Clean Bus Europe Platform Study Tour Gothenburg

Västtrafik

Martin Giöbel and Hanna Björk

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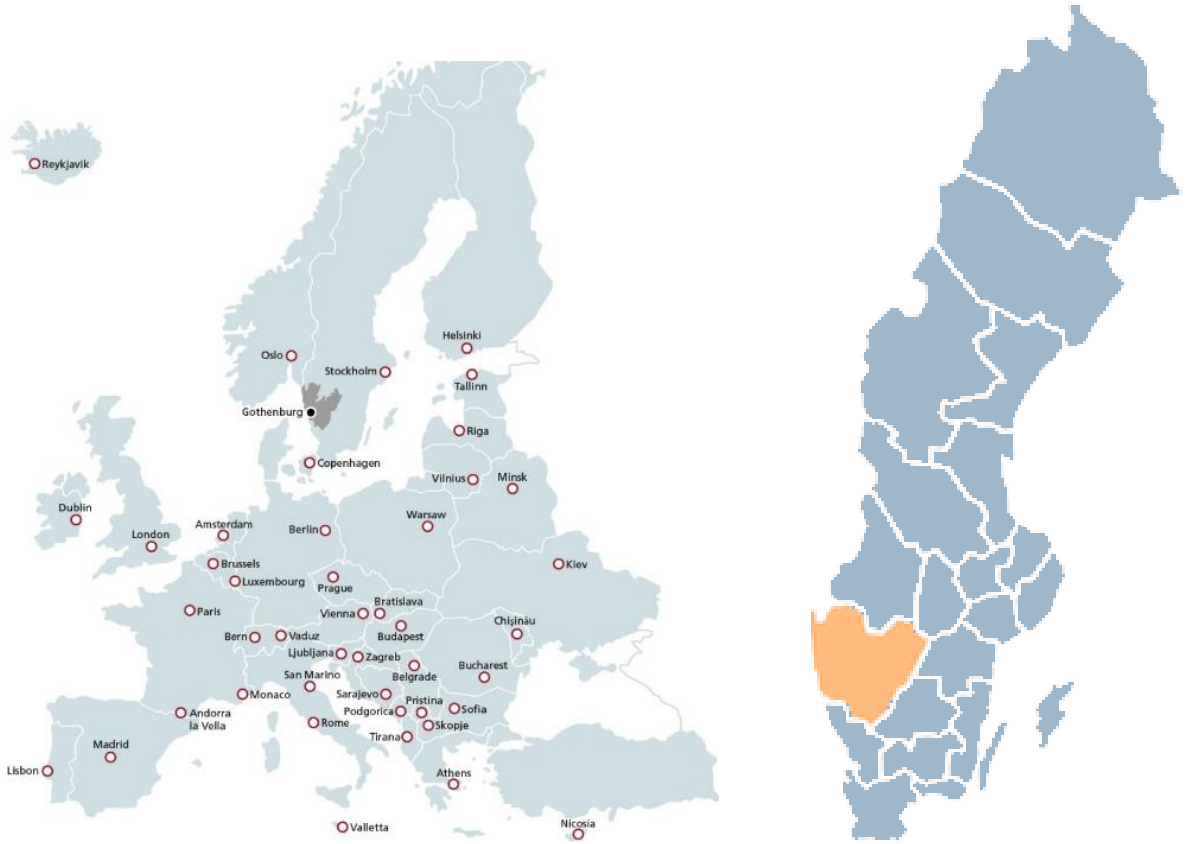
The Region of Västra Götaland.



- 1.7 million inhabitants (17% of Sweden´s population)
- 49 municipalities
- 300 kms long and 250 kms wide
- The largest city is Gothenburg

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Västtrafik
How we work.

