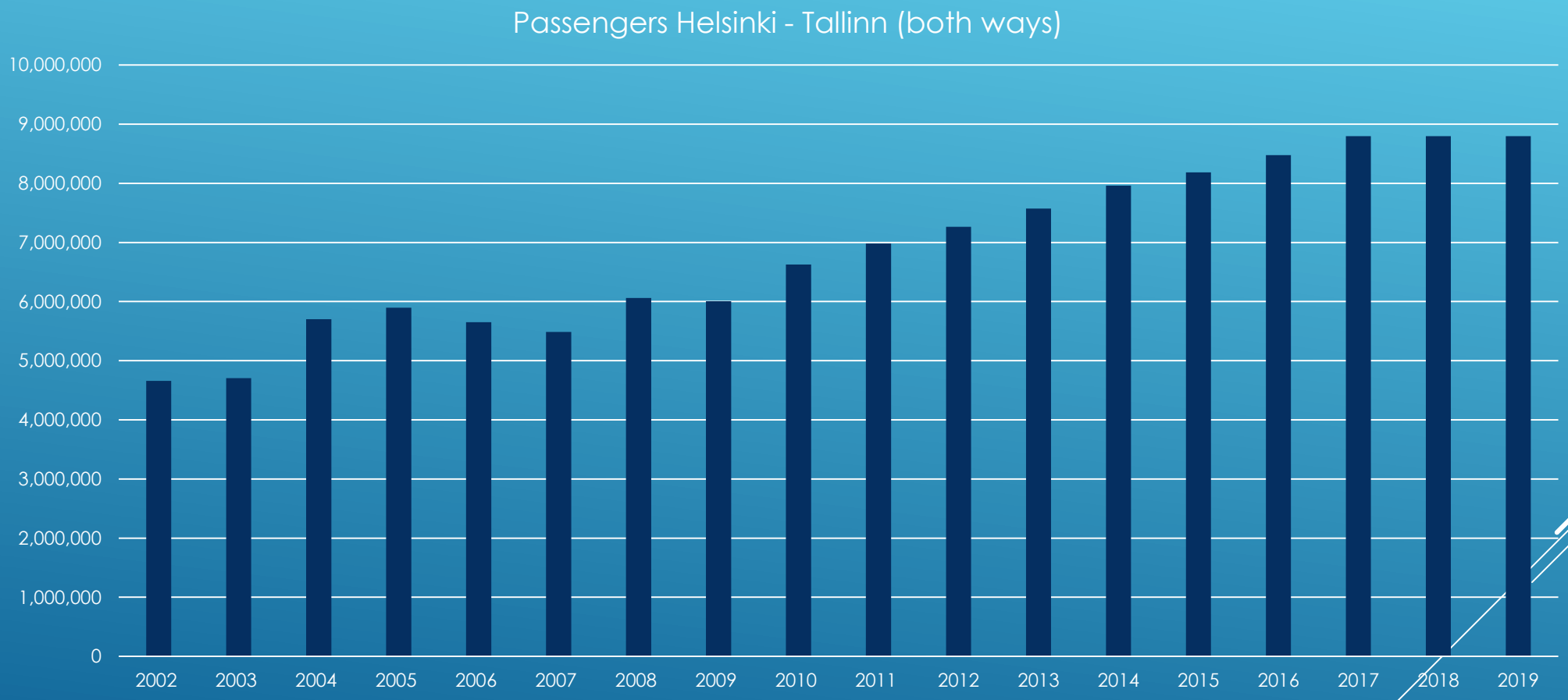

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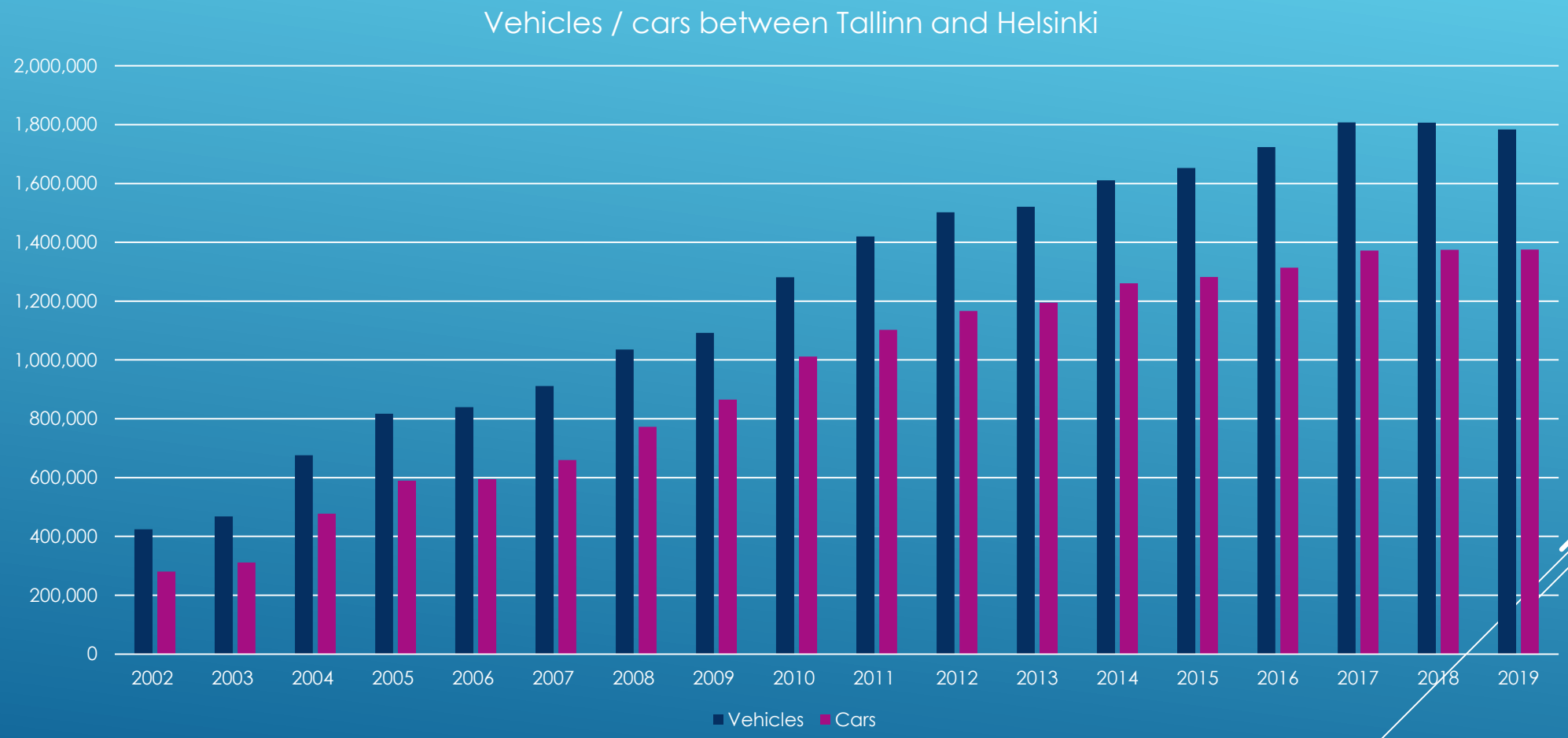

