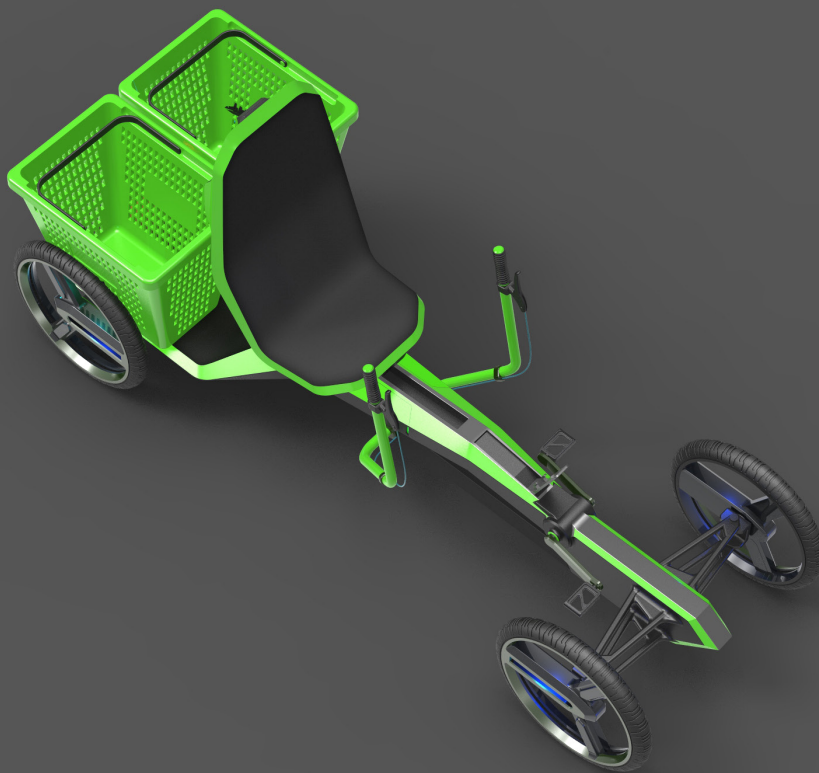


# Beyond Sharing

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Seyed amir arsalan Shamsabadi

**Design Diploma Project**

AHO (Arkitektur- og designhøgskolen i Oslo)

Autumn 2019

## Beyond Sharing

Is an interdisciplinary design project that explores the possibilities and opportunities of shared mobility as a potential driver to a more sustainable urban transportation by focusing on suburban areas in Oslo county as a potential context.







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**Field:**

Interdisciplinary project

# Abstract

**Beyond Sharing** is an interdisciplinary design project that explores the possibilities and opportunities of shared mobility as a potential contribution to challenges relating to the development of a sustainable urban transportation system in Oslo area.

Shared mobility is growing and being integrating more into cities as well as transport systems, and part of a shifting consumer preference from car ownership toward newer forms of transportation. There are various challenges and issues relating to shared mobility in Oslo on many levels, from infrastructure and service delivery, to the actual products themselves.

My initial goal in this project was to explore shared mobility using Oslo as the context of study, in order to see how shared mobility services could be improved by considering all the aspects involved in its delivery using a holistic design approach.

The result of this project consist of a documented policy design in terms of regulating shared mobility in Oslo city together with a design proposal that illustrates a possible and more sustainable shared mobility service that integrates the designs of service ,interaction , and the actually products as a whole picture using four possible scenarios.

It is hoped that this project will help our beautiful city Oslo to be greener and more environmentally friendly in the future, and give its audience and the stakeholders a new perspective towards shared mobility.

**But this is just the beginning...**

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# 01

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## INTRODUCTION

# EXECUTIVE SUMMARY

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## The project goal

The main goal of this project is to study shared mobility as a new type of urban transportation, and explore possibilities and the opportunities it can bring to our urban life as a potential driver to a more sustainable urban transportation.

## For whom am I actually doing this project?

**Beyond Sharing** is a multi-disciplinary project that tries to explore shared mobility in Oslo City using a holistic design approach. This is a project where stakeholders and potential actors are closely linked and influence each other all the way, which lead this project to a very complex context. Consequently, mentioning one or two names as potential owners of this project is not actually right.

This project can be interesting for many organizations and companies like Transportøkonomisk institutt(TØI ), Municipality of Oslo(Oslo Kommune), Ruter , Voi, Tier, Lime, Circ, Kiwi , Obos, Meny, and many others which directly or indirectly can benefit from it.

## The Context

The project started by looking at Oslo City as the context of this project. However, based on the insights and information gathered in the early phases, I realized that the city of Oslo specially the city centre is fully saturated and overloaded with Shared mobility while the actual need is somewhere else outside of the city.

Consequently, that led me to turn me focus to other geographical areas specially suburbs around Oslo where there is an actual need with a huge potential for shared mobility to be integrated in a more sustainable way as a new way of urban transportation.

## The outcome

This is a process driven project which faced with a lot of complexity and iteration during the design process in many different levels, and that complexity is actually part of the delivery. Many different factors and elements influence each other in this project. That is why there was a necessity for several iterations and doing a lot of backs and forth throughout the whole design process.

Many things can be mentioned as the main outcome of this project like business plan, the actual products, and Four possible future scenarios, but I would say the whole picture of suggested Design proposal would be the best description of my main delivery in this project.

The project faced with many different facets throughout the whole design process that all accompany each other to reach a step where I could illustrate the whole story behind it.

**Although there is a long way to go in this project, I tried to reach to a point where it can be considered as a good place to start investigating and discussing around the suggested possibilities and opportunities explored in this project.**

## **The Challenges I experienced**

The biggest challenge was the scope of this project, which was quite big. The project has many facets and there were many actors, stakeholders, and issues that need to be considered separately and in the whole picture, which made it very hard to come up with the right solutions that fits all.

In addition to that, by engaging Policy design and exploring possible regulations that needed to be defined in this project in early phases, the scope becomes more and more systemic and higher level in terms of Design which was not something I expected from before.

## **Beyond Sharing**

**Is an Interdisciplinary Design project that explore the possibilities and opportunities of shared mobility as a potential solution and driver to a more sustainable urban transportation by focusing on suburbs areas in Oslo County as the potential context.**

# Motivation

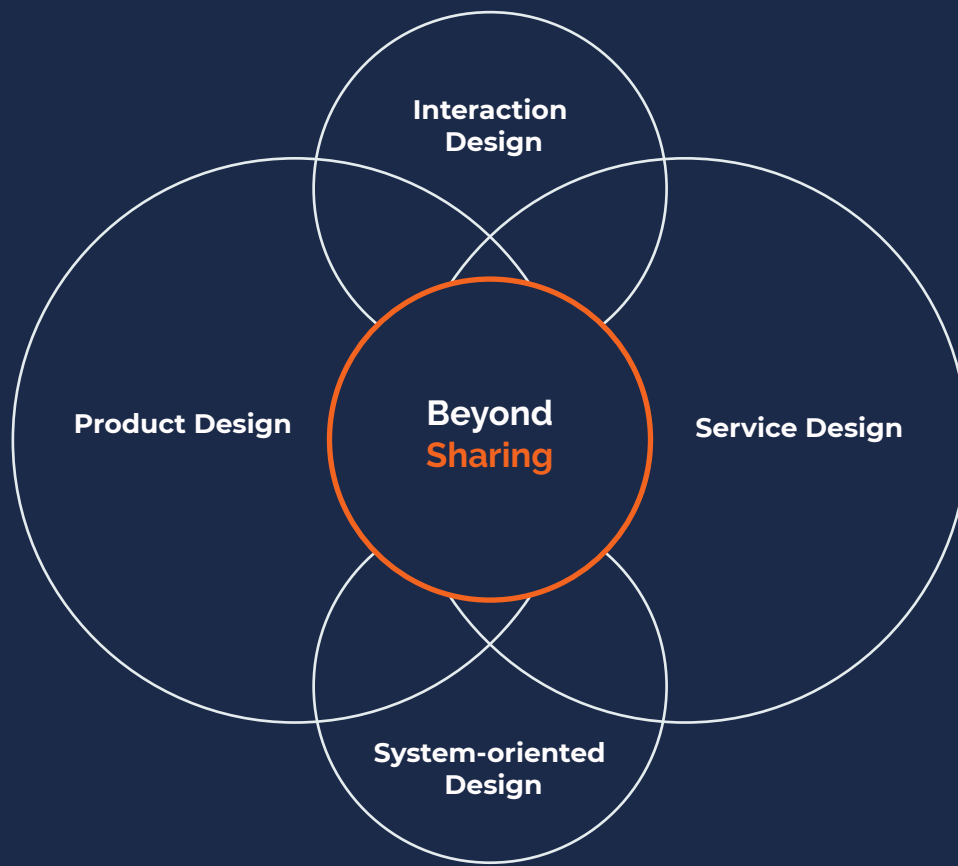
Motivation? I would say complexity and Curiosity.

I was an industrial designer before coming to Norway. Being a Master of design student at AHO was quite challenging and very interesting to me. I was very curious about other disciplines from the beginning so I decided to move across disciplines during my two-year master from Industrial design to Interaction and then service Design.

Here at AHO, we learn to be a multi-disciplinary Designer using Holistic design approach in the design process. In this project, I tried to express that as an AHO master of Design student by working on a multi-disciplinary context in my diploma project.

I like challenges in Design because challenges make us a better designer. This project was quite challenging for me, and I think I learned more than I expected and that is what we, as designers I think should not afraid of.





# APPROACH & PROCESS

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## Approach

The project started by identifying the most important questions and trying to find the right answer of what is actually going on using a strategic and holistic design approach. Understanding the context followed by mapping out all the findings and insights in a big picture were the initial steps in this project.

After getting more insights and extracting the opportunity areas in different levels, I tried to narrow my focus down in each step needed. I tried to implement Policy design as a great tool to build a framework around my project and clarifying what I actually want to achieve in this project.

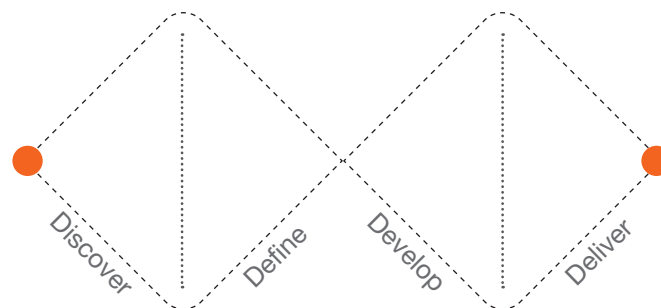
In the process of developing the actual products, I used traditional Product design approach, while considering the whole picture as my final delivery.

I used typical product design tools like mood board, sketching, 3D modelling, digital rendering, and very engaging illustrations that represent the ideas quite clearly, followed by implementing the output into a Service suggested using a service design approach.

Since the suggested service is linked with some interactions which is associated with the whole system, I used interaction design approach and tools which were also a great help for me to build the whole image of the suggested system in a more interactive and understandable way.

## Process

I used double diamond as my Design process method. There were a lot of backs and forth followed by several iterations in this project, which is quite typical in projects like this.

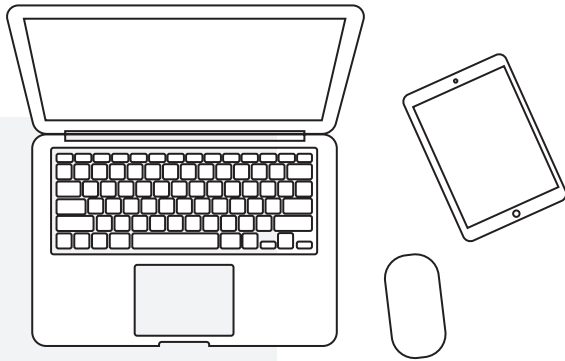


Double Diamond Design process



# KEY STEPS AND METHODS

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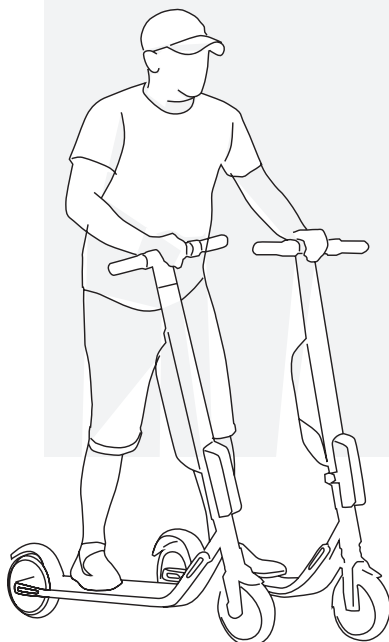
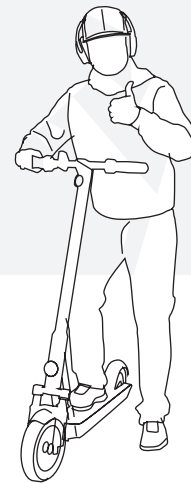
## Desktop Research

In the early phases, desktop research was a big part of my design process. I had the chance to go through several articles and papers in order to get an overview of the context.

Nowadays, shared mobility in Oslo City is considered as a hot topic for discussion in the news too.

## Be the user

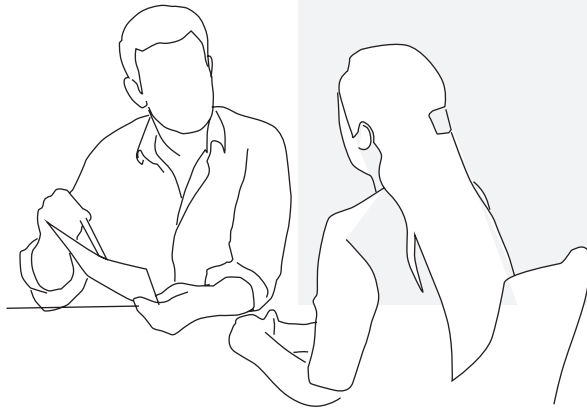
I had the chance to be the user, which was quite engaging and fun.



## Observation

There are several shared mobility service providers in Oslo City, from car sharing to scooter sharing. Most of these companies has started their services in Oslo this year like Voi, Din Bybil , and Lime.

**Being presence in the context gave me a great chance to monitor both the service providers and the users, which was quite inspiring and very exciting.**



## Interviewing with the users and non-users

I had the chance to talk with around fifteen residents in Oslo City. Some of them were the active user of shared mobility and some of them were not. Portions of them were selected randomly and the rest of them were selected specifically based on where they live and their travel preference in the City For the interviews.

## Event participation

I also had the chance to participate in some relevant events hosted by different organizations in Oslo City like:

- **The Future of Mobility** hosted by EGGS DESIGN,
  - **Digital Sjøråderett** Hosted by AHO,
- and a public Event hosted by private shared mobility company called **CIRC** with the title of safety and education for the user.



## Talking with experts and stakeholders

It was a great opportunity for me to get in touch with several stakeholders and experts of this field in this project.

I had the chance to talk with a few companies like **Urbansharing**, **CityQ**, **Cityrabbit**, and **Ruter** that are working in this field actively.

## Mapping out findings and insights

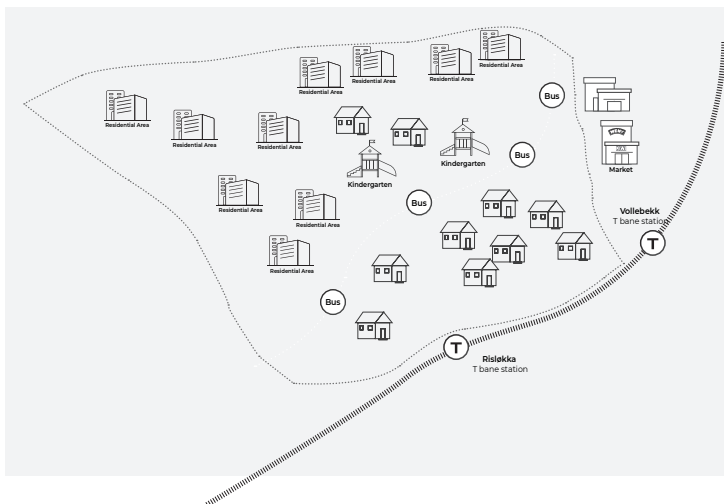


### Exploring Opportunity areas geographically

By mapping out the insights in geographical level, I found some very interesting geographical opportunities in Oslo area where shared mobility can be more effective and more sustainable. Moreover, there is an actual need for that.

### Groruddalen

**Groruddalen** is one of the opportunity areas geographically extracted. **Groruddalen** is considered the potential context in this project.

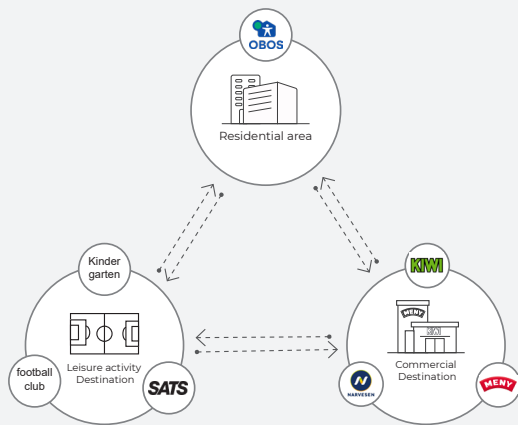


### Bjerke, Linderud, Rødtvet, Romsås

**Groruddalen** is quite big therefore it was very hard to map out all the transportation movements inside this area.

Therefore, I decided to narrow down a little bit more into four smaller neighbourhoods inside **Groruddalen**, and explore them more deeply in terms of transportation, infrastructure and residents lifestyle.

# How Shared mobility might be a possible alternative to personal cars in these neighbourhoods?



## Exploring business plans and ownership

Shared mobility companies use different strategies to provide and offer their services to their target users.

By exploring them in more detail and getting a better understanding of what exactly they are offering, I ended up to this point that the current business plan is not sustainable and suitable enough to be implemented in focused areas.

