



UNIVERSITY OF TARTU

Linking Public Transport Provision to Functional Regions: Evaluating Transport-Commuting Alignment in Estonia

Martin Haamer

Anto Aasa

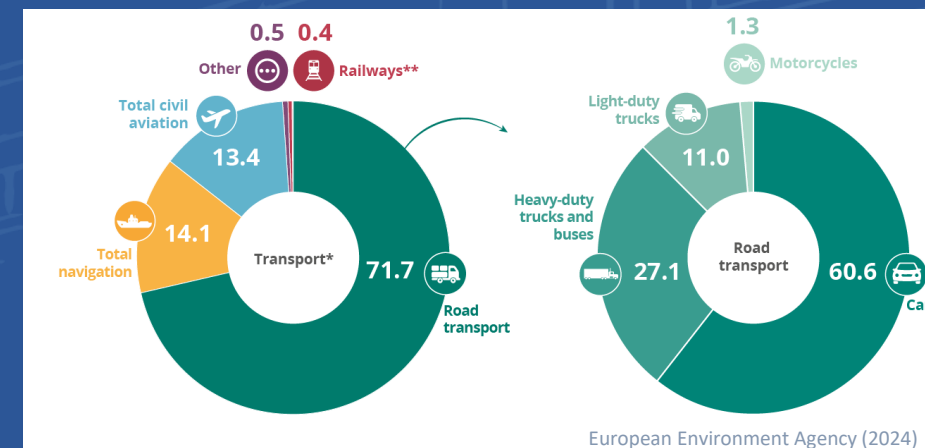
Mobility Lab, Department of Geography

AGILE Conference | Tartu 18.06.2026



Challenges in Mobility

- Increasing car use in Estonia
 - 635 cars per 1000 inhabitants (2024)
 - EU average = 560 cars per 1000 inhabitants
- New national spatial plan “Eesti 2050”
 - strengthen the connections between land use, transport and mobility
 - planning based on functional regions and everyday movement patterns



Tegevussuund 2: toome ühistranspordi inimestele lähemale ning muudame selle kasutamise mugavamaks targema planeerimise ja nutikama piletimüügikorralduse abil.

Möödikud (2035. a sihttase, algtase 2020):

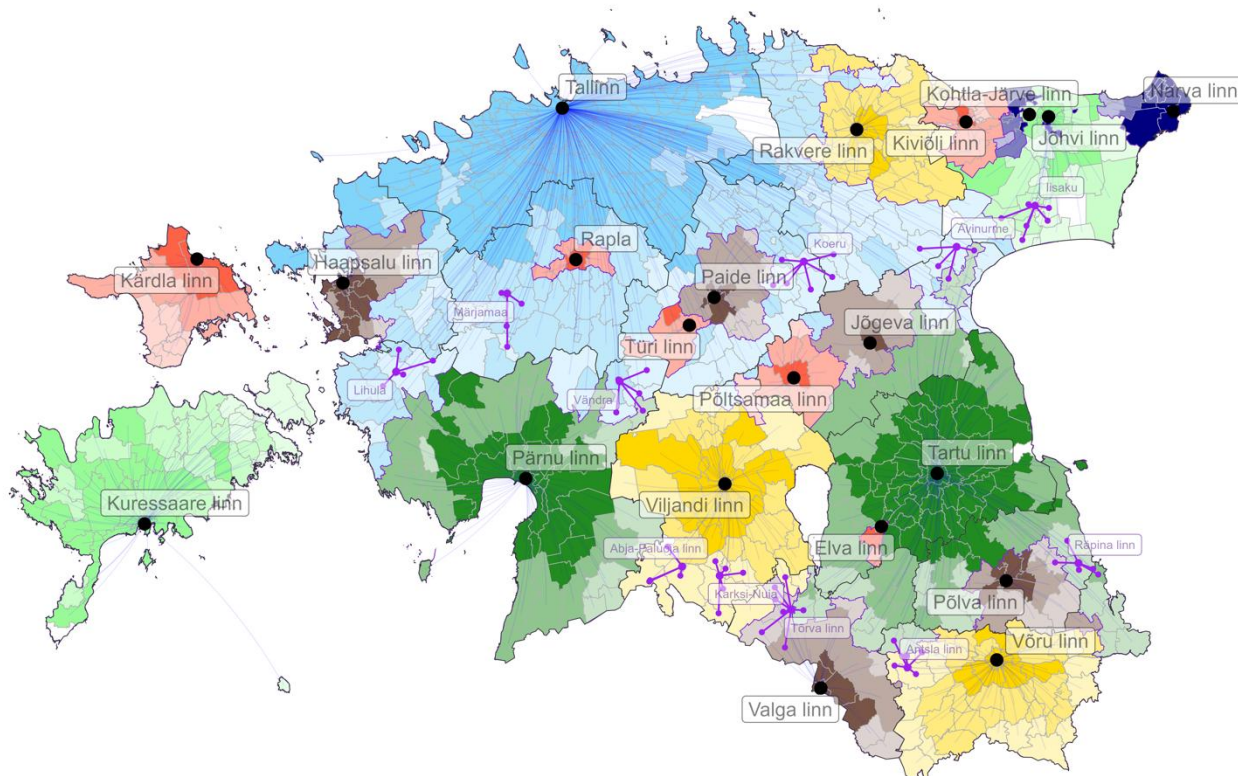
38,7% ➔ 60% Ühistranspordi, jalgratturite ja jalakäijate osakaal 55%, sh linnapiirkondades 60%