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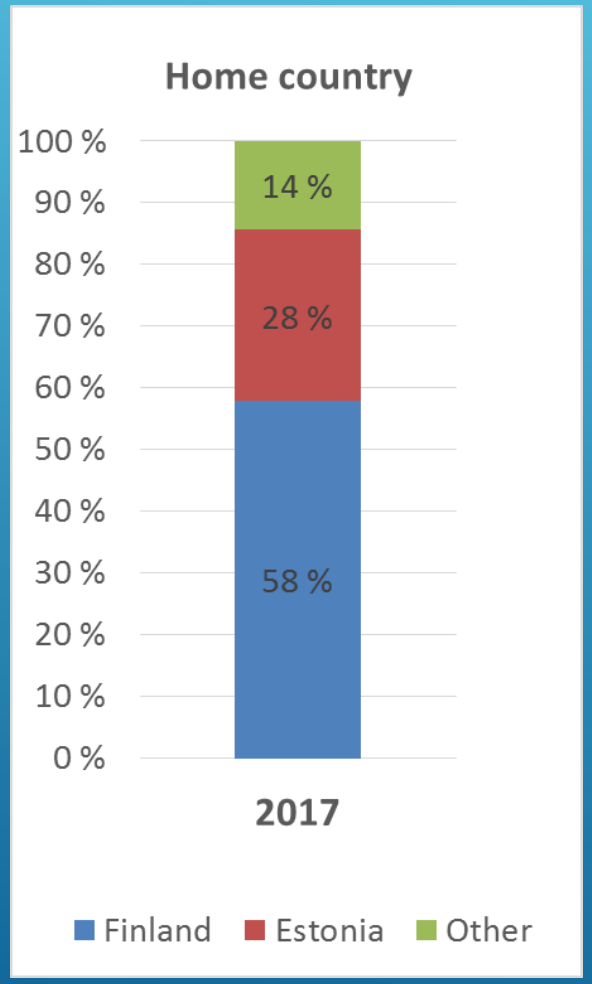
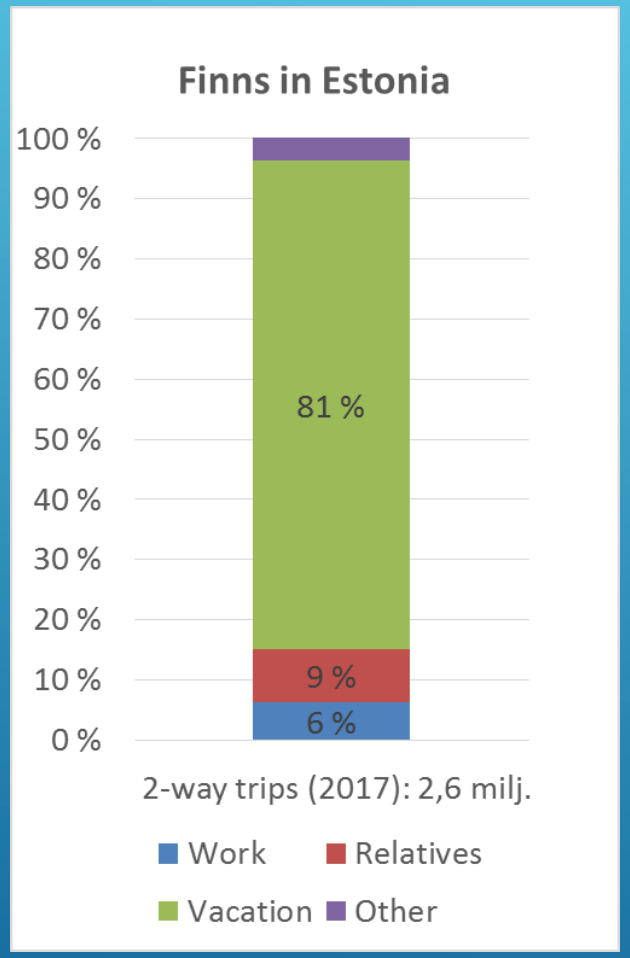
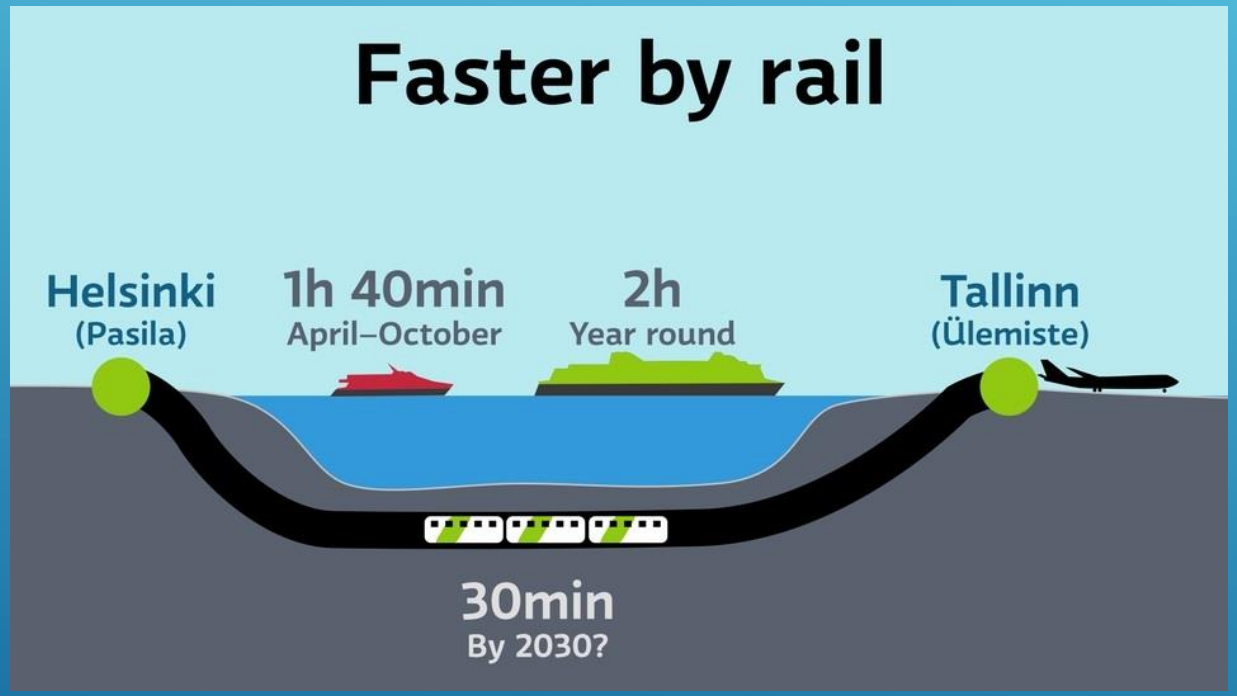
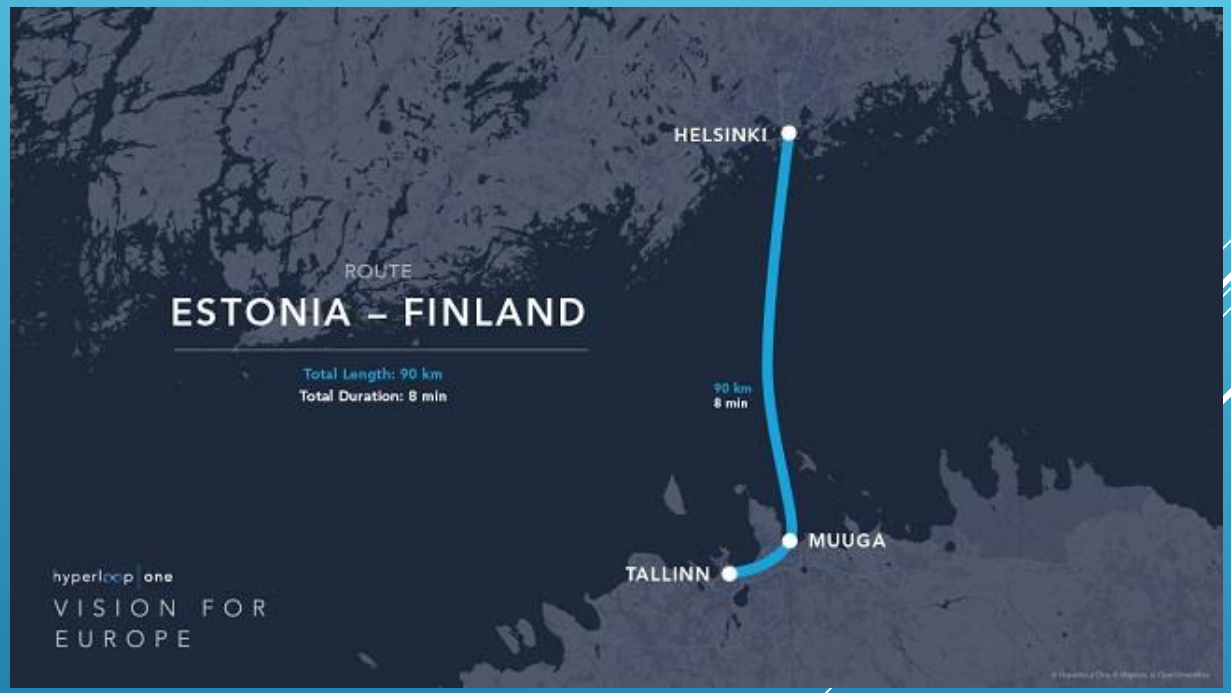




FUTURE PLANS





WHAT ABOUT NOW?

- 9 million passengers
- 1.4 million private cars
- ???
- What about public transport in cities?
- Let's connect the ticketing systems!

PROJECT DATA

- CB737 E-TICKETING – Creating interoperable electronic ticketing systems in Estonia and Finland
- Central Baltic Programme 2014 - 2020, ERDF – European Regional Development Fund
- Partners – City of Tallinn (Lead partner), Helsinki Regional Transport (HSL), City of Tartu (Estonia)
- Duration of the Project: 36 months (May 2018 – April 2021)
- Budget:
  - Total - €2.610.821,76
  - Tallinn - €974.552,76
  - HSL - €1.448.875,00
  - Tartu - €187.394,00

PROJECT'S ACTIVITIES & OBJECTIVES

- The e-ticketing project aims at connecting ticketing systems in Tallinn, Tartu and Helsinki to enable seamless travelling. This will significantly simplify the travelling for the people.
- The project has three groups of activities:
  - The conceptual business model will be sorted out
  - Developing the system and testing it
  - Project partners will pilot the joint ticketing system in Tallinn, Tartu and Helsinki
- It is expected that the time spent on travelling can be reduced approx. by 5%
- The tangible results are ticket products in Tallinn, Tartu and Helsinki (e.g. 1-hour tickets)
- After the agreements on ticket pricing and sharing the income (clearing) have been made, the concept is easily further developed and used in other regions in Europe and beyond ☺

SITUATION IN TALLINN 2010 - 2016

- Joint tender for public transport of Tallinn and Harju county + TallinnCard for tourists in 2011
- Signing the procurement contract in December 2011, for 4 years
- New ticketing system was launched 9 months later, from September 2012
- Account based system, all data stored in back-end
- Tokens for the system: contactless *Mifare Classic* cards (*Ühiskaart*)
- New hardware into all 650 vehicles, validating devices by each door
- Link to P&R: free parking and ride in PT for private car drivers
- Low operational cost (ca €80,000 per month, incl. the cost of hardware)