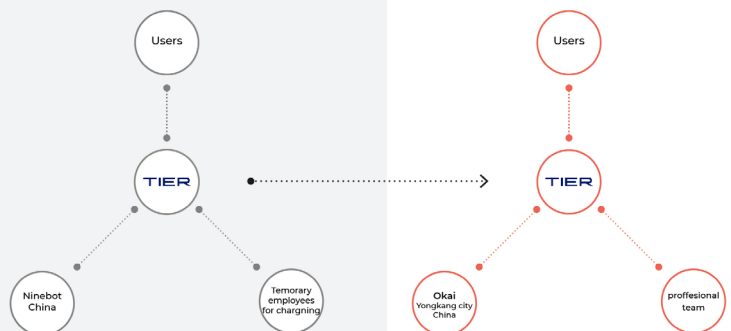
**We need a new type of business plan that can provide services in a more user centred, efficient, and sustainable way.**

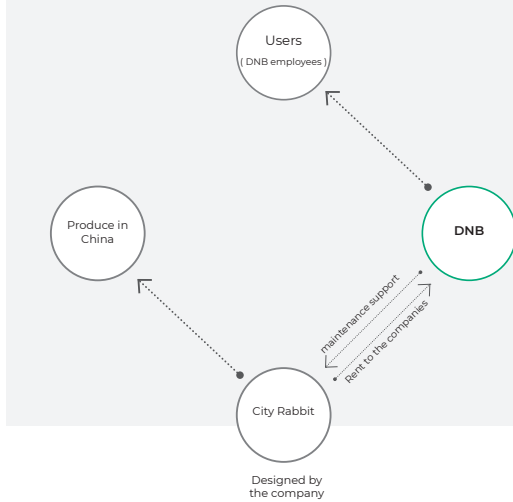
## Tier

Tier is a Berlin-based Scooter sharing start-up company that provide scooters for renting in several cities in Europe like Oslo.

Tier was one of the first scooter sharing companies that came to Oslo, and they are still one of the most popular Scooter sharing companies among Oslo residents.

In this stage, I tried to map out their strategy and business plan to understand how they provide and operate their service generally.





## City Rabbit

City rabbit is a start-up company based in Oslo that Designed and offer a three-wheeled Scooter for renting to private companies like DNB. I had the chance to talk with Fredrik, the CEO of Cityrabbit, and getting to know more about the company. In terms of business plan, they have different plans and ideas of how they want to offer their services to the users in Oslo city and other places.

## Ideation in Business plan

Giving a sense of belonging to the user by localizing the service and involving local businesses.



### SFMTA Powered Scooter Share Program Permit Application



The Powered Scooter Share Program Permit allows permitted Powered Scooter Share Operators to operate a Powered Scooter Share Program in the City and County of San Francisco. The SFMTA shall implement the Program consistent with the SFMTA's "Guiding Principles for Emerging Mobility Services and Technologies" and Transportation Code, Div. II, Section 916.

The SFMTA will review the completed applications, determine whether each applicant conforms to the SFMTA's requirements, and evaluate applications according to the scoring criteria described in this application. The SFMTA anticipates issuing a limited number of Powered Scooter Share Program permits in consideration of maintaining clarity and usability for customers, and ease of program administration.

#### Applicant Information

Please Print Clearly:

Business Name:	Business Phone:		
Contact Person:	Phone:		
Mailing Address:			
Street Address if different than mailing:			
Email Address:	Website:		

#### Application Agreement

By signing this application, the applicant verifies on behalf of the Powered Scooter Share Operator that all the information provided is true and accurate; that if issued a permit, the applicant agrees to comply with the Permit Requirements in Appendix A, without change to its terms and conditions, and any other requirements of the Powered Scooter Share Program Permit as issued; and, further, that the applicant agrees that all submitted documents and materials, and their contents, are subject to public review, and that no documents or other materials provided to the SFMTA will be considered confidential or otherwise withheld from public disclosure if requested after the deadline for submitting applications has passed.

Name of Applicant:	
Authorized Signature:	
Printed Name, Title and Date:	

## Exploring Regulations

Jumping right into design without considering the regulations is meaningless. However, no one in Oslo city is actually working on Regulation of shared mobility. so I decided to take one-step further and start extracting and developing possible regulations for Oslo city based on similar regulation models in other cities specially San Francisco.

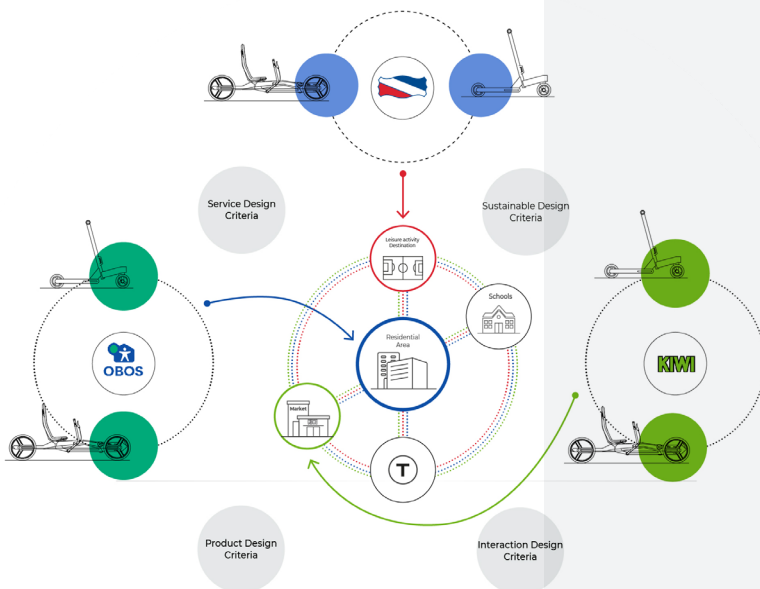


## Defining Design criteria based on possible regulations

Followed by extracting all the possible regulations and studying them in detail, I started building my Design criteria for this project based on regulation extracted and dividing them into four different groups:

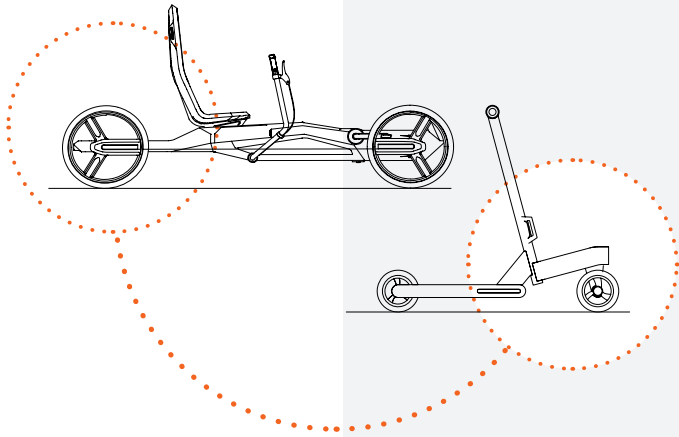
- Service design criteria,
- Product design criteria
- Interaction design criteria
- Sustainable design criteria.

These criteria will help me as a valuable guidelines through designing in this project.



## Design Proposal

“ Local Shared mobility program owned by local businesses and community owners that offer two different modes of transportation to be shared among local residents in the coverage area” is my Design proposal That I will discuss it further in detail in the next steps.



Introducing Alpha and Beta as the suggested fleet.

### Alpha

Alpha is a one passenger three-wheeled Scooter that designed for short destinations in local areas. It has a small modular cargo space for personal bags and small luggage. It is lightweight and powered by electricity.



### Beta

Beta is a one to two passenger electric vehicle that can be categorised as a four-wheeled recumbent bike with a modular detachable roof. A proper space for luggage and shopping bags that can turn into a space with a seat is considered in the backside of the Bike.



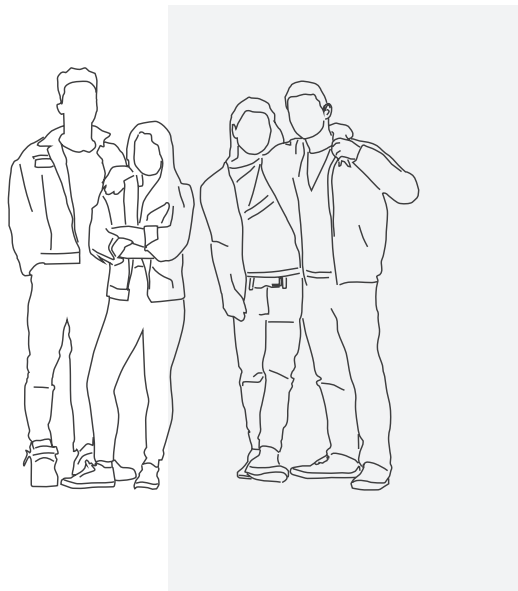
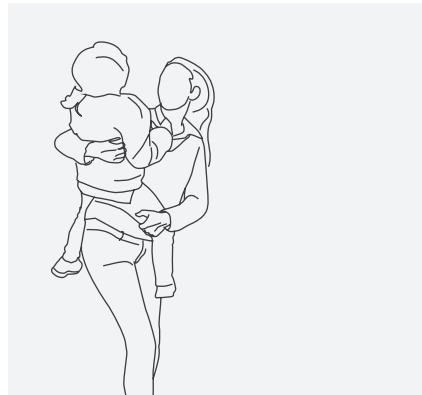
## Describing the service using four possible scenarios

In this stage, I am will present four different possible scenarios in order to describe and illustrate the whole picture of my Design proposal in a more tangible way.



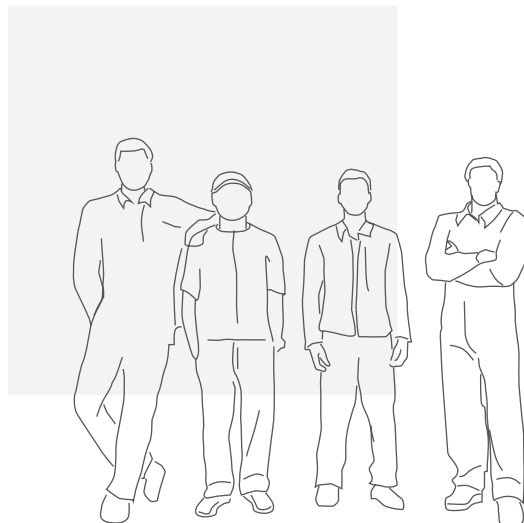
**Hussain**

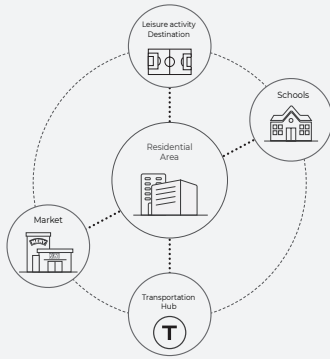
**Sarah and her family**



**Emad and Gangs**

**Kiwi food Delivery Team**





## Grandalen as the context

Grandalen is a fake neighbourhood in Oslo area, which has the same infrastructure with Bjerke and other neighbourhoods in Groruddalen. The reason that I used a fake neighbourhood to describe my idea is to avoid being involve into technical aspects and details of any specific neighbourhood that distract the focus from the main idea.

## OBOS

Obos is Norway's largest residential construction company with 215,015 homes under management and 416,800 members at the end of 2016. 71 percent of the members live in Oslo and Akershus.

**Obos is one of the Local Transportation Service providers in Grandalen.**



## KIWI

Kiwi is a Scandinavian supermarket chain that has 650 retail outlets in Norway, and 102 in Denmark.

**Kiwi is also another Local Transportation Service provider in Grandalen.**



## Hasle løren

Hasle Løren Is a sports club in Grandalen .They are running different sport activities like football, ice hockey, and basketball...

They also establish a new transportation fleet in that area.



Scenario 1



Scenario 3



Scenario 2



Scenario 4





02

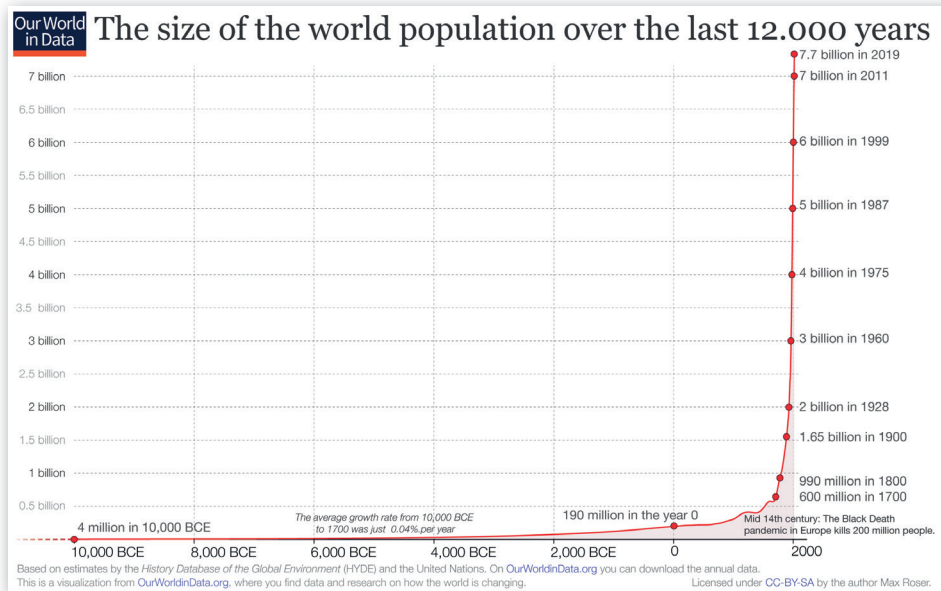
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BACKGROUND

# Growing population

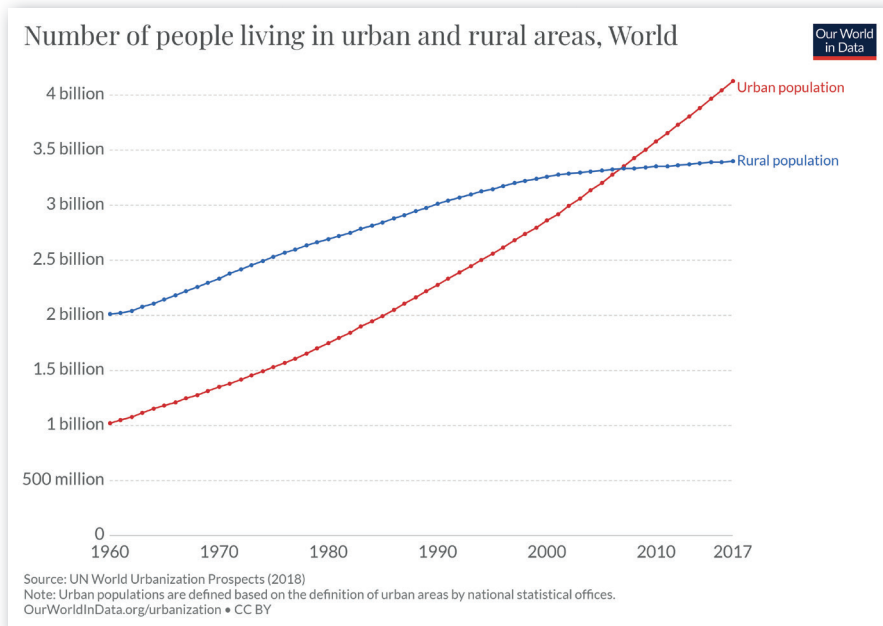
The world population has grown rapidly, particularly over the past century. Two hundred years ago, the world population was just over one billion. In 1950, there were 2.5 billion people on the planet. Now in 2019, there are 7.7 billion.

**According to United Nations report, the world's population is expected to increase by 2 billion persons in the next 30 years.**



Reference : <https://ourworldindata.org/world-population-growth>





## Urbanization

For most of human history, most people across the world lived in small communities. Over the past few centuries – and particularly in recent decades – this has shifted dramatically. There has been a mass migration of populations from rural to urban areas.

More than half of the world's population (More than 4 billion people) now live in urban areas, a proportion that is expected to increase to 66 per cent by 2050. However, urban settings are a relatively new phenomenon in human history.

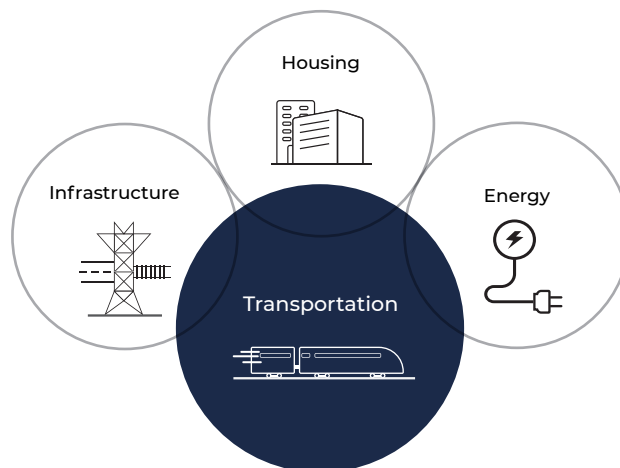
**This transition has transformed the way we live, work, travel and build networks.**

# Transportation

Urbanization, which the UN defines as “the gradual shift in residence of the human population from rural to urban areas,” will likely cause a sharp increase not only in the number of large cities around the world, but also the density of these cities in terms of population and commercial activity and, consequently, the need for **mobility services**. Therefore, Managing urban areas has become one of the most important challenges of the 21st century.

Transportation systems are evolving within a complex set of relationships between transport supply, reflecting the operational capacity of the network, and transport demand, the mobility requirements of an economy.

**“Cities of the future will be bigger and more crowded, and urban transport systems will need to be ‘smart’ enough to keep up.”**



In this diploma my focus would be on transportation challenges, but I am going to touch a little bit upon other sectors too as they are interconnected with each other in some way.



# Urbanization in Norway

Urban population in Norway experience a gradual increase in the last 10 years.

According to Worldometers, 83.0 % of Norway's population live in urban areas (4,462,009 people in 2019). The five largest urban settlements; Oslo, Bergen, Stavanger/Sandnes, Trondheim and Drammen, had a total population of 1 735 000, which corresponds to 33 per cent of the population of Norway and 41 per cent of the total population in urban settlements. The population in these five urban settlements increased by 26 300 in 2015.

