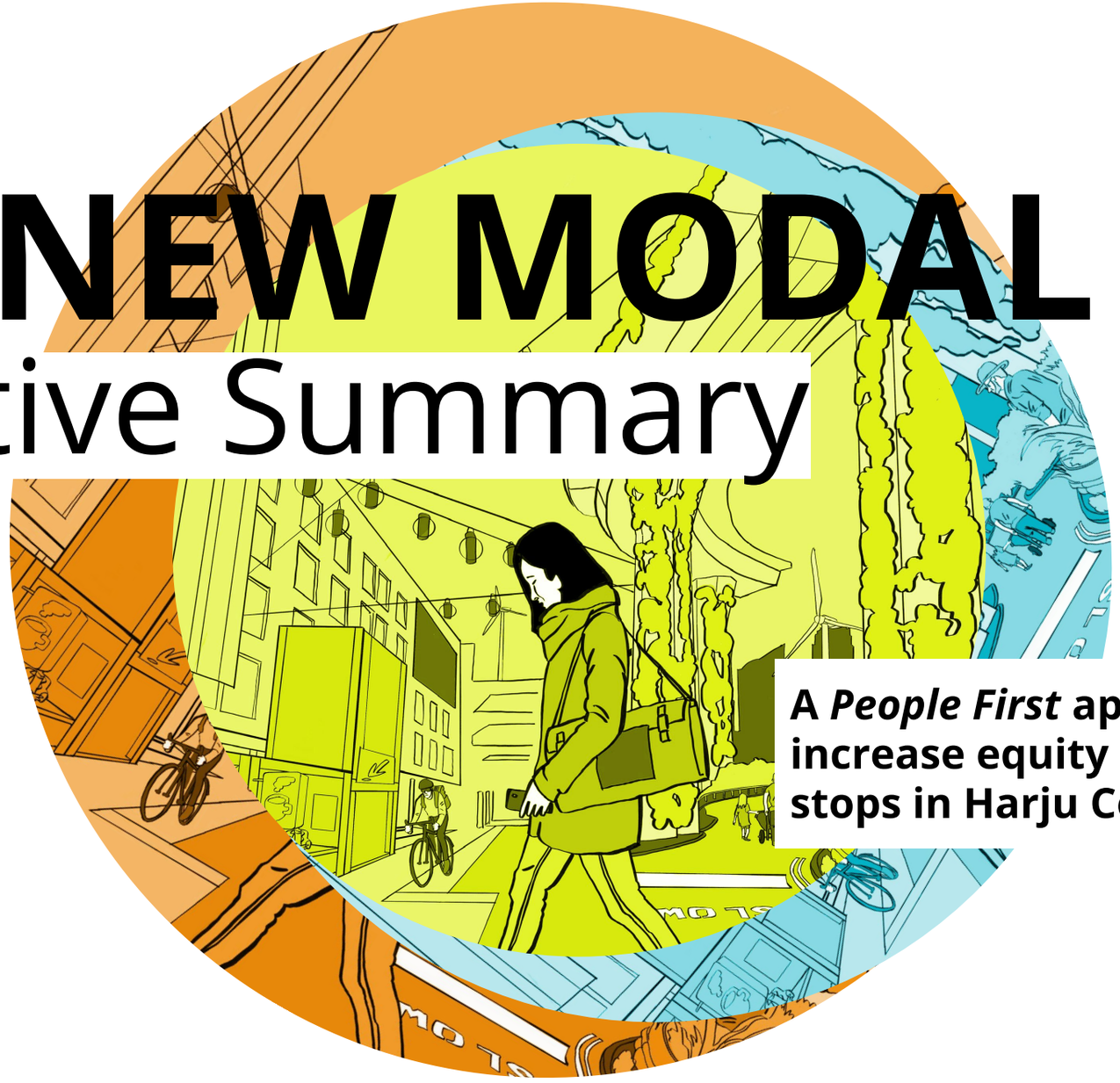
THE NEW MODAL

Executive Summary



A *People First* approach to increase equity in public transit stops in Harju County.

The survey was conducted between SPINUNIT OÜ and Demos Helsinki OY between August and November 2020

The study was commissioned by the Harju County Association of Local Governments and funded by the SUMBA (Sustainable Urban Mobility and Commuting in the Baltic Cities) project co-funded by the Baltic Sea Region Program.

PROJECT BRIEF

OUR TASK

There are many studies on transit and mobility but only a few ones that focus on the stops. **This project is about gaining high-level knowledge about transit stops and stations in Harju county.**

OUR CHALLENGES

Generalising knowledge about nearly **3000** stops across the region. Most **studies and strategy documents usually focus on one transport mode only.** The challenge of this project is to take **all transit modes into account** (train, tram and bus).

OUR APPROACH

We utilise a **capability approach** to study the mobility equity provided by public transit stops in Harju county. It **is about addressing problems related to the uneven or unjust distribution** of mobility services and the accessibility, safety and comfort of transit stops and stations.

DATA ANALYSIS

2917 stops and stations

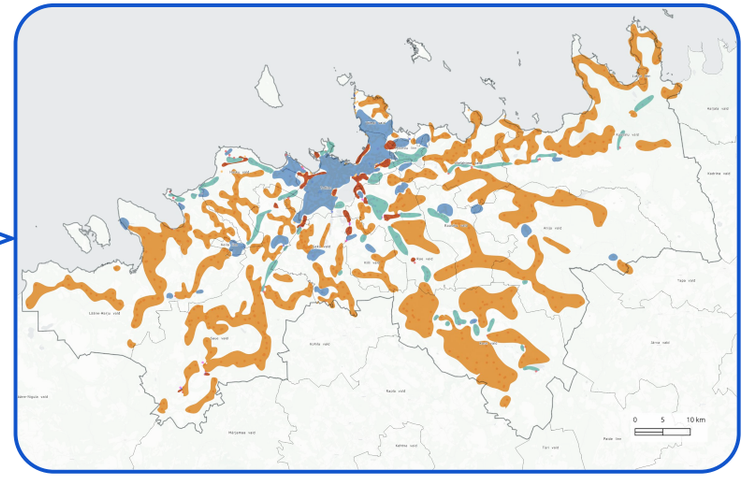
19 metrics to map
Service performance
& Potential demand

Mobility equity

SITE ANALYSIS

64 stops

Mapping accessibility, safety and comfort on site.



The knowledge produced in this project can be utilised to:

- ➔ Establish benchmarks for stops and stations
- ➔ Set service-development priorities
- ➔ Initiate debate and activities for shared public-transport stops roadmap between municipalities

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

Summary of the report chapters

1/6 Introduction

Most residents of Harju County need improved public transport stops. The need for enhancements is exacerbated by both the ageing population and a change in the values of the younger generations - who are becoming less interested in owning private vehicles and are more attracted by emerging individual mobility services and subscription models.

51% of the Estonian population are children, adolescents, the elderly and people with special needs (Parts, 2020). In Harju County, 40% of the population is younger than 19 and older than 65. These are social groups At the same time, not enough priority is given to supporting sustainable mobility modes in local planning normative and public transit standards. Thus achieving the full potential of public transit as a unifying, regional, sustainable and mobility-friendly service, is difficult to reach (Tuvikene et al, 2020).

The mobility opportunity is listed in the chart of human rights. Ensuring equal access to mobility services should be prioritised by policymakers and increase their support for local transport justice. Besides, high-quality public transport is of economic value to each region, as many of the indirect (and often overlooked) costs of owning private vehicles can be reduced in the future. For instance, the average Tallinn household spent 259 euros per month on car-related expenses (EMOR, 2015) which is about ¼ of the average monthly income. In households with several cars, this amount can be almost twice as high.

Public transport stops should be seen as the main intermediaries between the user and the public transport service. By changing the stops, the whole service can be made more attractive and functional, at the same time increasing the number of users.

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

2/6 Document analysis

Mobility studies in Harju County show that the number of public transport users is unevenly distributed between different municipalities. The modal share of public transport is only 12% in the best case, with the exception of Tallinn with 40%. Yet, in many other municipalities, many people walk or cycle more.

A review of old photographs shows that past transit stops solutions were more people-friendly than today. While the materials and the design may appear rather basic, in soviet time, many transit stops provided adequate shelter, effective design solutions to shade people from wind and they were integrated with kiosk or services.

Transit stops, like other elements of the urban landscape, should have a people-first design approach to make them attractive, accessible and comfortable. Design elements need a minimum design framework to ensure a better experience of these public spaces - the lighting conditions, the cleanness of the waiting space, the bins, benches, signage and stands should be optimised for human comfort, ergonomics, children and people with disabilities. A good and well-thought design framework for transit stops can make them part of the local identity and provide one more nudge to reduce car dependency.

A review of current design norms shows that transit stops standards are mainly defined from a road engineering perspective. According to these documents, design solutions are in place to ensure that public transit stops and vehicles, pose no obstacle to car traffic. As for today, there is no norm defining typologies of public transit stops based on their local context, public transit demand or service performance. Nor there we found minimum requirements or guiding principles to ensure high-quality design solutions. The user experience and their satisfaction with the current condition of transit stops have been little studied.

3/6 Mobility equity

In order to guide decisions and make choices to improve the quality of stops, we introduce a method to classify transit stops based on their mobility equity. To do so we established 19 indicators to measure Service Performance and Potential demand around each stop and station in the region.

1. **Service performance** An index that relies on GTFS, delays and passengers count data
2. **Potential demand.** An index that relies on,the National database of the built environment, census data and qualitative observations from Foursquare.

Based on these indicators, we classified all into 6 categories based on their Service performance and Potential demand.

The purpose of such categories is to support local decision-makers in finding the most critical and appropriate solutions for each stop, prioritise interventions and find new opportunities (and resources) to upgrade existing stops. The Harju Equity map can also be a valuable instrument for urban and mobility planners to rekindle the debate on transit-oriented planning, especially in rural areas characterised by car dependency for daily commuting.

This classification method revealed an unequal distribution of quality services, meaning that there are high-quality thresholds between geographical areas. In the long term, this can increase inequalities between families who can afford private vehicles and those who do not.

Summary of the report chapters

4/6 Site analysis

A total of 64 stops in 25 locations across Harju county were surveyed on site. We utilised spherical panoramic photographs taken at eye-level and from above with drone flights, to capture the human experience first and the overall accessibility to the stops from their surroundings. The selection of stops surveyed was pre-selected to be representative of all municipalities and stop types (urban, rural, town) and the final selection was discussed and agreed with the representative of all the Harju municipalities.

The survey focused on four broad qualitative indicators: multimodality, safety, comfort and accessibility.

During the survey, we found only a few locations providing good standards of comfort and accessibility. In most cases, there is little to none shelter from natural elements, few or unsafe options to leave bikes and no additional services. This can be an opportunity to rethink what is the role of transit stops in the urban and rural contexts of Harju county and what type of services are needed to support local communities as well commuters and visitors.

More than 50% of the stops did provide shelter enough seating. Safe Parking spaces for bicycle, personal vehicles or scooters present only in half of the stops. In the case of mobility nodes, the most significant issue was the lack of a clearly understandable system of signs and maps, showing the connecting paths between stops.

5/6 Best practice

A review of international best practices showed that a regional approach to the strategic development of public transit stops is not common. Studies, policies and strategies usually focus on one transit mode at a time - for example only on bus or tram stops. The problem with this approach is that is missing the big picture, which is necessary for regional coordination of mobility services. It also ignores the fact that transit stops are often utilised by different transit vehicles, like trams and buses. Therefore Harju county ambition of having a general approach can help coordinating mobility planning at the regional scale and help generate positive societal impacts at a large scale.

- ➔ The main suggestions extracted from international best practices are:
- ➔ Ensuring equal opportunities for mobility. In particular, transit stops design must be suitable for children, mothers with children, young people, people with disabilities and the elderly.
- ➔ Developing public mobility services beyond mass transit. The role of stops and stations is more than just a waiting space - even in the advent of self-driving EVs, because it will take decades before all social class can afford these technologies. Transit stops can offer a wide range of different services to support the development of local community life and increase the perceived image of public transport.
- ➔ Turning public transit stops (at least selectively) into mobility points to create a link between public transport and weakly connected personal mobility services (including private service provider to the pool of publicly run services). Mobility as a Services (MaaS) and Mobility as an Experience (MaaE) solutions can support first-mile journeys and improve the experience of long-distance commuting.