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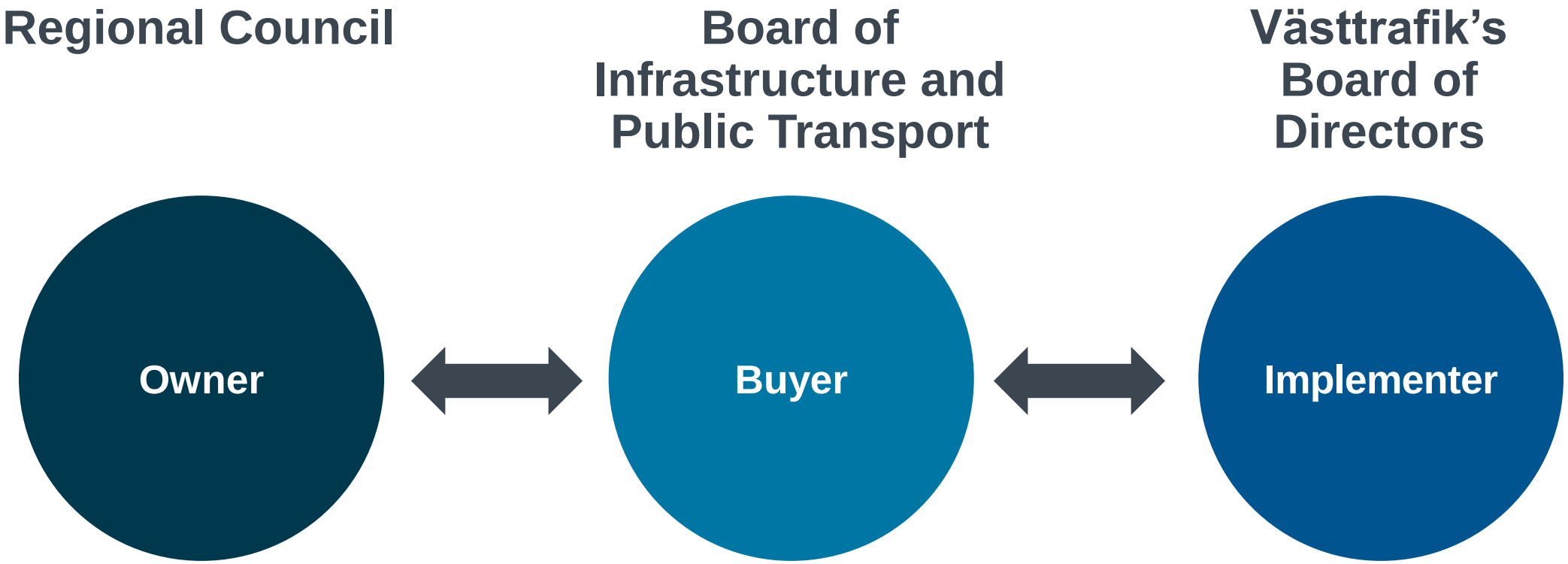
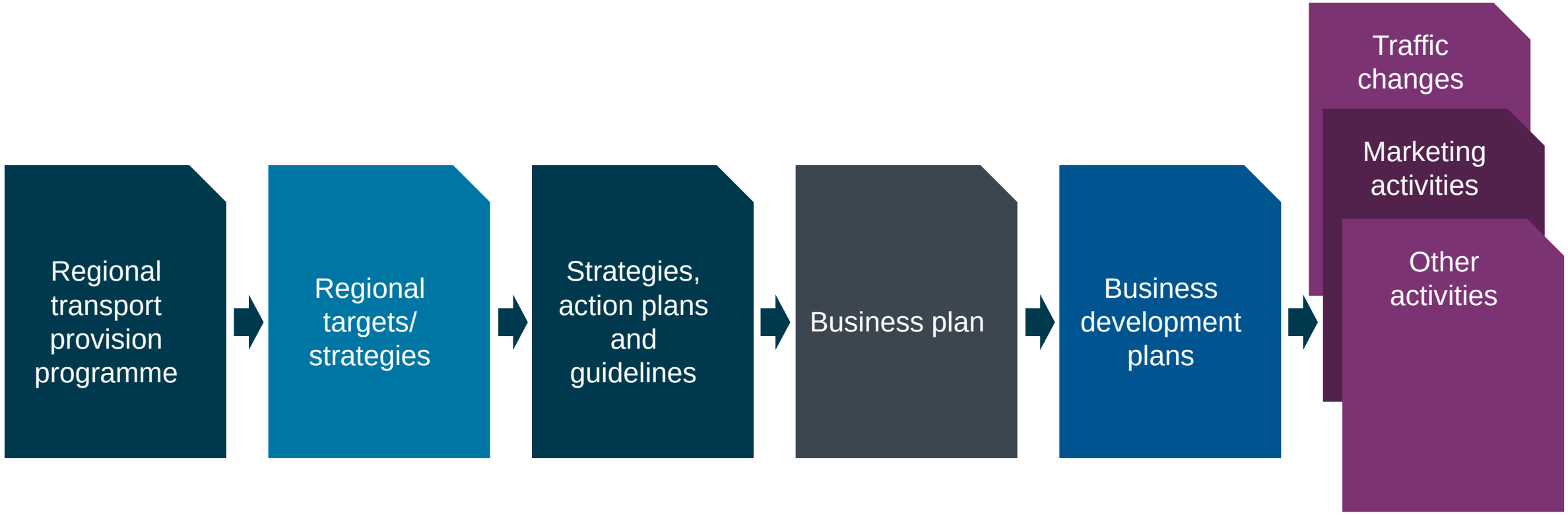
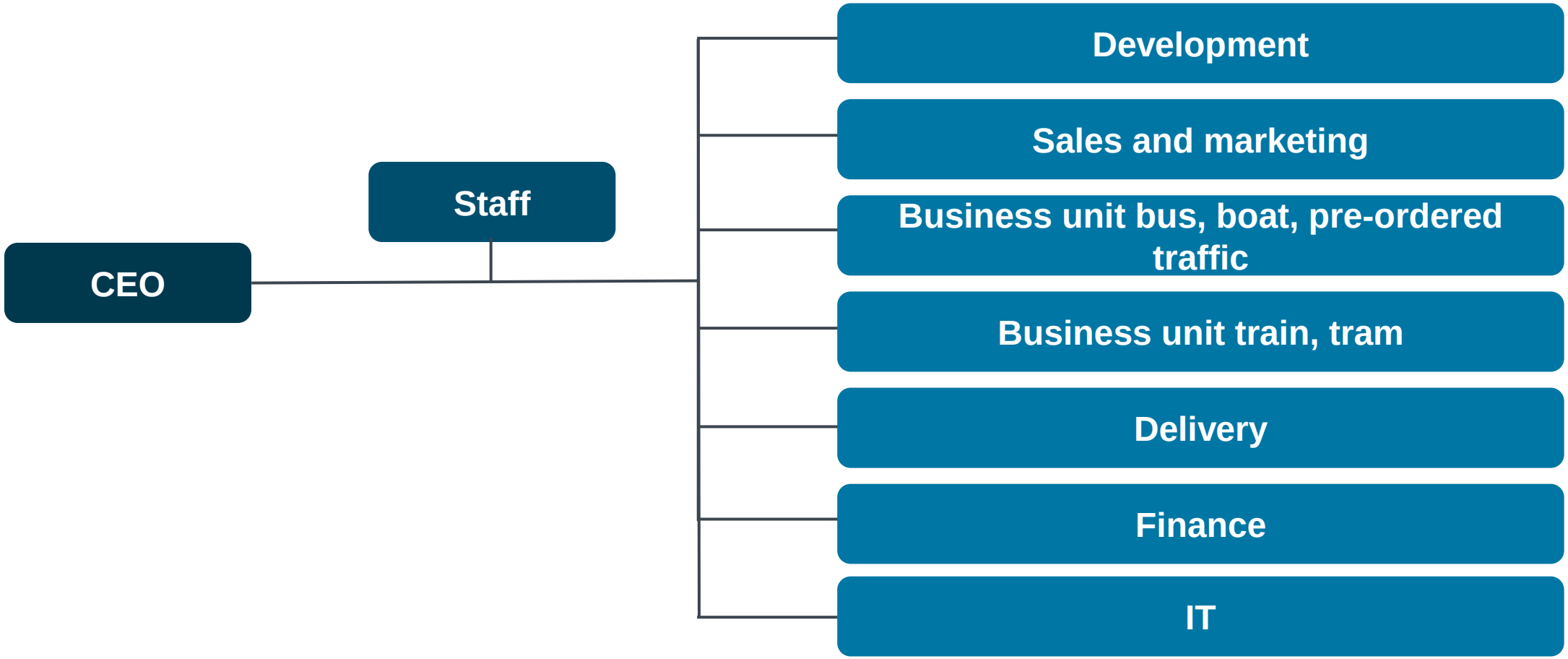
The political organisation.



How journeys are created.



Västtrafik's organisation.




Our vision
Sustainable travel is the norm.
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What does sustainability mean to us?

We provide and develop sustainable travel with low climate and health impact.

We make financial decisions on the basis of sustainability.

A society that is accessible to everyone.

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Cycle, walk, or use public transport.

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Overall goals.

The proportion of sustainable travel increases throughout Västra Götaland.

Milestones.

- Good geographical accessibility.
- Simple, safe and inclusive.
- Public transport has a low environmental impact.

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You can fit 55 cars into one bus (a small bus).
52 Linnéplatsen
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Time to choose direction.
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We are going to make sustainable travel easy. But we also need to make it fairly difficult to travel unsustainably.

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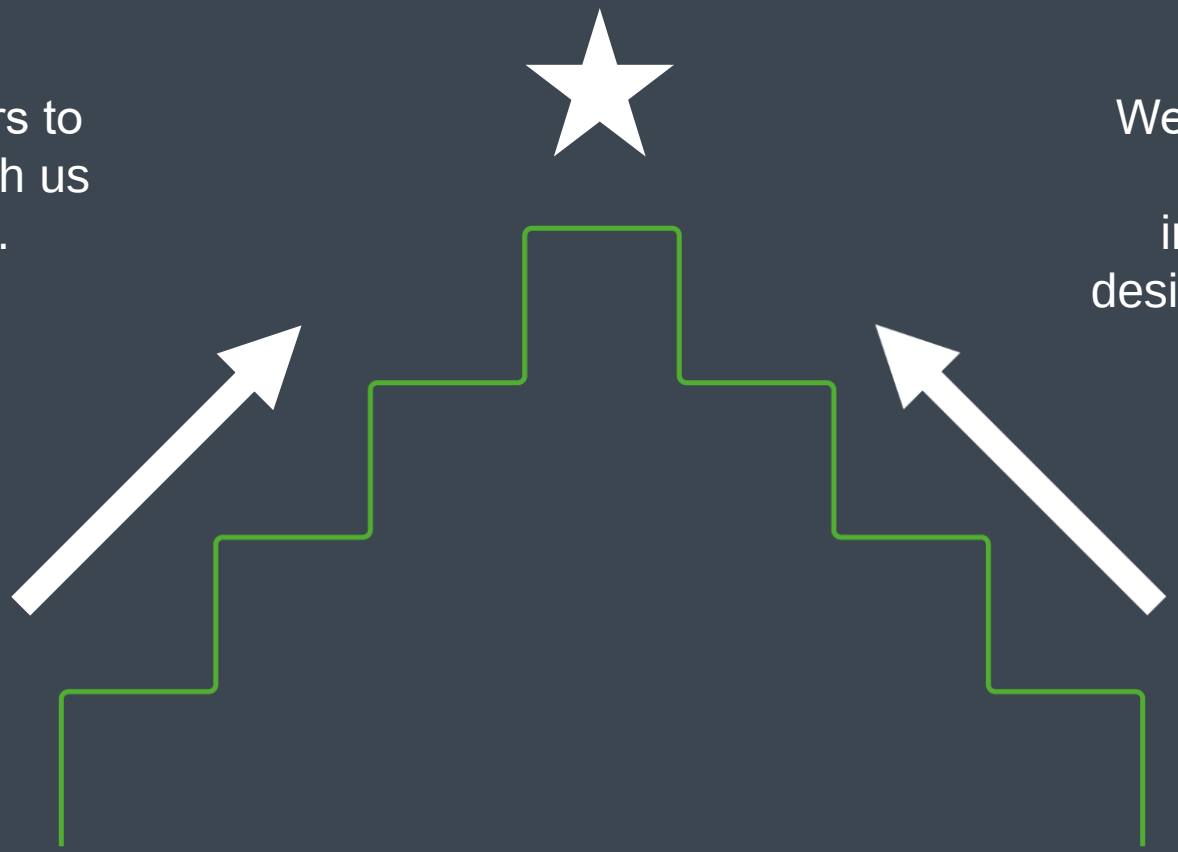
Pull