TALLINN: CURRENT SITUATION

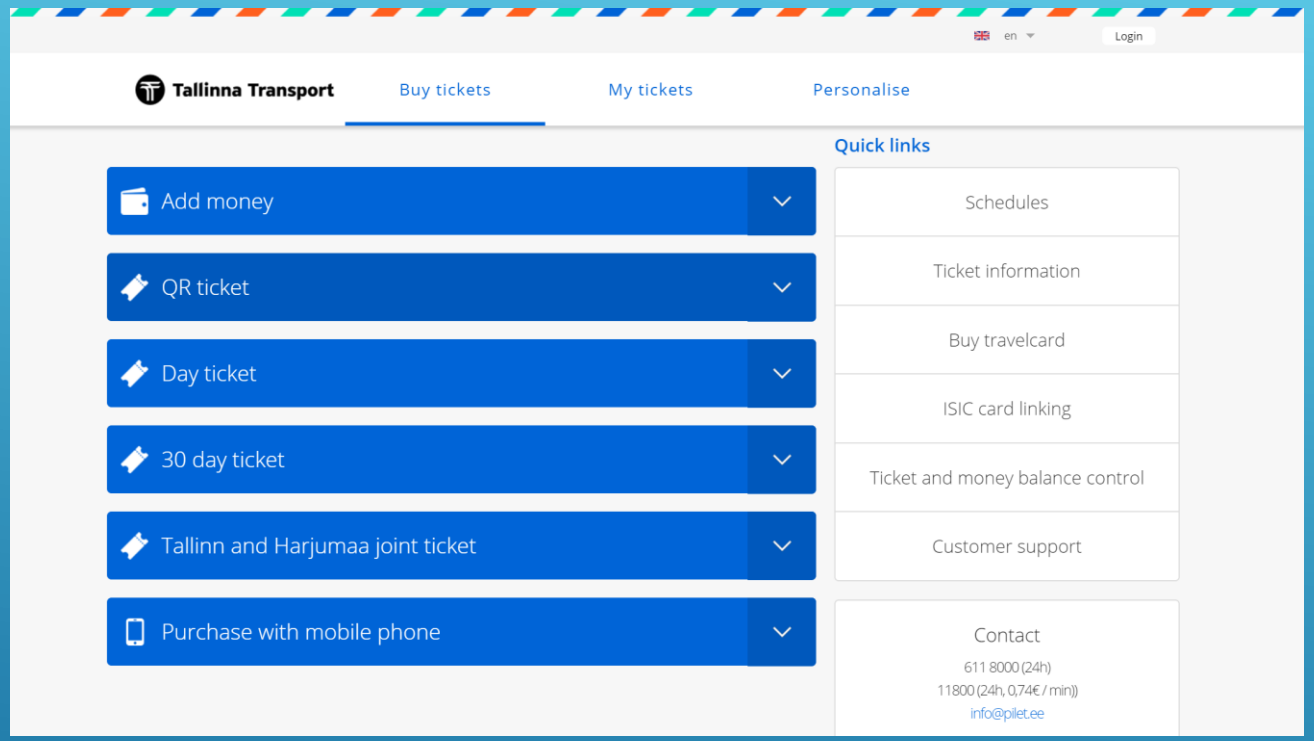
- The new procurement contract for 7 years (2016 - 2023) with Ridango AS
- New ticket type: QR-ticket (March 2017)
- New validators by front doors of all vehicles
- Mobile app *pilet*.ee and redesigned web site
- Extension of P&R: free ride in PT for private car passengers
- Stand-by for the MaaS providers
- Contactless bank cards (cEMV) - gradual go-live starting from 15 August 2018, all vehicles cEMV-ready since 1 Nov 2018

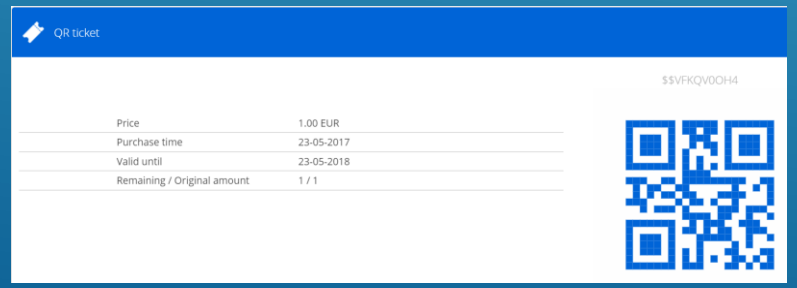
CONTACTLESS EMV LAUNCH IN TALLINN, 15.08.2018

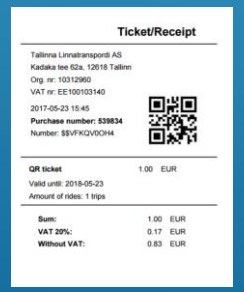
Mrs. Kadri Simson
European Commissioner for Energy
(Former Minister of Economic Affairs
and Infrastructure)
Photo by Konstantin Sednev / Postimees

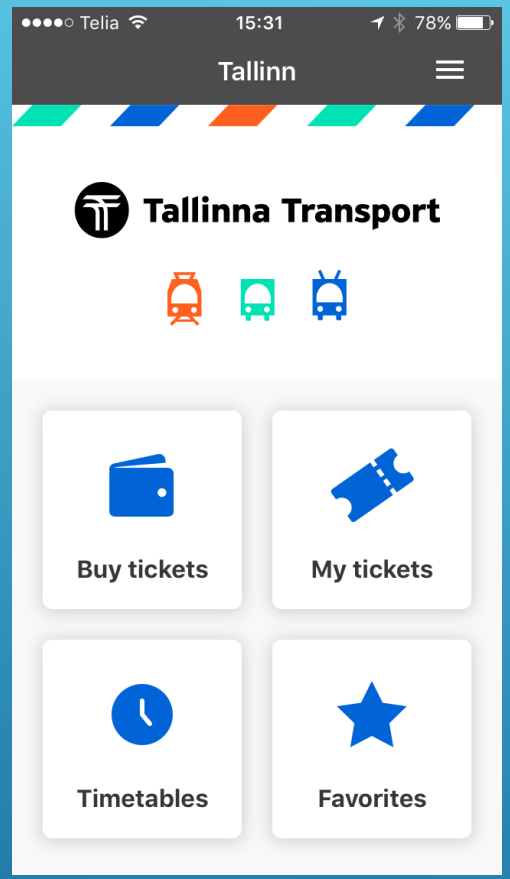
- An hourly e-ticket will be sold directly from the validator by tapping EMV bank card
- Ticketing system applies Best Price logic (price gap) – after the 3rd tap during the same day a daily ticket is sold
- Benefit to occasional passengers – mostly for tourists

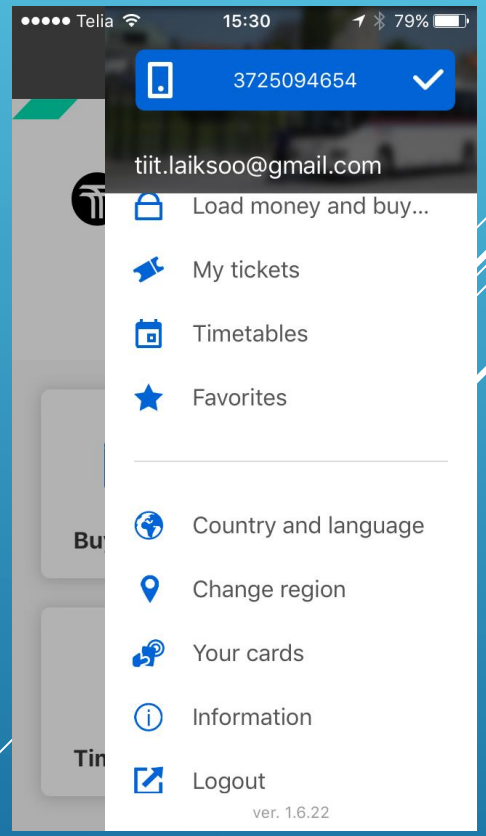
SOME DESIGN SAMPLES











TICKETING AND INFORMATION SYSTEM IN HELSINKI

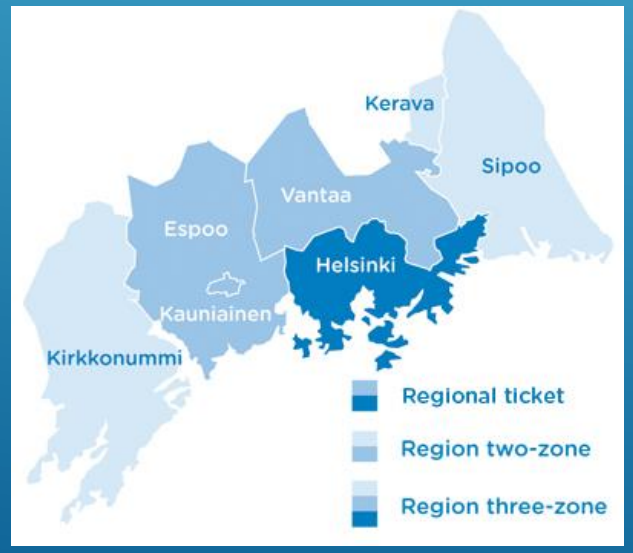
- Deployment of the new systems started in 2016
- Most visible parts for the public are the new travel card readers in vehicles, new ticket vending machines and new travel cards (*Matkakortti*)
- Closed loop „card based“ system, where ticket data is stored on travel cards
- Transactions from vehicles are transferred to back office in real time (when networks are available)

HSL MOBILE APP

- Launched on 5 June 2018
- The app allows you to buy HSL tickets, find the best routes and get transport information tailored to you
- One of the most popular free app in both App Store and Google Play (~1,8 mln downloads in total)
- Tickets sold per month: 2.7 M
- Monthly sale: appr. €12 M
- Average ticket sale per day: approx. 90 000 tickets
- You can pay by credit/debit card or by smart phone, more payment methods are coming