**“ In the county of Oslo, almost the entire population lives in urban settlements ”.**

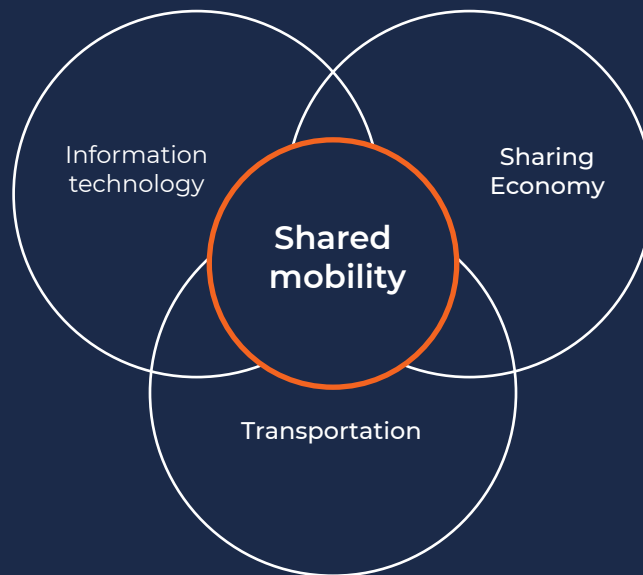




By growing population in the cities, there would be more commuting and transportation modes in the cities.



Recent innovations in the **sharing economy** and **information technology** have expanded transportation and ownership models, creating new businesses and changing how individuals plan and execute trips.



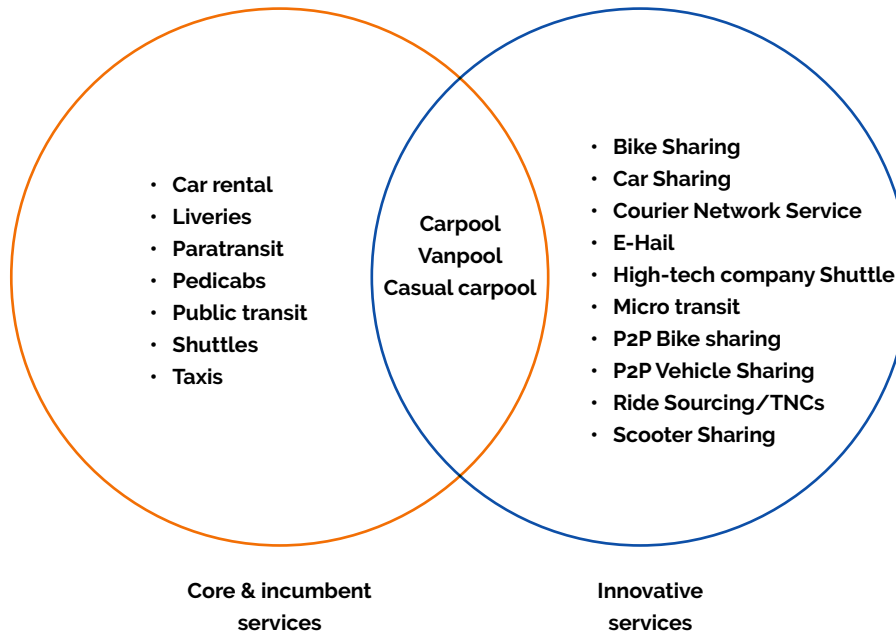


## Shared Mobility

**“ Shared mobility is the shared use of a vehicle, bicycle, or other low-speed mode that enables users to have short-term access to transportation modes on an “as-needed” basis “.**

Shared mobility is growing and integrating better into the cities. In recent years, shared mobility has developed rapidly due to advances in technology and evolving social and economic perspectives toward transportation, car ownership, and urban lifestyles.

Shared mobility can also extend the catchment area of public transit, potentially helping to bridge gaps in existing transportation networks.



Susan Shaheen (UC Berkeley). Mobility and the Sharing Economy

“ **Shared mobility** has become a ubiquitous part of the urban transportation network, encompassing a variety of modes ranging from public transportation, taxis, and shuttles to carsharing, bikesharing, and on-demand ride and delivery services.

**Fundamentally, these services can be categorized into five groupings:**

- 1) membership-based self-service models
- 2) P2P self-service models
- 3) Non-membership self-service models
- 4) for-hire service models
- 5) Mass transit systems.

Some distinguish among the shared services between sequential (use by one user and then another, e.g., bikesharing and carsharing) and concurrent models (shared by many at one time, e.g., microtransit, carpooling, ridesplitting) (Transportation Research Board, 2015) “.



# Shared mobility have a lot of positive impacts

Shared mobility may be able to address spatial inequality in areas with limited alternatives to private vehicle ownership by providing additional mobility options for an entire trip or first-and-last mile connections to public transportation.

“ Shared mobility is growing and integrating better into the cities. People may start seeing more curb spaces allocated to shared mobility, facilitating the first-last mile gap”.





03

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CONTEXT

# Oslo City

**Oslo is the capital of Norway and the country's largest city with over 650,000 inhabitants.**

It is a compact capital city surrounded by the Oslo Fjord on its south side and the national protected forest Marka to its east, north and west. Oslo is a very accessible city and Norway's hub for national and international travel.

Oslo is a city in constant growth and transformation. Public transportation system of underground and over ground trains, buses, trams, and boats gives access to the city and its surrounding region. The city centre is easily covered on foot, and city bikes are available in Oslo centre.

Located between the fjord and the forest, the city offers great connectivity to nature. This is a central Norwegian value which underlies Oslo's aspiration to be a green capital and its aim to become a fossil free city by 2030.

Oslo is one of Europe's fastest growing cities. The growing international and immigrant population adds rich variation to the atmosphere of the city.



# What is going on Oslo city?





## Shared mobility in Oslo city

Shared mobility in Oslo is not actually a new phenomenon. Car sharing has existed in Norway for a little over two decades. The first formal car sharing service provider in Norway was Bilkollektivet, which was established in 1995 in the country's capital and largest city, Oslo.

As of late 2018, there are 11 car sharing service providers or platforms in Norway that provide access to over 7,000 vehicles to more than 200,000 reported registered members.

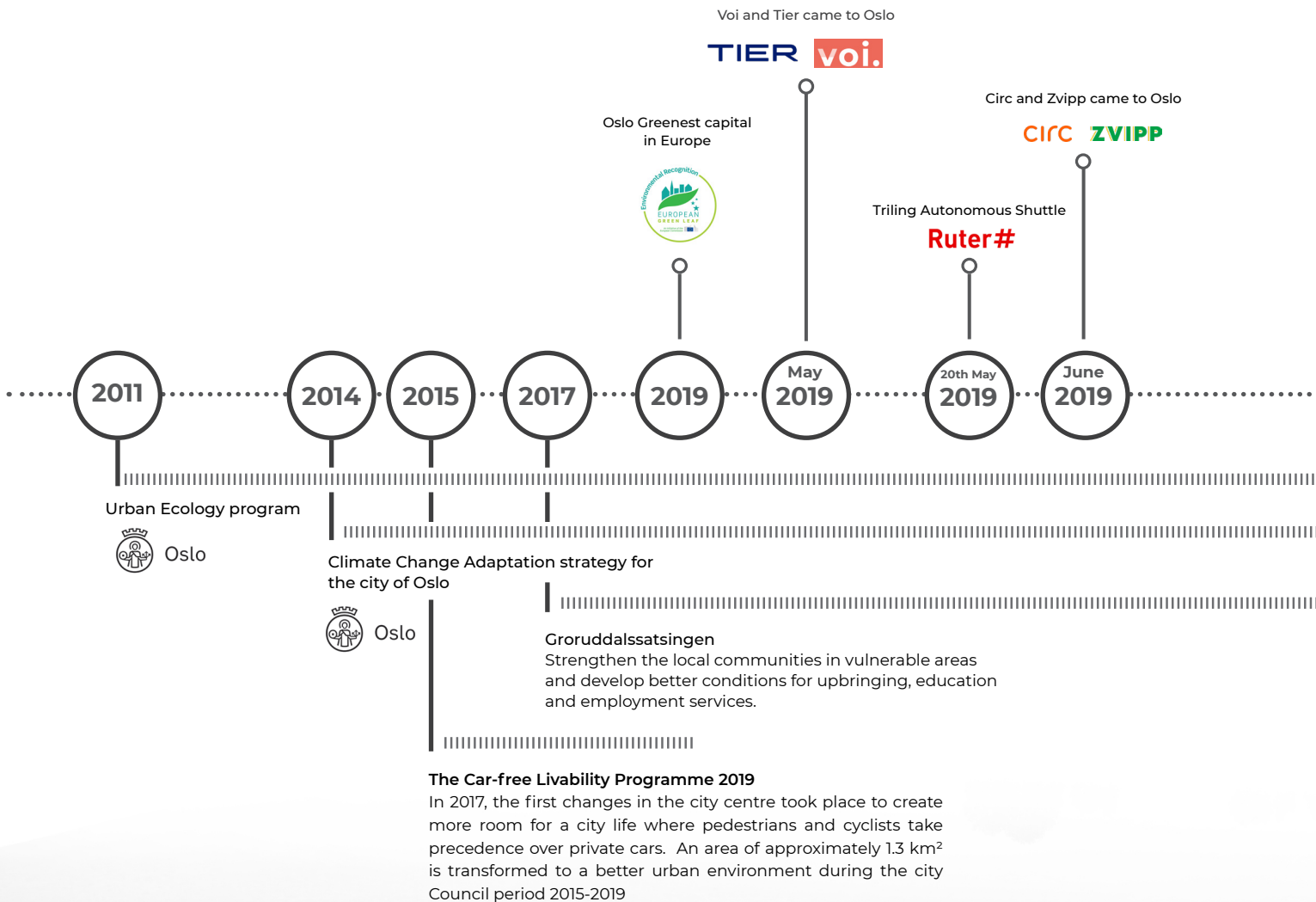
On the other hand, scooter sharing is quite new. The first scooter sharing companies came to Oslo this year in April 2019, and now there are about five scooter sharing companies that provide scooters for rent in Oslo area.





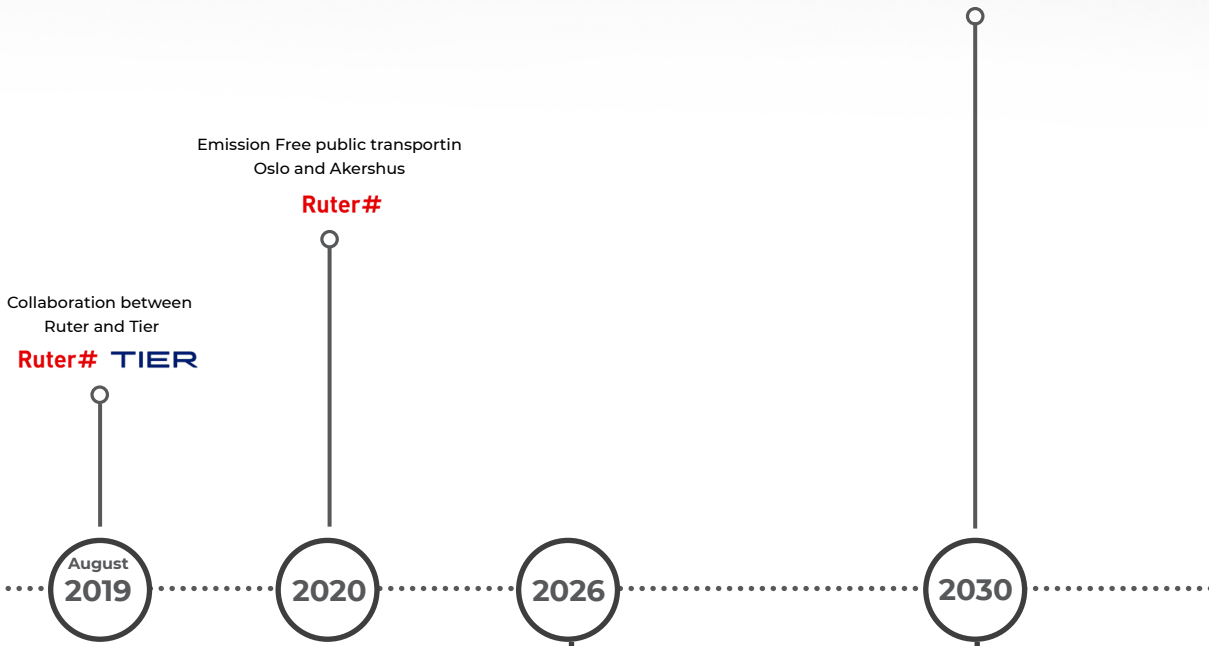
# Transportation related projects in Oslo city

There are many transportation related projects running right now in Oslo area by Different actors and stakeholders like Oslo Kommune, Ruter from Public sector to private actors like Tier and Urbansharing. From long term to short-term projects, they all directly or indirectly effect the urban transportation in Oslo region. Therefore, I tried to map out all the projects to get an overview of what is actually going on in Oslo area.





The City has a goal of reducing climate gas emissions by 95 per cent by 2030, and reducing the use of fossil fuel to zero by that same year.



#### Smart and green transport solutions

The City of Oslo has been granted 225,000 euros by the European Commission for a project on sustainable transport solutions through procurement

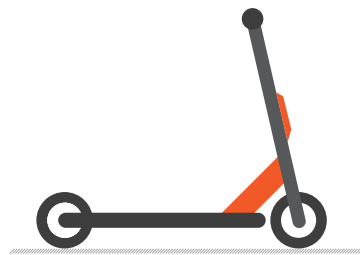
The BuyZET project will develop innovative procurement plans to help the participating cities achieve their goals of zero emission urban delivery of goods and services

# Micro Transportation Vehicles in Oslo City and potential opportunities

Here I tried to map out all micro transportation vehicles that is being used in Oslo area to get a better understanding of the context together with opportunity areas in terms of transportation vehicles that are not being used here and have a huge potential.

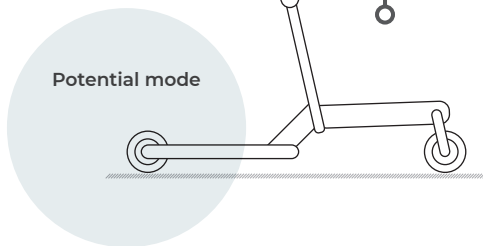
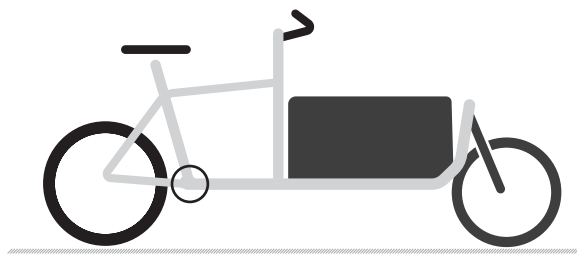
## Kick Scooter

**Service providers:** Voi ,Tier,Ryde, Circ,  
**Service type:** Scooter sharing

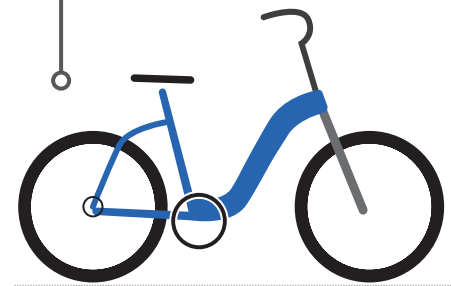


## Cargo Bike

**Service providers:** Urban sharing and Bilkollektivet  
**Service type:** Cargo bike sharing  
**Area of service:** Vulkan (pilot for urban sharing )



## Cargo Scooter



## Bike Sharing

**Service providers:** Oslo bysykkel  
**Service type:** bike sharing



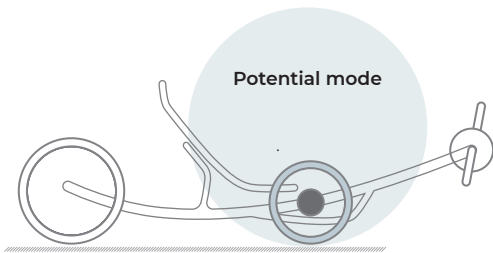


“ We are 40 % more productive on a bike compared to a truck in the big city. At the same time, we saving CO2 emissions and thereby greener solutions. In addition, besides the better accessibility, we have another big advantage: Always easy parking. “

Lars Sveen

Distribution Manager in DB Schenker Norway

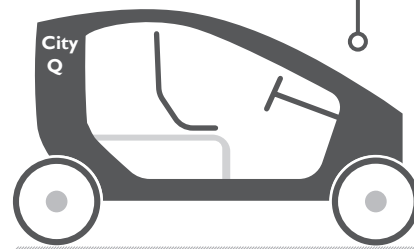
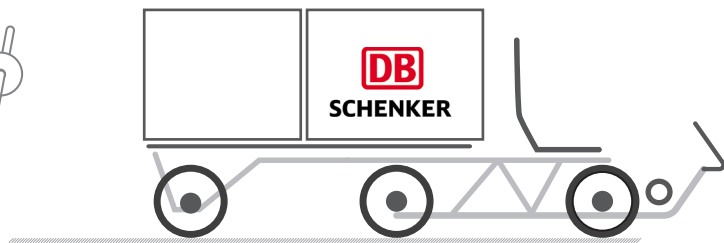
### Recumbent bicycle