6/6 Handbook for place leaders

Learning and actions were compiled in the Handbook for place leaders. This chapter form the report can be utilised independently from the other sections of the report. It sets priorities to upgrade the service provision and design qualities needed to make public transit stops relevant and convenient. Taking into account both the current capacity of the public transport system and the local and societal potentials, the handbook proposes four general principles for bridge the mobility equity gap in the region and promote local innovation processes. In the handbook, these are referred to as:

- ➔ **New Modality**
- ➔ **New Local**
- ➔ **Soft Markets**
- ➔ **Soft Hubs**

OUR TEAM

SPIN Unit

Kristi Grišakov
Project manager
Planning consultant

Panu Lehtovuori
Project Consultant-
Professor of Planning

Jesus Lopez Baeza
GIS analyst
Urban scientist

Kristjan Männigo
Project Researcher
Architect

John Hadaway
Data analyst - Data scientist

Pablo Tomas Castello
Data analyst and digital cartographer- Architect

Maria Mas
Projekti designer- Architect

Priit Ingver
Projekti Researcher - Landscape Architect

Demos Helsinki

Damiano Cerrone
Principal Investigator
Planning consultant

Otto-Wille Koste
Project Researcher
Planning consultant

Eetu Niemi
Project Researcher
Urban studies
Scholar

Juliane Fuchs
Project Researcher
Service designer

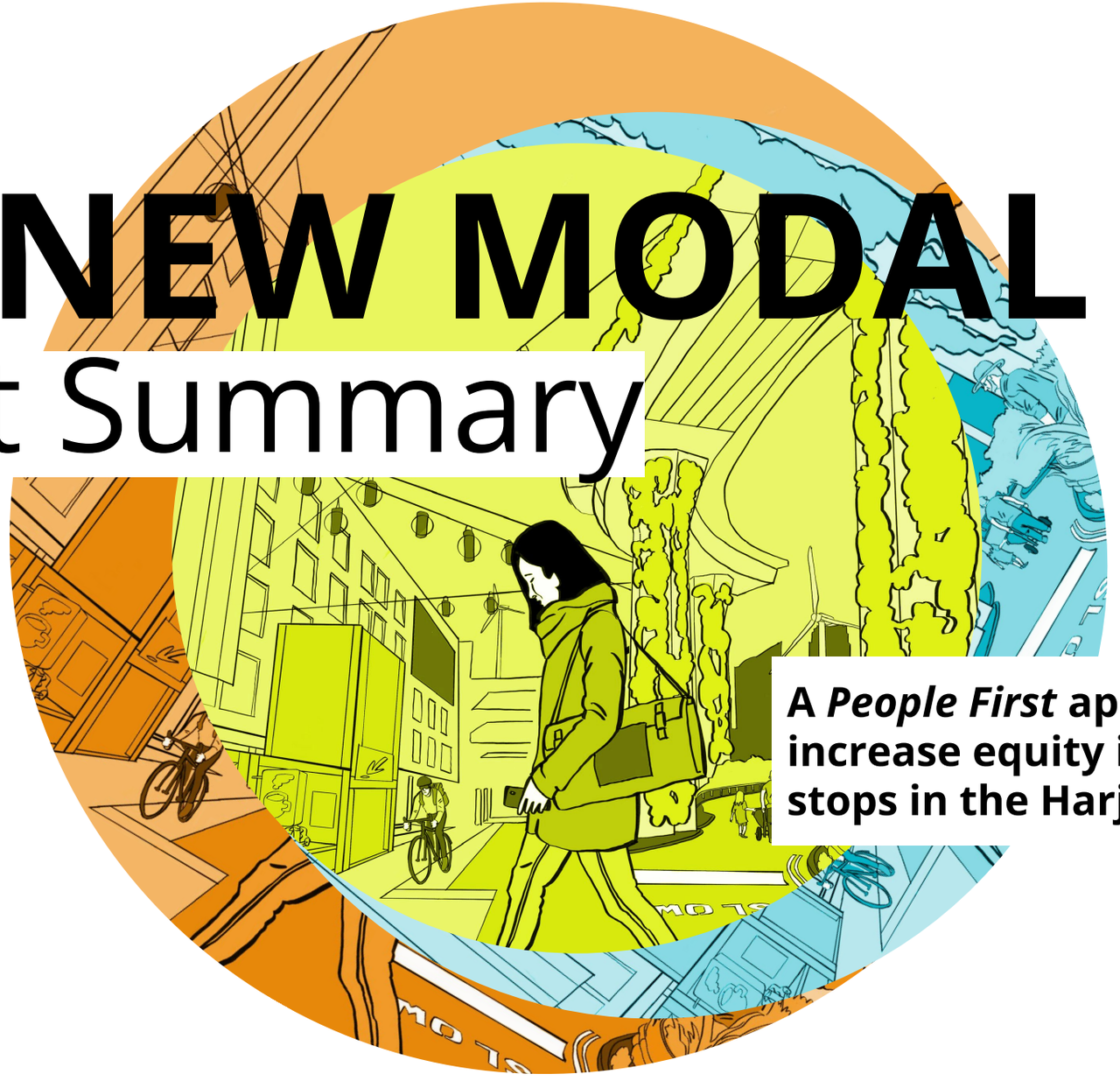
Eva Duran Sánchez
Project Researcher
Sustainability scholar

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

THE NEW MODAL

Report Summary

This is an executive summary of the final report delivered in February 2021 to the Harju County. Insights and ideas are presented in a generalised and simplified manner. We advise to treat this document only as companion to the final report.



A *People First* approach to increase equity in public transit stops in the Harju Region.

The survey was conducted between SPINUNIT OÜ and Demos Helsinki OY between August and November 2020

The study was commissioned by the Harju County Association of Local Governments and funded by the SUMBA (Sustainable Urban Mobility and Commuting in the Baltic Cities) project co-funded by the Baltic Sea Region Program.

Why we still need transit stops in post-pandemic society?

THE ROLE OF STOPS

Developments in ICT technology and 5G infrastructure will make transit stops obsolete. Real-time tracking and transit-on-demand will remove the waiting-time from the equation.

➔ **Providing equal and distributed mobility services**

Not everyone will have access to these technologies and services. Also, self-driving tech and infra will be accessible only to the upper-middle class. Automation will not increase space for social interactions, necessary for local innovation and give anchor points to local communities.

SHIFTING KPIs

Most KPIs we use today to plan smart-transit are monitoring system efficiency. These indicators are used to attract commuters, firms and visitors to support urban economies.

➔ **People First KPIs**

It is necessary to shift from system-efficiency KPIs to indicators capable to monitor the true human experience. Spatial accessibility, comfort and safety play a significant role in increasing the demand for public transit.

SOCIAL COHESION

There are considerable differences between policies that increase people's actual mobility and those that enhance people's capability to access desired destinations.

➔ **Avoiding the optimising for peak-hours or journeys.**

The ones who are truly dependent on public transit are also the ones who can suffer the most from optimisation. Mothers with children, workers with irregular or night shifts, large families without cars and all travellers that do not conform to patterns commonly interpreted as typical, will be in a position of disadvantage.

Image from Narva Youth Vision. SPIN Unit, 2020

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

DOCUMENT STRUCTURE

The full report is structured in 6 main chapters, one of each of the work-packages we delivered. In this summary, we present only 3 of the core sections of the original report.

The first is the provision of the main principles to increase mobility equity and decrease car dependency for daily commuters.

The second present the results of the mobility equity mapping of the region.

The third and last, offers design principles for future developments of stops and stations.

The topics presented in this summary don't represent the true workload undertaken in this project. For the sake of brevity, the summary is not presenting the time-intensive activity of the site analysis, the policy and research review and the benchmarking analysis.

1

THE NEW MODAL: PRINCIPLES FOR TRANSIT STOP DEVELOPMENT

The four main principles for the development of stops are to increase the number of public transport users and to support sustainable modes of transport.

2

MAPPING MOBILITY EQUITY FOR STOPS AND STATIONS IN THE HARJU REGION

Harjumaa stops and their differences

3

DESIGN PRINCIPLES

A framework for design upgrades

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

1
THE NEW MODAL
PRINCIPLES FOR TRANSIT STOP DEVELOPMENT

SPIN UNIT LAB.EDU.VIZ

DEMOS HELSINKI

GENERALIZED INSIGHTS

Stops are the business card of the public transport system - the place where every trip begins, ends or continues.

Combined insights from the site analysis

➔ 53% of stops do not have shelter.

➔ 69% of stops do not have comfortable seating for all passengers.

➔ 53% of the stops do not have the possibility for park and ride.

➔ Bicycle parking is not available at 58% of the stops.

➔ 92% of the transit stops have incomplete signage and maps, or they lack indications to other stops nearby. When present, the readability of the information (such as timetables) was often compromised by the weather or vandalism.

➔ The path between one transit stop and connecting stops nearby was safe and accessible only in 14% of the sites we visited.

MINEVIKUS (Kuusalu)
A waiting and resting place that also offers aesthetic pleasure

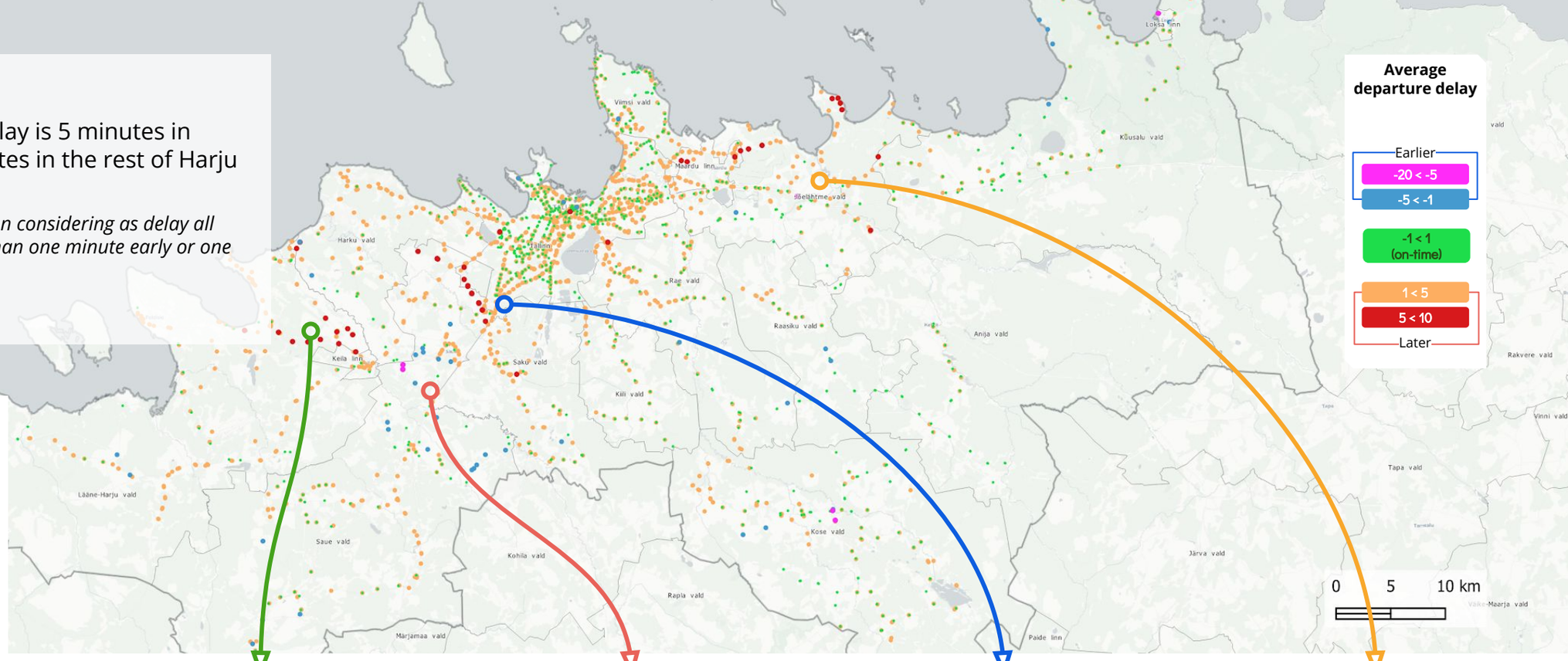
HETKEOLUKORD (Kuusalu)
Decomposing waiting room (poor weather resistance)

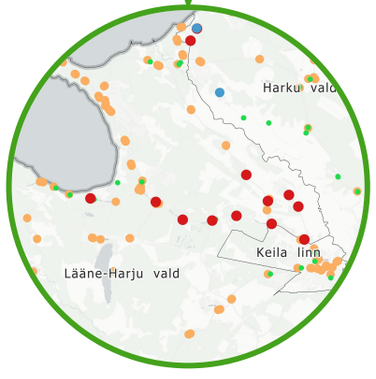
SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

Average departure delay is 5 minutes in Tallinn and 5-10 minutes in the rest of Harju County.

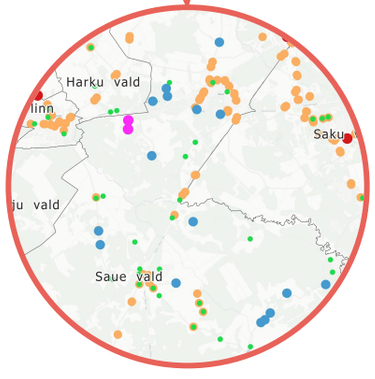
The steering group agreed on considering as delay all departures that are more than one minute early or one minute late.

Percentage of timely departures out of all departures by population area

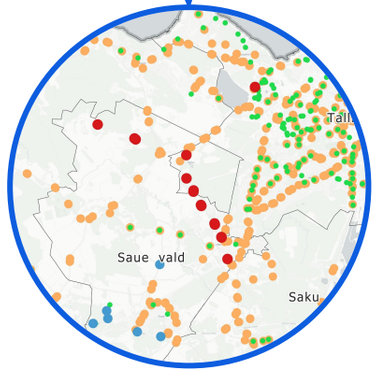




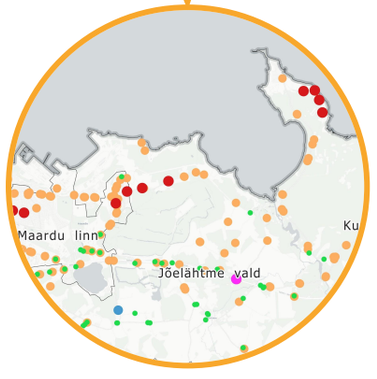
DELAYS IN PALDISKI-KEILA MNT



PREVIOUS LINES OF SAUE MUNICIPALITY



DELAYS IN LAAGRI-HARKU



DELAYS IN MAARDU-JÕELÄHTME

.