NEW ZONE BASED FARE SYSTEM

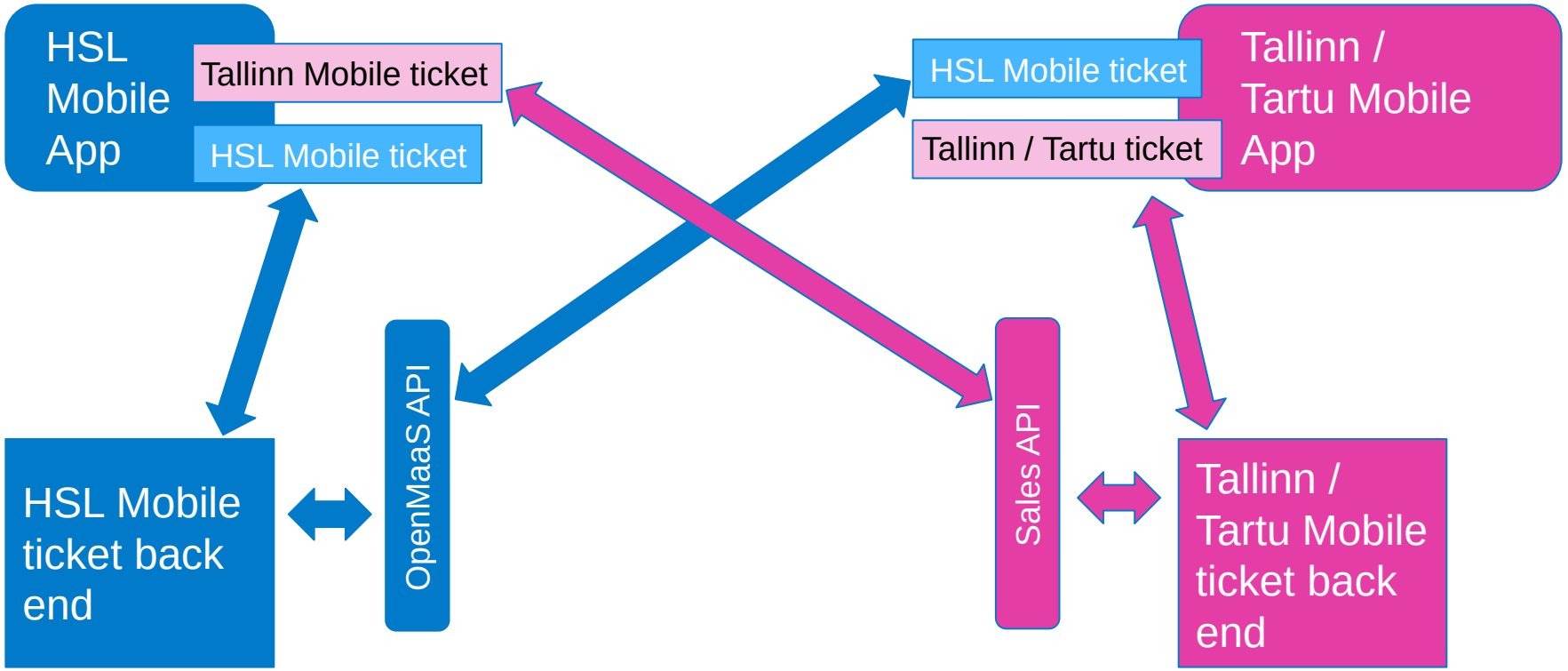
- Former fare system was based on city limits: each city in HSL area (Helsinki, Espoo, Vantaa etc.) had its own internal ticket and in addition there were regional tickets that allowed passengers to travel through several cities
- Currently used zone based fare system: the zones surround the centre of Helsinki



INTEROPERABILITY OPTIONS / STAGES IN PROJECT

- Mobile app based
- Contactless EMV card based
- Travel card based

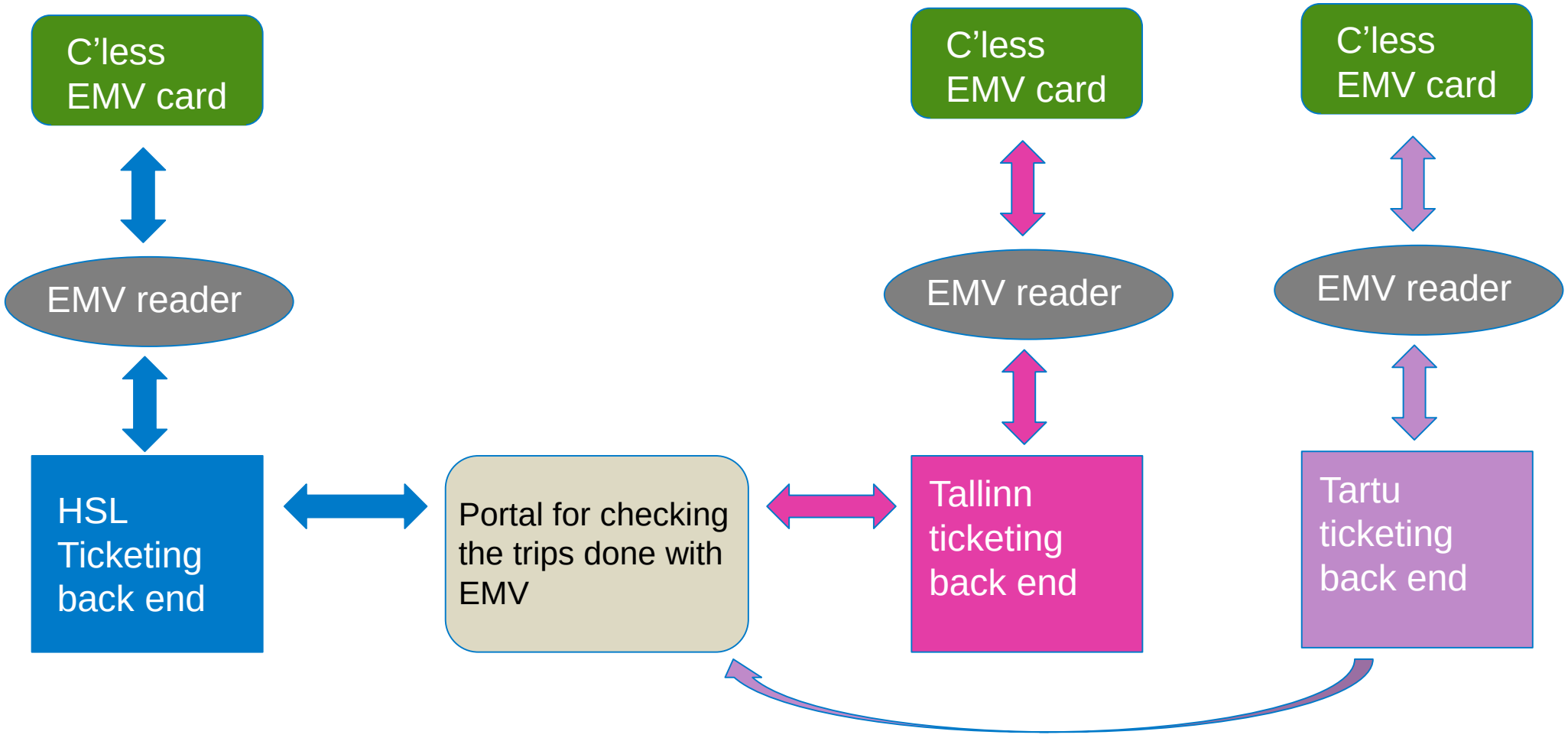
Step 1: Mobile Tickets



STEP 1: MOBILE TICKETS

- Customers can keep using the mobile app they are used to, in the language they are used to
- No need for the customer to download 2 mobile apps or create 2 accounts:
  - HSL customer can buy a ticket in HSL mobile app that can be used to travel in Tallinn (and Tartu)
  - Tallinn / Tartu traveller can buy a ticket in Tallinn / Tartu mobile app that can be used to travel in Helsinki
- Tickets could be combined in a way that would allow the customer to buy a joint ticket that allows traveling in both cities
- Possibility to integrate other public transport tickets in the same app