### cargo Bike

Service providers: DB Schenker

Service type: City logistic



### All terrain vehicle

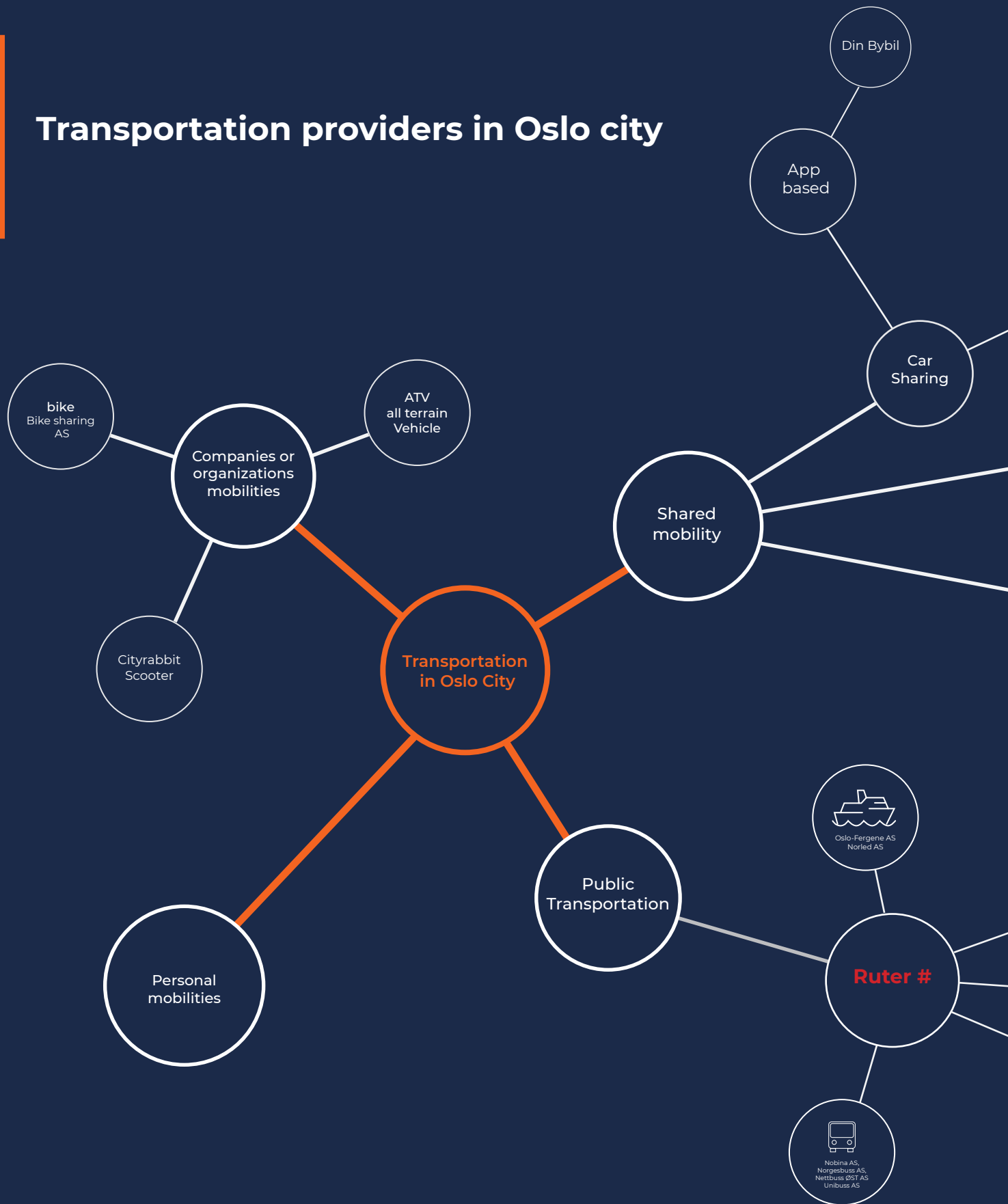
providers: Posten

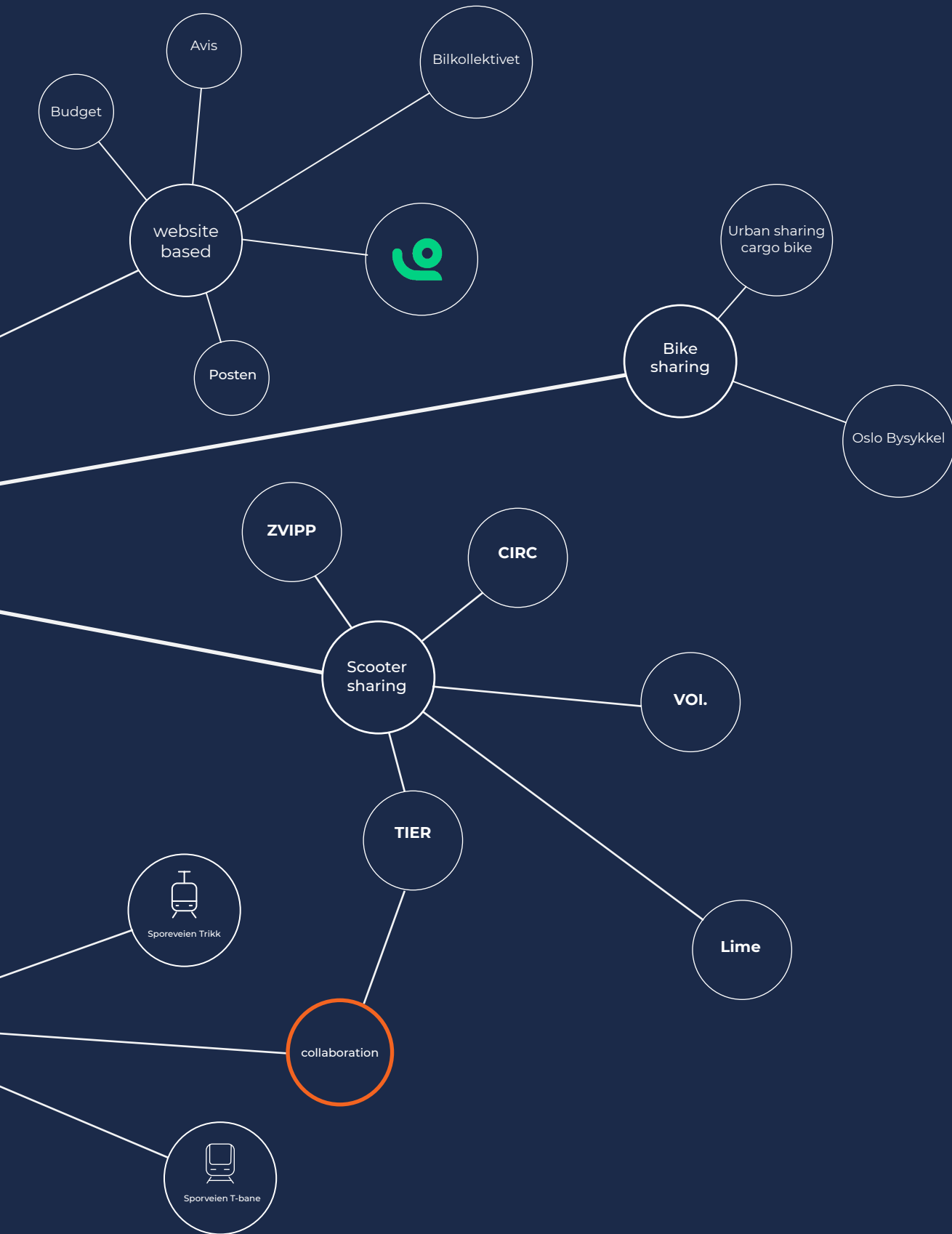
Service type: post delivery service

### Cargo Ebike

providers: City Q

# Transportation providers in Oslo city







04

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INSIGHTS

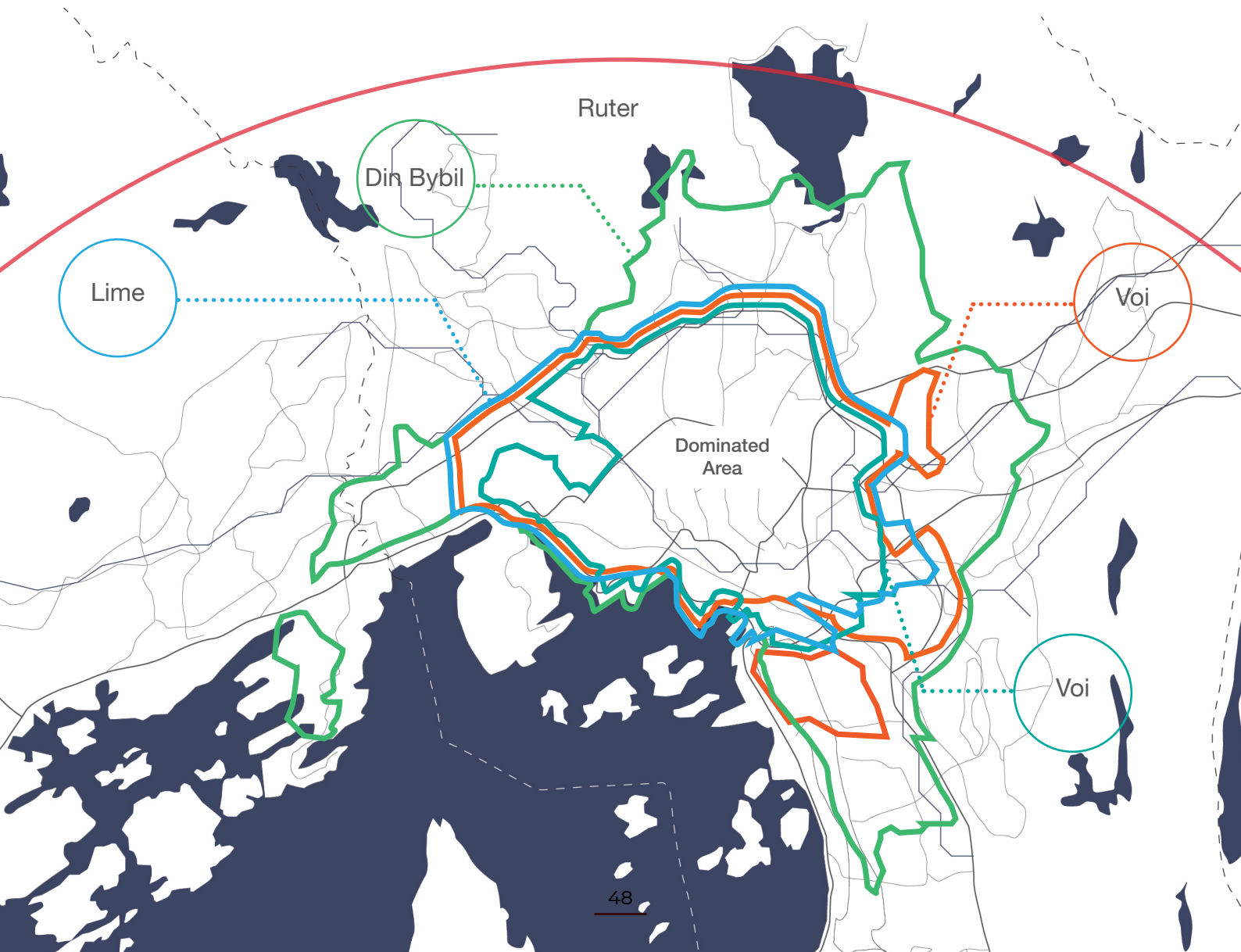
## Exploring Oslo area Geographically

In this step, I tried to map out geographical coverage of the **shared mobility providers** together with **Ruter** in Oslo area to see exactly where they are.

As you can see on the map all shared mobility providers in Oslo area gathered in the city centre( Ring 3) and the neighbourhoods like Grünerløkka, which was quite surprising. There are several reasons that support idea, but the main reason is profitability.

**My assumption is that this practice seems in-congruent in Norwegian society where equality and equal rights are closely held values.**

**How does this practice can align more with Norwegian society prioritizing equality and equal rights?**



”

**The equality is not considered in current Scooter sharing fleet in Oslo city. They are putting the scooters in the places like Grünerløkka where people can pay for it instead of other places.**

Quote from interview with Johan Høgåsen-Hallesby  
CTO  
Urbansharing

# SFMTA Powered Scooter Share Program Permit Application

Many of the problems and issues Oslo city is facing today regarding the scooter sharing program is already took place in many other cities.

For example, providing the service only in city centre and surrounded area is already happened in San Francisco too.

**Therefore, SFMTA started regulating scooter sharing services to solve these issues and put some limitations around it.**

The San Francisco Municipal Transportation Agency (SFMTA) is one of the main pioneer in this context in terms of regulating scooter sharing services.

SFMTA is a department of the City and County of San Francisco responsible for the management of all ground transportation in the city.

**In July 2019, the SFMTA released the permit application for its Powered Scooter Share Permit Program.**

Section 22 of the Application (page 13) refers to regulations published by SFMTA in terms of distribution of scooter sharing in the city.



The Powered Scooter Share Program Permit allows permitted Powered Scooter Share Operators to operate a Powered Scooter Share Program in the City and County of San Francisco.

The SFMTA shall implement this Program consistent with the SFMTA's "Guiding Principles for Emerging Mobility Services and Technologies" and Transportation Code

#### Distribution of Scooters

21. Permittee agrees to limit the service area of where scooters are distributed, or where they are allowed to park, at the discretion of the SFMTA.
22. Distribution of scooters shall adhere to the Powered Scooter Share Distribution Guidelines and Requirements, which identify service areas, minimum distribution thresholds, and availability requirements in specific neighborhoods, including those classified as Communities of Concern by the Metropolitan Transportation Commission, to meet equity goals. The SFMTA reserves the right to require permittees to serve one or more of the neighborhoods in the Expanded Service Area, as defined in the Distribution Guidelines and Requirements, under the initial permitted fleet.
23. Permittee is responsible for monitoring distribution of Powered Scooters available to customers according to parameters determined by the SFMTA in the Powered Scooter Share Distribution Guidelines and Requirements. Each daily scooter deployment must match agreed upon parameters for the number of scooters within sub-areas of the permittee's approved service area.
24. Adaptive Scooter Plan: Permittee shall provide the SFMTA with an Adaptive Scooter Pilot Plan that describes Permittee's commitment to piloting Adaptive Scooters during the permit period, details Operator's plans to deploy Adaptive Scooters to increase accessible travel options, and provides details on how the design of the device was developed. Permittee shall demonstrate how input/feedback from people with disabilities was incorporated into this plan. Permittee shall submit such plan to SFMTA for approval prior to permit issuance. SFMTA may determine a percentage floor and/or cap on adaptive scooters prior to permit issuance.





**My wish is to have Scooters in Holmekollen area because it takes 20 min to get myself to the T bane station from my home.**

18 year old Girl  
living in Holmekollen

## Opportunity areas geographically

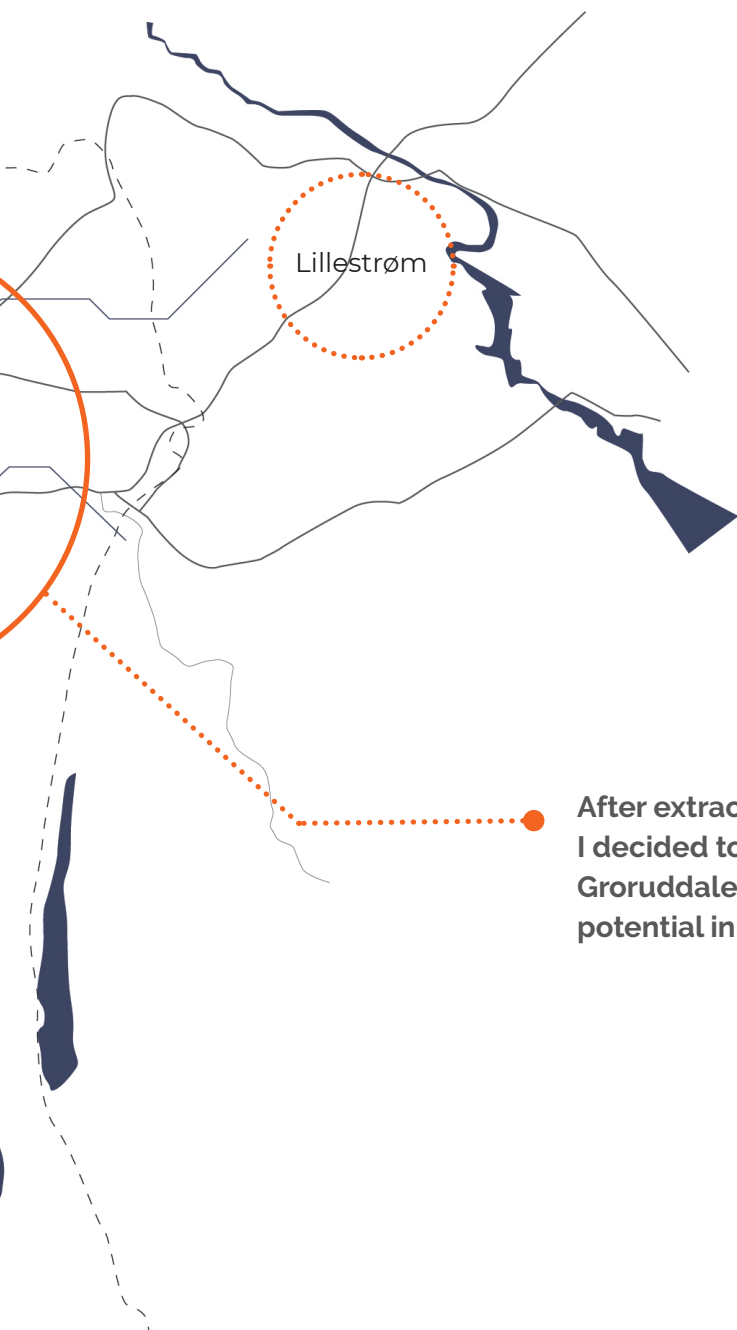
By mapping out the insights in geographical level, I found some very interesting geographical opportunities in Oslo area where shared mobility can be present and more effective and maybe more successful.

Suburbs are considered as one of the main opportunity areas because the public transportation is limited there, the population is denser, and the distances between destinations are longer. Moreover, there is an actual need for that based on user's insights.





# Narrowing down

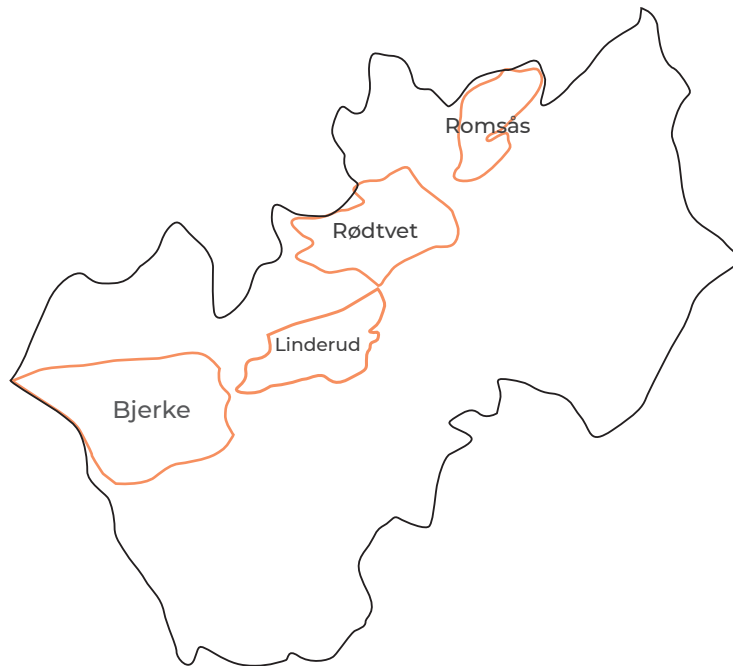


Lillestrøm

After extracting the opportunity areas based on the insights, I decided to narrow down to one neighbourhood. I chose Groruddalen as the neighbourhood I want to focus on as a potential in this project.