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

The attention economy reached the mobility sector.

Digital services will become integrated with the design of stops and stations, expanding the service level beyond mobility.

Stops will become micro-centres for local communities, commuters and visitors.

Sarah Dinu, 2020

SPIN UNIT LAB.EDU.VIZ

DEMOS HELSINKI

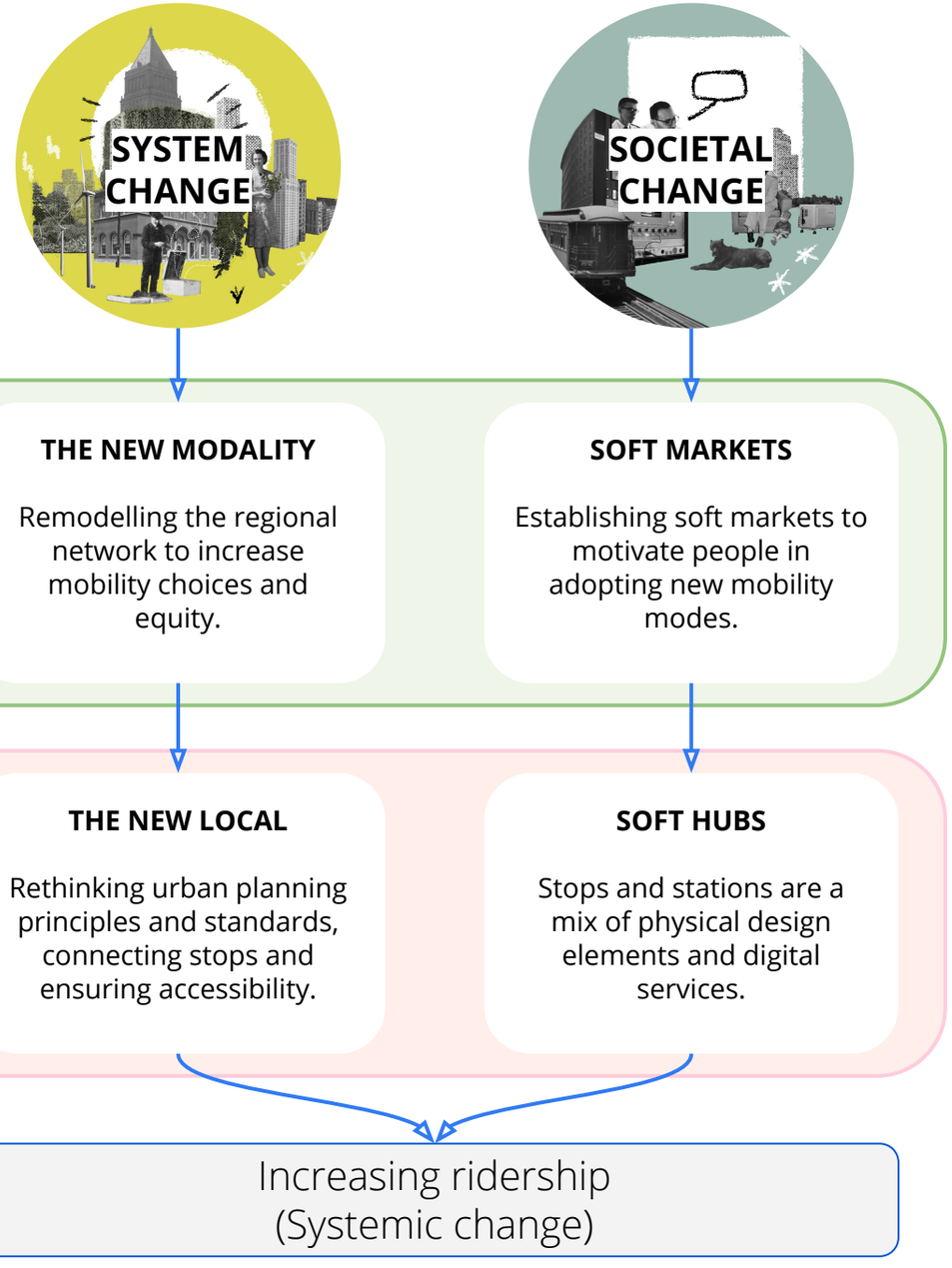
The NEW MODAL

More than just a stop

Increasing the number of public transport users requires changes in both mobility services and the built environment.

By focusing only on the efficiency of the public transport system (lines, number of transfers, connection speeds), we ignore a large part of the passenger's journey that takes place outside the transit vehicle.

Travellers' choices and decision are taken based on the experience of the whole journey, starting from the walk from home to the stop.



SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

THE NEW MODALITY

Broadening the definition of public transport to serve individual mobility needs.

For the user: Combined modalities allow users to plan a personalised door-to-door journey.

Ski stop in the city of Lahti

THE NEW MODALITY

DESCRIPTION

Remodelling the regional network to increase mobility choices and equity.

A broader definition of public transport: Multiple different options of sustainable transport should be available. The traditional public transport service is expanded at least to scooters and bikes, while other solution can be explored, such as shared skis, boats or EVs.

Digital solutions: Increase the accessibility and efficiency of digital services, e.g. mobility on-demand and MaaS.

Mobility Hubs: Utilise transit data to identify energy mobility hubs and increase their accessibility, comfort and availability of services.

IMPLEMENTATION

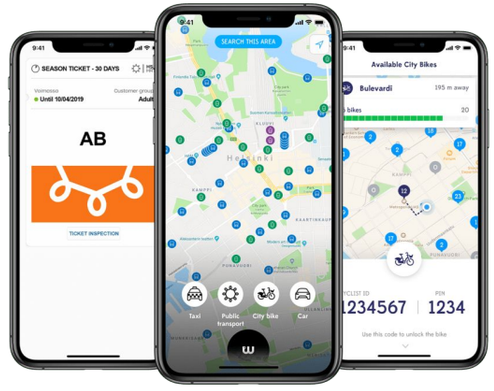
Systemic change: Upgrading the governing, planning, building and maintenance systems of the regional transit system.

Mobility as a Service (MaaS): Different options, connections and vehicles are connected through a single digital solution and payment option, providing a seamless user experience along the journey.

New mobility modes included in the public transit service abroad:

- Bicycles (Helsinki)
- Rental cars (Vienna)
- Skis (Lahti)
- Cargo bikes (Tartu)

EXAMPLES



Public transport, city bikes, scooters and ride sharing in one app: Whim app. MaaS Global, 2020. https://whimapp.com/

City Skis in Lahti, 2021

THE NEW LOCAL

Ensuring equitable and fair mobility through just allocation of space in land-use planning and inclusive urban design.

For the user: Convenient access to public transit in both urban and rural areas.

THE NEW LOCAL

DESCRIPTION

Rethinking the urban development models and normatives to provide just transportation

Just space allocation: Mobility planning is closely linked to land use planning, ensuring the alignment between design normative and mobility targets.

Universal access through inclusive design: Mobility is listed as a universal human right - every person should have the opportunity to use public transport. Public transport in rural areas should equal the efficiency, comfort and accessibility to the service provided in cities.

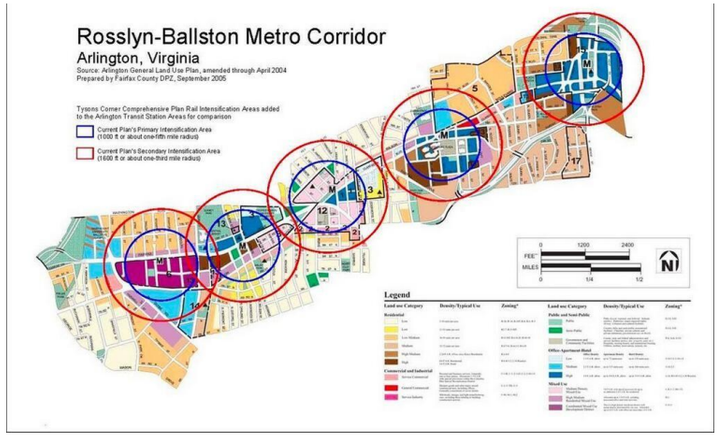
IMPLEMENTATION

Land-use planning according to mobility goals: To reach our sustainable development goals locally, the share of space dedicated to sustainable travel options has to be increased. Dedicating more space and infrastructures to public transport and bike lane does not compromise the experience of car drivers. Yet it will provide them with an alternative to car dependency.

Understanding needs: Upgrade local development normative for people who do not conform to mobility patterns commonly interpreted as “typical” in the planning and zoning processes.

EXAMPLES

Example: Oslo car-free city center program and zoning plan for streets and city districts.



Transit-Oriented Land Use Plan for Arlington's Rosslyn-Ballston Transit Corridor.

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

SOFT MARKETS
Upgrading public transit stops from mobility-only points to multiple service hubs.

For the users: Increased attractivity through the integration of everyday life services into public transit stops.

SOFT MARKETS

DESCRIPTION

Motivating people to adopt new mobility modes

Service Hubs are stops that go beyond mobility and offer multiple other services, such as parcel-pick-up, digital retails, charging stations and more.

User needs are growing beyond mobility. Stops need to change from bring a point in a linear journey to multi-service environments, especially in rural areas.

New user groups can be attracted by the new service level of stops and station. Additional services can also raise awareness of sustainable mobility options.

IMPLEMENTATION

Beyond Public-Private Partnership: Invite service providers, start-ups and entrepreneur to co-design new service levels of public transit stops.

Local communities: The attractivity of stops can also be improved by involving the users in the process of designing them. Local communities such as neighbourhoods can e.g. turn a stop into a library.

Possible services at a stop

- **Shopping (digital wall)**
- **Parcel pick-up**
- **Playground**
- **Instant Food and Dining**
- **Charging station for EVs, scooters and bikes.**
- **Gallery, community library**

EXAMPLES

Bus stop in Singapore, Infocomm Media Development Authority.

Jumbo groceries, virtual wall at bus stop, Holland, 2020.

SOFT HUBS
Redesigning the stops towards an improved user experience that is integrated into the digital world.

For the user: Everyone, not just car drivers, has access to a high-quality transit environment that is appealing, well-designed and attractie.

SOFT HUBS

DESCRIPTION

Stops as a mix of physical design elements and digital space.

Perceived quality

Soft hubs improve the design quality, comfort and image of the stops. Visual appearance directly affects the user's perception of public transport quality and can attract new users toward mass transit.

Emotional dimension: Especially outside urban centres, in Harju county, commuters are highly dependent on private vehicles. To increase public transit ridership it is necessary to elevate the design qualities of stops and stations. Attractive stops can improve the perceived image of mass transit.

IMPLEMENTATION

Quality requirements and evaluation: Both the physical and the digital design dimension of the public transit should meet high-quality requirements to make the stops more enjoyable and appealing. It is important to identify which stops need upgrades first and what are features and services needed to improve their image. The basic needs (safety, accessibility, cleanliness etc.) should always have the highest priority. A bus departing always on-time has little importance if users feel unsafe when waiting at the stop.

Creative design: stops and station are elements of the urban and rural landscape. There is 3000 only in Harjumaa, so there are 3000 occasions to improve or impoverish the living environment. To succeed, new designs can be implemented through participation processes with the local community or with architectural design competitions.

EXAMPLES

Mobility Hubs Town of Leinfelden-Echterdingen. 2018

One of the 7 themes bus stops of Krumbach, Austria. ArchDaily 2020.

THE NEW MODAL: 4 PRINCIPLES

NEW MODALITY

1. Expand public transport to personal mobility modes (scooters, city bikes, cargo bikes, EVs, boats and more) and related charging devices.
2. Increase the multimodality of stop and stations, starting from rural areas with multi-modal micro hubs for commuters.
3. Plan multimodality as a user-centric solution that offers convenient journeys to all users and social groups - especially to those with irregular mobility patterns.
4. Establish routines to analyse users satisfaction with digital surveys at the stops.

NEW LOCAL

1. Relink urban planning normative with sustainable mobility goals.
2. Apply the principles of universal access to all stops. This will increase access for all social groups and people with limited accessibility.
3. Upgrade local development normative for people who do not conform to mobility patterns commonly interpreted as “typical” in the planning and zoning processes.
4. Increase the space dedicated to infrastructures that support sustainable mobility habits, without altering the car network. The goal is to invite new users to sustainable lifestyles.

SOFT MARKETS

1. Redesign stops to support the everyday life activities and services needed in urban and rural communities.
2. Invite local innovators, designers, start-up and entrepreneurs to co-design new stops and micro-mobility hubs in rural areas.
3. Increase the service level of transit stops beyond mobility and explore new partnership models to sustain design upgrades with sponsorships or contracts with advertisers.
4. In selected areas, establish community-ownership models, to expand the agency to local communities and increase the participation in the design and maintenance of transit stops.