Goal is to increase the modal share of PT, cycling and walking to 55%, in urban areas 60% by 2035

How to Organise Public Transport?

Functional Regions of Estonia (2021)

Based on the main daily commuting destination

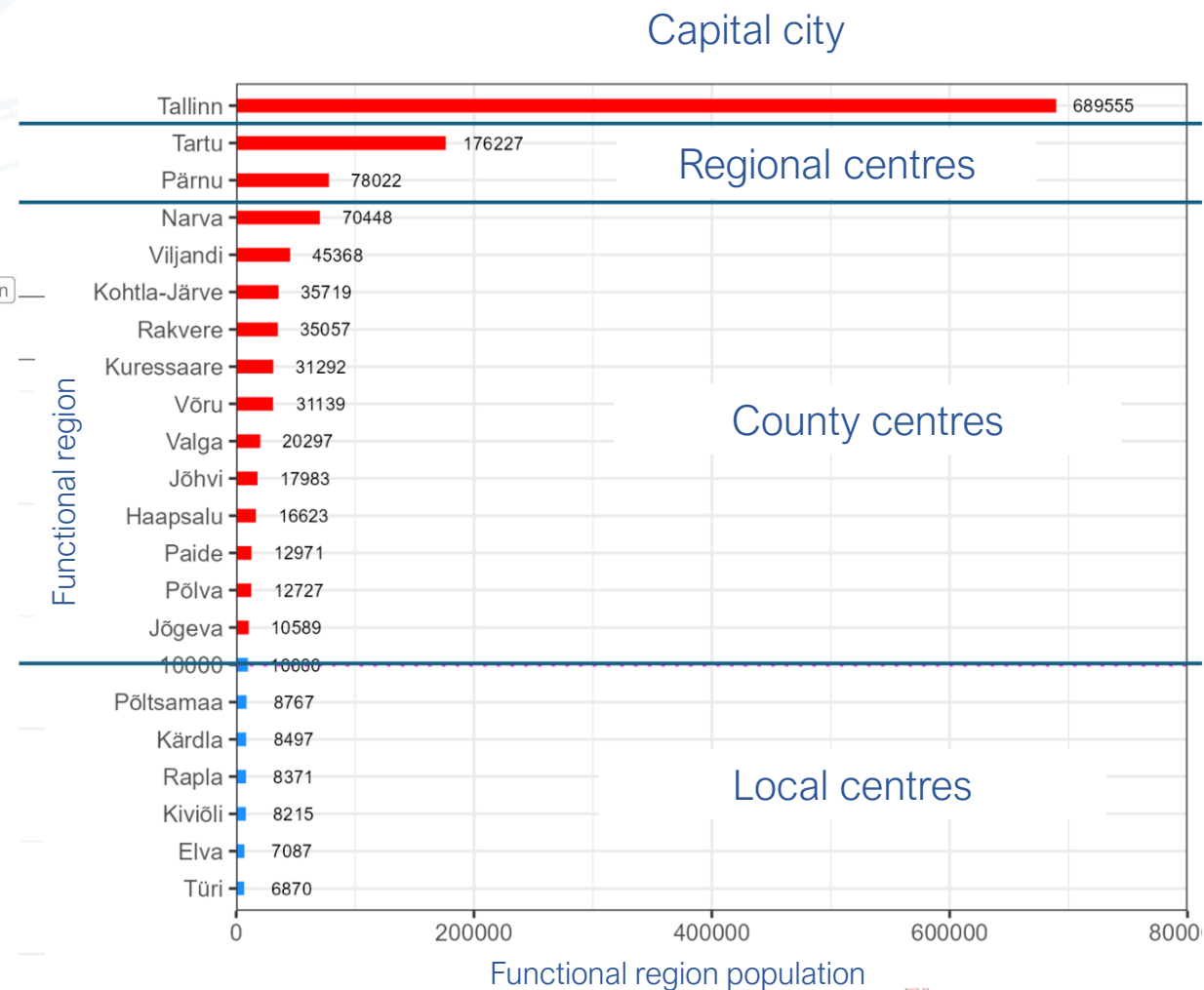