# Groruddalen

The Grorud Valley (Norwegian: Groruddalen) is a suburb in the northeast part of Oslo. Four of Oslo's boroughs lie within the Groruddalen including Bjerke to the west, Alna to the south, Grorud to the north, and Stovner to the east. The Groruddalen districts have some of the highest proportions of immigrants in Oslo, Thanks to large-scale urbanization throughout the valley in the 1960s and 1970s, it transformed from agricultural landscape to suburban.



## Groruddalen in more Detail



Residents in Groruddalen report in surveys that they are happy with their local environment.

Almost 80 per cent say that the social relations in their neighbourhood are good, and the valley stands out in Oslo by the number of people who report having friends and acquaintances from different parts of the world.

**The Groruddalen is approximately 37 square km with a dense population of over 142,000 residents.**

**The Groruddalen districts have some of the highest proportions of immigrants in Oslo.**

The inhabitants have backgrounds from over 140 countries. In three districts, Stovner, Alna and Søndre Nordstrand, persons with an immigrant background represent the majority of the population, while in the rest of Groruddalen this group represents slightly less than 50 per cent of the population.

In recent years, there has been a lot of debate about the alleged “white flight” from Groruddalen, brought on mainly by the dominance of immigrants in some schools in the area.



Employment rates are lower in Groruddalen than in Oslo as a whole, and correspondingly, the medium incomes are lower and poverty rates is higher.

**Unemployment among parts of the immigrant population is three times higher than the rest of the population.**

### The Grorud Valley Programme 2007- 2016

The Grorud Valley programme 2007-2016 is Oslo Municipality's and the Government of Norway's effort to improve the societal and living standard in Groruddalen. The main goal of this effort is a sustainable city development, visible societal improvements, better quality of life, and a general improvement of the quality of life in Grorudalen. The Groruddalen Investment Programme 2007-2016 is divided into four main programs:

- Environmentally sustainable public transport in Groruddalen.
- Alna Green structure and areas
- Sport and other culture programs
- Living areas and city development (area improvement)
- Upbringing, education, living conditions, cultural activities and other inclusive activities.



### GRORUDDALSSATSINGEN 2017 – 2026

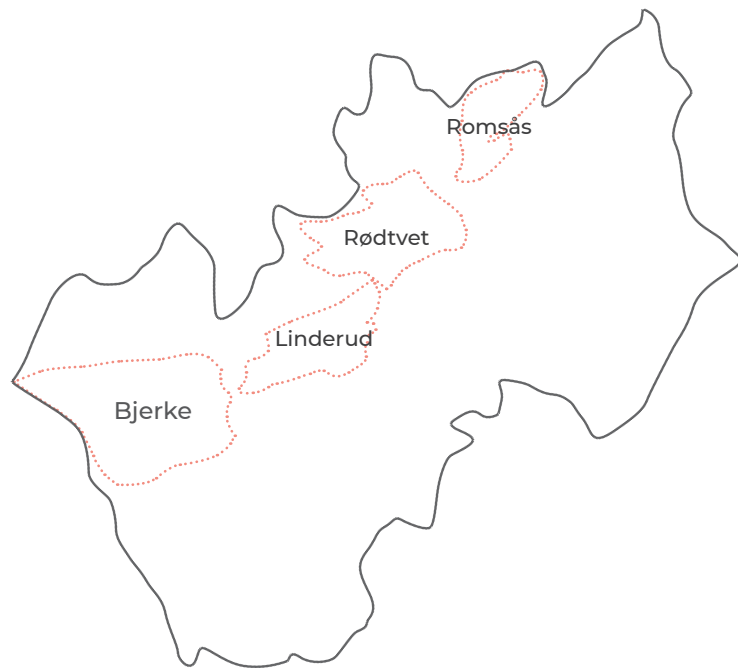
On 31 August 2015, The State and the municipality of Oslo decided to continue the cooperation on Groruddalen area for ten new years from 2017.

# Narrowing down

Groruddalen is quite big.

Therefore I decided to narrow down a little bit more into four smaller neighbourhoods inside Groruddalen and explore them deeply in terms of transportation, infrastructure and users lifestyle.

- Bjerke
- Linderud
- Rødtvet
- Romsås



# Bjerke

Bjerke is an administrative district in Oslo with about 31,000 inhabitants (1 January 2016) in an area of 7.7 km<sup>2</sup>. The district is Oslo's second smallest district in terms of population, but grows fastest in Oslo area. Over the next ten years, the population is forecast to increase to 41,000 inhabitants.

I tried to map out a part of Bjerke to study it in a more detail and see how and where things are located to get an overview of the neighbourhood.



”

Every one as far as I know have at least one car.  
If they want to go to school or to work, they usually drive their cars to the T bane stations and take the Tbane to the city centre to work.

Bilal

Young 23-year-old  
Lives at Bjerke



# Visiting Bjerke

In addition to desktop research, I also had the chance to visit Bjerke to see what is going on the streets and how actually people are moving around. I walked on the street, and talked with a couple of people who live there too.

Here are some of my main findings.



There were cars parked beside each houses. In the centre part of Bjerke, there were not many spaces for parking on the street.



There were many available spaces for parking cars near Risløkka T bane station, and the streets were quite narrow and almost empty in the afternoon. However, I heard from a resident that the streets and parking spots near T bane station are full of cars every morning.

The houses were mostly villa near T bane stations and they all had parking spot and charging plugs for their own cars.





I saw several Din Bybil cars (one of the main car sharing companies in Oslo) on the streets in Bjerke .

In the north part of Bjerke, which is a bit far from the T bane station, the style of housing is more apartments in big residential housing. Consequently, there are actually more people living there than the south part of Bjerke near T bane Station.



In the east side of Bjerke across the street near shopping centre, Obos is building a new residential area.

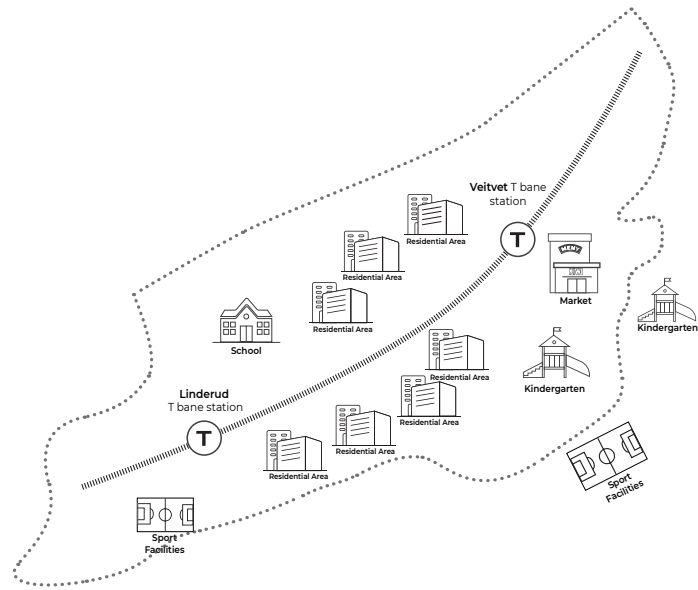


**From November , we have to pay for  
the parking near Tbane station which is  
Something like 3000 NOK per year**

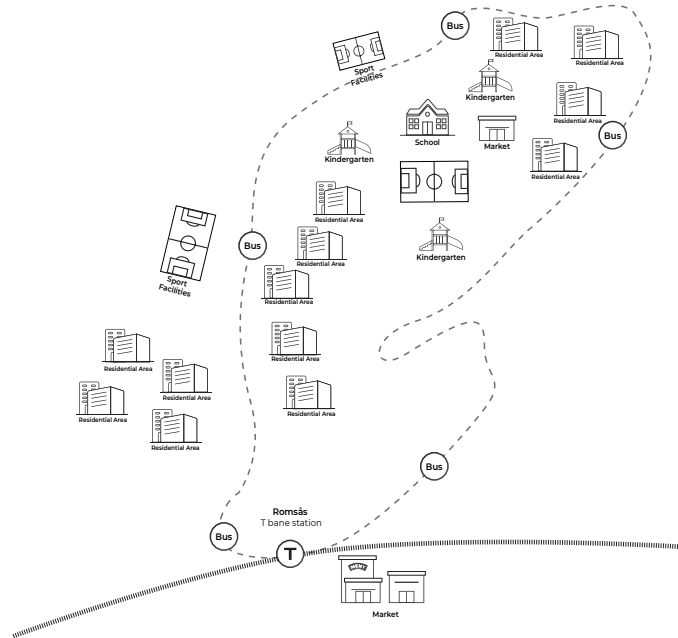
Bilal

Young 23-year-old  
Lives at Bjerke

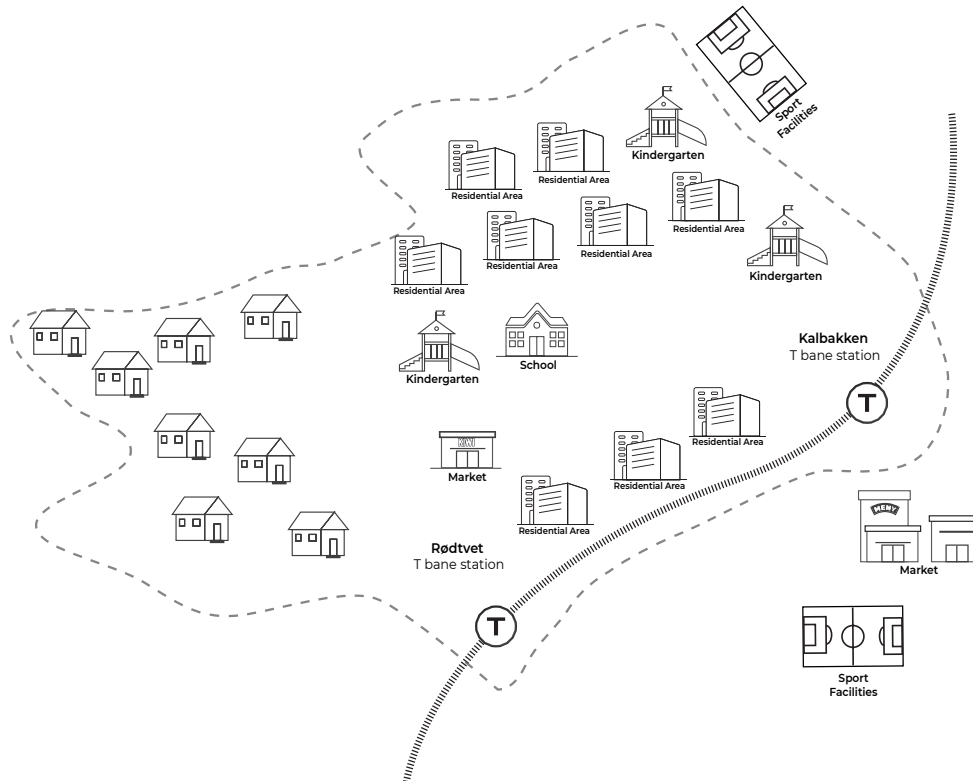
# Linderud



# Romsås



# Rødttvet



”

I like here.  
A big shopping centre is close by  
and I can find everything I need  
there, but the point is that you need  
a car anyway.

a Resident in Rødttvet

## Infrastructural pattern

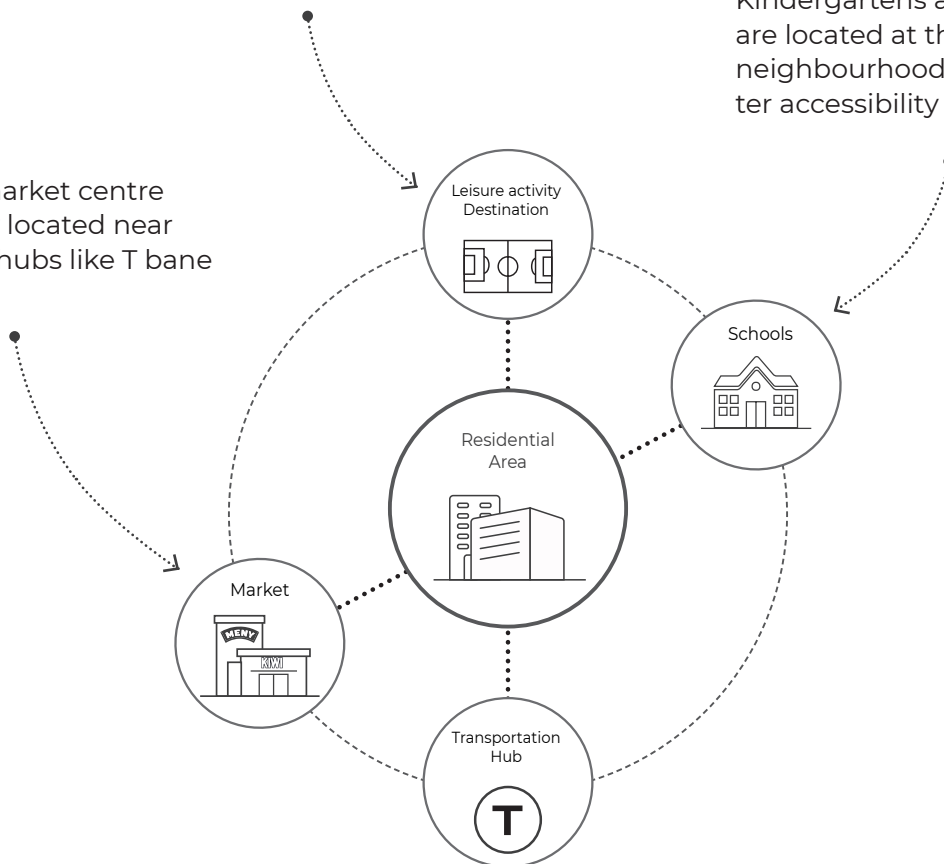
By studying all of these neighbourhoods in detail and mapping out all the main destinations inside each neighbourhood together with internal transportation movements, I understood that all of them follow one general pattern in terms of infrastructure (so called Satellite city in some essays).

**I will use this pattern to describe the context I am trying to design for in the next steps.**

Leisure activity destinations and gym clubs are usually centralized in one place offering several different activities for all residents in that area.

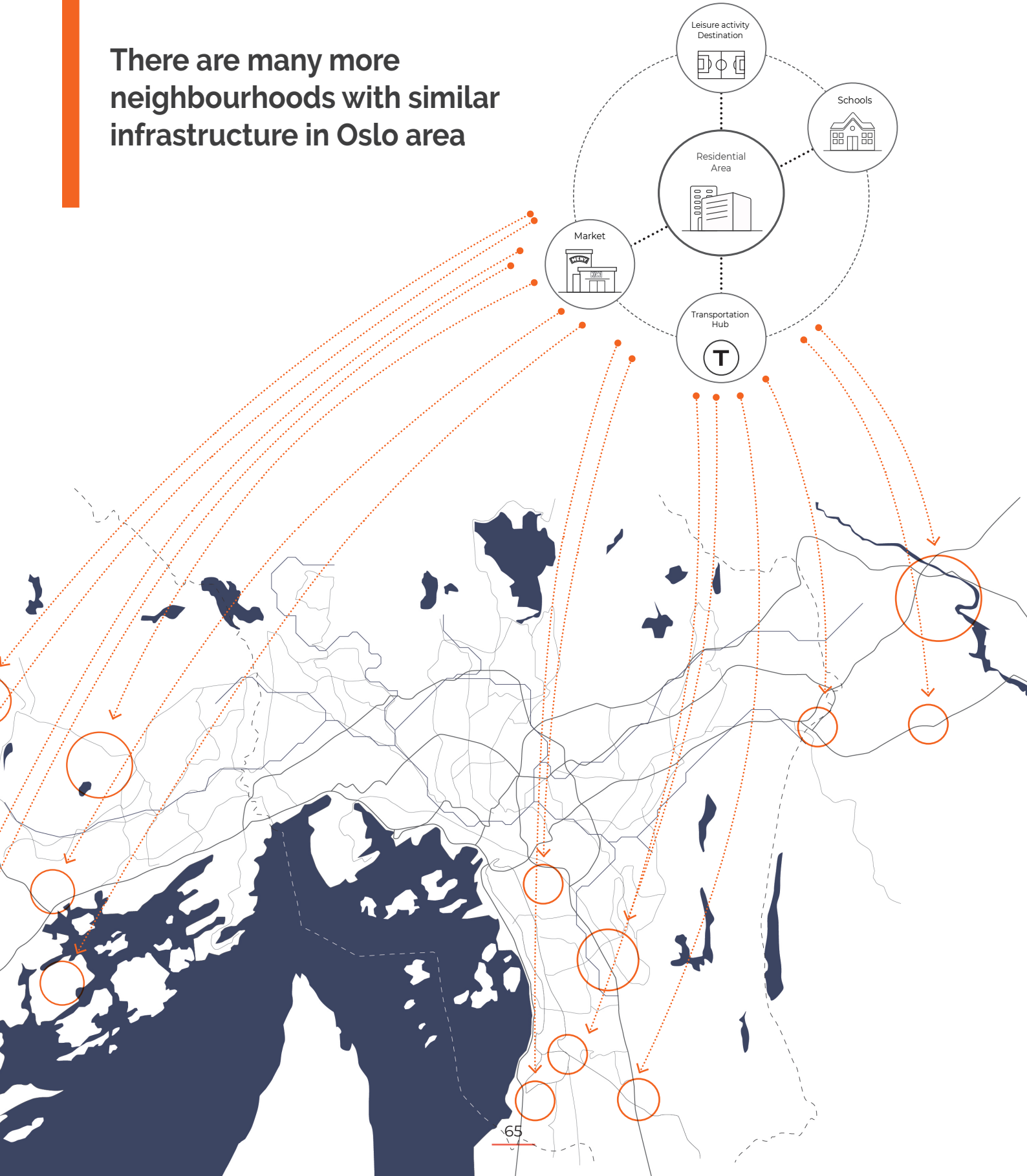
Kindergartens and schools often are located at the centre of each neighbourhood to provide a better accessibility to everyone.