We “pull” our customers to us by making travel with us easy and attractive.



Push

We “push” society towards sustainable travel by influencing community design and generating public opinion.

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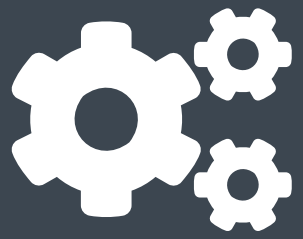
40 partner companies

470
employees

9,000 employees
including our partners

SEK 10.8 billion turnover

301 million
trips, 2022



Pushing development together with
49 municipalities.

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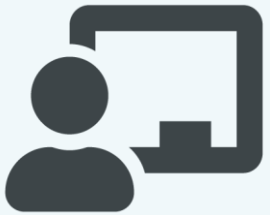
Every day at Västtrafik.

376,000

people travel

7,000

journeys with on-call transport



65,000

visits to our website

1,700

customer service cases

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Our modes of transport.

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Partnership and collaboration.

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40 partner companies but one Västtrafik.

- Close cooperation with partner companies - we are one!
- Based on transparency, understanding each other's perspectives and setting common goals.
- Why? Satisfied and confident employees, efficient use of resources, satisfied customers and increased public transport.

A model of collaboration that is a real trendsetter!

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It’s a big responsibility!

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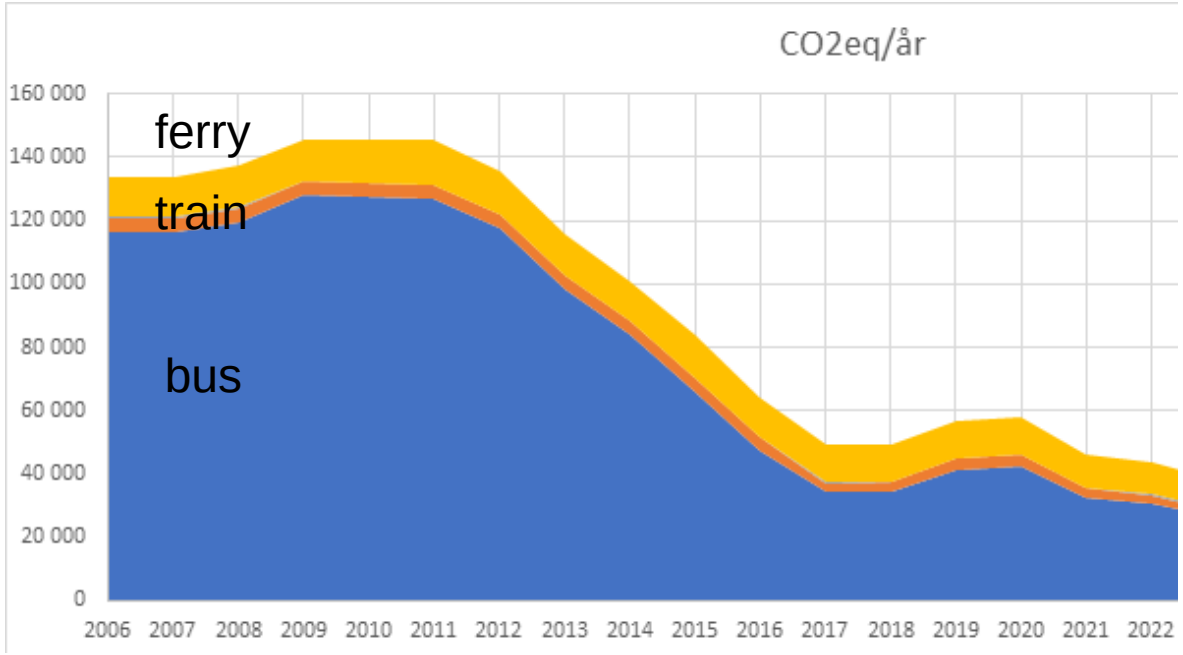
Reducing CO2.



Goal: CO2 reduction
-90% per passenger kilometer
between 2006-2035

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The largest Nordic investment in electric buses.

- During 2023 we have 470 silent and emission-free electrical buses up and running.
- All city and urban traffic will be electrified by 2030.
- This will create denser cities with better air and less noise.

The Nordic region's "smallest" investment as well! New flexible mini-electric buses are now rolling in Gothenburg!

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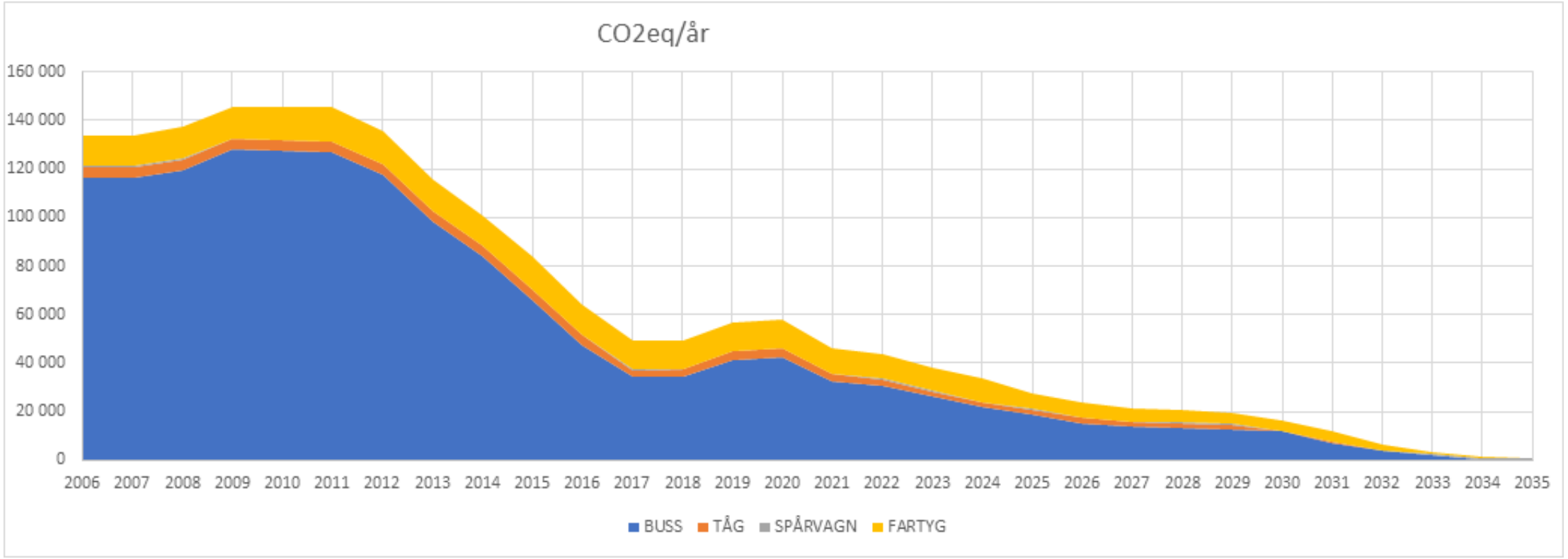
Reducing CO2.