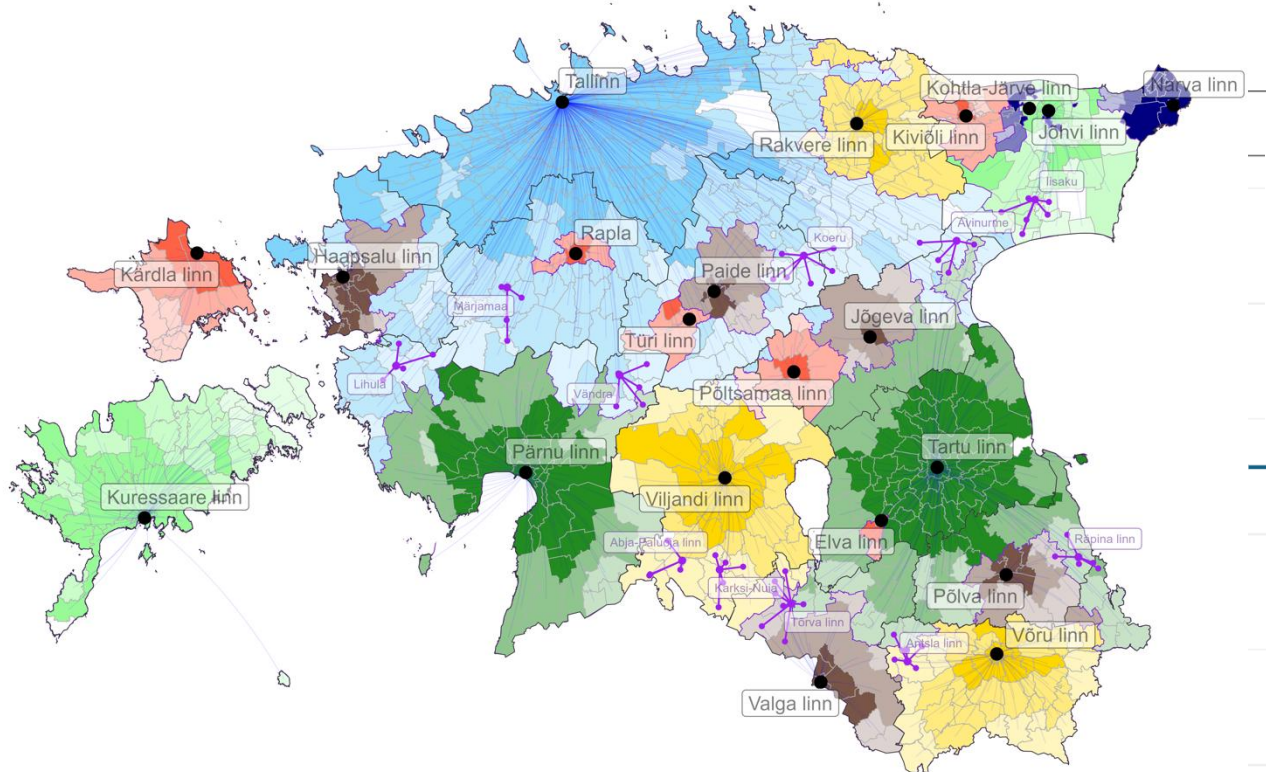


- Primary commuting destination for at least three localities
- At least 5000 residents, recommended 10 000
- Continuous
- Must have educational and health services

How to Organise Public Transport?

Functional Regions of Estonia (2021)