There is a big market centre which is usually located near Transportation hubs like T bane stations.



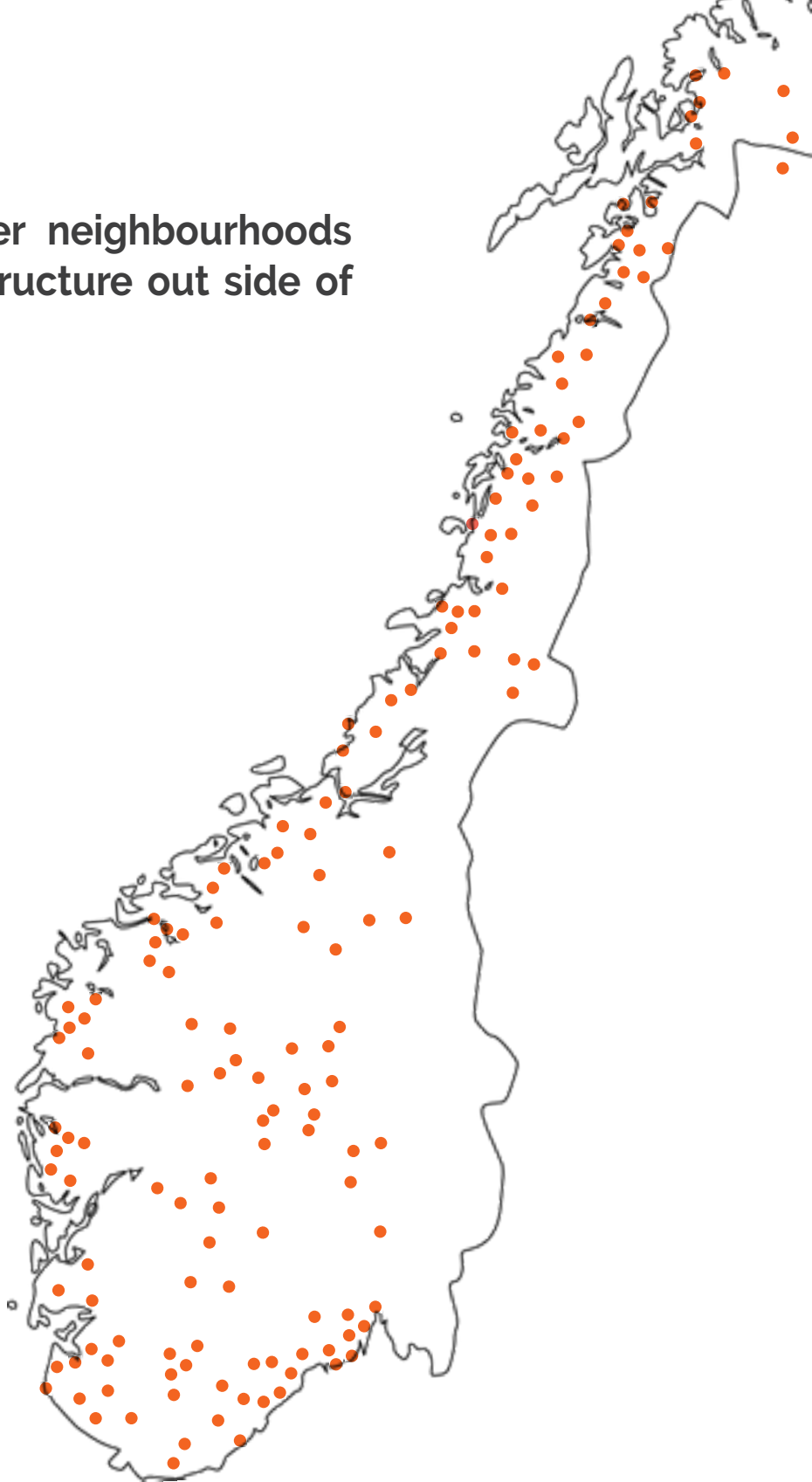


**There are many more  
neighbourhoods with similar  
infrastructure in Oslo area**





There are many other neighbourhoods with the same infrastructure out side of Oslo area in Norway





”

**I live in Lilestrøm and I really dependent on my private car. If I want to go shopping or driving my kid to school, I need my car.**

a resident in lilestrøm



## The main reasons of Citizens for having a personal car in Oslo City :

- Go Shopping
- kids related destinations

Quote from the presentation of Sture Portvik at EGGs Design

**Manager of E mobility  
Oslo Kommune**

# Assumption

Residents in suburb areas around Oslo are heavily dependant on their private cars.

## The Oslo Car-free Livability Programme

is all about giving the streets back to people. Over the last couple of years, Oslo has tested various solutions and initiatives whilst working with more long-term plans for Oslo city center. They have removed about 750 municipal street parking spaces to give pedestrians and cyclists better conditions in the streets, with more seating and more green areas in the city center.



Reference : <https://www.oslo.kommune.no/>

# News

This is an article from Aftenposten published on fourth of November 2019 discussing the Transportation National plans of Norway for the future. Based on the article, politicians are quite worried about the future transportation plans, and they believe that the plans need to be re-considered and re-evaluated in many aspects especially in terms of the possibility of car domination in the near future.

## I fremtiden Kan det bli bil for Buss

Stor planlagt veiutbygging, tvil om kollektivprosjekter. Og en aldrende befolkning. Alt dette taler imot til miljøvennlig transport.

mindre sykling. Mindre gåing. Mindre bruk av buss. Like stor andel bruk av tog som i dag. Vesentlig mer bilkjøring, spesielt for avstander på over 7 mil. Dette er utviklingen landets ledende transportforskere tror på for norske reisevaner i 2030 og 2050. Vurderingen er basert på dagens politikk og den ferskeste dokumentasjonen tilgjengelig.

Aftenposten har hentet opplysningene om hvordan vi antas å fordele reisene våre på bil, kollektiv, sykkel og gange fra ferske forarbeider fra den nye rapporten Nasjonal transportplan (2022-2033).

Situasjonen bekymrer politikerne:

Det er grunn til å tro at politikken må endres på flere måter frem mot 2050, sier samferdselsminister Jon Georg Dale (Frp).

Bilen dominerer og favoriseres For den store statistikken spiller det en melle at bilen er svært dominerende som transe portmiddel i Norge. Dermed skal veldig mange endre adferd for at det skal få utsla Ifølge forsker Eivind Farstad ved TØI viser foreløpige beregninger at det i 2018 ble foretatt litt over 5 milliarder reiser med bil, mot 78 millioner reiser for tog og 402 millioner for buss. Tilsvarende tall for sykkel foreligger ikke.

Det er også andregrunner til at fremskri vingene mot 2030 og 2050 ser dystre ut.

Enkelt forklart tar ikke forskerne hensyn til politikernes rause ambisjoner i transportplanene. De regner bare inn det som faktisk skjer, vei- og bane-prosjekter som er avtalt, eller prosjekter der spaden allerede er satt i jorden. Det sier Anne Madslie i TØI, som er ekspert på modeller for fremskriving av persontransport. Det hjelper ikke at regjeringen ønsker å bruke 1000 milliarder kroner på persontransport over ti år, og at en stor andel skal gå til jernbane. Heller ikke at det etter planen skal settes 17 prosent flere tog i rute, i 2027, at jernbane skal overta gods fra vei, eller at Nord-Norgebanen skal utredes.

Det som faktisk skjer, er at Nye Veier har inngått avtaler med staten om å bygge en rekke store motorveier, og Statens vegvesen er i gang med et betydelig antall prosjekter. Og det er vedtatt at det inntil videre skal være mye billigere å kjøre elbil enn fossilbiler. En aldrende befolkning ventes dessuten å flytte mindre på seg.

Trass i alle anstrengelsene for å redu sere bilbruken vil det bare bli mer attraktivt å kjøre bil, sier forsker Anne Madslie.



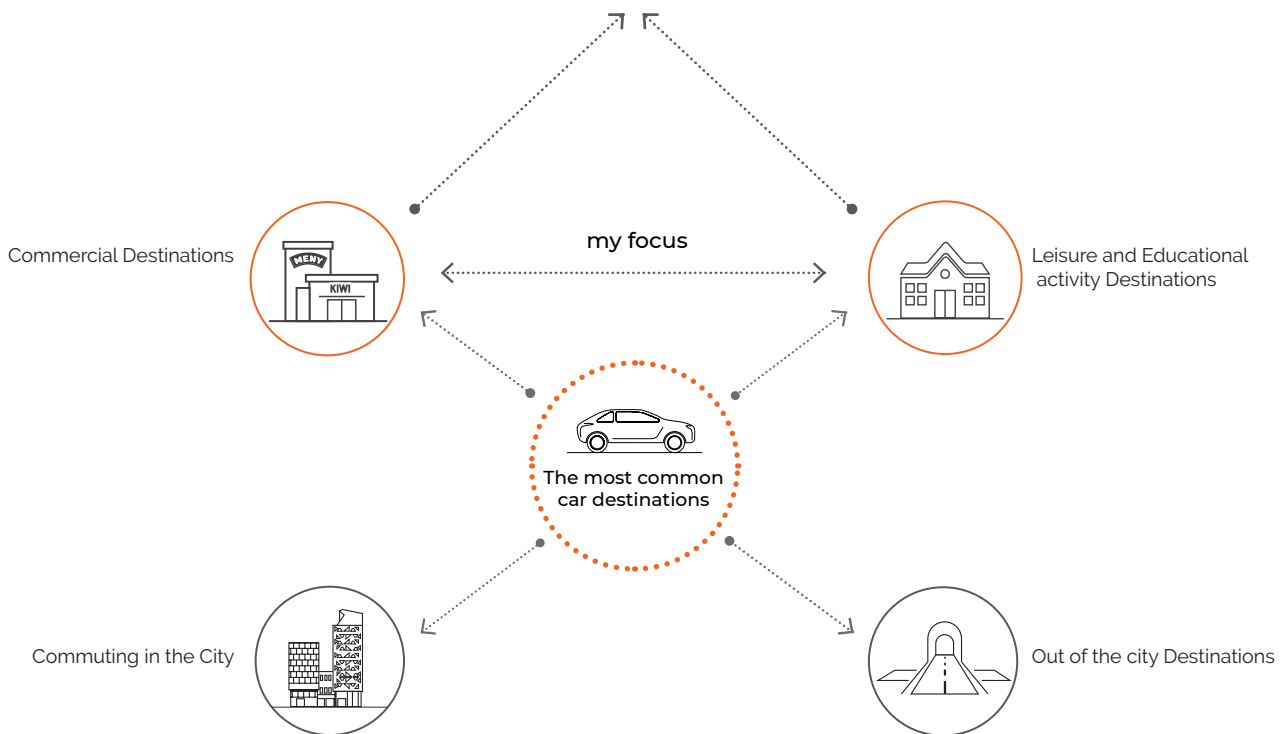
# Warping up insights

**How shared mobility might be practical and convenient in the suburb areas where people are heavily dependent on private cars?**

- Who should provide it? (Ownership)
- For whom should be provided? (User)
- How it should be provided? (The Service)
- What should be provided? (The actual Product)
- Where should be provided? (The coverage area)

# The most common destinations for private car owners in these neighbourhoods

They usually are under 5 miles and in the neighbourhood



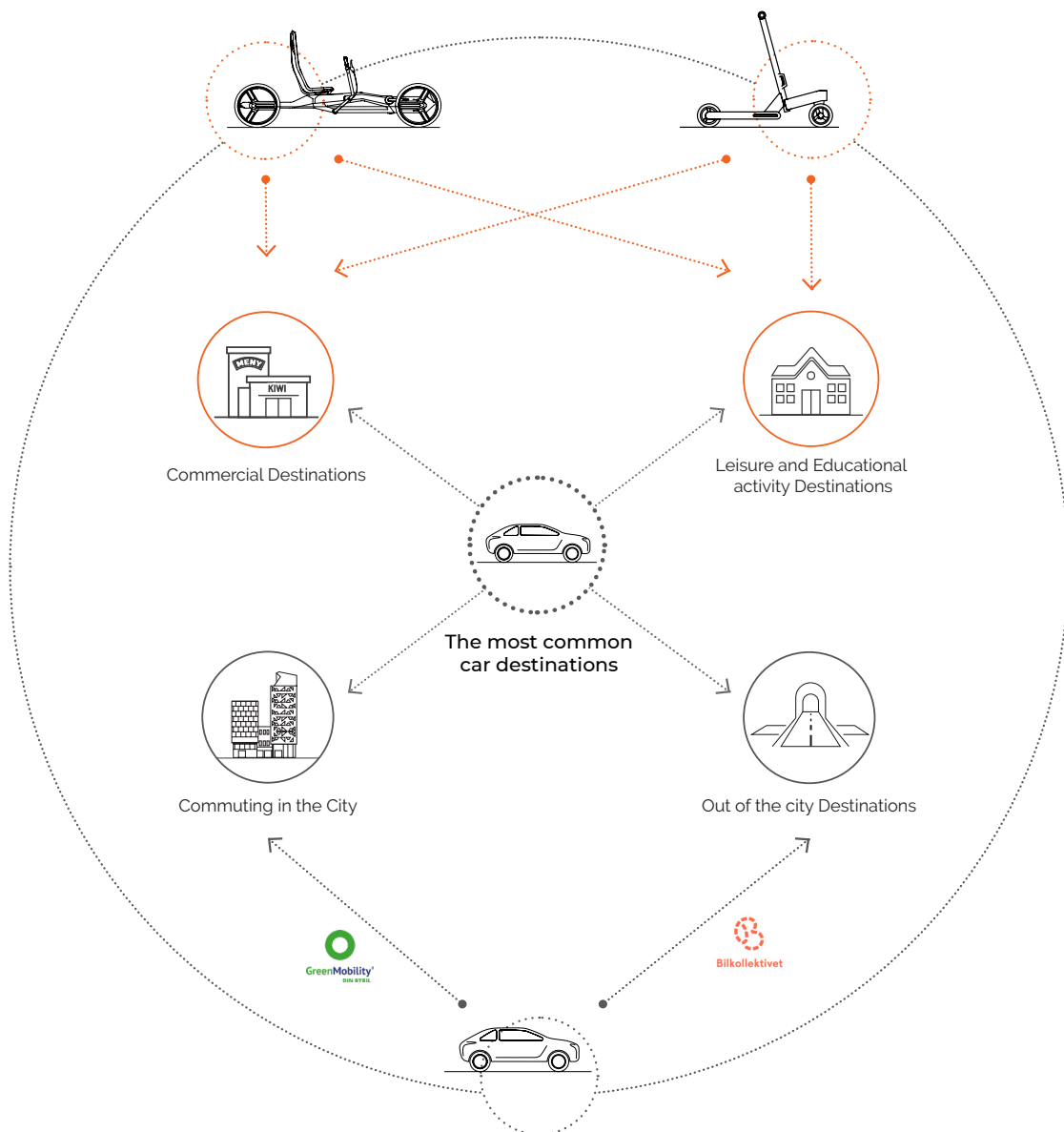


# Ideation

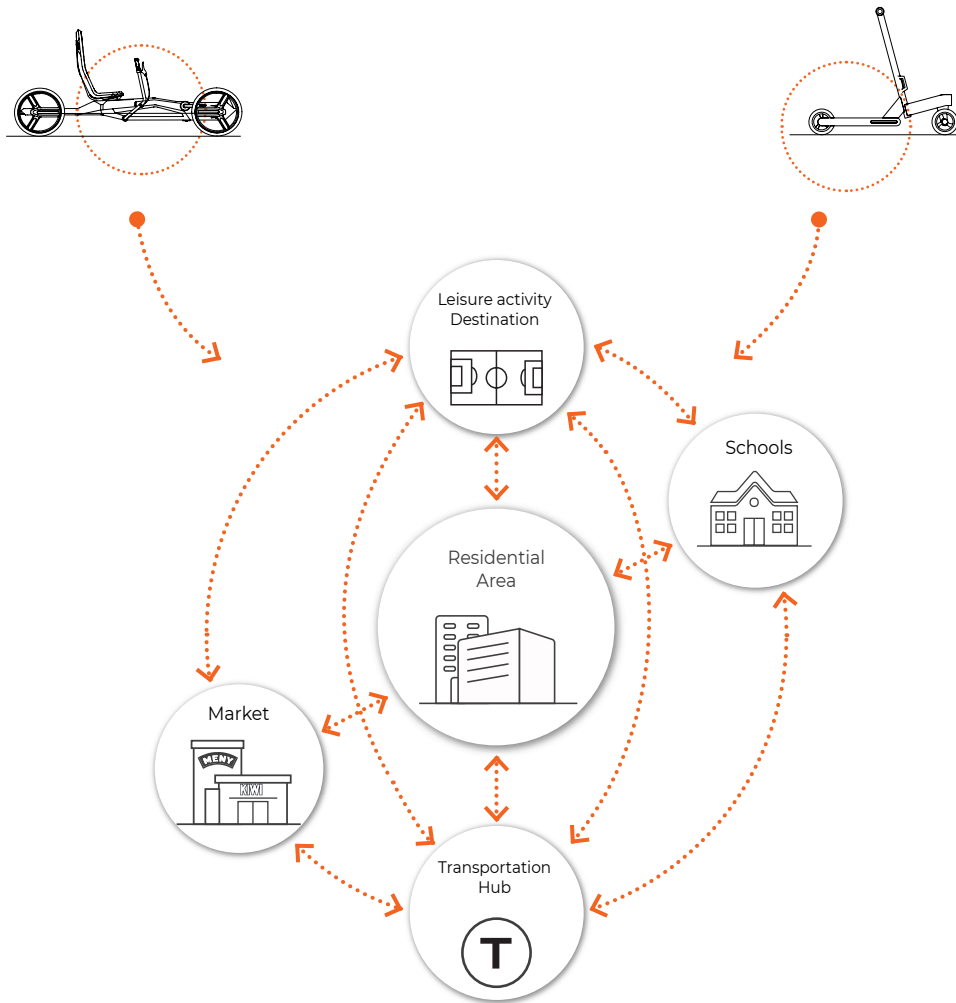
**How shared mobility might be an alternative to private cars in these areas?**



**A fleet consists of two type of vehicle  
can be an alternative to personal cars,  
if...**



## The fleet should be able to cover all the internal movements in each neighbourhood





05

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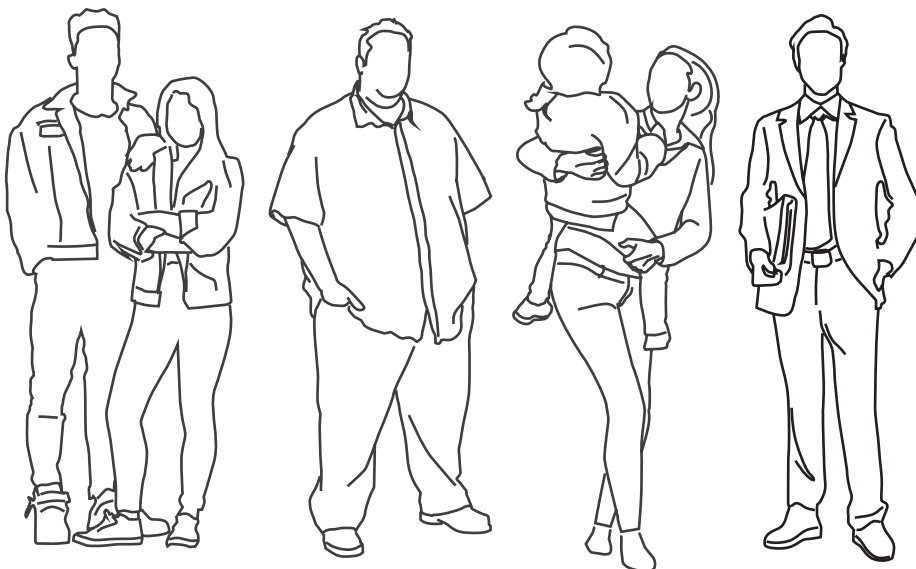
DEFINING BOUNDARIES

# USERS

As I mentioned in the previous chapter, Groruddalen specifically neighbourhoods like Bjerke, Linderud, Rødtvet, and Romsås are considered as my context in this project.