Marie Albihn

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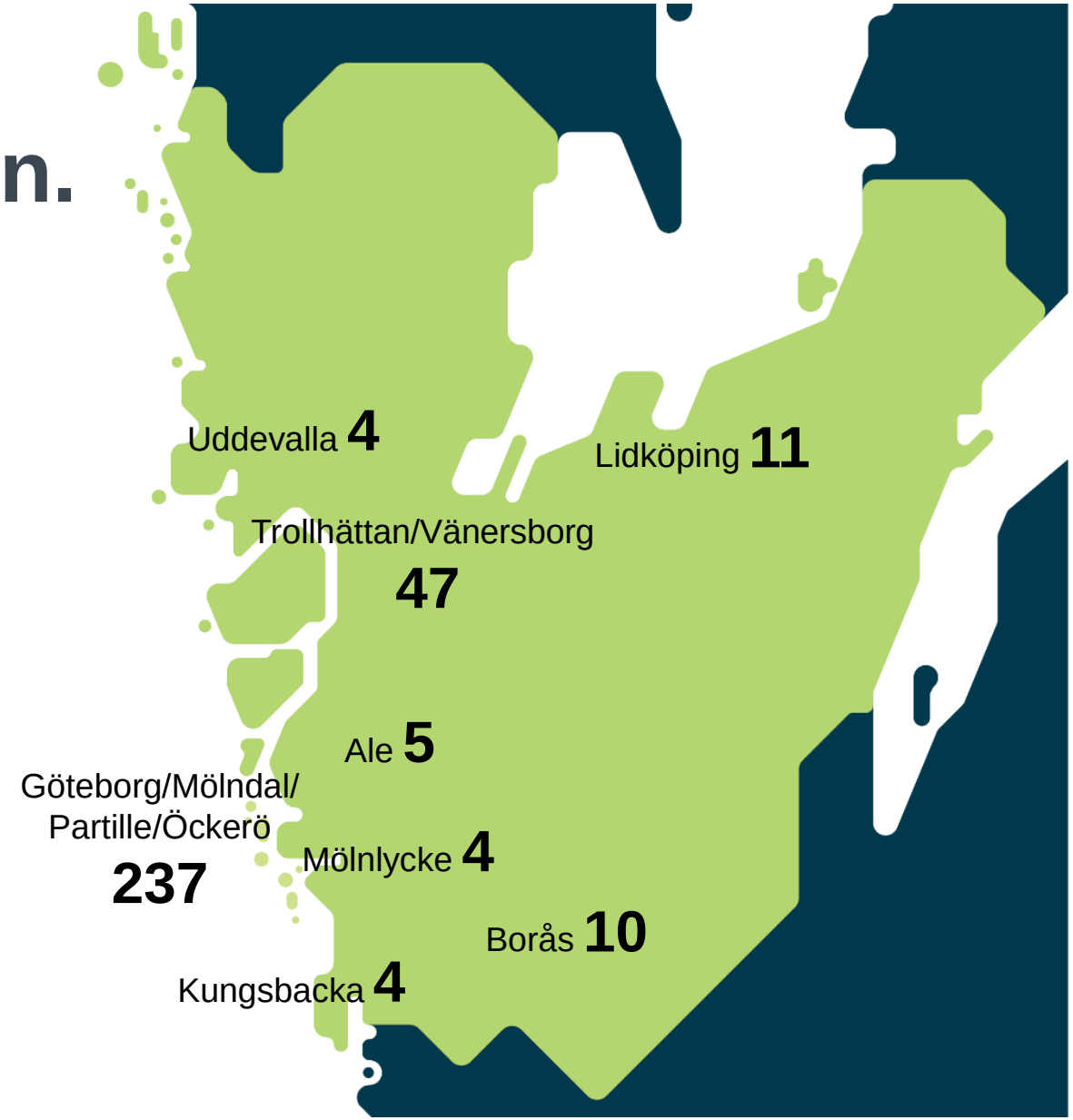
Electrifying west Sweden.

- From 0 to over 300 e-buses in 4 years
- All city traffic electrified by 2030
- Possible to electrify regional bus traffic
- In 2023; 160 more e-buses



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A learning process.

Understanding and being a part of development!

- Learn together step by step in pilots
- Hyperbus
- ElectriCity
- E-buses in existing contract
- Procuring e-buses

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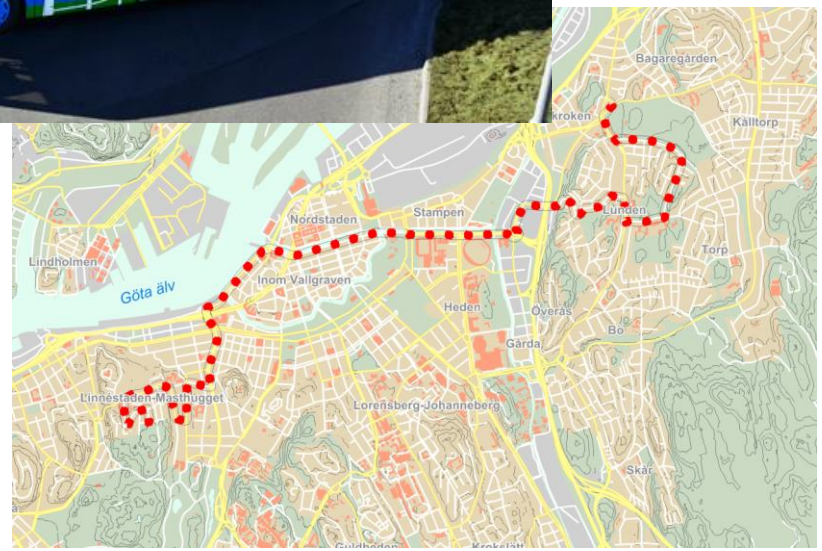
Test and development in cooperation step 1.