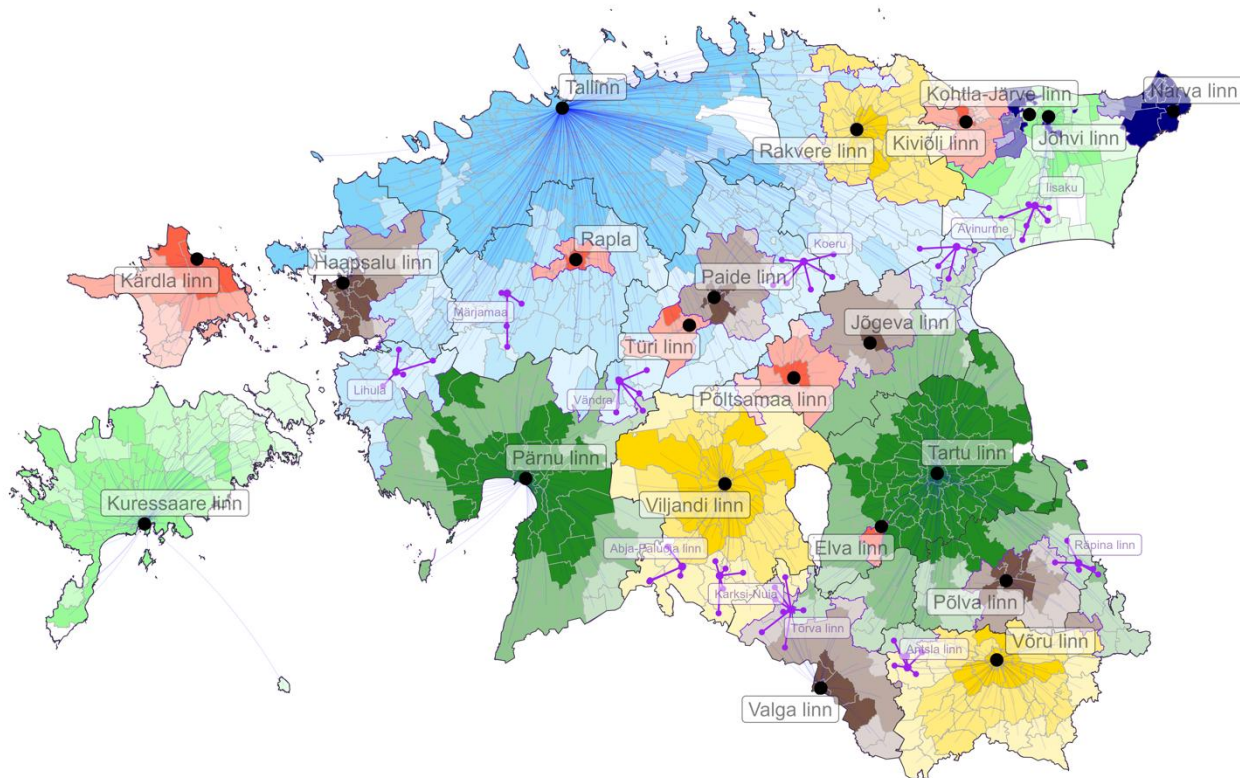
Based on the main daily commuting destination



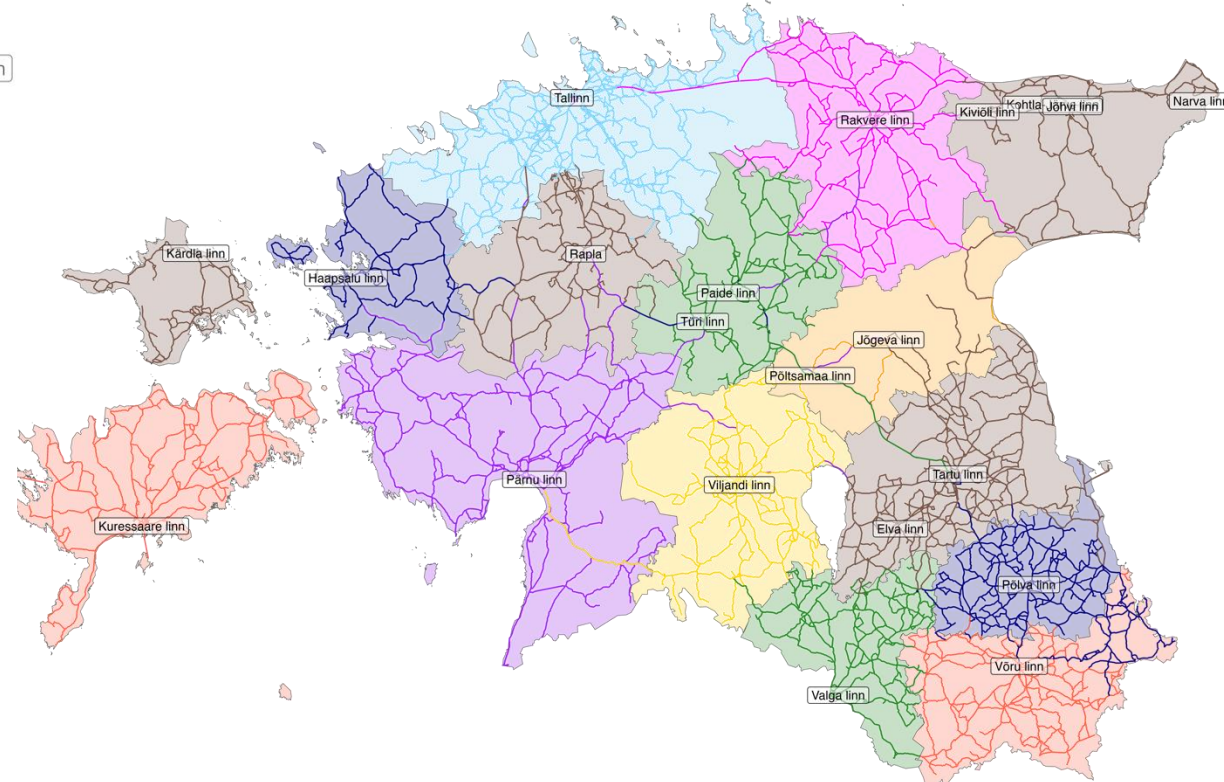
How to Organise Public Transport?