By placing the focus on providing an alternative to private cars in these areas using shared mobility, I somehow focus down my users to the private car owners or users that directly or indirectly use private cars to travel in these areas.

However, anyone in these neighbourhoods who are above 18 and have the physical ability to use these micro motilities are considered the actual target users.





# Ownership



**Ownership is very interesting thing to look at. because it effects the system and the feeling of responsibility toward the users.**

Quote from interview with Johan Høgåsen-Hallesby  
CTO  
Urbansharing

# Exploring business plans and ownership

Shared mobility companies use different strategies to provide and offer their service to their target users.

By exploring them in more detail and getting a better understanding of what exactly they are offering, I ended up to this point that the current business plan is not sustainable and suitable enough to be implemented in these areas.

**We need a new type of business plan that can provide services in a more user centred, efficient, and sustainable way.**

In the next pages I will describe two different business plan belongs to two different sharing mobility companies in Oslo. Then I will introduce my proposal in terms of Ownership and Business plan.

# Tier

Tier is a Berlin-based Scooter sharing start-up Company that provide scooters for renting in several cities in Europe like Oslo.

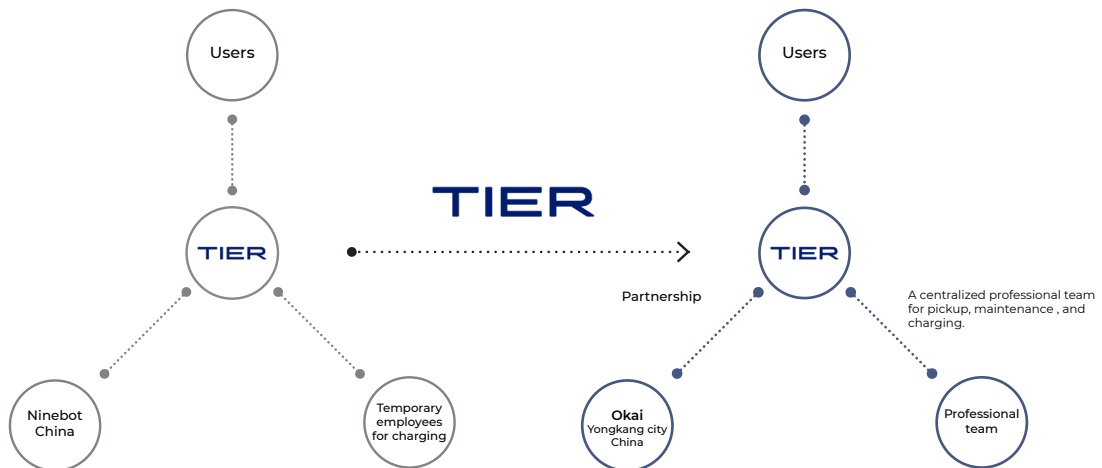
**Tier was one of the first scooter sharing companies that came to Oslo, and they are still one of the most popular Scooter sharing companies among Oslo residents.**

At the beginning, they started with buying an existing scooter from the market and turning them into a shared mobility vehicle by integrating some additional parts.

In terms of charging process, they hired some temporary employees called Hunter that were the responsible for collecting and charging the scooters at night and bring them back to the approved spots to be used again.

However, after expanding, and developing more and more in the many cities and getting feedbacks from the users, the company decided to make some changes in their business plans. They decided to design and offer their own scooter through a partnership program with OKAI Company in China.

In addition to that, by replacing the temporary hunters (Juices) (the employees who were responsible for collecting and charging the scooter at night) with a professional permanent team (that take the responsibility of maintenance, charging, collecting, and distributing the scooter) , they took one-step further toward a more sustainable business plan.



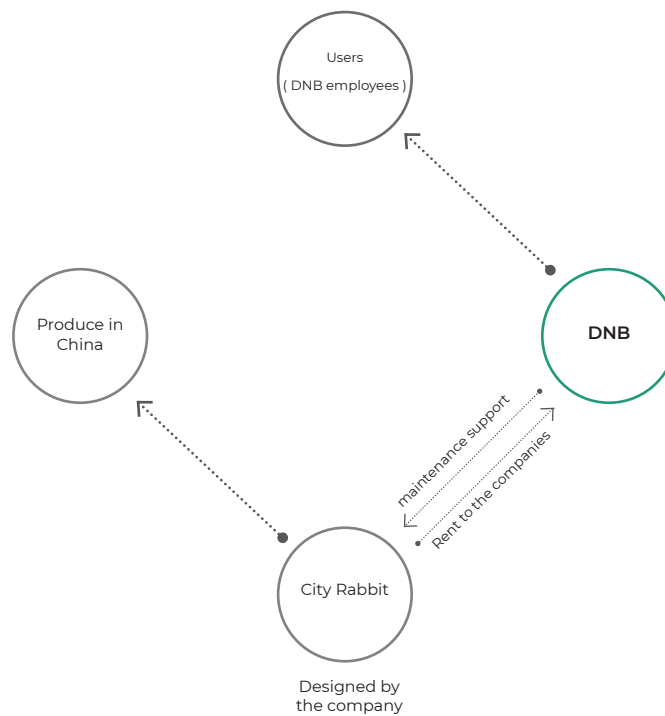


# Cityrabbit

City rabbit is a start-up company based in Oslo that Design and offer a three-wheeled Scooter for renting (sharing) to private companies like DNB.

In terms of business plan, they have different plans and ideas of how they want to offer their product and services to the users in Oslo city and other places.

They have this idea of renting their scooter to private companies like DNB, and the company DNB will provide the scooter rented for their own employees or their customers through their own service and platform on their own responsibility. City rabbit will still provide services for maintenance and other needs to their customers.





**By renting the scooter to the private companies, we scape the idea of being responsible towards regulations.**

Quote from interview with Fredrik Brodtkorb  
CEO  
Cityrabbit AS

”

**These street invaders from San Francisco sounds capitalistic to me.  
I don't like them.**

Oslo Resident





# Ownership proposal

**Giving a sense of belonging to the user by localizing the service and involving local businesses and private actors.**

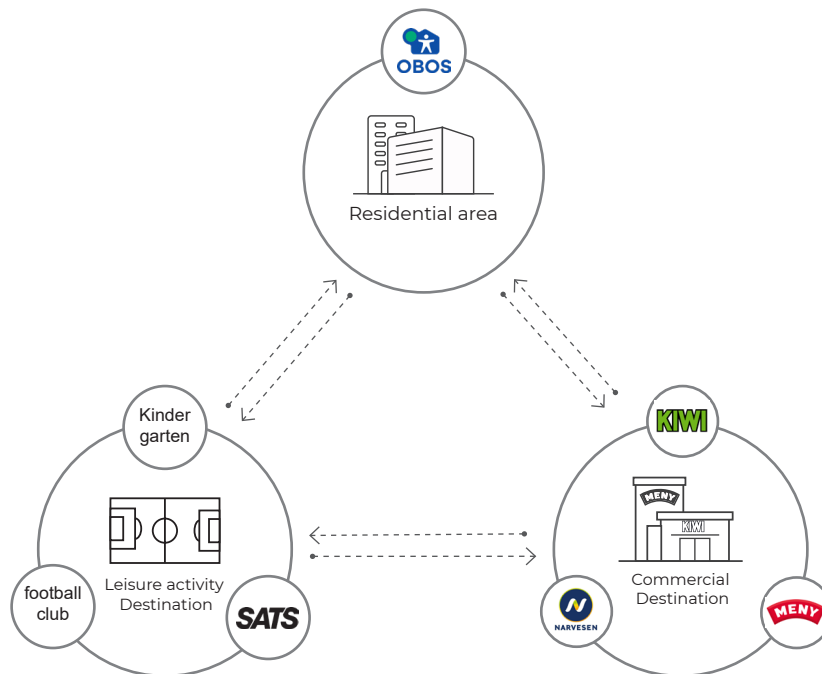


# My ownership proposal and business plan

**Giving a sense of belonging to the user by localizing the service and involving local businesses and private actors.**

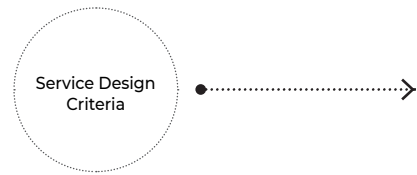
In the research phase, I understood that most vandalism shared mobility companies are facing today are due to poor communication with the users and non-users in terms of ownership and having no feeling of responsibility in between which is considered as a strangers property.

Specially in Scandinavian society where capitalism and consumerism are not consider as a positive thing, having thousands of electric scooters on the streets owned by unknown( to most residents )Companies from US or other countries while occupying public spaces is not considered a good match.

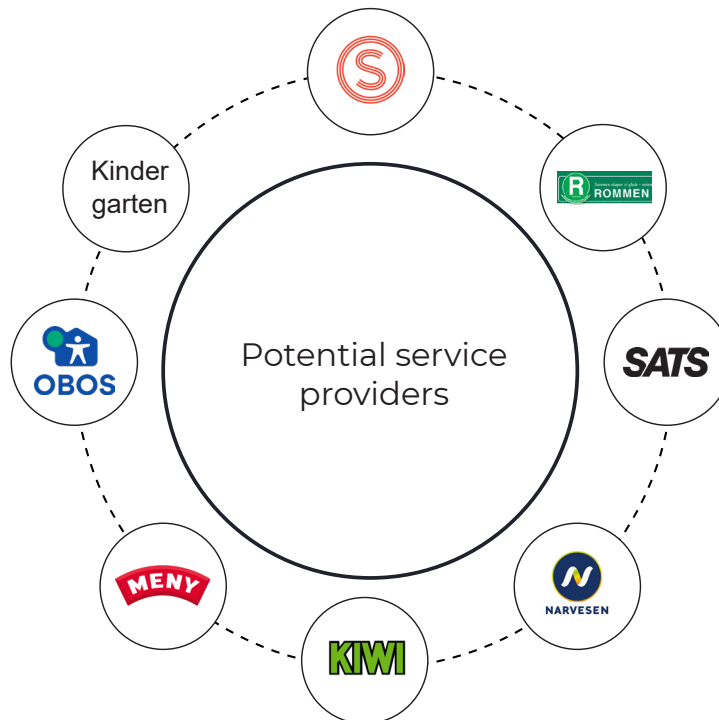


# Values

Look at page 92-93



Look at how Business plan support my Service design criteria



- Giving a sense of belonging to the residents (users and non-users)
- Prevent over centralization (Discourage)
- Have a better Control over the distribution of the fleet in each area
- Operating an equitable system in transport
- Attention to communities and cultural areas
- Increase local hiring as a positive value in the community
- Easier to adopt more to specific needs in each neighbourhood

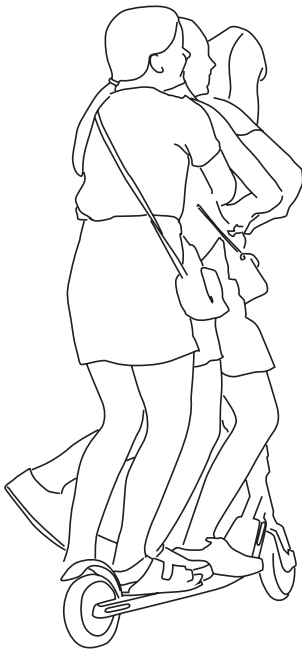


# Regulation

Jumping right into design without considering the regulations is meaningless. However, no one in Oslo city is actually working on Regulation of shared mobility.

**So I decided to take one-step further and start extracting and developing possible regulations for Oslo city based on similar regulation models in other cities specially San Francisco.**





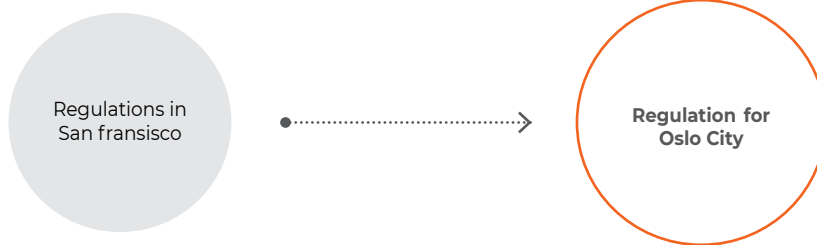
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**No one in Oslo  
Kommune is working on the  
Regulations of Scooter  
sharing”.**

**We think they are not  
going to stay much long due  
to heavy winter time.**

Quote from the discussion with **Sture Portvik**  
**Manager of E mobility**  
**Oslo Kommune**

# Extracting and anticipating possible regulations for Micro shared mobility in Oslo city by looking into similar regulation models in other cities.



**SFMTA Powered Scooter Share Program Permit Application**

The Powered Scooter Share Program Permit allows permitted Powered Scooter Share Operators to operate a Powered Scooter Share Program in the City and County of San Francisco. The SFMTA shall implement this Program consistent with the SFMTA's "Guiding Principles for Emerging Mobility Services and Technologies" and Transportation Code, Div. II, Section 916.

The SFMTA will review the completed applications, determine whether each applicant conforms to the SFMTA's requirements, and evaluate applications according to the scoring criteria described in this application. The SFMTA anticipates issuing a limited number of Powered Scooter Share Program permits in consideration of maintaining clarity and usability for customers, and ease of program administration.

**Applicant Information**

Please Print Clearly			
Business Name:		Business Phone:	
Contact Person:		Phone:	
Mailing Address:			
Street Address if different than above:			
Email Address:		Website:	

**Application Agreement**

**By signing this application, the applicant verifies on behalf of the Powered Scooter Share Operator that all the information provided is true and accurate; that if issued a permit, the applicant agrees to comply with the Permit Requirements in Appendix A, without change to its terms and conditions, and any other requirements of the Powered Scooter Share Program Permit as issued; and, further, that the applicant agrees that all submitted documents and materials, and their contents, are subject to public review, and that no documents or other materials provided to the SFMTA will be considered confidential or otherwise withheld from public disclosure if requested after the deadline for submitting applications has passed.**

Name of Applicant	
Authorized Signature	
Printed Name, Title and Date	

111 Free language assistance / 免費語言協助 / Ayuda gratis con el idioma / Бесплатная помощь в переводе / Trợ giúp thông dịch miễn phí / Assistance linguistique gratuite / 無料の言語支援 / Libreng tulong para sa wikang Filipino / 무료 언어 지원 / 無料の言語支援 / 免費的語言協助 / 111 Free language assistance / 111 Free language assistance

The San Francisco Municipal Transportation Agency (SFMTA) is one of the main pioneer in this context in terms of regulating scooter sharing services. SFMTA is a department of the City and County of San Francisco responsible for the management of all ground transportation in the city.

**In July 2019, the SFMTA released the permit application for its Powered Scooter Share Permit Program.**

<https://www.sfmta.com/projects/powered-scooter-share-permit-and-pilot-program>

# Defining Criteria based on possible regulations

Followed by extracting all the possible regulations and studying them in detail, I started building my Design criteria for this project based on regulations extracted.

Criteria are divided into four different groups, Service design criteria, Product design criteria, Interaction design criteria, Sustainable design criteria.

**These criteria would help me as a valuable guideline through designing in this project.**



# Service Design Criteria



Prevent over centralization (Discourage)



Limit the number of fleet in each area



Plan for the charging process



Plan for educating the users and possible employees



Be reliable out of the regular time



Plans for parking



Operating an equitable system in transport (community of colours) (offer a low income plan)



Plans for maintenance



Place for adoptive scooter in the system (accommodate a range of users)



Improve safety issues through service offerings (safety course, persuade users to use helmet)



Taking care in the wintertime



Attention to communities and cultural areas

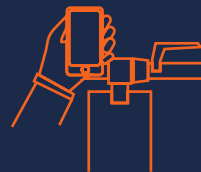


Respond to major transit issues (helping the public transit issues within the service)

# Product Design Criteria



Charging process, and source of energy needs to be taken into consideration



Either limit users to drive while using their mobile phone or design a place to place the users phone properly



Either limit the users to drive it while having a briefcase, or bag, or Design a place to accommodate a briefcase or bag or....



Limit the users while they are under the influence of Alcohol, drugs,



Either limit users to drive duet or more , or Design a space to accommodate two person on it.



Integrating a locking system



Increase product safety



Limit users to operate it in the poor or dangerous weather, or design it to be able to be used in the poor weather.



Integrated cultural elements.