Pilot project

Hyperbus, 2011- 2014

- Existing route
- 3 plug-in hybrids of 18 buses
- 2 charging stations, one in each end
- 8 km one way



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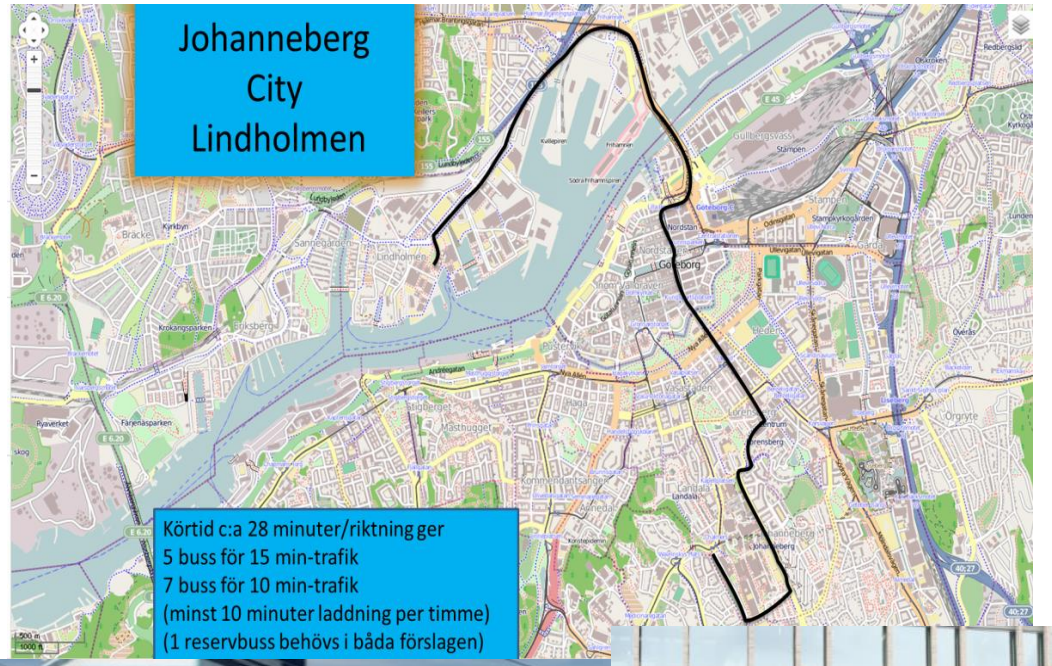
Test and development in cooperation step 2.

Pilot project

ElectriCity, 2013 - 2020

- New route, route 55
- Electric and plug-in hybrid buses
- 10 m, 12 m buses
- 2 articulated buses, e-buses on route 16



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E-buses in exsisting contracts.

- **Line 60, Gothenburg**
  - A heavy line in the central part of Gothenburg, noise problems in the residential areas.
- **Line 2, Borås**
  - Traffic with vehicles with higher capacity needed, articulated electric buses on a central route.
- **Line 5 Uddevalla**
  - An exchange of vehicles was needed to fulfill demand in the contract.
- **City traffic, Lidköping**
  - Only e-buses in city traffic.

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E-buses and charging possibilities.

- Västtrafik secure depots
- Västtrafik secure places for end stop charging
- Västtrafik secure power
- Operators choose depot or end stop charging
- Operators are responsible for chargers – when the contract ends the equipment passes on to Västtrafik

Challenges and obstacles.

- Regional power grid
- Depot close to the route net work
- Electric power to the depots
- Chargers at hubs and end stations
- Many stake holders – close cooperation

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Lessons learnt.

- Clear requirements
- Increased mutual knowledge
- Time for establishment and implementation
- Dialogue is needed

Michaela Shaw

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Procurement of Public Transportation in Västra Götaland

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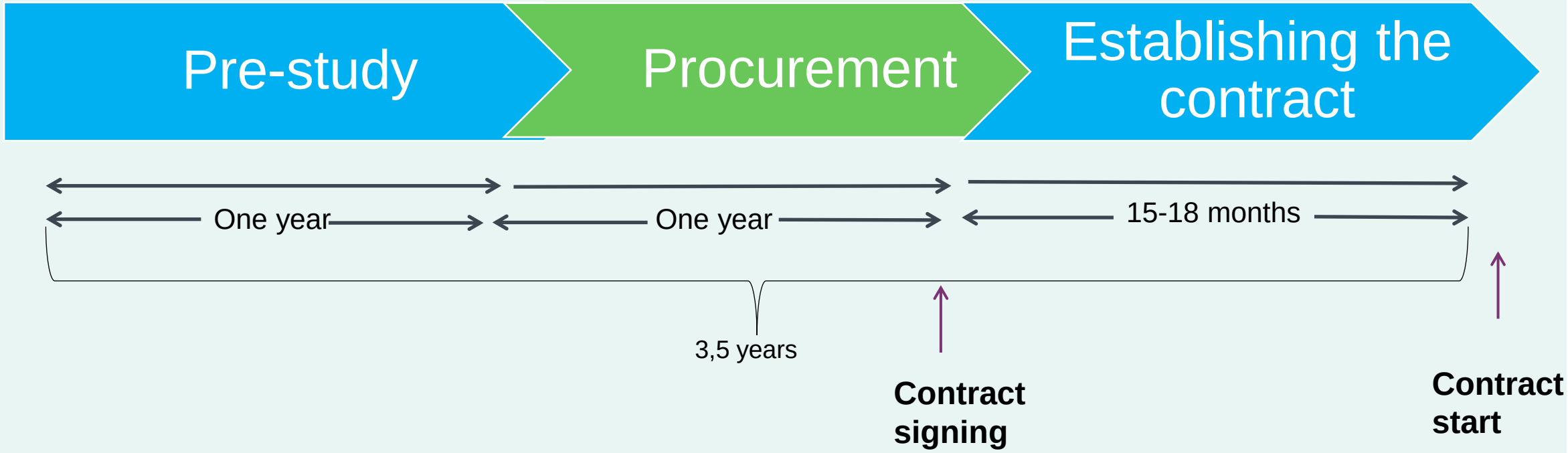
SUBJECTS IN THIS PRESENTATION

- The Procurement Process and its Phases
  - Pre-study
  - Procurement
  - Establishing the contract

  - Our journey and findings towards reaching the goal of electrifying the public transportation of Västra Götaland.

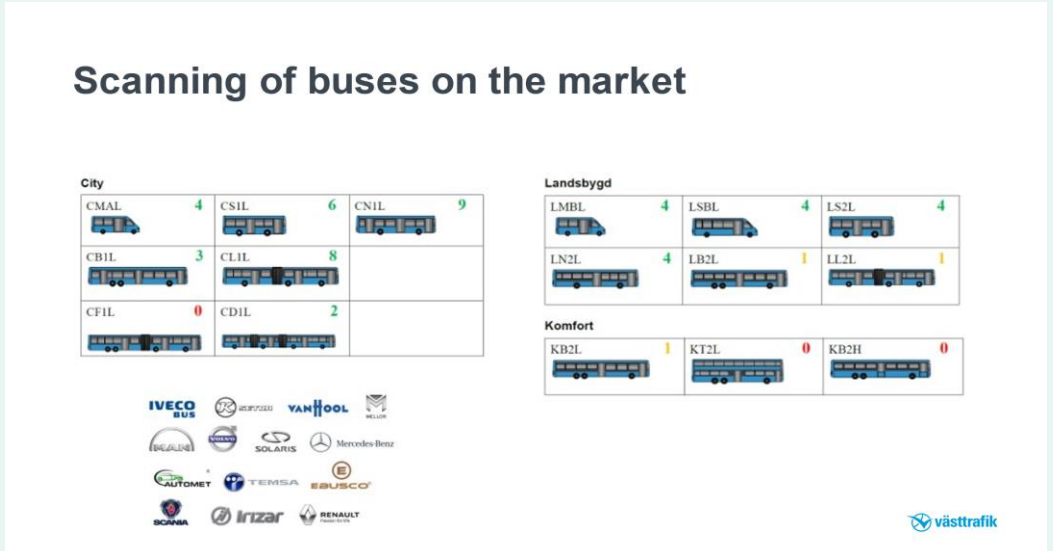
Timeline


Pre-study
Procurement
Establishing the contract
One year
One year
15-18 months
3,5 years
Contract signing
Contract start

The Content of the Preliminary Study

- Input from stakeholders.
- Information regarding our customers travel demands for the next ten years.
- Survey of the various types of buses and fuel options to procure which corresponds with our requirements.
- Identification of barriers and future opportunities.