Functional Regions of Estonia (2021)

Based on the main daily commuting destination



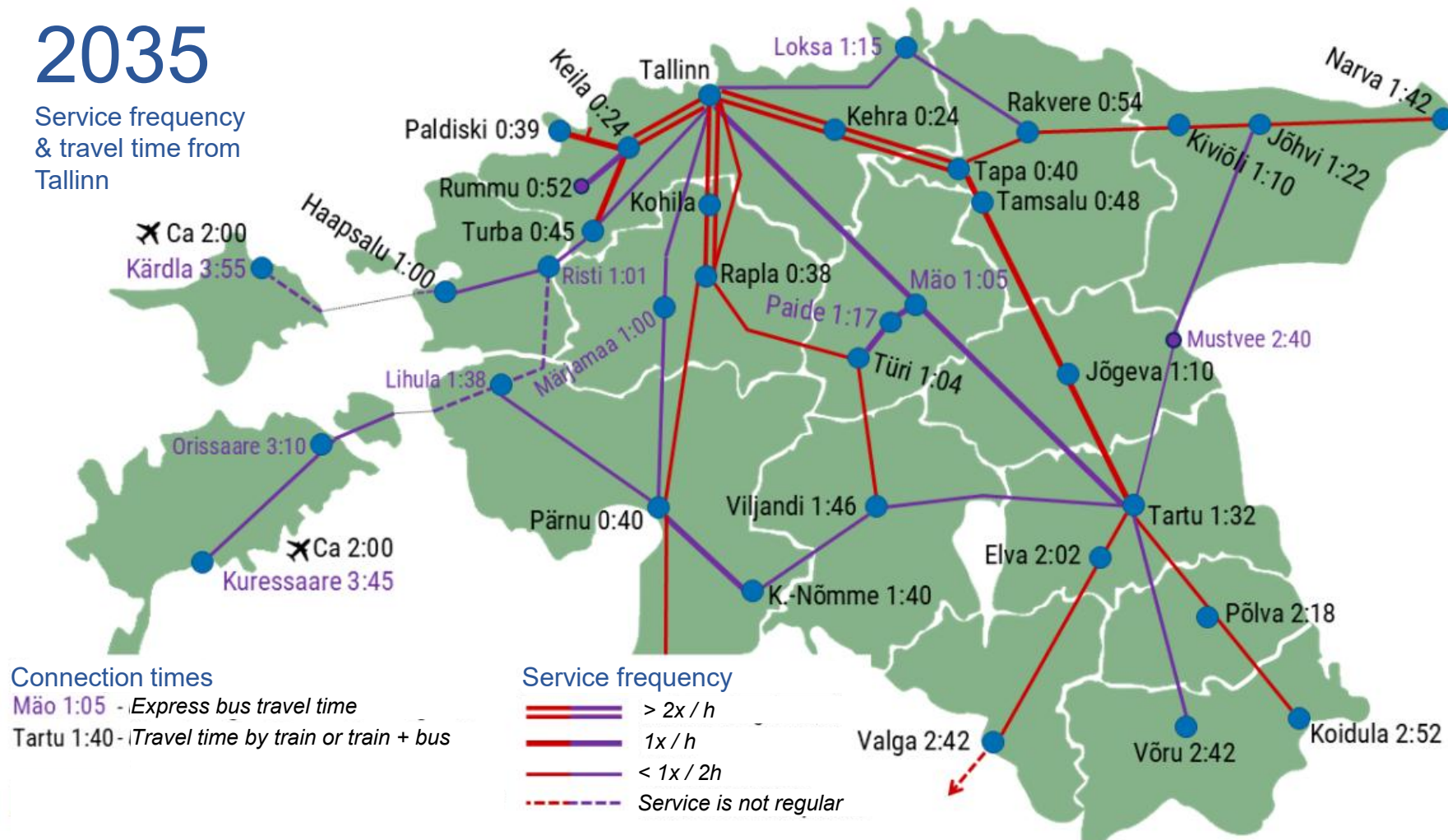
Public Transport Administration



How to Organise Public Transport?