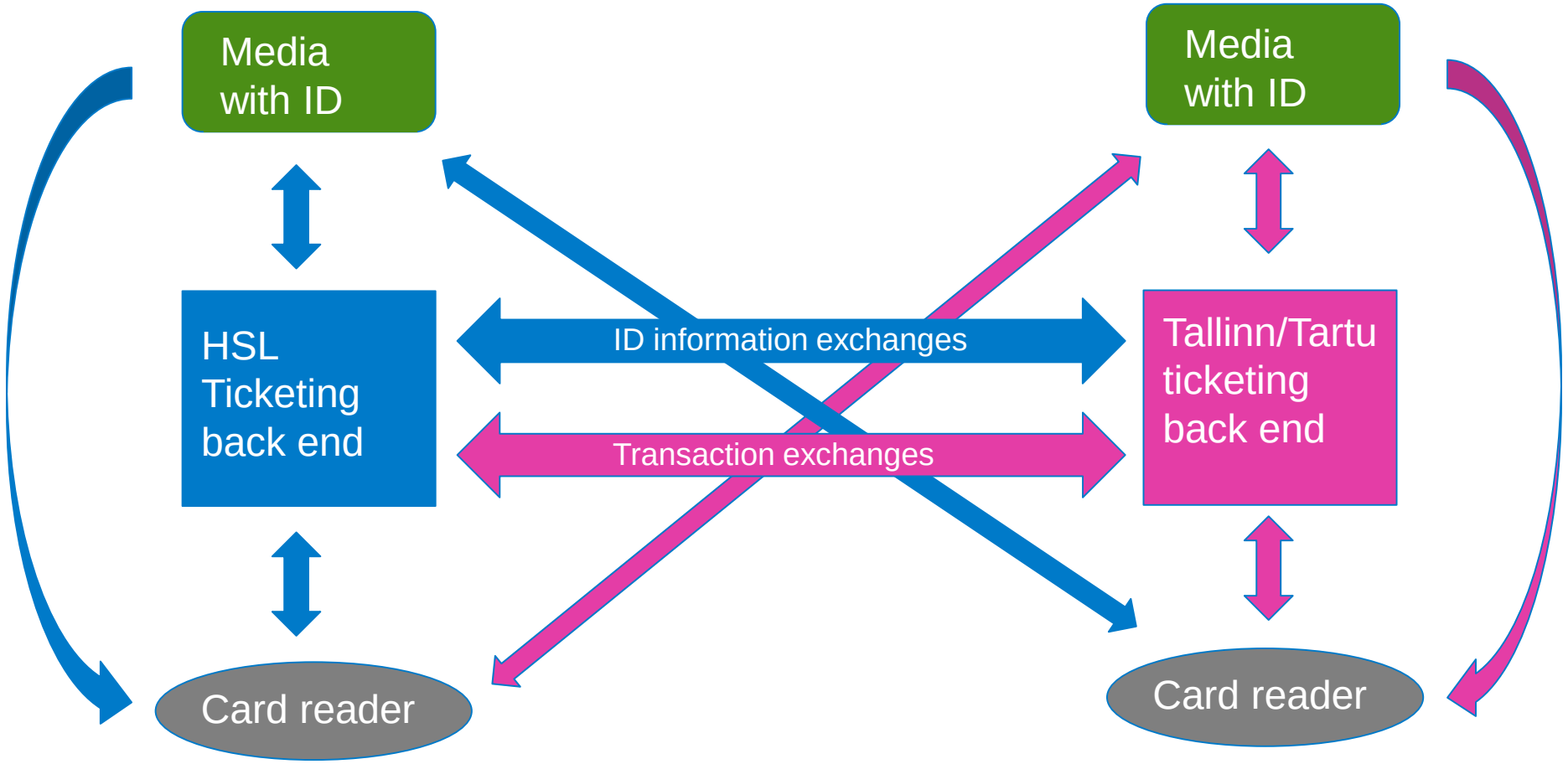
Step 2: Contactless EMV



STEP 2: CONTACTLESS EMV

- Easy for occasional users
  - No need to purchase local tickets
  - Most people already have contactless EMV card
- Integration should be done to allow for customers to have a joint web portal to get info about tickets bought and trips made with their cEMV card in both cities. Or this can be integrated both to Tallinn web and HSL web
- Integration between systems could be difficult, because card number is tokenized differently in different systems
  - Development of common portal for checking trips is not easy
  - Banking card number handling is strictly regulated

Step 3: ID based ticketing



STEP 3: TRAVEL CARD BASED

- Only ID is read and used from all cards. No tickets are written onto the cards.
- The ticket issuing city's back office needs to be online to make a sale
- Tickets that are needed in another city are synced to the back office of the other city and from there to all vehicles to allow ID based travel in all circumstances
- Validations made with *Matkakortti* (FIN) in Estonia are synced to HSL and validations made with *Ühiskaart* (EST) in Helsinki are synced to Tallinn and Tartu
  - This allows customers to see all their transactions and trips in same place
  - Revenue sharing of joint tickets could be calculated on the basis of validations

IMPLEMENTATION OF STAGE 1

- Enabling cross-usage of Tallinn-Helsinki-Tartu public transport ticketing in mobile applications
- Joint Call for Tender by Tallinn & Tartu
- Contract with Ridango signed on 30 May 2019
- Contract deadline: 28 February 2020
- Cost of contract:
  - Tallinn - € 219 483,87
  - Tartu - € 32 516,13
- Stages of the contract:
  - I part - Integration with the API of HSL – 16 Sep 2019
  - II part - Mutual use and clearing – 9 Dec 2019
  - III part - Pilot and upgrade – 28 Feb 2020

I STAGE SCOPE

Integration with HSL's API is ready for ticket purchasing

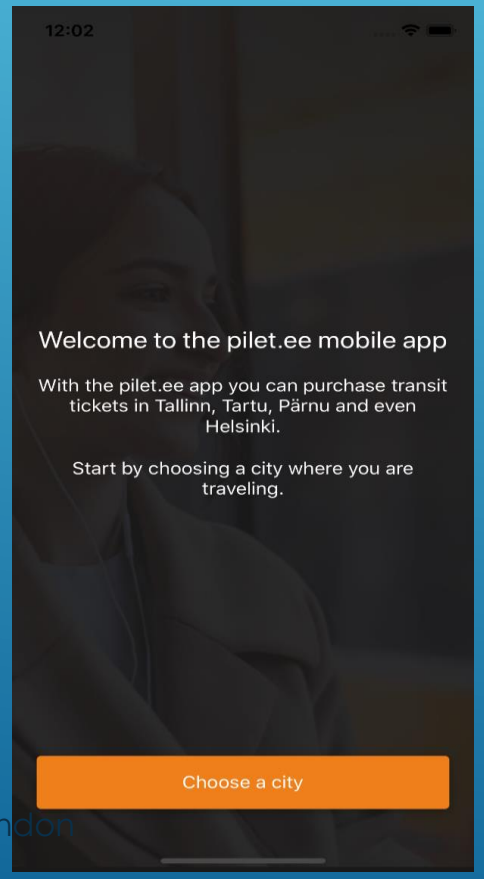
- Description of the work done:
  - Development work for integrating with the HSL API for ticket purchasing carried out (as this is technical backend development work then there is no illustration for these tasks)
  - In order to set up HSL in the Ridango system, the Helsinki region and organisation were set up and areas were configured to enable ticket product configuration
  - HSL was granted access to Ridango's API
  - The following ticket products were configured in the Ridango system as the scope is limited to the following ticket types:

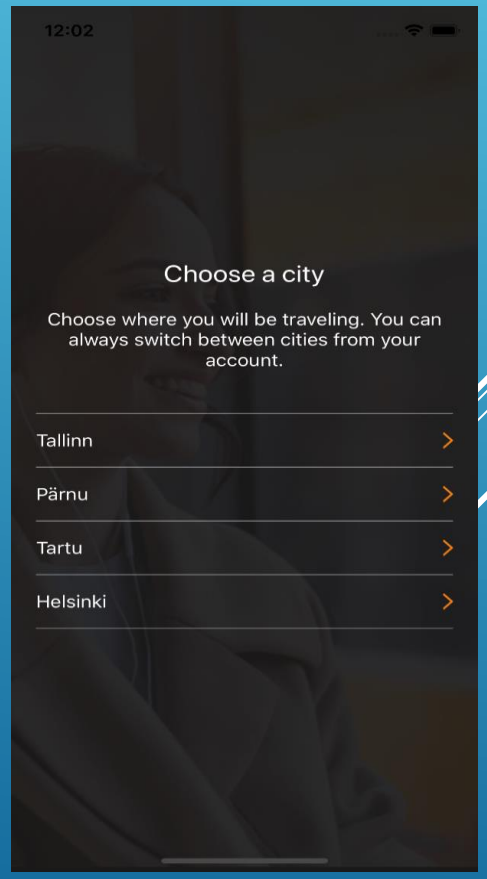
DESCRIPTION OF THE WORK DONE (1)

The new ticket purchasing flow has been implemented, enabling the purchasing of Tallinn, Tartu and Helsinki public transport tickets from the same app in a convenient way.

The following are the screenshots from the mobile app:

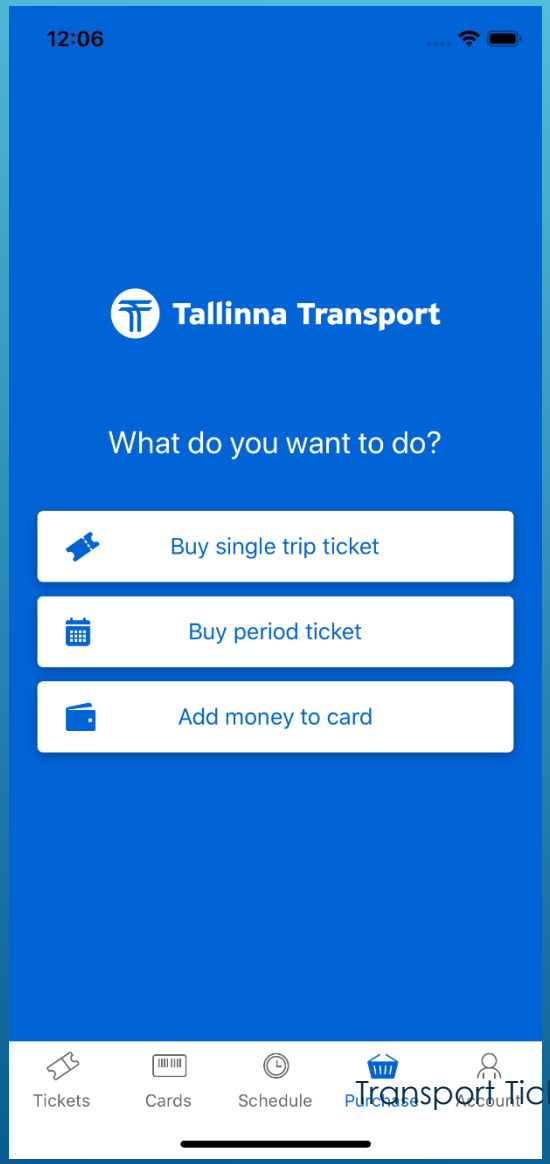
Onboarding section and city/region selection