Generates analysis and prerequisite for the procurement



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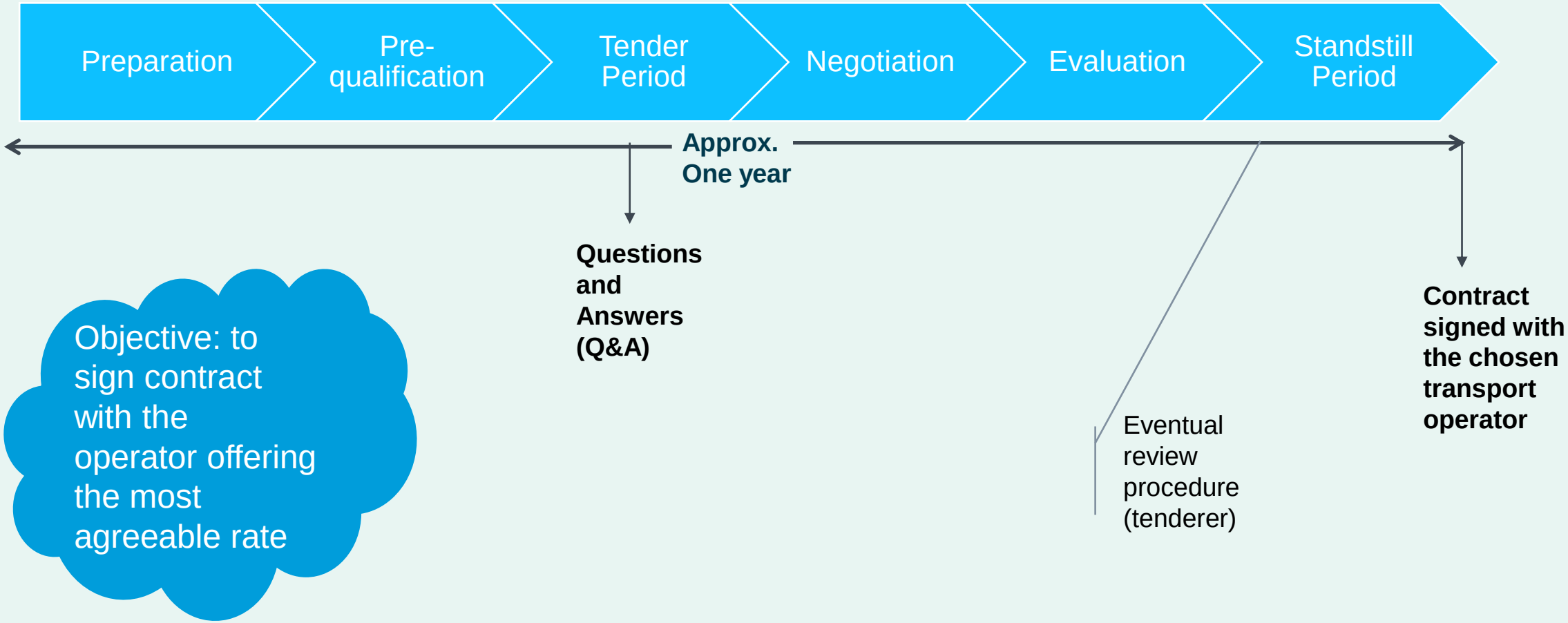
Procurement Process



Our journey and findings towards electrifying the buses in our area

- In the year 2017 we started to include, electricity as a fuel requirement in our procurement processes. To be able to state the requirements regarding this we made a market analysis based on:

➢ The possible driving range

➢ The pricing

➢ The solutions offered regarding optimal charging

The offers varied a lot and it was challenging for us to evaluate the solutions

- In 2019 Västtrafik did an extensive public procurement which included ~150 electrical buses.

At this point we had a little more knowledge about both the market, and how to set the requirements thanks to our findings the years before.

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Our journey and findings towards electrifying the buses in our area

- In 2020/2021 Västtrafik did an extensive public procurement process which included ~160 electrical buses.

At this point we noticed a big difference in the knowledge maturity of the tenderers.

- In 2022/2023 we planned for a large tender with approximal 250 electrical buses

➢ We now experiences that the factories hade limited recourses.

➢ We also find out that the development had been delayed because of the war and post covid.

➢ Our CSR demands makes it difficult to accept buses that are made in countries with high risk of abuse on workers. We use ITUC Global Rights Index as a source to identify countries with high risk.

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Findings

- Important that politicians make decisions that supports electrifying the market.
- There has been subsidies that we have had to handle in the procurement process.
- Our Transport Operators:
  - Views electrical buses as the future in transportation
  - Prefers to charge the buses in the depo and do not use the pantograph charger that often
  - The newer tenderers do not offer pantograph chargers
  - The drivers prefer to drive the electric buses
- The market has developed advanced systems for charging thanks to the competition between the transport companies.
- Prices are decreasing and getting closer to the pricing of a regular bus.
- New bus brands are being started and new bus types are being released, however we have noticed that the pandemic and the war have delayed the development.

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Our Process of Establishing the Contract with the Transport Operator

- A Project based organizational structure

We have developed a process that is project based, in which we co-operate with the transport operator in a sort of partnership with the common goal of ensuring that the traffic starts according to plan and in accordance with customer requirements.

Furthermore our aim is to create conditions for contract fulfillment for the entire contract period of ten years.

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Challenges in the Electrification Area

The most common challenges that we face are associated with:

The building permit process

External dependencies

Long delivery times

To succeed it is crucial to determine the activities on the critical path and to have enough time

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Thank you

For more information or inquires contact:
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Maria Coulianos and Marita Albrektson