2035

Service frequency
& travel time from
Tallinn



Data & Methods

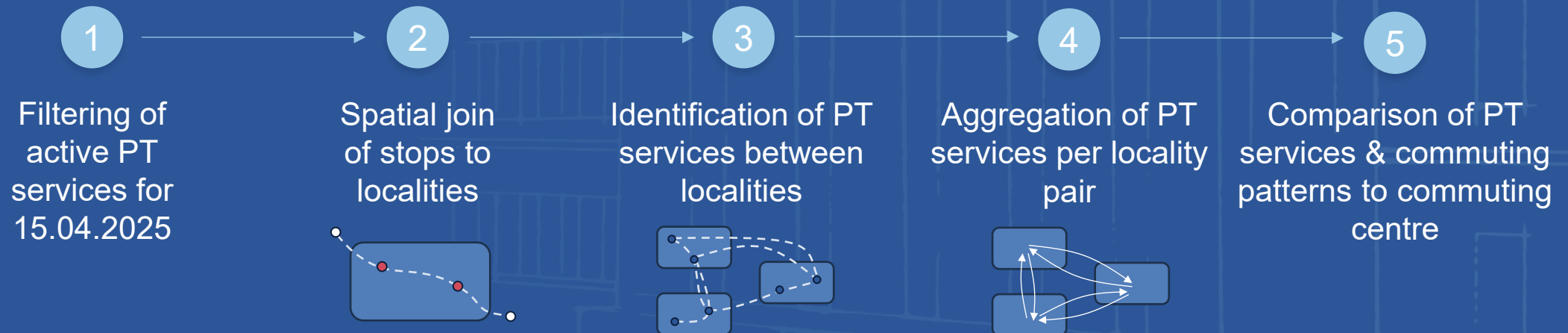
Functional regions

- Daily commuting data from Statistics Estonia
- 840 localities divided into 21 regions
- Each locality is assigned to a commuting centre

Public transport data

- GTFS (General Transit Feed Specification)
- Stops, routes, services
- Representative Tuesday for analysis (15 April 2025)

Analysis framework



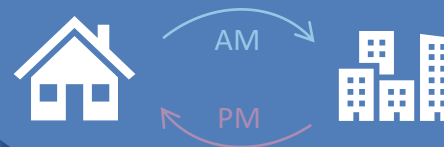
Measures of Alignment

Primary destination alignment

Is the locality's most-served PT destination the same as its commuting centre?

Minimum round-trip service level

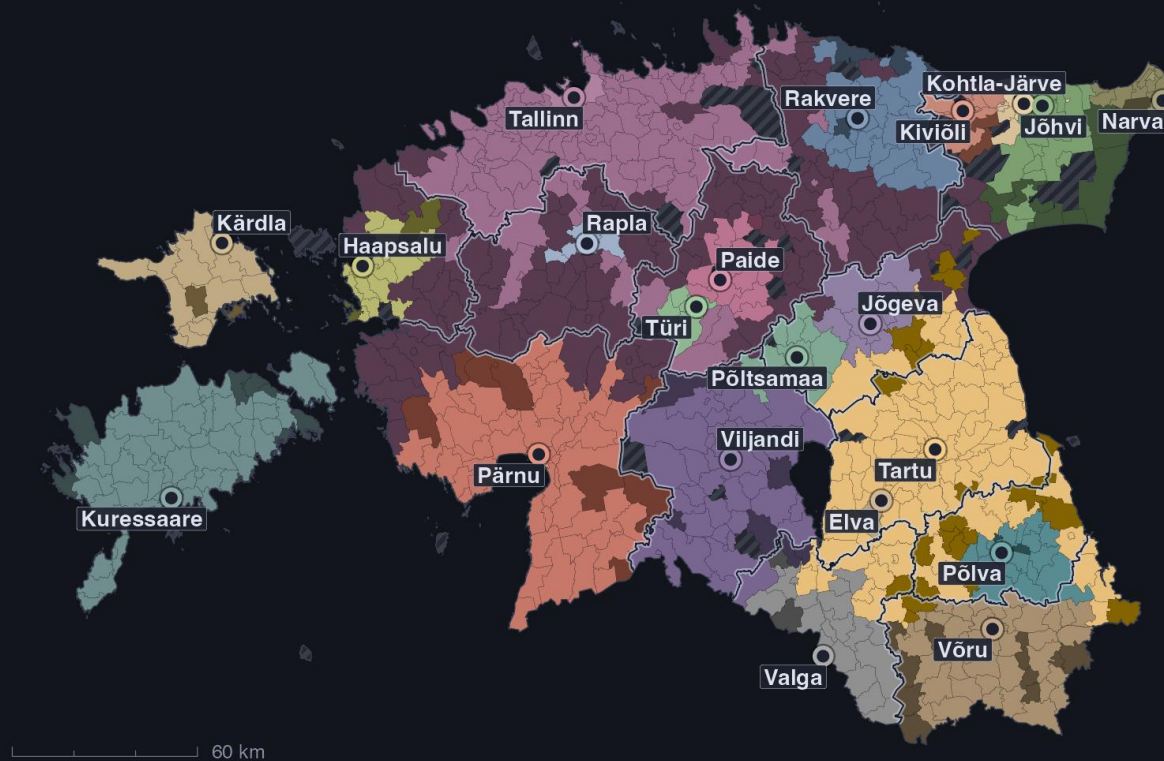
Does the locality have a morning peak connection to the commuting centre and a return evening peak connection?