SOFT HUBS

1. Establish new design principles for all stops in the regions based on people-first principles of perceived safety, universal accessibility, travel convenience and comfort. This is about rethinking stops as a human-friendly space that is part of the urban and rural landscape.
2. Utilise sustainable materials for the restyling or construction of new stops and stations.
3. Include safe bike and scooter parking to the minimum design requirements for all stops and minimum lighting conditions when dark.
4. Increase the accuracy and visibility of both physical and digital Information systems.

2
MAPPING MOBILITY EQUITY FOR STOPS AND STATIONS IN THE HARJU REGION

SPIN UNIT LAB. EDU. V22

DEMOS HELSINKI

Equity map - Data analysis

"Mobility injustice is a process through which spatial design and service provision can generate social and economic inequality." Mimi Sheller

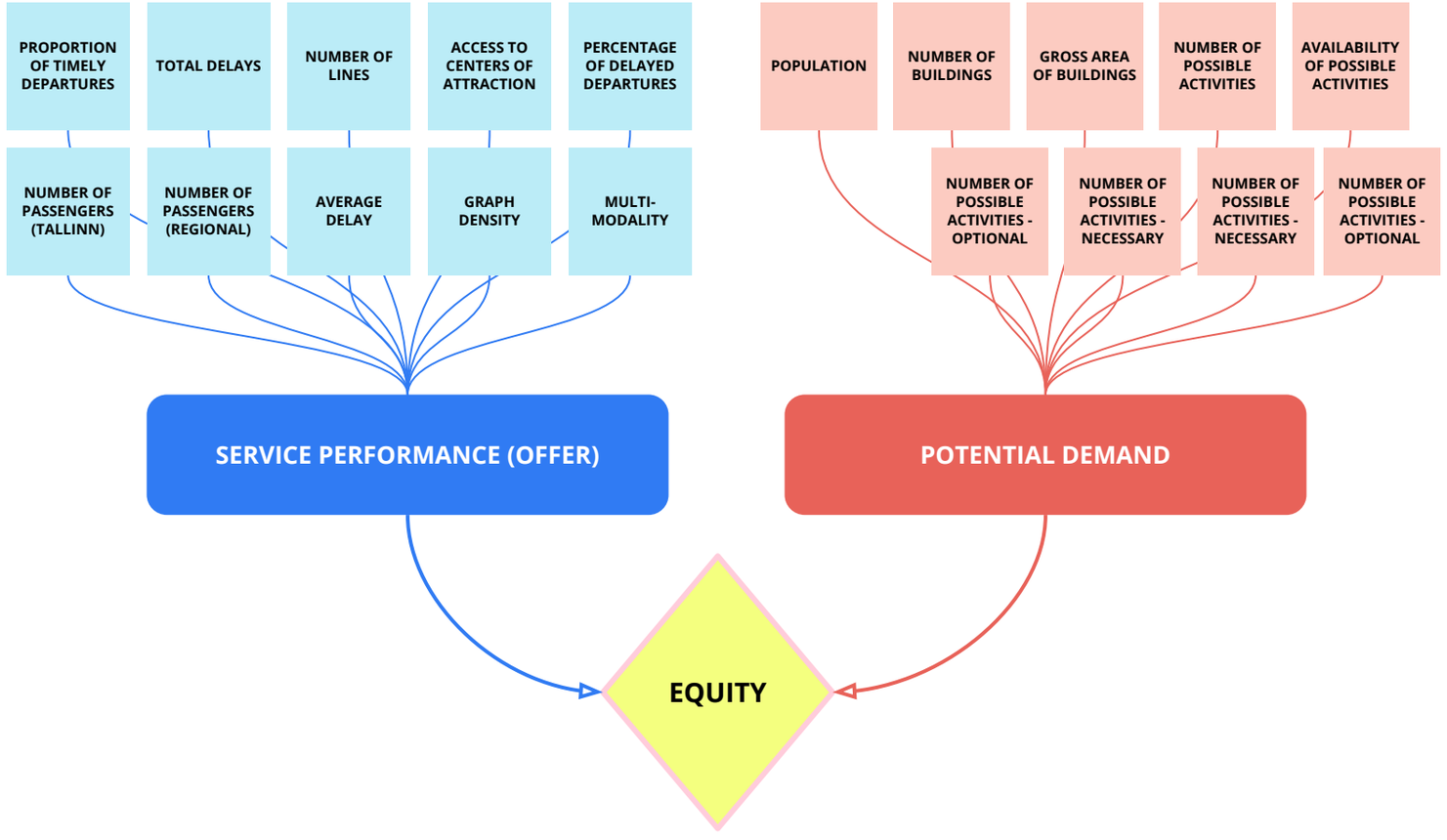
Mobility equity is about mapping public transit performance and potential demand across Harju county. The more distributed is the service performance and potential demand, the higher is the mobility equity across the region.

To analyse service performance and potential demand we have gathered all data available about the transit service and the built environment in the proximity of all stops in the region - and analysed it through 19 indicators. For the first one, we mainly used GTFS, delays and passengers counts data and for the second we mostly relied on the National database of the built environment, census data and qualitative observations from Foursquare.

This project is about stops only, so we are only analysing these indicators for each stops in the county.

For more details about this analysis and the indicator, please review the full report and its annexes.

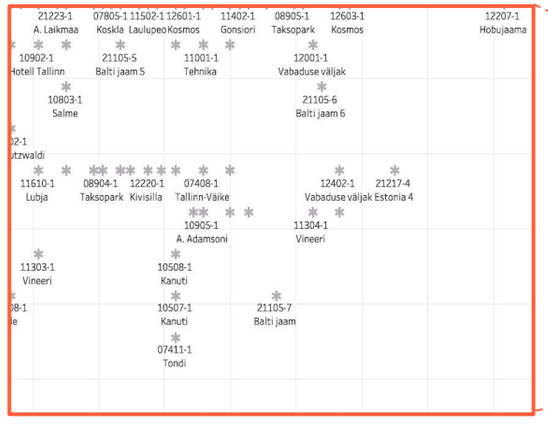
Building the equity map from 19 indicators



SPIN UNIT LAB.EDU.VZZ DEMOS HELSINKI

Mobility equity - categorisation

To categorise each stop based on their mobility equity level, we have normalised the values from the Service Performance and Potential demand and plot them in the equity graph. The diagonal line shows the balance between Service performance and Potential demand.



Each dot indicates one stop in Harju County (incl. Name and stop code).

SPIN UNIT LAB. EDU.VIZ DEMOS HELSINKI

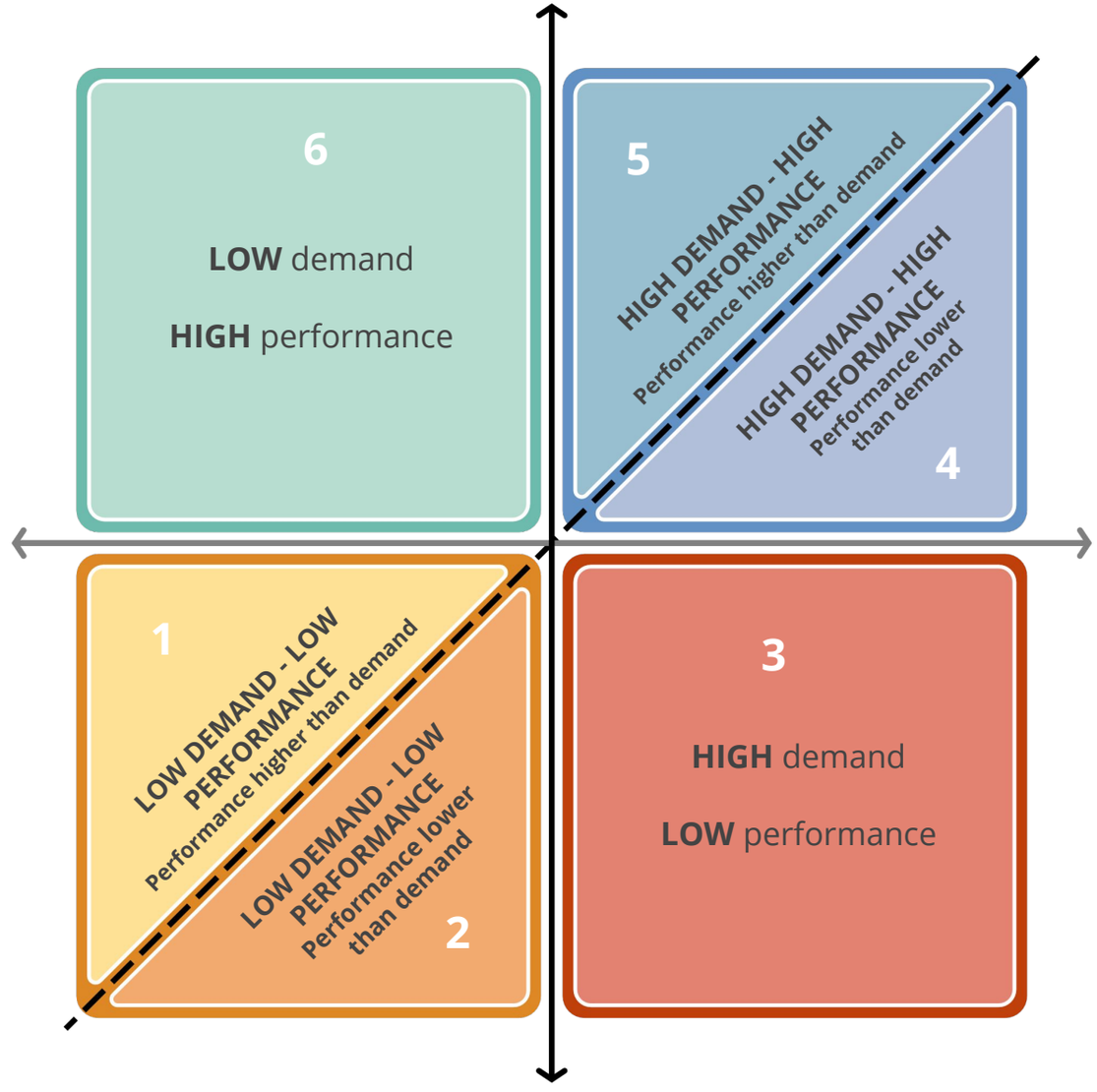
Mobility equity - categorisation

Stops and stations are classified into 6 categories based on their level of service performance and potential demand. This model provides a high-level understanding of the current condition of all stops.

This classification of stops provides decision-makers with the knowledge they need to start prioritising further strategies to increase mobility equity and future investments.

Ultimately, the typologies will be displayed on a series of cartographies that we call Equity Maps. The main use of these maps is to visualise where different categories of stops are clustered. This visual information is utilised to review the equity gap between areas with the high service performance and those with low.

Equity maps can be used by policymakers and place leaders to start bridging the mobility equity gap and reduce mobility poverty - starting from these areas with potentially high demand but low service performance.



SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

HARJU EQUITY MAP

The equity map of Harju county shows a clear divide between zones of high service performance (categories 4 and 5) and zones of low service performance (categories 1 and 2).

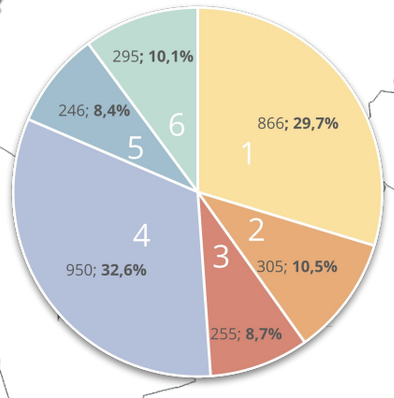
92% of the country stops are in categories 1, 2 and 6.

93% of urban stops are in categories K3, K4, K5.

Small town stops are relatively evenly distributed between different categories.

Project stakeholders were also provided with an interactive version of the equity map.

1. LOW DEMAND - LOW PERFORMANCE
   a. Performance higher than demand
2. LOW DEMAND - LOW PERFORMANCE
   a. Performance lower than demand
3. HIGH DEMAND - LOW PERFORMANCE
4. HIGH DEMAND - HIGH PERFORMANCE
   a. Performance lower than demand
5. Better quality stops needed
6. Large potential user base



SPIN UNIT LAB. EDU.VIZ

DEMOS HELSINKI

PRIORITISATION

BRIDGING THE MOBILITY EQUITY GAP IN HARJU COUNTY

SPIN UNIT LAB.EDU.VIZ

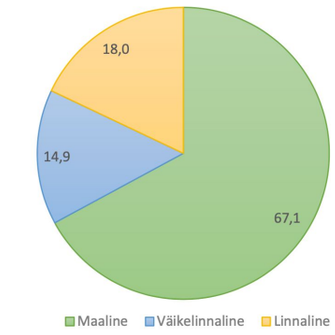
DEMOS HELSINKI

LOWER PRIORITY

Highway stops

At these stops, the quality of service is often higher than the number of potential users. These stops are often close to industrial areas that attract commuters. The potential number of users of this category of stops is small, but these stops are located in visible places along the road and need safe and fast last-mile solutions from the stops to the workplace, or from home to the stops.