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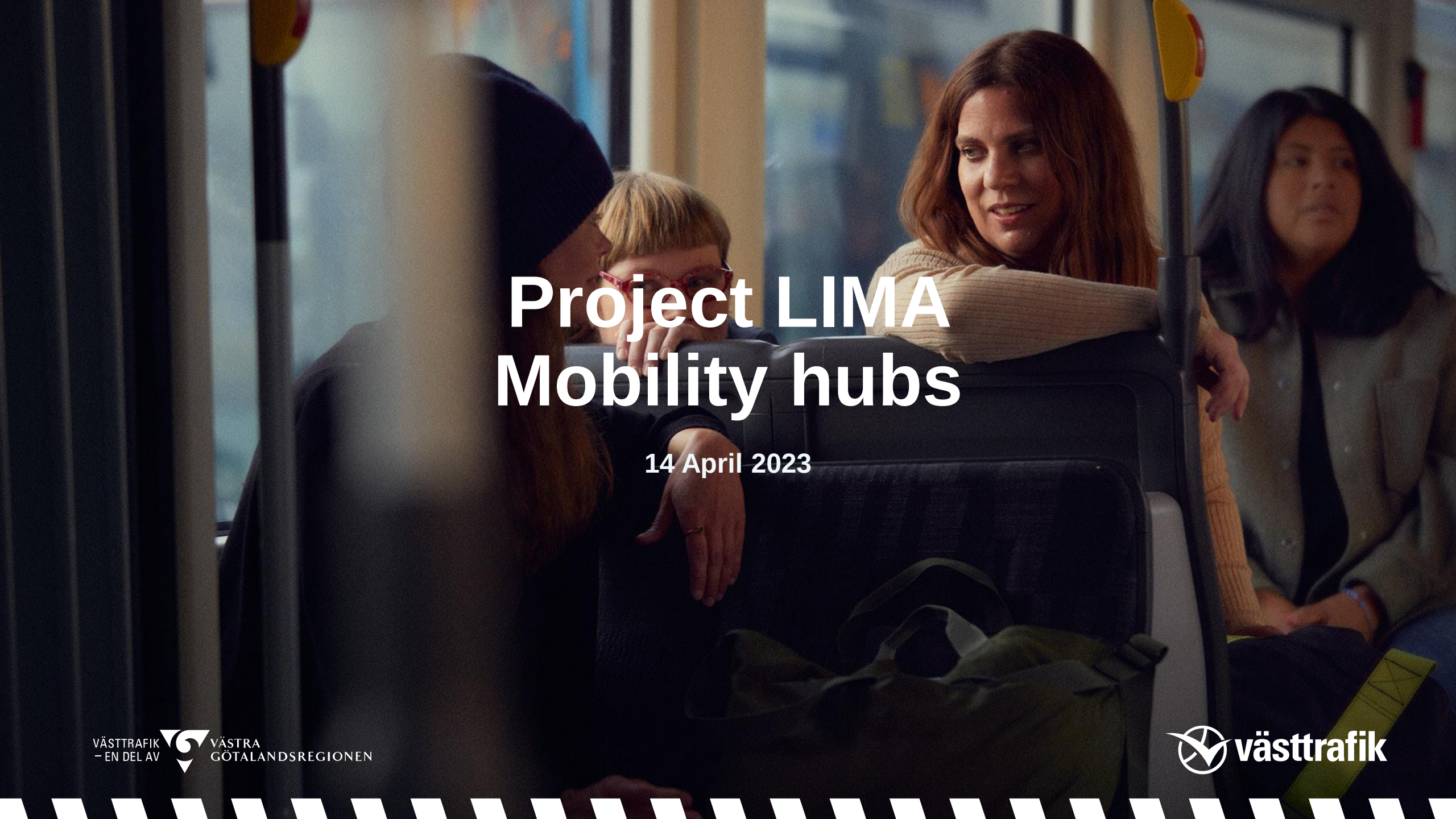

Project LIMA
Mobility hubs

14 April 2023

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Combined Mobility Programme, Västtrafik

Infrastructure –
LIMA mob hub

Maas
Countryside

Parking & Public transport

Digital Reseller/
MaaS

Bike & Public transport

Research

Automated vehicles

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LIMA

LIMA Lindholmen Integrated Mobility Arena (2018-2021)


SEB

The project aim of mobility hubs

"To make accessible and visible sustainable mobility services and support functions at strategic locations on Lindholmen and create a physical place for these services. The location(s) would include, among other things, car sharing, parking, electric charging, taxis, public transport and rental bicycles. The mobility hubs would also be connected with the digital service"

A definition of mobility hub was developed within the project

A mobility hub is a physical point for mobility services. It could be public transport, car parking, car pools, car sharing, and other mobility services, taxi, bike sharing and other services like mailboxes.

The aim of the mobility hub is to support sustainable travel modes by making it easier to combine travel modes, to make it easier to change between travel modes. That could stimulate more sustainable travel and change behaviour to more sustainability and make private car use less frequent.

The mobility hub could be a part in a network of bigger and smaller hubs. The offer of travel mods at the hubs could be different from place to place depending on the needs at the typical place.

The hub should be placed visible and integrated in the environment and feel close, safe, secure, accessible and welcoming. With the right design it can work as a physical and digital show room for sustainable mobility.

LiMA

Design and placement of the mobility hubs

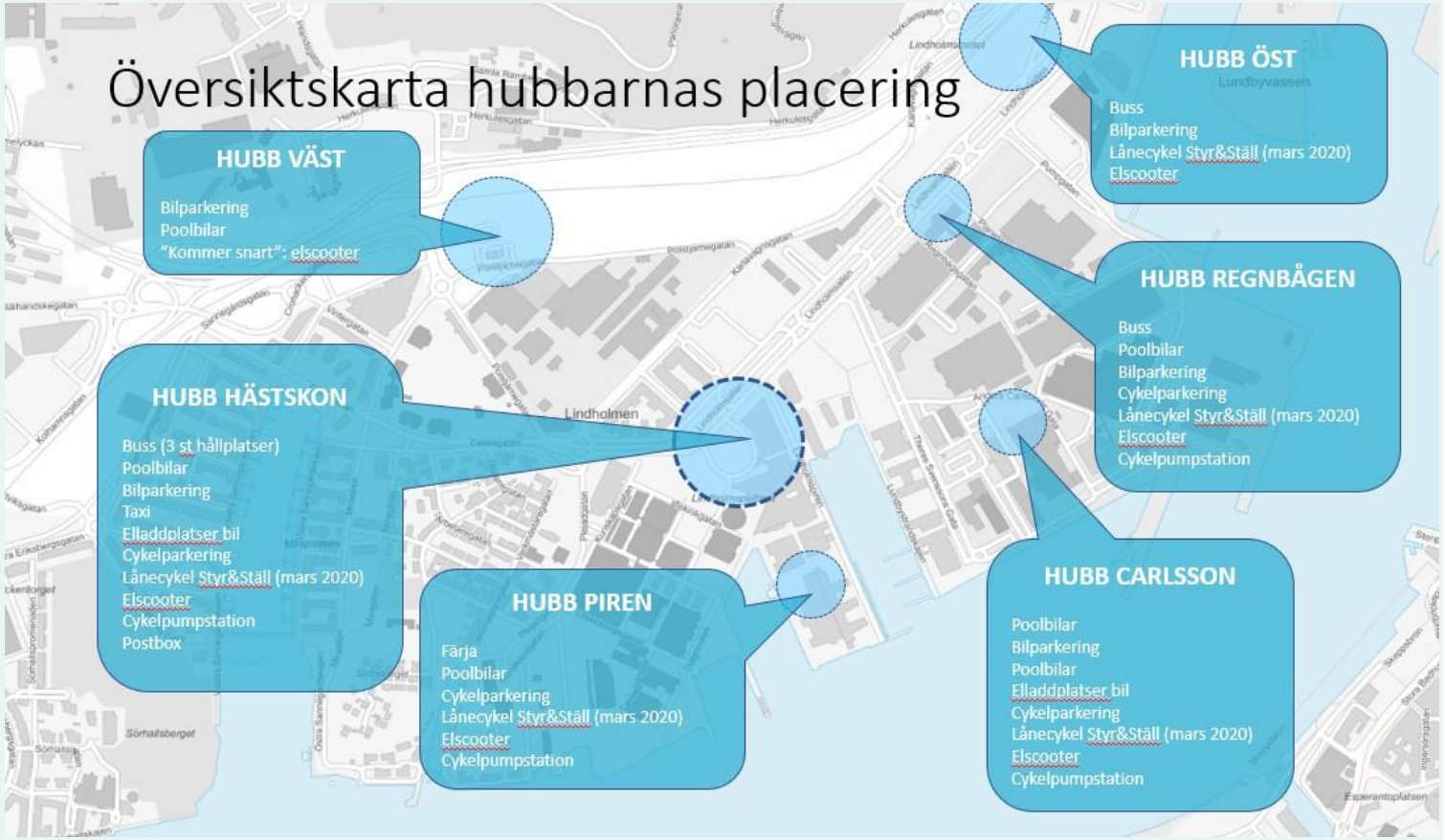
-hypotheses set up in the start

- Accessibility and visibility is important
- Travellers needs should be met
- There are different need of mobility services depending on where you are in the area
- Mobility hubs should be located where many people move around
- The mobility hubs should meet needs both from the employed who used the app and the public in the area