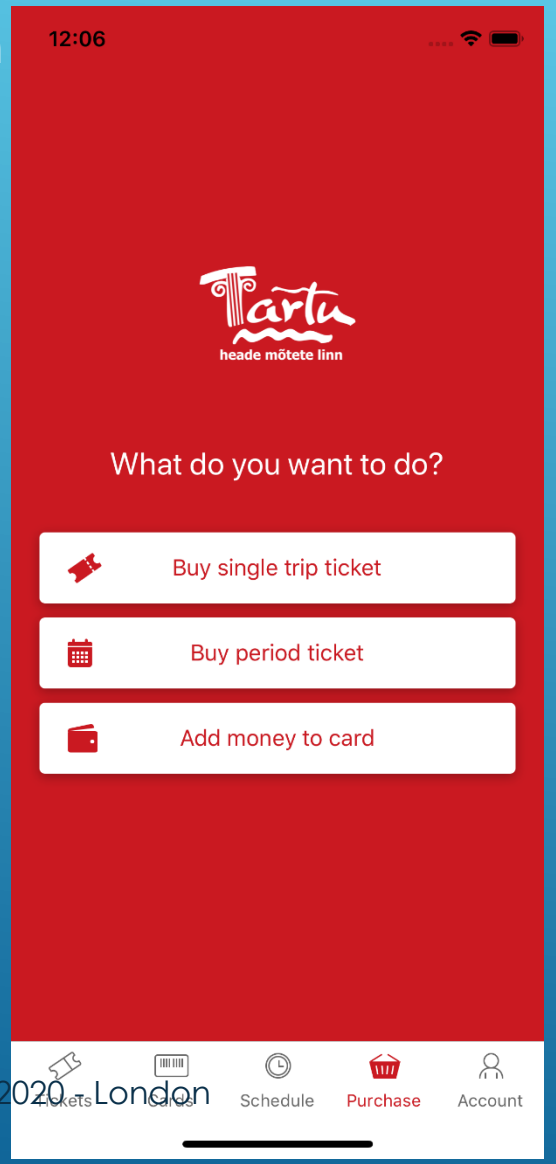




SCREENSHOTS FROM THE MOBIILE APP

City/region selection





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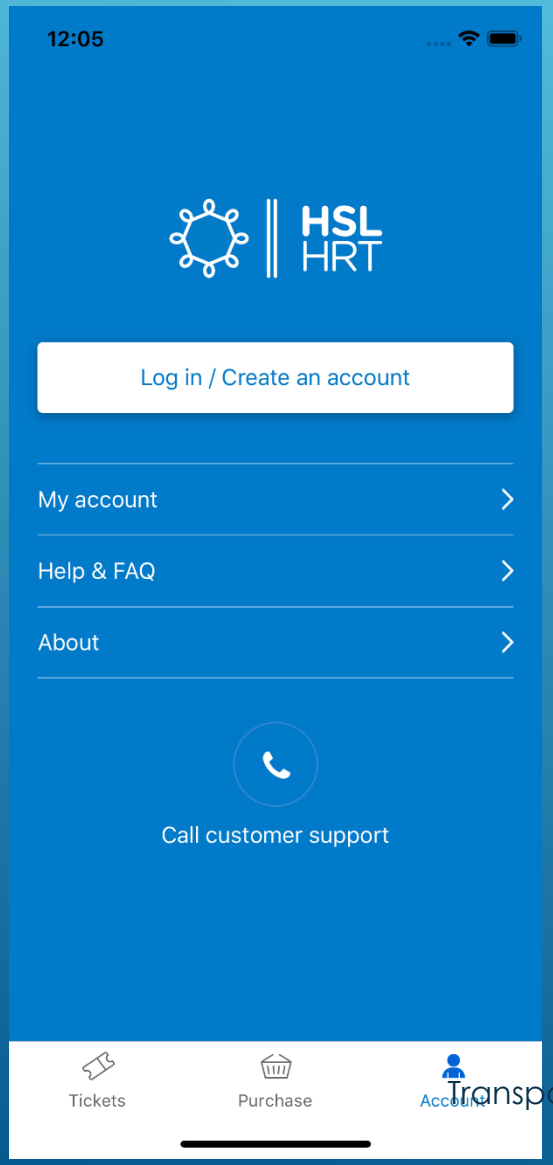
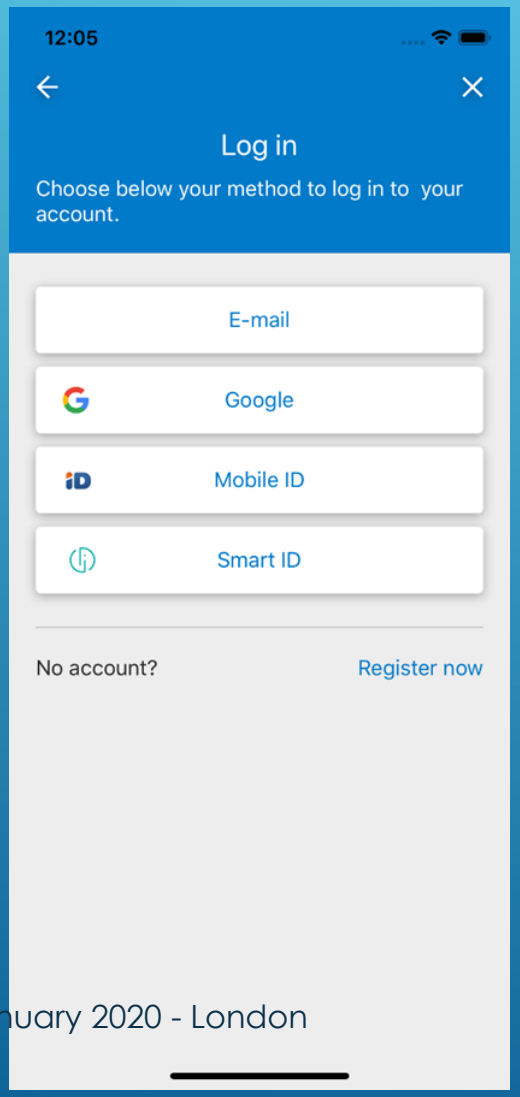
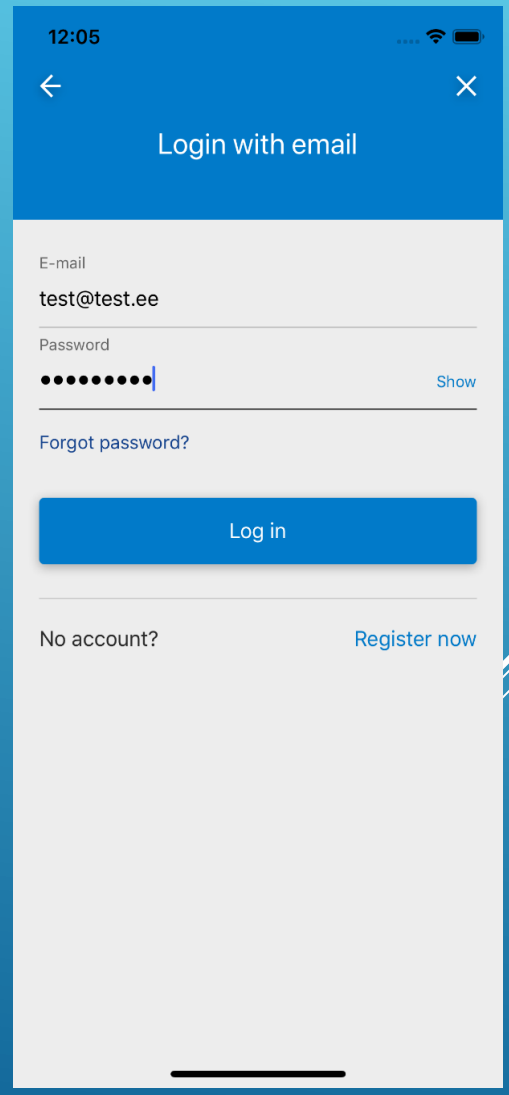