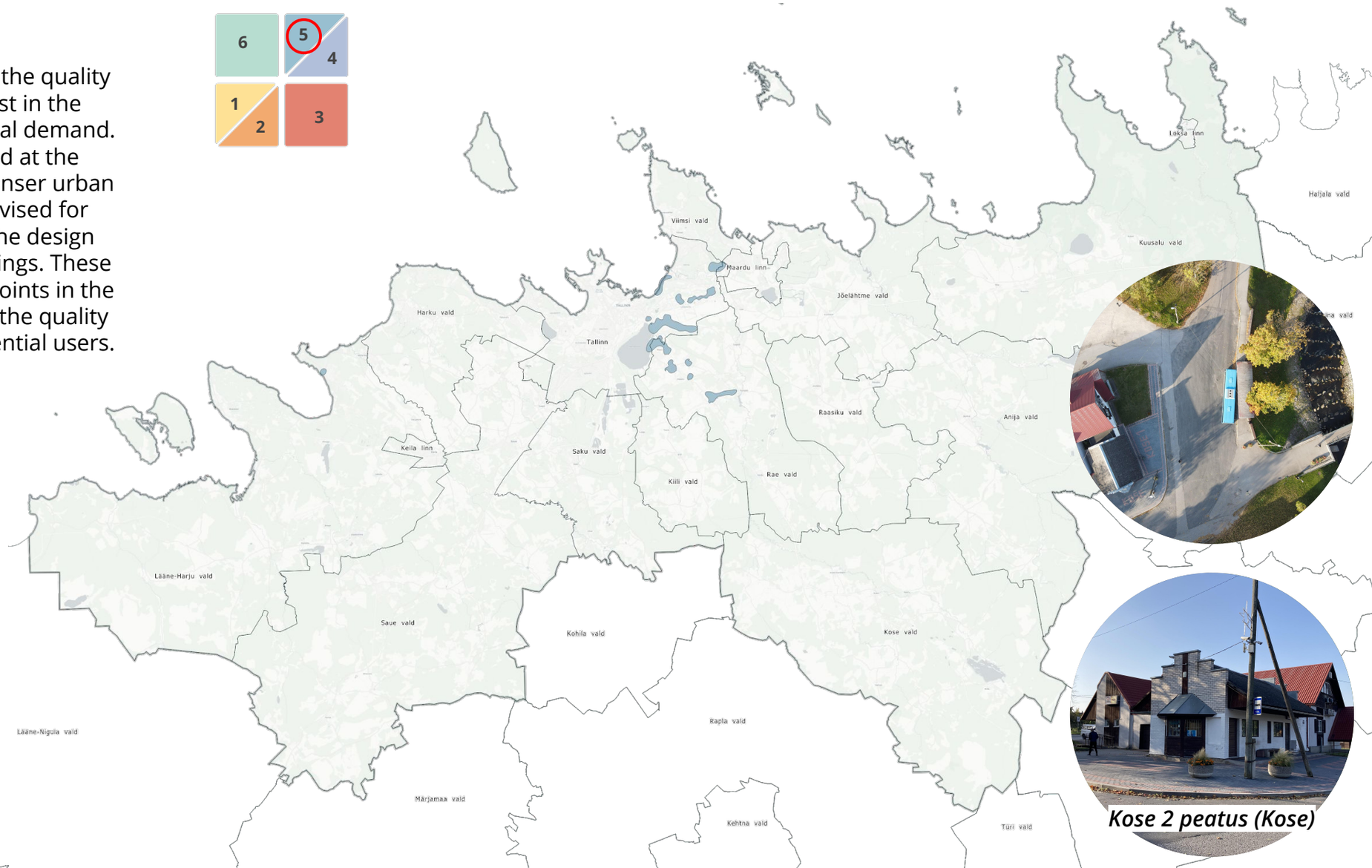
Bioloogia (Harku)



LOWER PRIORITY

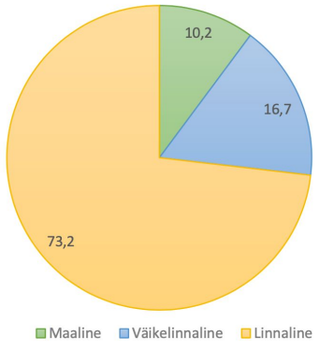
Urban fringes

Category 5 has the lowest priority, as the quality of service in these stops is already best in the region, even compared to the potential demand. Most of these stops are mostly located at the fridge of Tallinn, while some are in denser urban settlements. The only intervention advised for this category is the improvement of the design qualities of the stop and its surroundings. These stops can also be potential mobility points in the regional network, supported by both the quality of service and a large number of potential users.



Kose 2 peatus (Kose)

Pakkumise-nõudluse graafiku tsoon 5



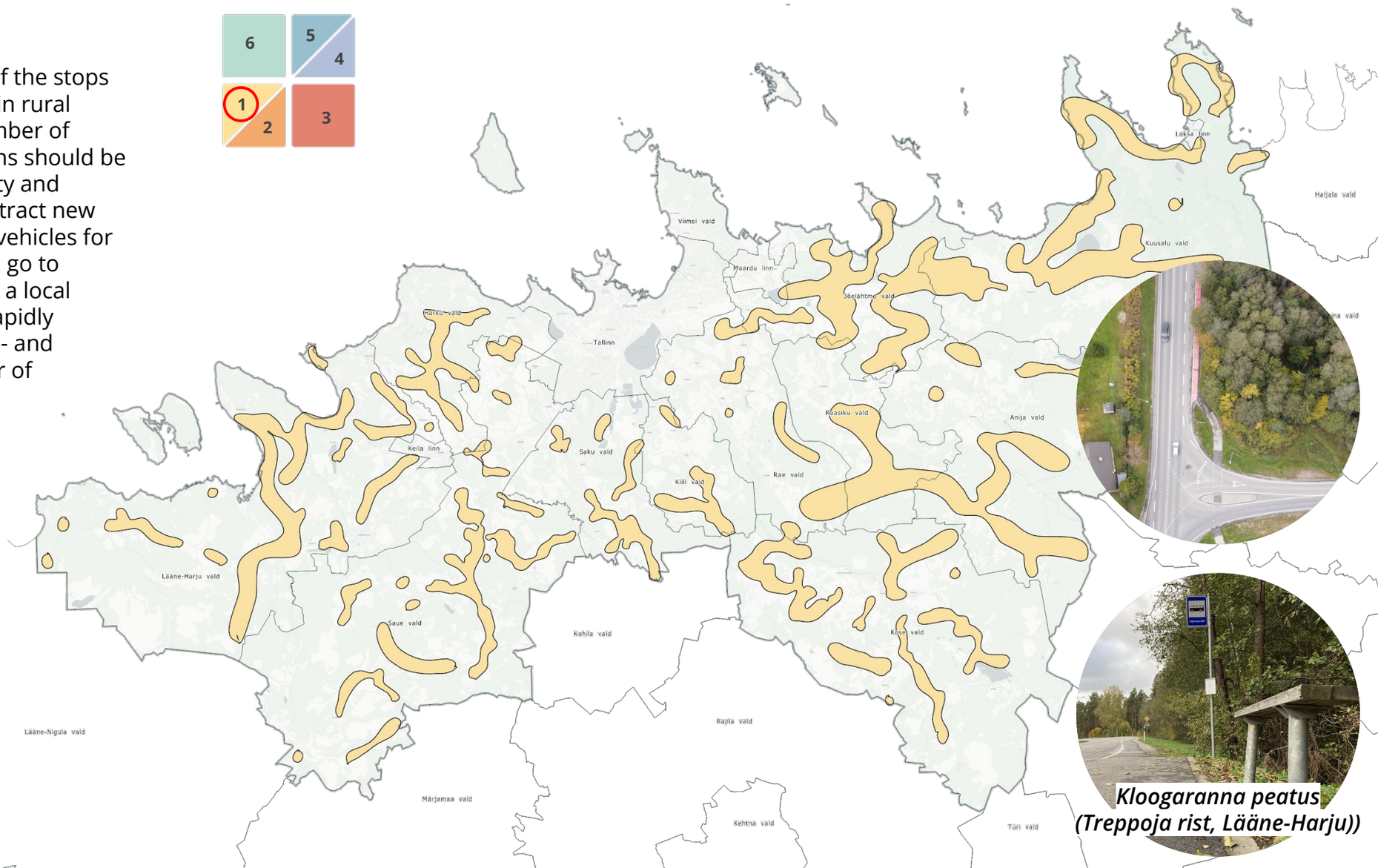
SPIN UNIT LAB. EDU.VIZ

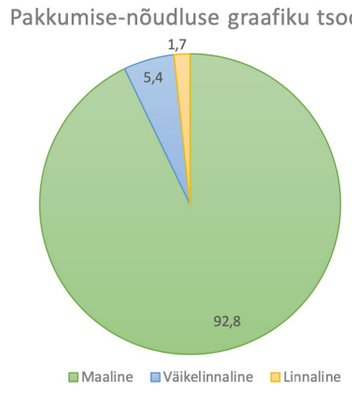
DEMOS HELSINKI

MEDIUM PRIORITY

Village belt

Category 1 represents the majority of the stops in Harju county and they are mostly in rural areas. However, as the potential number of travellers is small, future interventions should be directed to improve the design quality and comfort of stops. In turn, this may attract new users current dependent on private vehicles for daily commuting. The priority should go to upgrading transit stops that serve as a local community hub and are located in rapidly developing areas (eg. former cottage- and holiday areas with a growing number of year-round users).





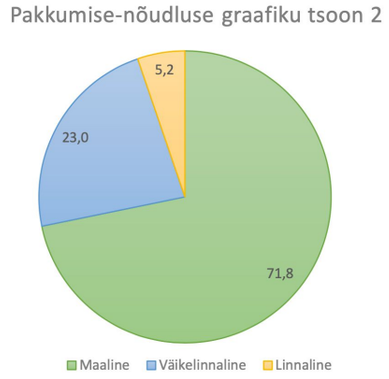
Kloogaranna peatus (Treppoja rist, Lääne-Harju))

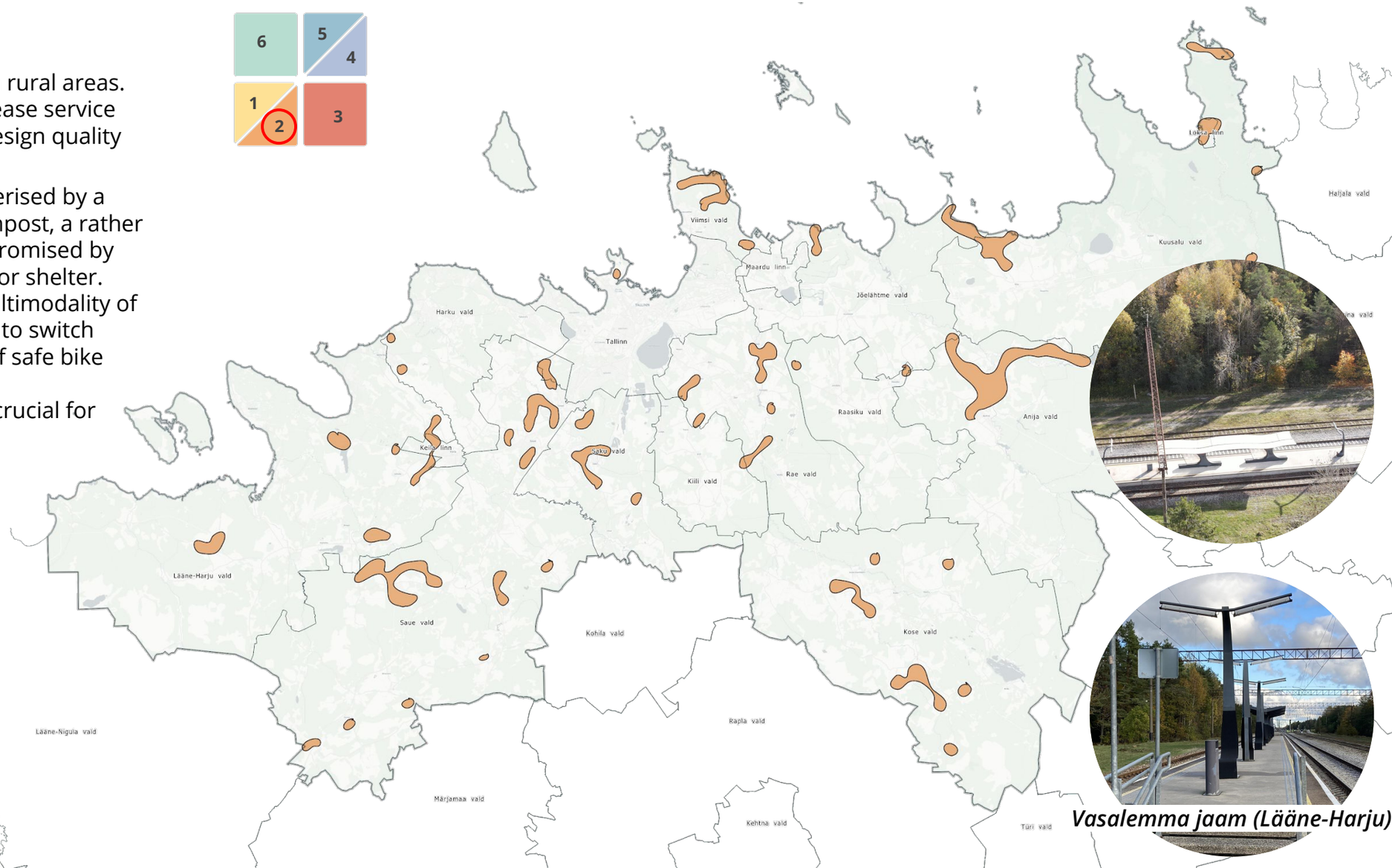
MEDIUM PRIORITY

Autopia

Category 2 stops are 70% located in rural areas. Interventions are necessary to increase service performance and to increase the design quality of transit stops.