LiMA

One hub became a network of six hubs

- *Hub Hästskon*
- *Hub Piren*
- *Hub Carlsson*
- *Hub Regnbågen*
- *Hub Väst*
- *Hub Öst*



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DRIVE SWEDEN

VINNOVA

The hubs and the test

Test period: 2020-2021 (during the pandemic)

Standardizes design, symbols etc

Light

QR code for more information

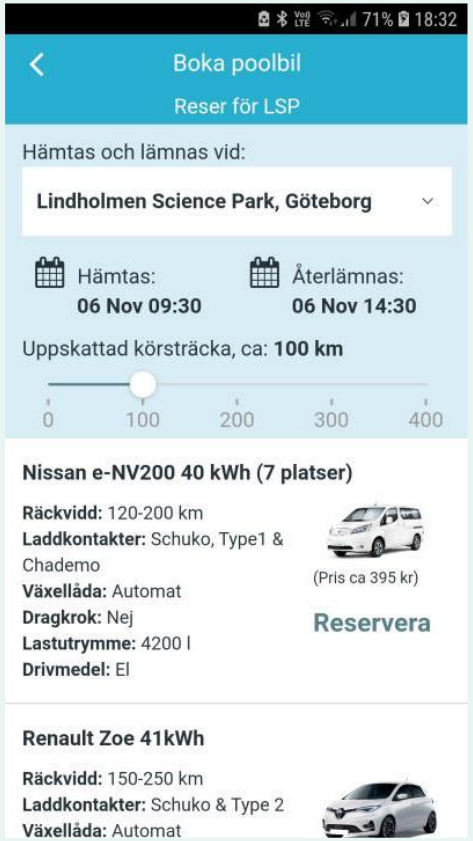
No digital connection or booking function

Area for cycle and e scooter parking

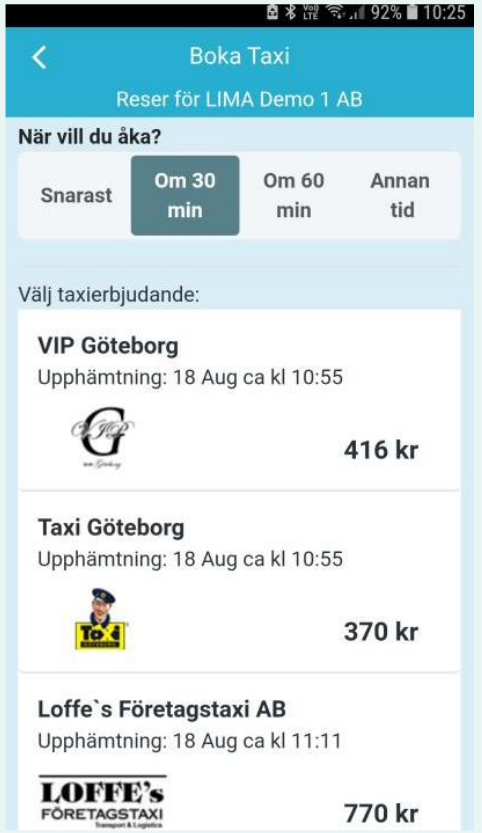
Lima app

See mobility hubs taxi

Bye Västtrafik tickets



Book shared car



Book taxi

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Lessons learned

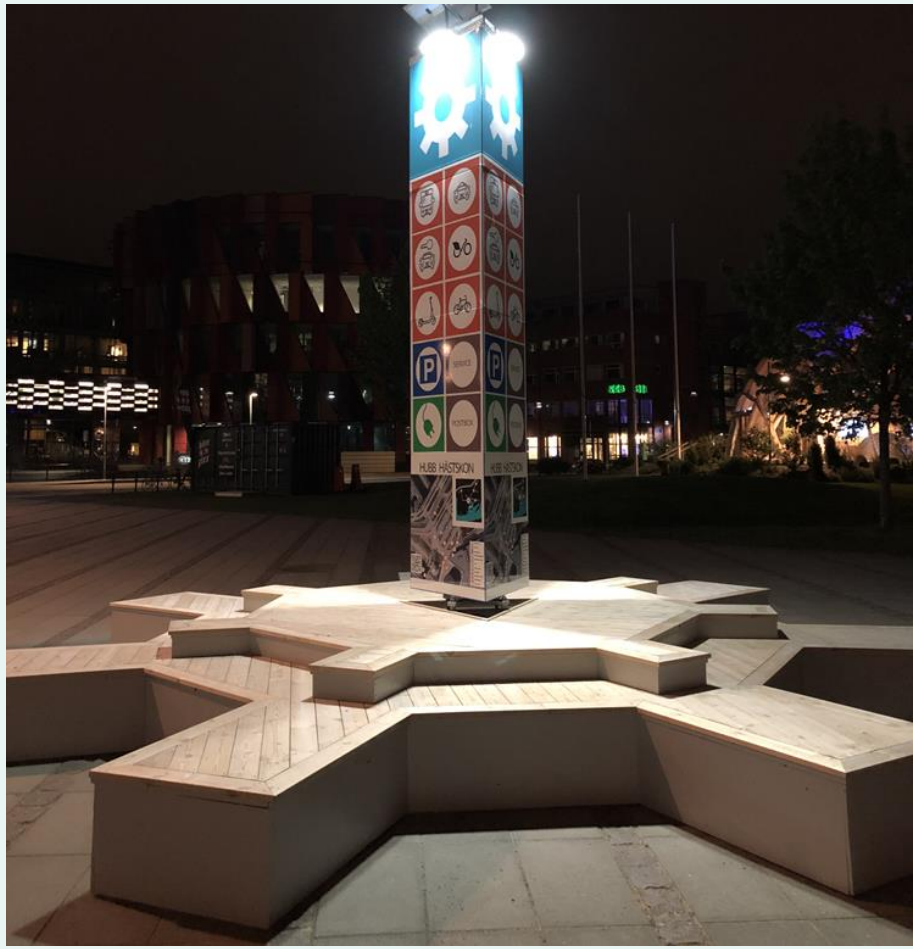
- *The already build environment limited the possibilities to locate the mobility hubs in optimal places.*
- *The availability of land is a very important basis for being able to develop and maintain the mobility hubs.*
- *Possibilities for coordination between physical hub and digital platform*
- *Current and applicable business model*
- *A coordinator is needed to establish and operate a mobility hub*

More information: https://www.drivesweden.net/en/lima

LiMA

Asking people at the spot

- Location important, easily accessible
- Should be easy to change to other modes of transport
- Clearly signposted, simple and easy to understand
- Several respondents had not observed the mobility hub.
- Don´t understand the purpose of the mobility hub, every service is available digitally
- The mobility hub must be open, nice, fresh, safe, pleasant



LiMA

Happening right now.

Micromobility

Bike + public transport

Ticket cooperation with electric scooters

Evaluation of procurement opportunities

Development of existing services

Prototype test for dynamic public transport

Feasibility study autonomous ferries

New forms of mobility

Ridesharing (analysis of potential)

Carpooling (analysis of potential)

Development of local areas

Landvetter Södra

Battery factory on Hisingen

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