Results

Functional Regions: PT Connectivity to Commuting Centres

Lighter = morning (AM) & evening (PM) peak PT connections available | Darker = no direct AM & PM connections



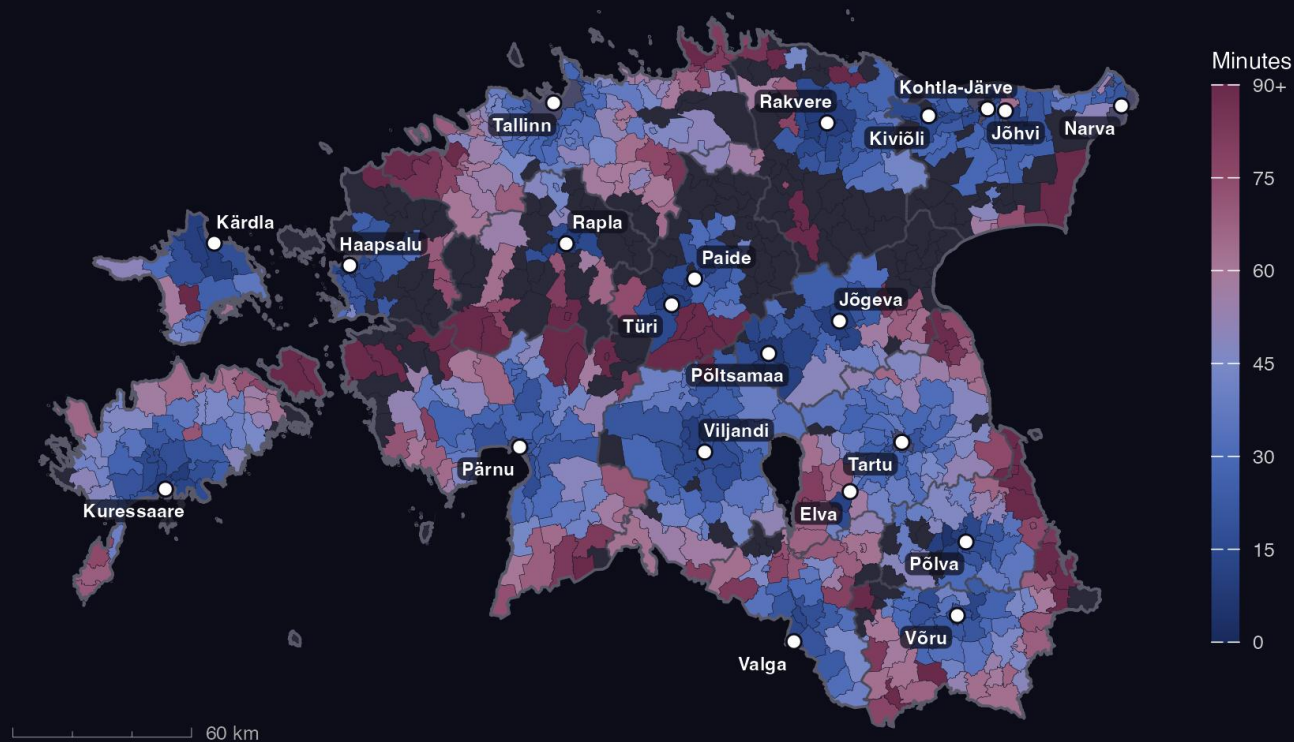
County borders are visualised | PT = public transport