These stops are commonly characterised by a notably minimal design - a stop signpost, a rather small printed timetable often compromised by decay, and sometimes a small seat or shelter. One obvious problem is the low multimodality of these stops - such as the possibility to switch from cycling to public transit (lack of safe bike rack) or park & ride solutions.
The development of these stops is crucial for families without cars.



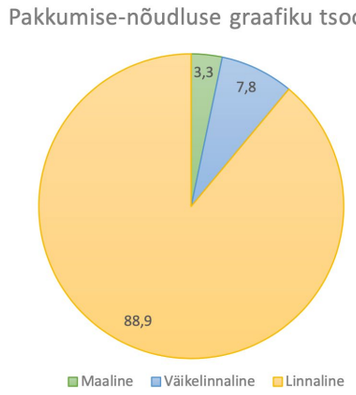


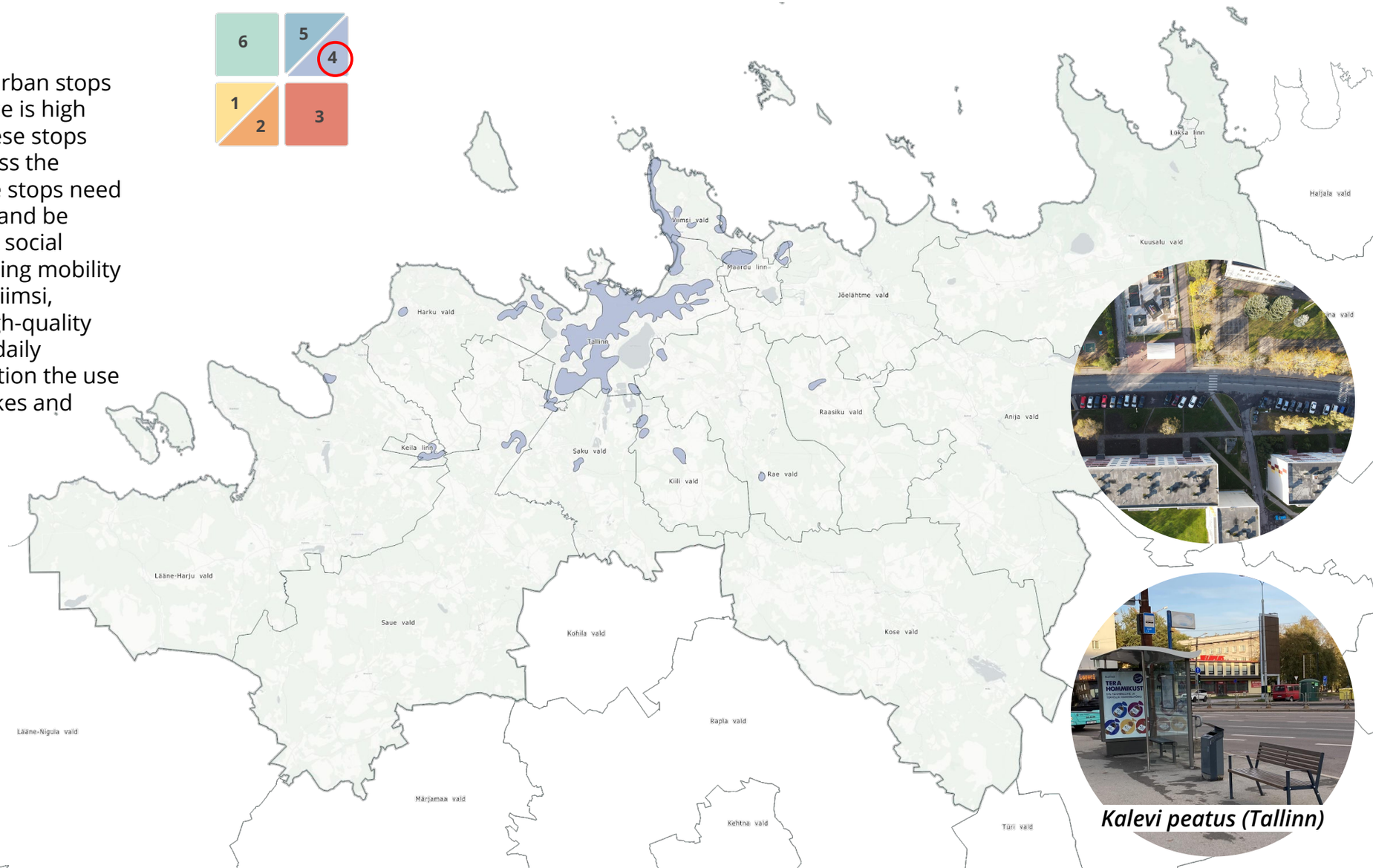
Vasalemma jaam (Lääne-Harju)

HIGH PRIORITY

Popular urban stops

Category 4 represents nearly all the urban stops in the region. The service performance is high but priority remains high because these stops can bring positive social impacts across the region. Given the high demand, these stops need to accommodate all type of journeys and be convenient and attractive to different social groups. Priority should be given to rising mobility centres (eg Kallavere, Keila-Joa, Kiili, Viimsi, Tondi). These stops should have a high-quality design to improve the experience of daily commuters and visitors, while facilitation the use of sustainable mobility modes (eg. bikes and scooters).



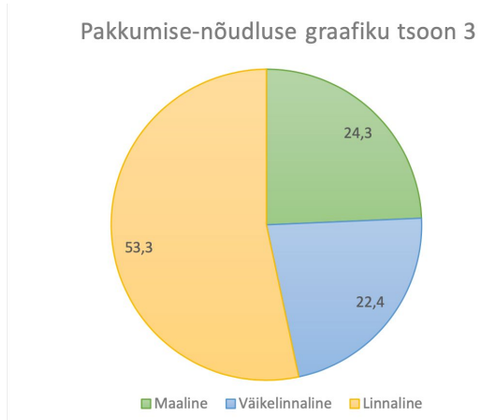


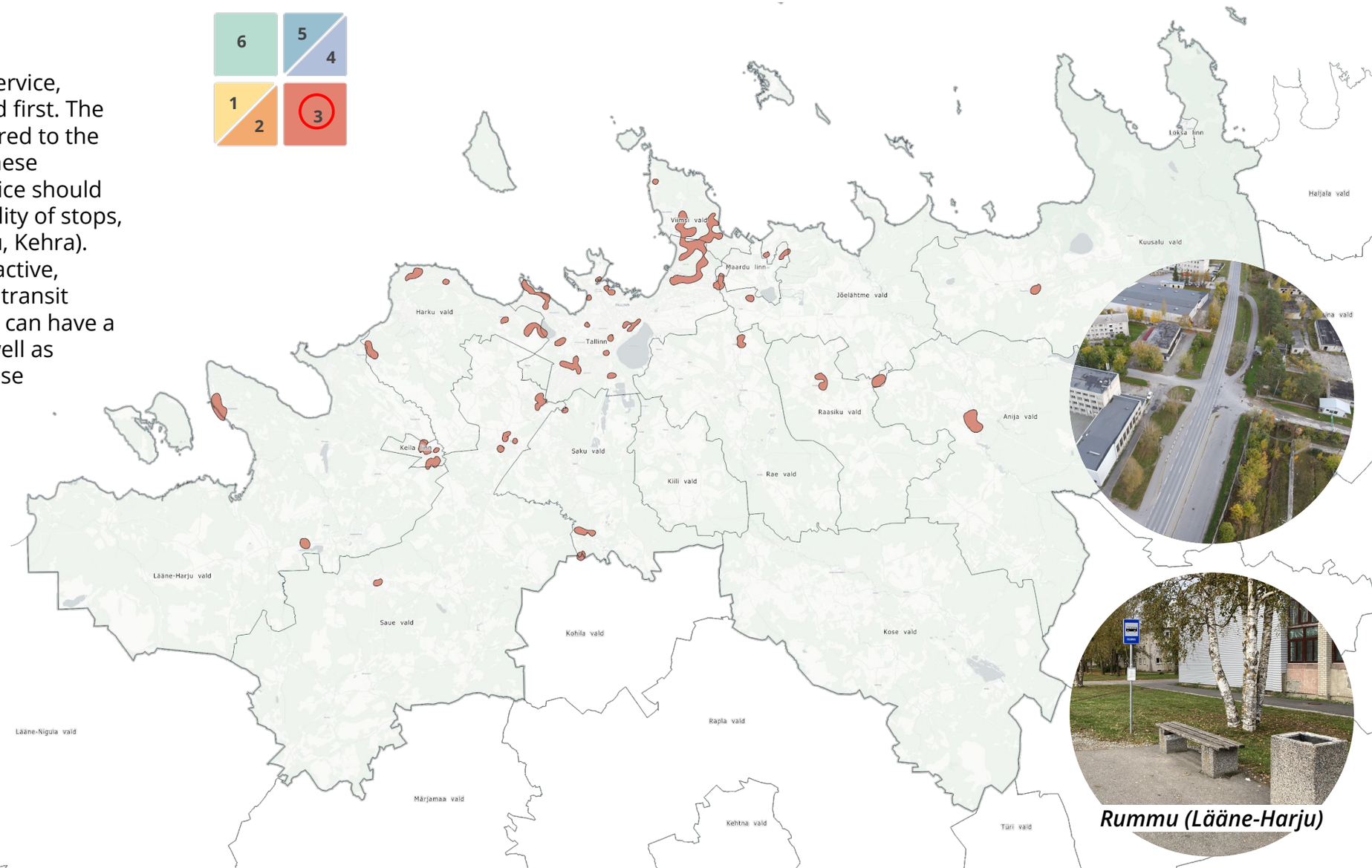
Kalevi peatus (Tallinn)

HIGH PRIORITY

Growing sub-centers

In terms of improving the quality of service, Category 3 stops should be addressed first. The quality of service is rather low compared to the potentially high demand present in these centres. Improving the quality of service should be followed by an increase in the quality of stops, especially in town centres (eg Rummu, Kehra). Category 3 stops should become attractive, convenient and with a high-efficiency transit system for commuters. These actions can have a large impact on car dependency, as well as reducing road traffic produced by those commuters.

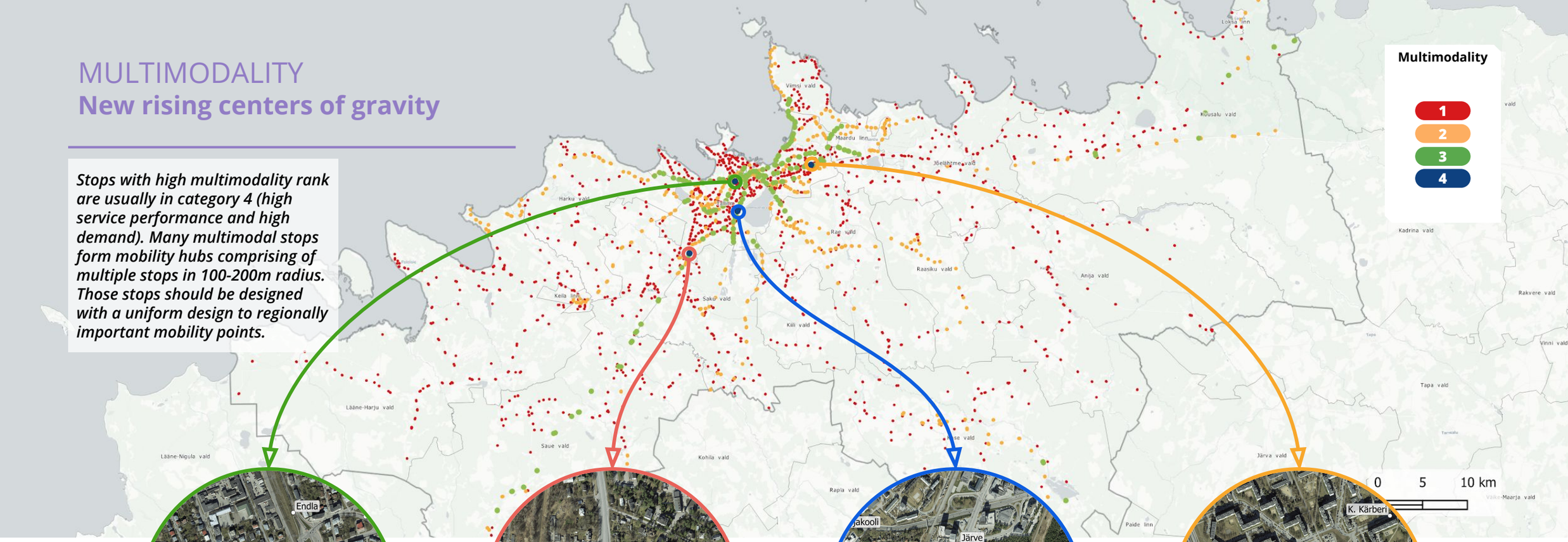


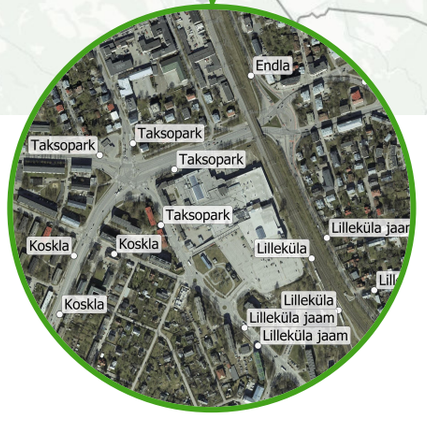


Rummu (Lääne-Harju)

MULTIMODALITY
New rising centers of gravity

Stops with high multimodality rank are usually in category 4 (high service performance and high demand). Many multimodal stops form mobility hubs comprising of multiple stops in 100-200m radius. Those stops should be designed with a uniform design to regionally important mobility points.