HSL account

Login screens

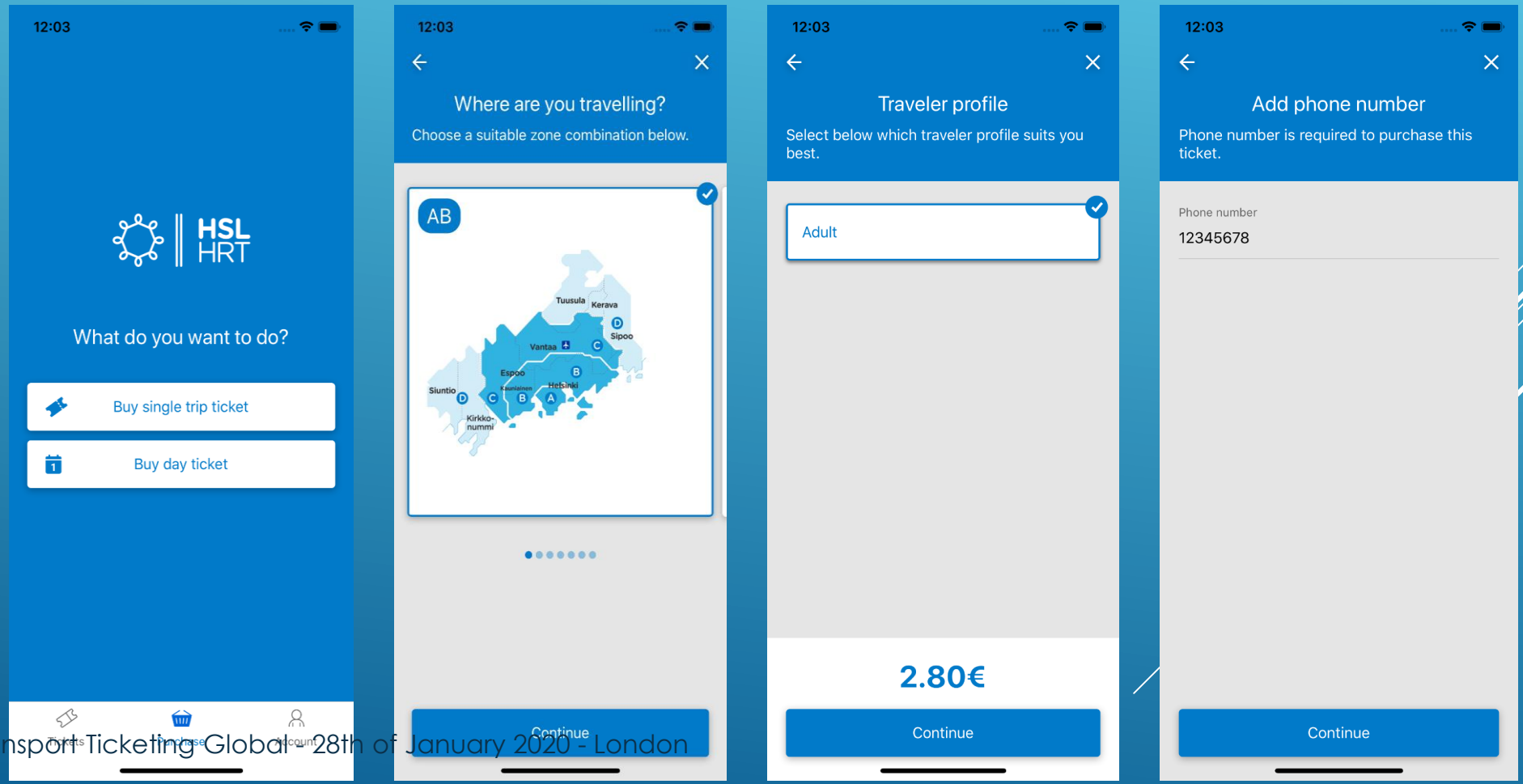




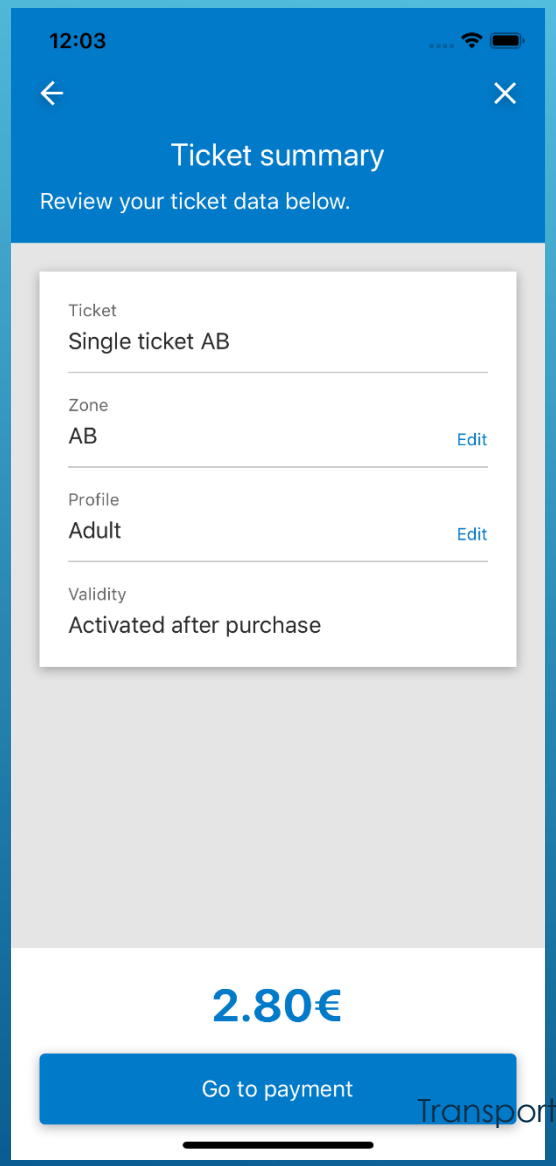
DESCRIPTION OF THE WORK DONE (2)

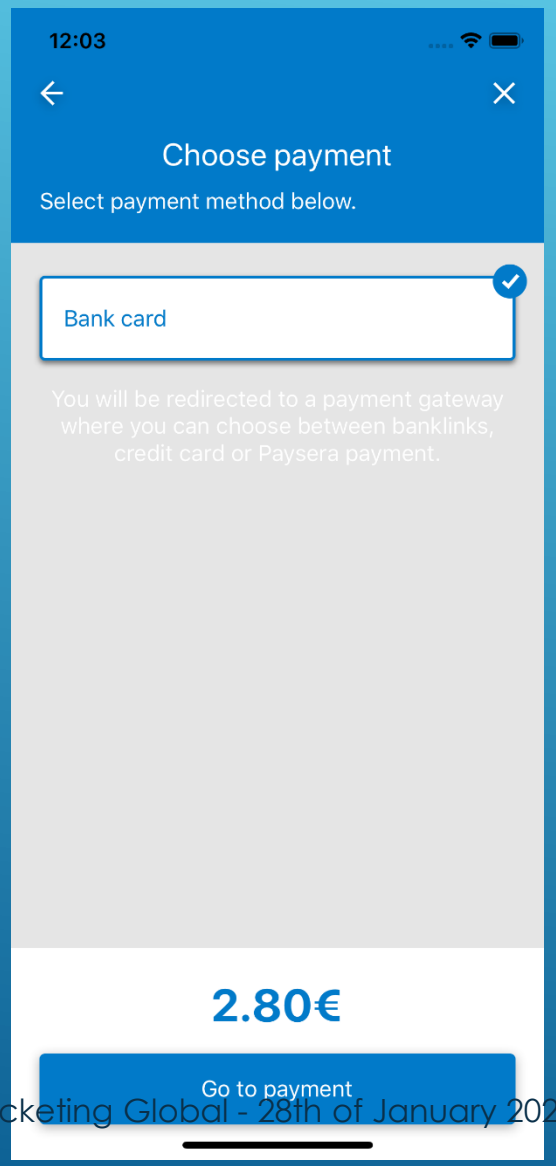
It is possible to purchase Helsinki's tickets from Tallinn and Tartu mobile application. It is an application version meant for testing/piloting.
It will not be an official application that is meant to be used by all passengers.

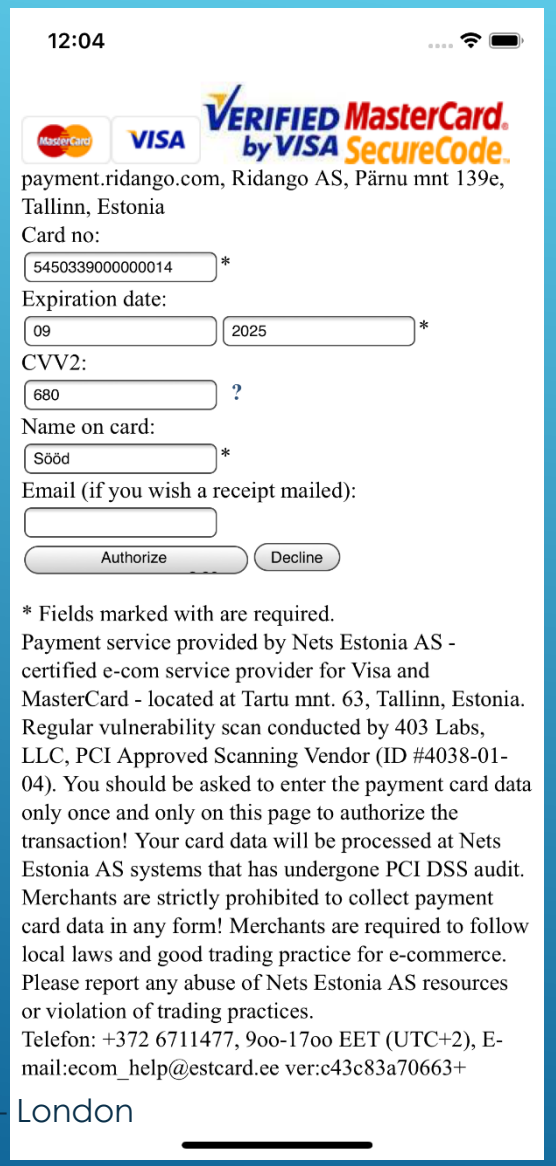
Purchase flow for HSL tickets

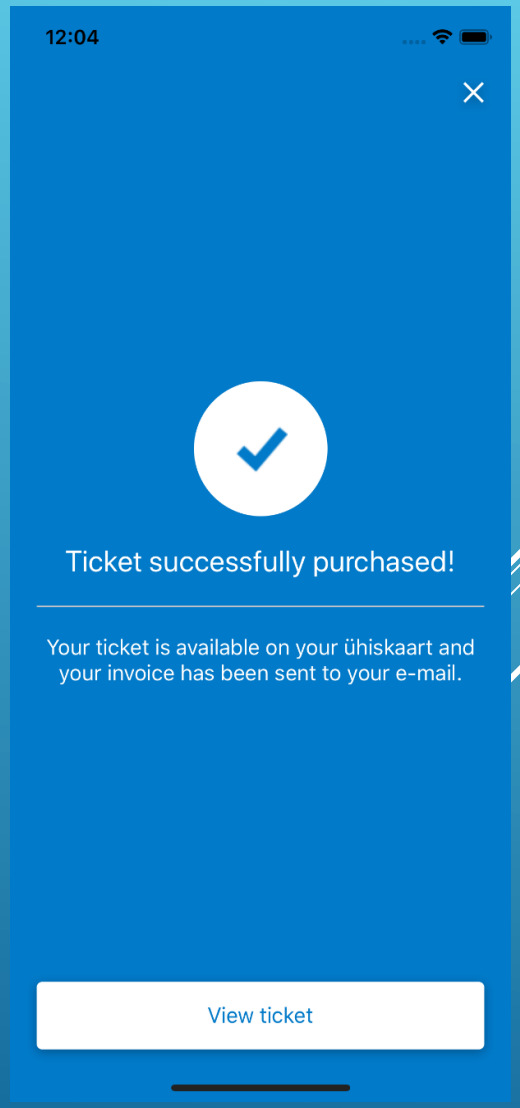


PURCHASE FLOW FOR HSL TICKETS (2)