- 776 (**94,7%**) localities have a PT connection
- 365 (**44,5%**) have their primary PT destination aligned with their commuting centre
- 566 localities (**69,1%**) have connections enabling a round-trip for daily commuting
- 170 (**20,8%**) have no direct connection
 - **8,3%** (44,428) of the non-centre population = 535,122 people

Results

Median Travel Time to Commuting Centre

Typical PT journey time from each locality to its designated centre



Grey = centers | Overall median: 40 min | Data: Maanteeamet GTFS

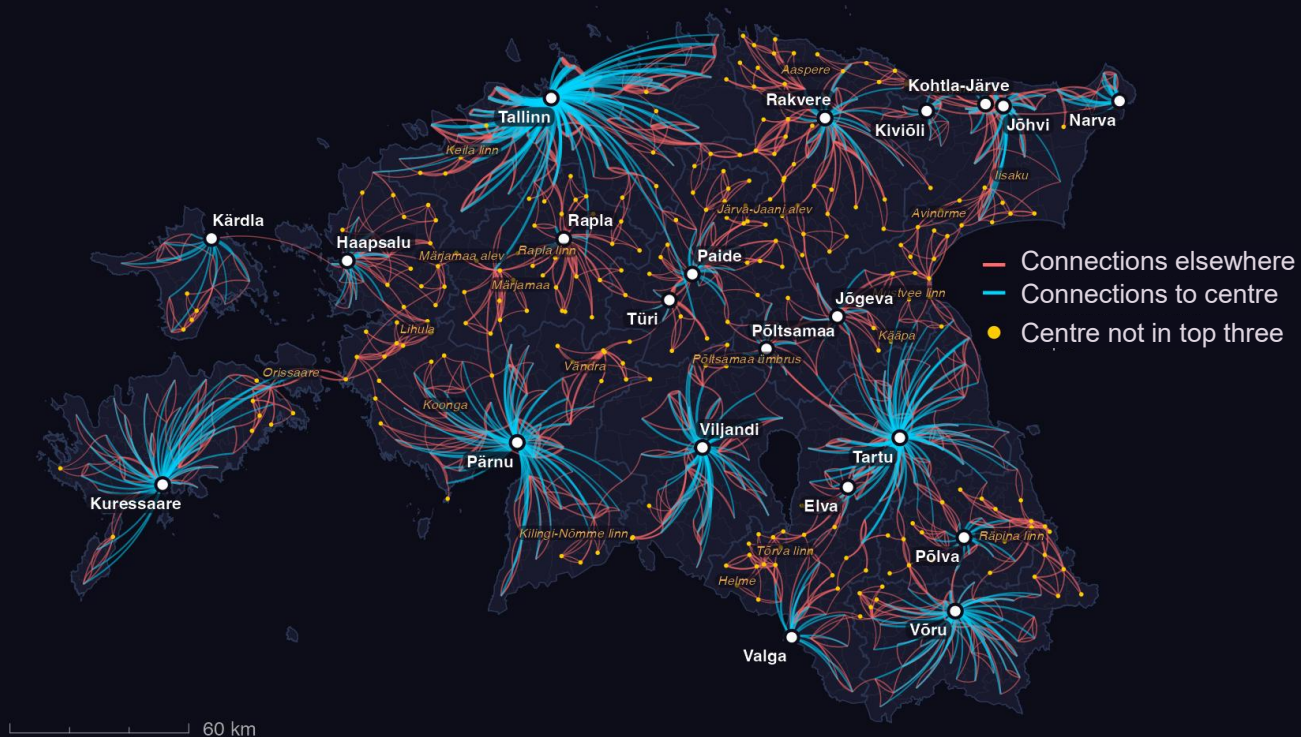
- Median journey time of **43 minutes** among localities with a direct PT connection
- **28,4%** (152,087) can access their centre within 30-45 minutes using PT.

Trip duration (min)	Localities	Population
0-15	55	33,960
15-30	145	125,407
30-45	133	152,087
45-60	133	84,386
60-90	128	73,612
90+	55	21,242

Results

Alignment of PT Services with Commuting Centres

Top three destination localities by number of services



Data: Estonian Transport Administration

- Four smaller regions (Elva, Rapla, Jõgeva, Põltsamaa) have 100% alignment
- **41,6%** of localities in the Tallinn region meet the minimum round-trip service level
- Smaller local centres emerge from the PT network structure

Takeaways

- Regional PT services do not align with daily commuting patterns
- A functional region based approach helps better align public transport services with people's actual mobility patterns
- PT plays an important role in regional policy and supports people's access to local commuting centres.

Thank you for your attention!

Martin Haamer

Junior Researcher in Transport Studies

✉ martin.haamer@ut.ee

[Mobilitylab.ut.ee](https://mobilitylab.ut.ee)