KRISTIINE KESKUS (TAKSOPARK-LILLEKÜLA)

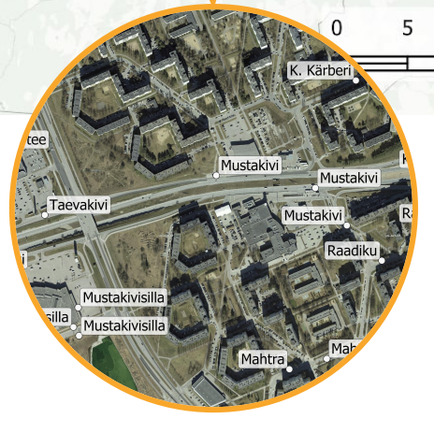
The Kristiine transport hub connects various bus stops and the train stop. This node should be developed into a mobility point of regional importance.

VANA-PÄÄSKÜLA

The Vana-Pääsküla transport hub connects various bus stops and the train stop. This node should be developed into a mobility point of regional importance.

VÄIKE- JÄRVE (JÄRVE-VIRVE PEATUSED)

The Väike-Järve transport hub connects various bus stops and a train stop. This node should be developed into a mobility point of regional importance.



MUSTAKIVI

The Mustakivi transport hub connects various bus stops. This node should be developed into a mobility point of regional importance.

SPIN UNIT LAB. EDU.VIZ

DEMOS HELSINKI

3
DESIGN PRINCIPLES

SPIN UNIT LAB.EDU.VZ2

DEMOS HELSINKI

Soft hubs

How to choose additional services?

The main goal of improving the design qualities of transit stops is to attract new users and decrease the carbon footprint of daily commuting. The need to improve transit stops with additional services goes beyond the prioritisation presented in the previous pages. Some stops are highly dependant on locally confined issues that our generalised study cannot capture - such as the presence of domestic and foreign tourism, cultural heritage, land uses and property, lifestyles and more. Yet, the scope of our project was to provide a general framework to plan design interventions.

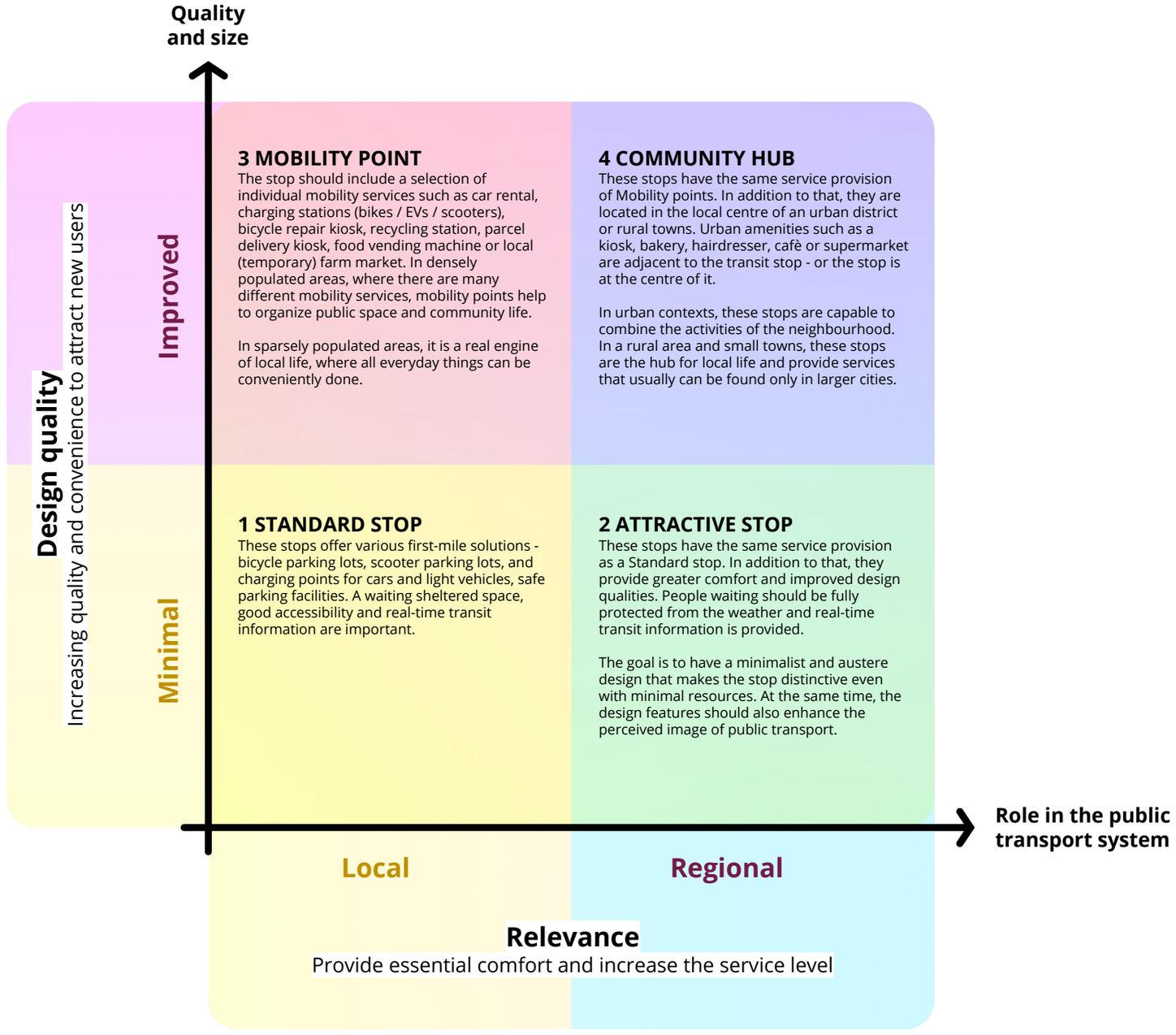
The framework presented here can help decision-makers and designers to focus their design intervention based on their strategic goals:

1 If their goal is to (re)design a local stop with minimal efforts, the transit stop should provide at least facilities to improve first-mile solutions (safe bike and scooter parking in cities + park & ride in rural areas.)

2 If their goal is to (re)design a stop of regional interest with minimal efforts, the transit stops should provide the same solutions as a Standard stop with enhanced comfort and increased design quality.

3 If their goal is to (re)design a local stop to attract new users, the transit stops should provide services beyond mobilityì and exhibit high-quality design solutions and building materials.

4 If their goal is to (re)design a stop of regional interest to attract new users, the transit stop should provide the same solution as a Mobility point but should be placed in a pocket of activities and services that are meaningful for the local community.



SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

The new modal

Equipment of stops by category and additional services

This table gives an overview of the elements required in the stops of each category (grey) and possible additional services / amenities (orange). The need for additional services is context dependant and thus not mandatory.

Peatuse kategooria	Tegevus	KATEGOORIA 1&2	KATEGOORIA 3	KATEGOORIA 4&5	KATEGOORIA 4&5 - viimane kilomeeter	KATEGOORIA 6
Peatuse tüüp		Peamiselt maalised peatused keskmisest madalama teenusekvaliteedi ja potensiaalse kasutajaskonnaga	Segakategooria, kus on nii linnalisi, väikelinnalisi kui maalisi peatuseid. Iseloomustab suur potensiaalsete kasutajate arv ja keskmisest madalam teenuse kvaliteet.	Peamiselt linnalised peatused, kus on kõrge potensiaalsete kasutajate arv ja keskmisest kõrgem teenuse kvaltieet.	Peatused, kus on vajadus viimase-kilomeetri lahenduste järele (nö põhiliin või tüvilliin, kuhu tuleb kiire- või otseühenduse terbeks kaugemalt kohale tulla).	Peamiselt maalised peatused, kus on üle keskmise kõrgem teenuse kvaliteet , kuid keskmisest väiksem potsensiaalne kasutajaskond.
Rohkem liikumisviise						
	Rattahoidja (U-tüüp, turvaliselt lukustatav)	☑	☑	☑	☑	☑
	Kaetud rattaparkla või rattakapp	☐	☑	☐	☑	☑
	Rattaparanduspunkt	☐	☐	☑	☑	☐
	Multimodaalsed ühendused (rong, buss, auto/ratta rent) r	☐	☑	☐	☑	☑
	Multimodaalsed ühendused (auto või kergliiklusvahendi rent)	☑	☑	☐	☑	☑
	Reaalajas sõidugraafik, mis näitab peatuse lähiümbruse väljumisi	☐	☑	☑	☐	☑
	Kombineeritud transpordivõimaluste parandamine	☐	☐	☑	☑	☐
	Kõrge ühistransporditeenuse kvaliteet	☑	☑	☑	☐	☐
	Lühiajalised või P&R parkimiskohad	☑	☑	☐	☑	☑
Teenused						
	Kiosk	☐	☑	☑	☑	☐
	Snäkiautomaat	☐	☑	☑	☑	☑
	Traadita internet	☑	☑	☑	☑	☑
	Telefonilaadimispunkt	☐	☑	☑	☑	☑
	Elektrilise sõiduvahendi laadimispunkt	☑	☑	☐	☑	☑
	Pakiautomaat	☑	☑	☐	☑	☑
	Teenusedisain koostöös teenusepakkujaga	☐	☐	☑	☑	☑
	Kogukonnakeskus (raamatukogu, galerii, info)	☑	☑	☑	☑	☑
	Treeningvahend	☐	☑	☑	☑	☑
	Mänguvahend	☐	☑	☑	☑	☐
Ruumiline mõju						
	Viidasüsteem piirkonna sihtpunktidesse ja peatustesse	☑	☑	☑	☑	☑
	Uuendatud ristmikud (madaldatud äärekivid, ülekäigumärgistus ja jalakäijaid prioretiseeriv foorisüsteem)	☑	☑	☑	☑	☑
	Ligipääsetavuse parandamine jalgsi ja jalgrattaga raadiuses 1000m	☐	☐	☑	☑	☐
	Ligipääsetavuse parandamine jalgsi ja jalgrattaga raadiuse	☐	☑	☐	☐	☐
	Ligipääsetavuse parandamine jalgsi ja jalgrattaga raadiuses 250m	☑	☐	☐	☐	☑
	Peatuse ümbruse valgustus	☑	☑	☑	☑	☑
	Parkimisnormatiivi uuendamine (ühistransporti soosiv)	☐	☐	☑	☐	☐
	Kohaloome koos kogukonnaga	☑	☑	☑	☑	☐
	Lagunenud hoonete (era-ja avaliku sektori omandid) korrastamine peatuste (eriti raudteejaamade) ümbruses.	☑	☑	☑	☑	☑
Peatus kui keskus						
	Ootekoda	☑	☑	☑	☑	☑
	Ootekoda + (ilmastikukindel, soojendusega)	☑	☑	☑	☑	☑
	Isetekohad	☑	☑	☑	☑	☑
	Prügikast	☑	☑	☑	☑	☑
	Peatuse tähis	☑	☑	☑	☑	☑
	WC	☐	☑	☑	☑	☑
	Peatuse valgustus	☑	☑	☑	☑	☑
	Liiniinfo ja liinikaart	☐	☐	☑	☑	☑
	Väljumisgraafik	☑	☑	☑	☑	☑
	Reaalajas sõidugraafik (tabloo)	☐	☑	☑	☑	☐
	Samatasandiline sisenemine	☑	☑	☑	☑	☑
	Peatuse ala tähistus	☐	☑	☑	☑	☐
	SOS punkt	☐	☑	☑	☑	☑