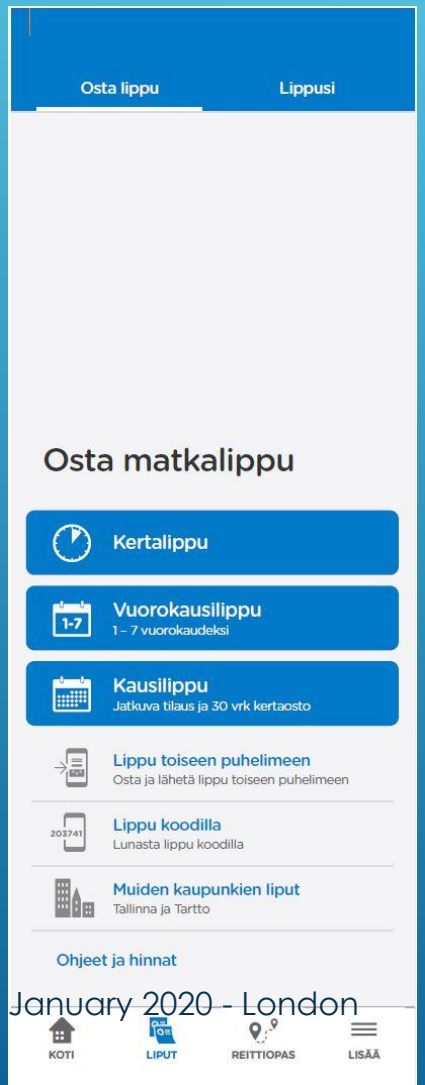


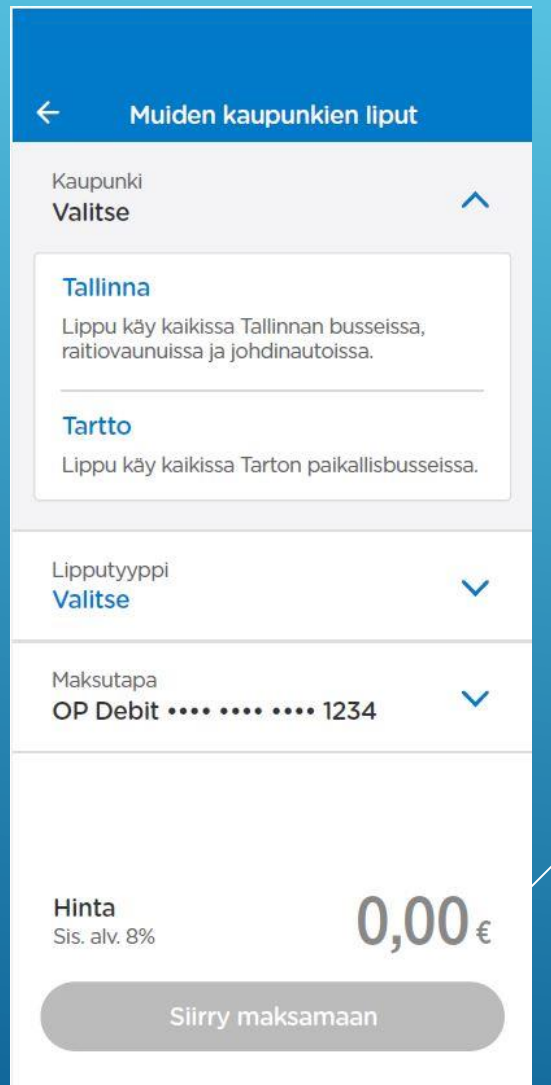


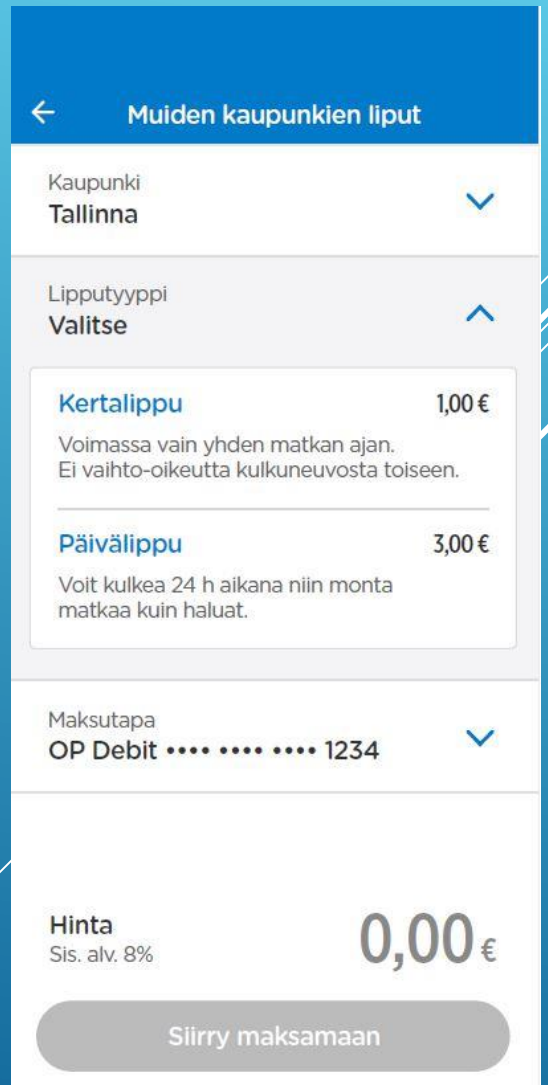
DESCRIPTION OF THE WORK DONE (3)

Ticketing products and configurations have been created that enable HSL to purchase Tallinn and Tartu tickets using Ridango's API.

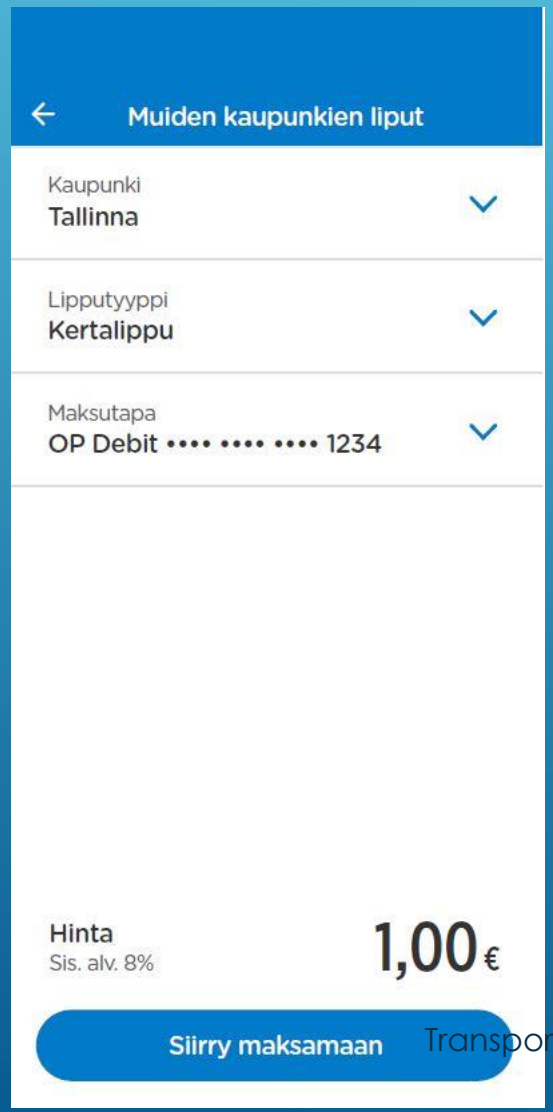
Purchase flow for Tallinn & Tartu tickets

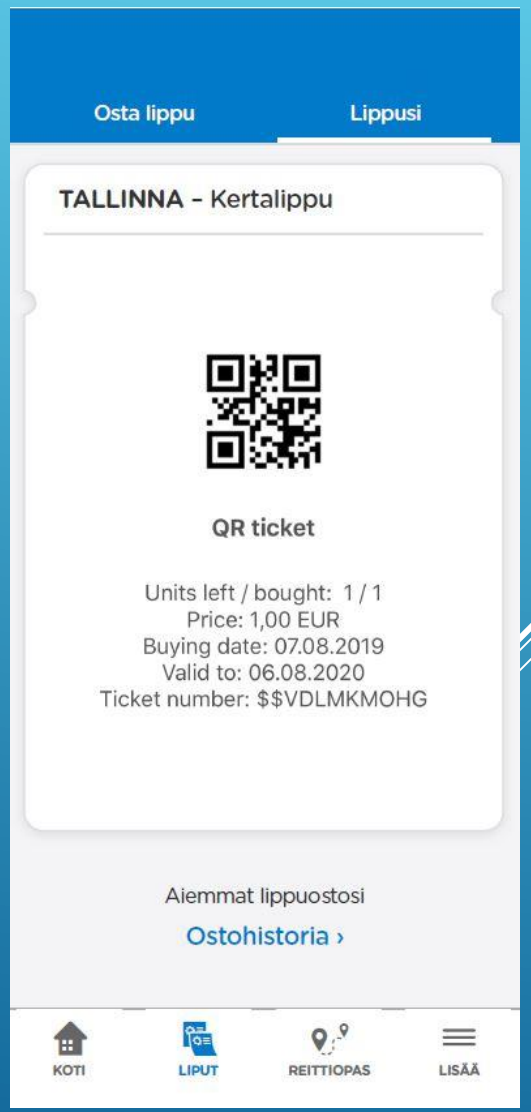






PURCHASE FLOW FOR TALLINN & TARTU TICKETS (2)





THANK YOU FOR YOUR ATTENTION!

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