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

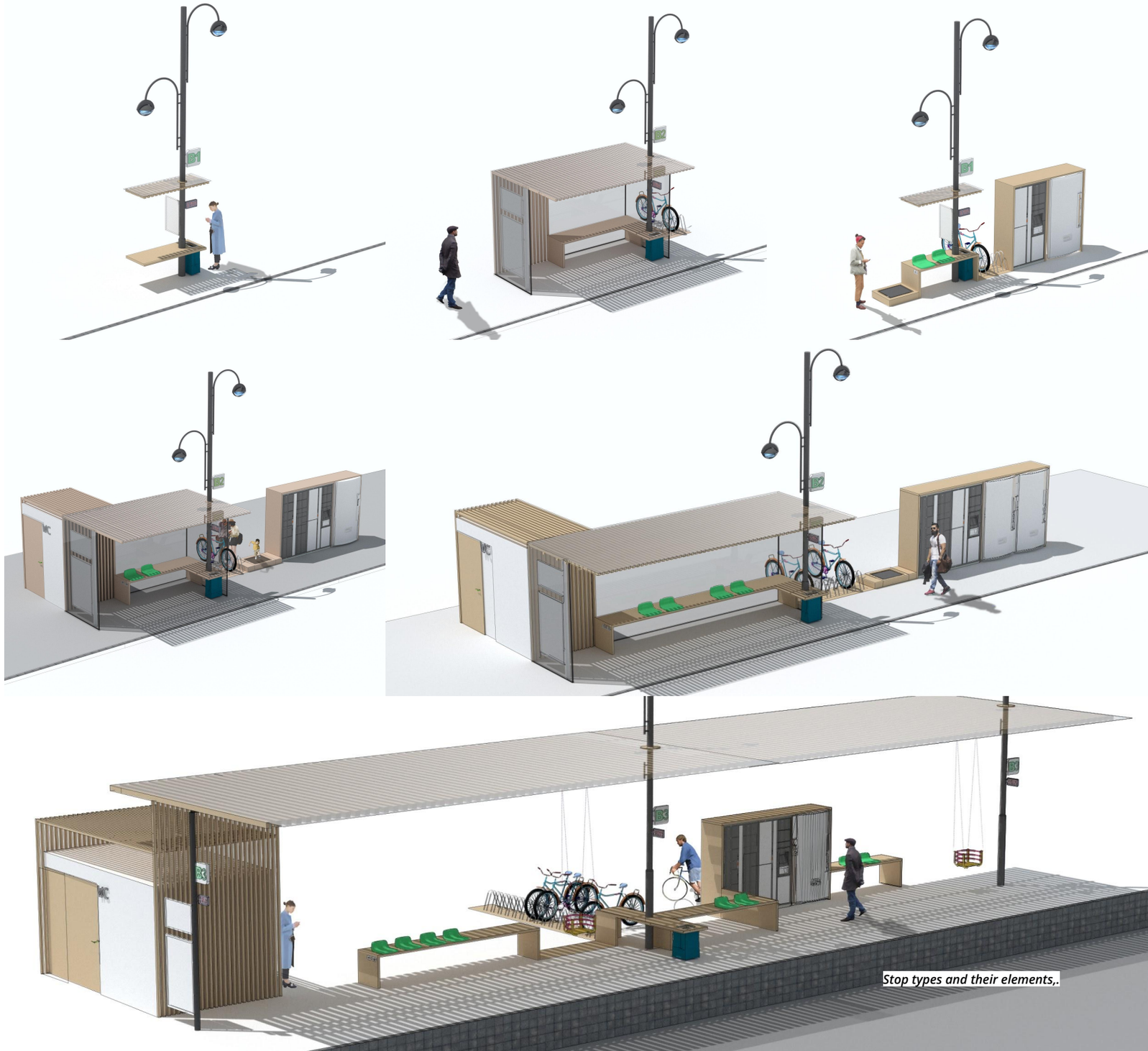
Soft hubs

Types of stops and their elements

Based on the framework presented in the previous pages, we have provided a series of schematic drawings to test the design principles in small, medium and larger public transit stops.

In the full report, we also describe a new process to restyle or build new public transit stops. Given the large number of stops in Harju county, maintaining high-quality standards and reasonable costs might be challenging. Maintenance of transit stops and snow clearance is also increasingly relevant costs. For these reasons, we proposed to establish framework contracts for the different design elements and services provided at the transit stops. Then depending on the local context, these can be arranged by experienced architects or through co-design processes with residents.

The renderings are not to be considered as the final design proposal but are only illustrative of how different required design elements and services can come together in different local contexts?



Stop types and their elements,.

SPIN UNIT LAB.EDU.VIZ

DEMOS HELSINKI

Some stops need big intervention and others just a nudge

SPIN UNIT LAB.EDU.VIZ

DEMOS HELSINKI

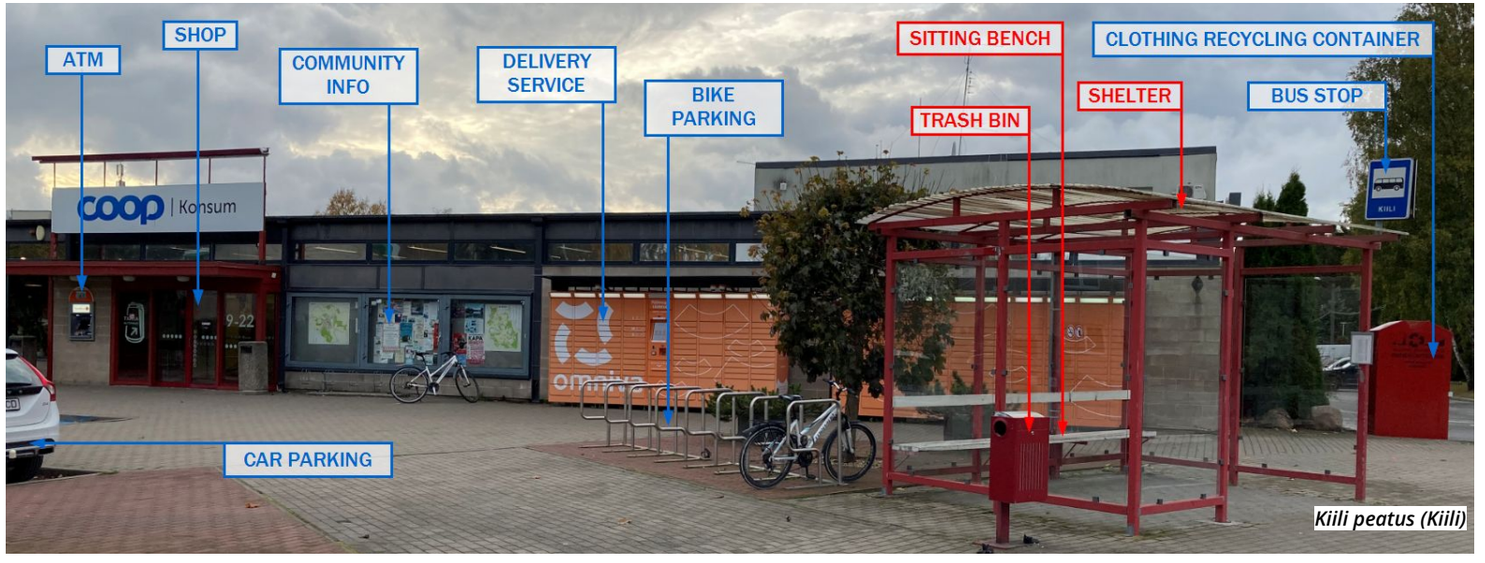
MOBILITY POINTS - HIGH DESIGN vs LOW DESIGN

In this summary, we presented high-level learnings from nearly 3000 stops and a survey of more than 60 transit stops. Yet, sometimes everything that is needed to make the perfect mobility point is already there, it might just need a little boost.

Hamburg has now set up more than 70 SWITCH POINTs. Initially, it started with the creation of points at major public transport stops, then added points that were located in different district centres and were no longer necessarily linked to public transport stops.

At the Kiili stop in Harju County, several components of the mobility point already exist in terms of services and infrastructure. The area could be integrated with a unified design and new services could be added based on the needs of the community.

Hamburg, Saksamaa



Kiili peatus (Kiili)

SPIN UNIT LAB.EDU.VIZ DEMOS HELSINKI

Bibliography

Anniki Puura, Siiri Silm & Rein Ahas (2018) The Relationship between Social Networks and Spatial Mobility: A Mobile-Phone-Based Study in Estonia, Journal of Urban Technology, 25:2, 7-25, DOI: 10.1080/10630732.2017.1406253

Antti Roose ja Helen-Sooväli-Sepping, "Sissejuhatus," Eesti inimarengu aruanne, toim. Helen Sooväli-Sepping, 2019/2020

Benn, Howard P. Bus route evaluation standards. No. Project SA-1. 1995.

Caroline Perez Criado. Invisible Women: Exposing Data Bias in a World Designed for Men (2019)

City of Vienna (2014) Urban Mobility Plan. http://sump-network.eu/fileadmin/user_upload/SUMPs/Vienna_SUMP_summary_EN.pdf

EMBARQ (2015) Commissioned public transport transformation project Mexico City.

Gittens, Antonio, and Amer Shalaby. "Evaluation of bus reliability measures and development of a new composite indicator." Transportation Research Record 2533, no. 1 (2015): 91-99.

Keit Parts. Keskmise inimese fenomen, ehk ligipääsetavusest. ERR (2020)https://www.err.ee/1160231/keit-parts-keskmise-inimese-fenomen-ehk-ligipaasetavusest

Kooi, Brandon R. Policing public transportation: an environment and procedural evaluation of bus stops. LFB Scholarly Publishing, New York, 2007.

Lao, Yong, and Lin Liu. "Performance evaluation of bus lines with data envelopment analysis and geographic information systems." Computers, environment and urban systems 33, no. 4 (2009): 247-255.

Lee, Won Gyu, and Hun Young Jung. "Establishment about service level and evaluation model of bus stop." Journal of The Korean Society of Civil Engineers 28, no. 2D (2008): 217-225.

Ligipääsetavuse foorum (2020) Transpordi ja tehiskeskkonna ligipääsetavuse analüüs https://www.etag.ee/wp-content/uploads/2020/04/50-4c-L%C3%B5ppraport_Transpordi_ja_tehiskeskkonna_anal%C3%BC%C3%BCs.pdf

Liikennevirasto (2014) Valtakunnallinen pysäkkiselvitys – pysäkkiverkot ja pysäkkien palvelutasohttps://julkaisut.vayla.fi/pdf8/lts_2014-43_valtakunnallinen_pysakkiselvitys_web.pdf

Loukaitou-Sideris, A. (2009). How to ease women's fear of transportation environments: Case studies and best practices (No. FHWA-CA-MTI-09-2611).

National Association of City Transport Officicials (2016) Transit Streets Design Guide https://nacto.org/publication/designing-streets-for-kids/

National Association of City Transport Officicials (2020) Designing Streets for Kids https://nacto.org/publication/designing-streets-for-kids/

Pecheux, Kelley Klaver. Guidebook for mitigating fixed-route bus-and-pedestrian collisions. Vol. 125. Transportation Research Board, 2008.

Perez, C. C. (2019). Invisible women: Exposing data bias in a world designed for men. Random House.

Project for Public Spaces. Reimagining Key Transit Stops https://www.pps.org/product/reimagining-key-transit-stops

Project for Public Spaces. Reimagining Transit Hubs and Transfer Points.https://www.pps.org/product/reimagining-transit-hubs-and-transfer-points

Rakendusliku Antropoloogia Keskus (2020) Laste ligipääsetavuse uuring https://www.sm.ee/sites/default/files/laste_ligipaasetavuse_uuring.pdf

Riigikantselei (2020) Ligipääsetavuse rakkerühma vaheaaruanne https://www.riigikantselei.ee/sites/default/files/news-related-files/ligipa**asetavuse_rakkeruhma_vahearuanne_09_2020.pdf**

Rodó-de-Zárate, M. (2014). Developing Geographies of Intersectionality with Relief Maps: Reflections from Youth Research in Manresa, Catalonia. Gender, Place & Culture: A Journal of Feminist Geography, 21:8, 925-944.

Seattle Department of Transportation (2012) Seattle Transit Master Plan. http://www.seattle.gov/transportation/document-library/citywide-plans/modal-plans/transit-master-plan

Sheller, Mimi. "Mobility justice." In Handbook of Research Methods and Applications for Mobilities. Edward Elgar Publishing, 2020.

Silm, S., Ahas, R., & Nuga, M. (2013). Gender Differences in Space—Time Mobility Patterns in a Postcommunist City: A Case Study Based on Mobile Positioning in the Suburbs of Tallinn. Environment and Planning B: Planning and Design, 40(5), 814-828.

Tauri Tuvikene, Marlin Rehema, Dago Antov, Ligipääsetavuse muutused autostunud Eestis," Eesti inimarengu aruanne, toim. Helen Sooväli-Sepping, 2019/2020

TCRP Report (2012) Guidelines for Providing Access to Public Transportation Stations. https://www.nap.edu/catalog/14614/guidelines-for-providing-access-to-public-transportation-stations

The World Bank. Intelligent Transport Systems Case Studies. https://www.ssatp.org/sites/ssatp/files/publications/Toolkits/ITS%20Toolkit%20content/case-studies/default.htm

Triinu Tirmaste (2018) Ühistranspordi teenindustase Tallinna linna näitel" magistritöö, TalTech

Titma, M., Roots, A., & Soidla, I. (2010). Gender differences in intergenerational mobility: the case of Estonia. European Sociological Review, 26(3), 337-350

Transport for London (2019). Travel in London: Understanding our diverse communities 2019.

Transport Infrastructure Ireland (2020) Travelling in a Woman's Shoes https://www.tii.ie/technical-services/research/TII-Travelling-in-a-Womans-Shoes-Report_Issue.pdf

Transport of London (2017) Accessible Bus Stop Design Guidance. http://content.tfl.gov.uk/bus-stop-design-guidance.pdf

SPIN UNIT LAB.EDU.VZZ DEMOS HELSINKI