Limit users to assist others to use the vehicle or design a sharing system among the users to share their rides.



# Interaction Design Criteria



The interaction fully accessible to disabled or Design an interactive tool that support interaction needed.



Multilingual communication

# Sustainable Design Criteria



Prioritize short trips



Use clean energy resources



Maximize energy efficiency



Minimize the production environment footprint of the product.



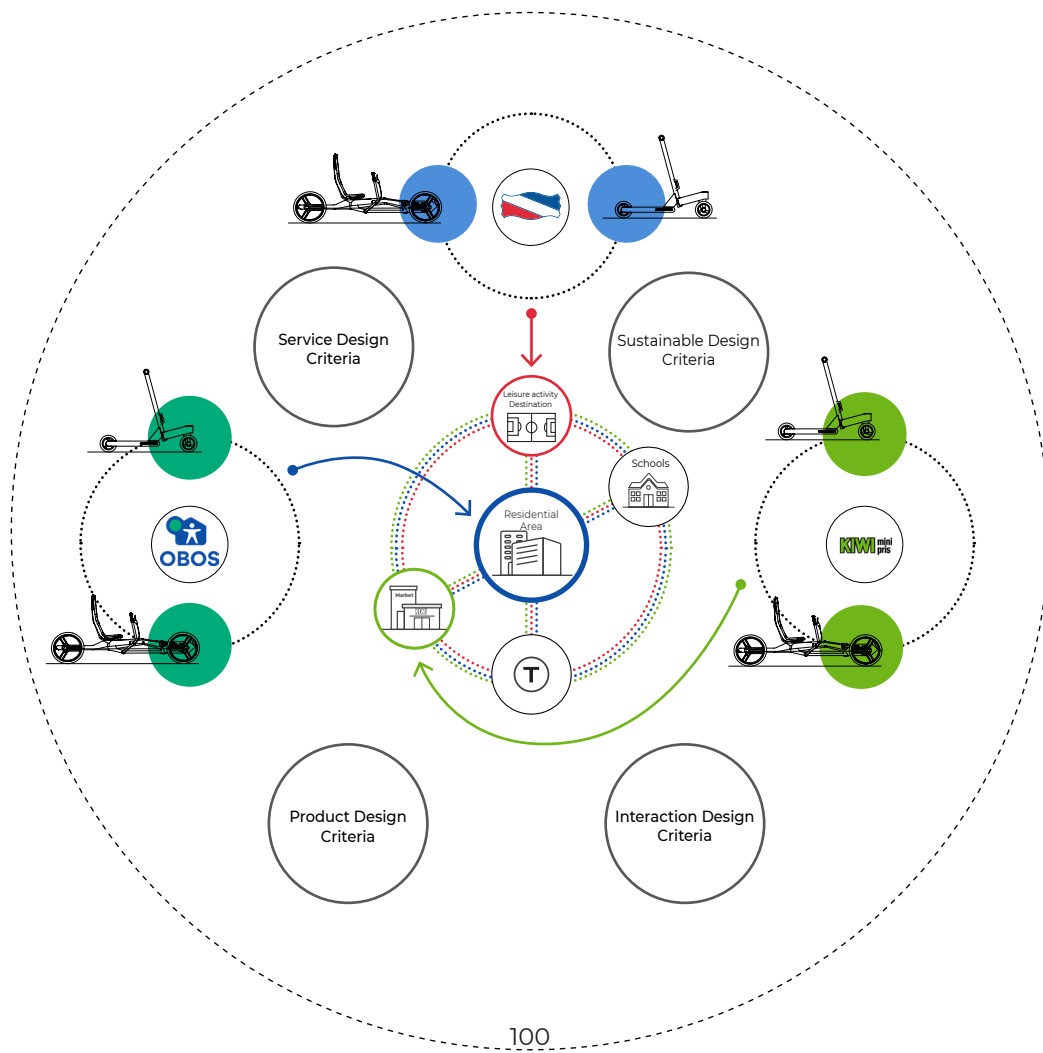
06

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DESIGN PROPOSAL

# Design proposal

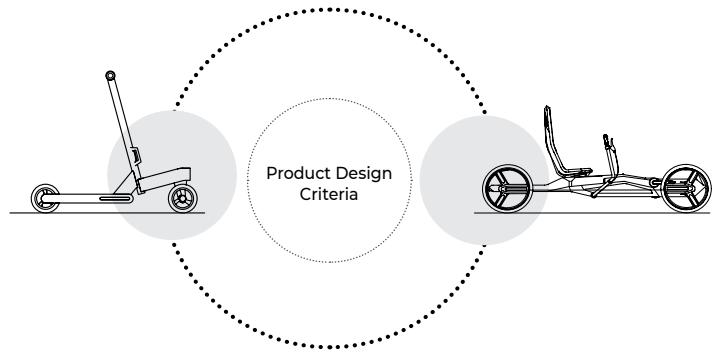
Local Shared mobility program owned by local businesses and community owners that offer two different modes of transportation to be shared among local residents in the coverage area.



# Two Steps toward Final Design

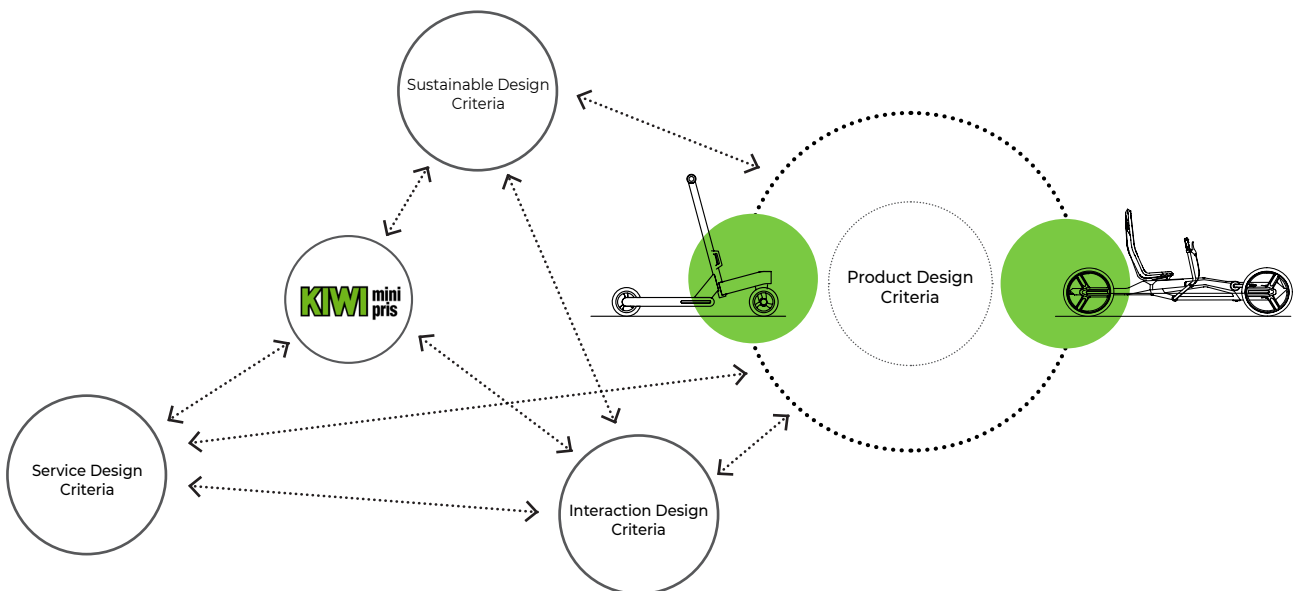
## First step

Design the actual product based on product Design criteria and the collected insights.



## Second step

Use them to illustrate and define the System, Service, and the Interaction around it using other criteria extracted.

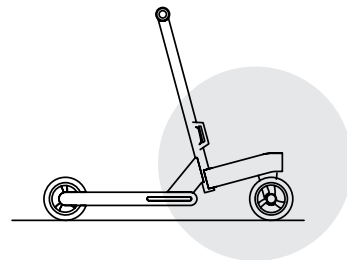


# First step

Design the actual products based on product Design criteria and the collected insights.

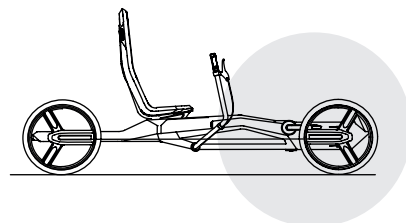
## Alpha

Alpha is a one passenger three-wheeled Scooter that designed for short destinations in local areas. It has a small modular cargo space for personal bags and small luggage. It is lightweight and powered by electricity.



## Beta

Beta is a one to two passenger electric vehicle that can be categorised as a four-wheeled recumbent bike with a modular detachable roof. A proper space for luggage and shopping bags that can turn into a space with a seat is considered in the backside of the Bike.





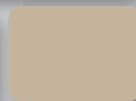
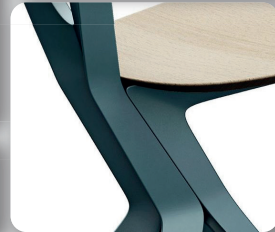
# Moodboard

I created two different mood board in order to explore some shapes and form directions in my product design process.



## First mood board

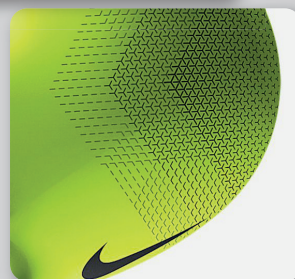
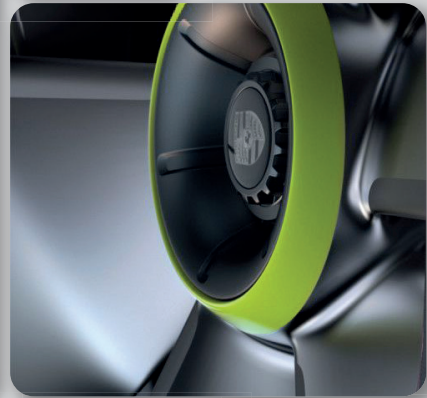
Scandinavian, clean surfaces, calm,  
matt, simplicity





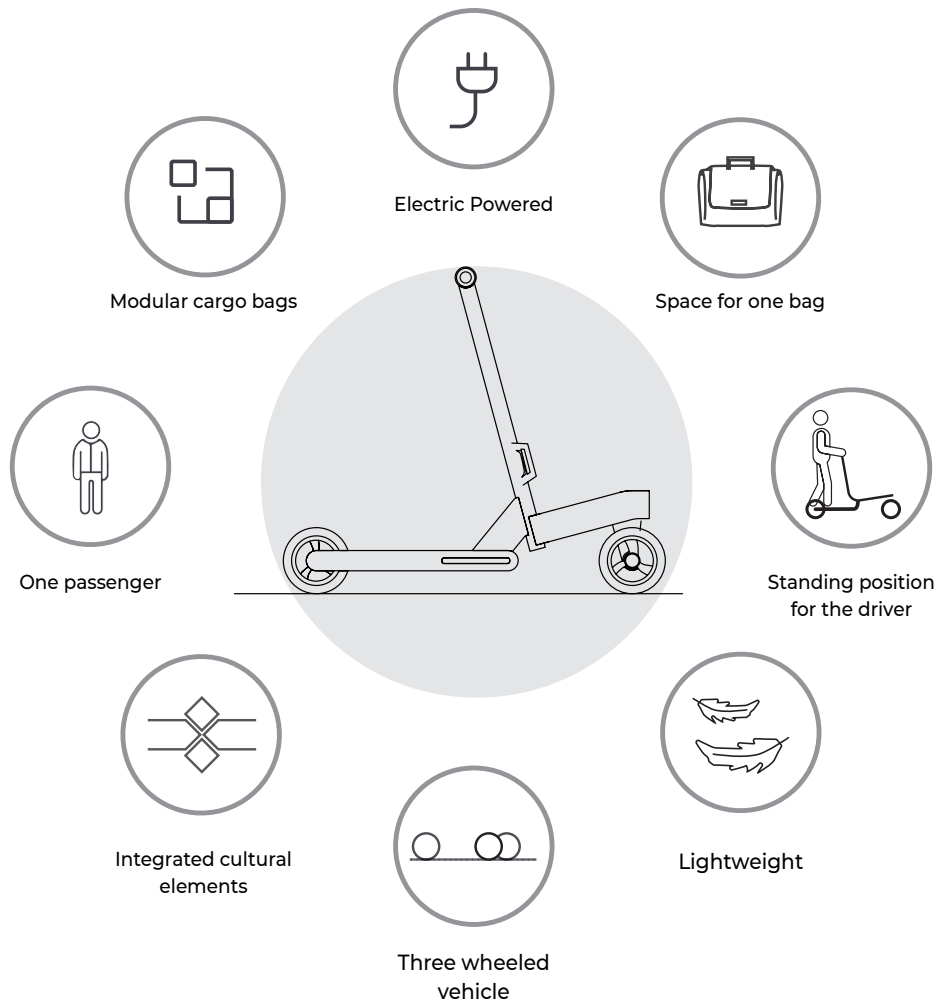
## Second Mood board

High tech, sharp lines, expressive,  
detailing, rich colors



# Alpha

Alpha is a one passenger three-wheeled Scooter that designed for short destinations in local areas. It has a small modular cargo space for personal bags and small luggage. It is lightweight and powered by electricity.

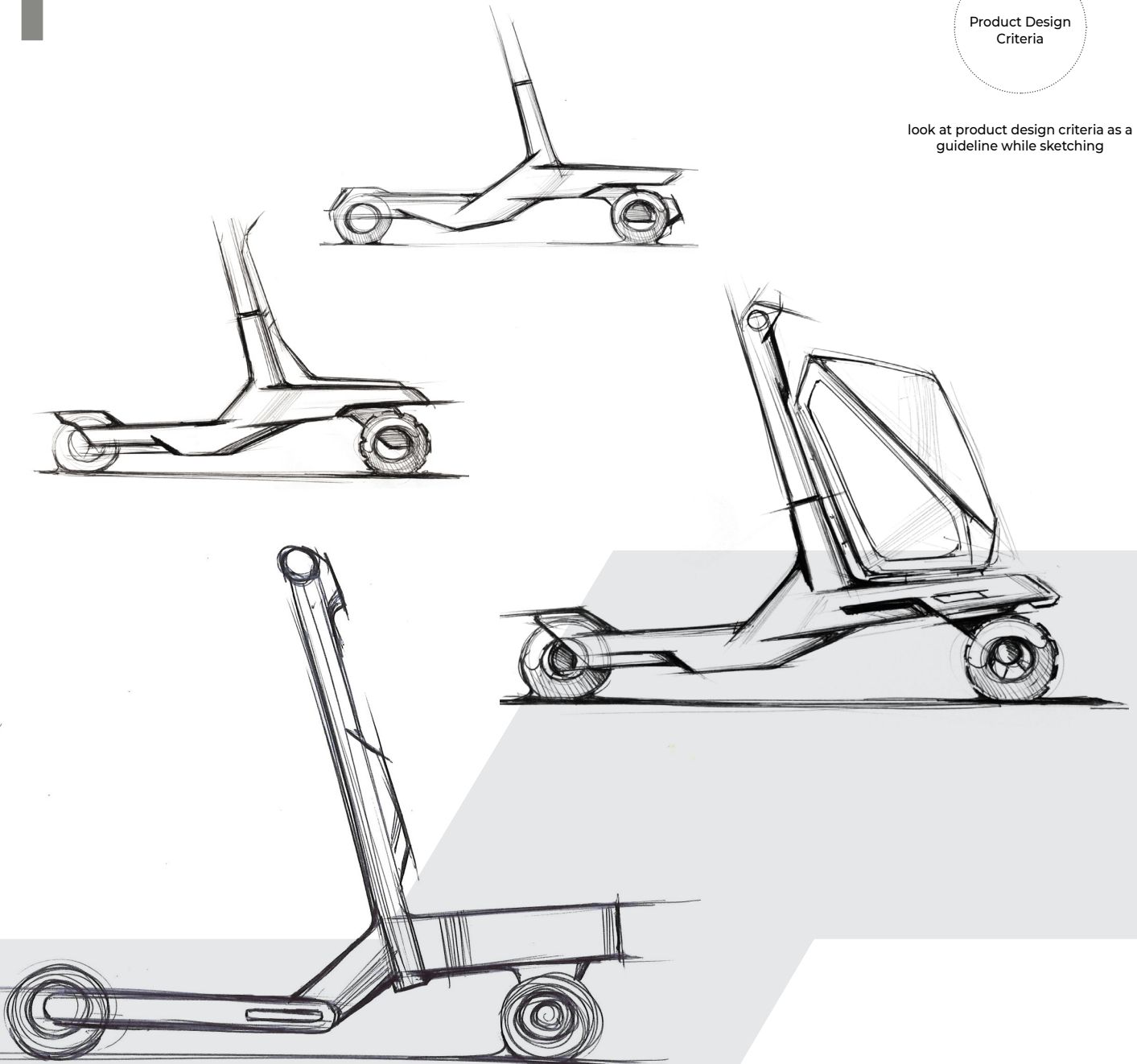


# Sketching

look at page 94-95

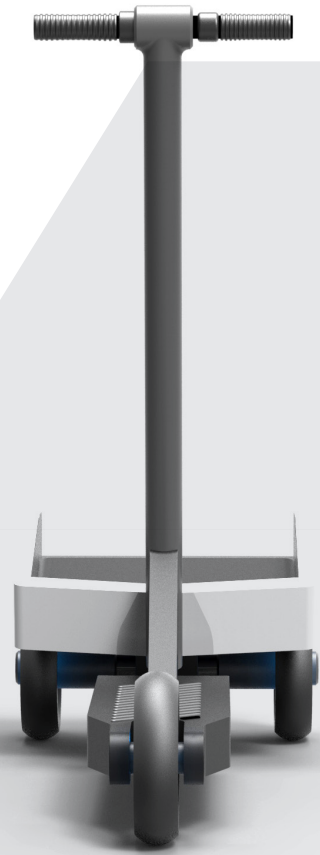
Product Design  
Criteria

look at product design criteria as a  
guideline while sketching



Rendering













# Beta

Beta is a one to two passenger electric vehicle that can be categorised as a four-wheeled recumbent bike with a modular detachable roof. A proper space for luggage and shopping bags that can turn into a space with a seat is considered in the back-side of the Bike.

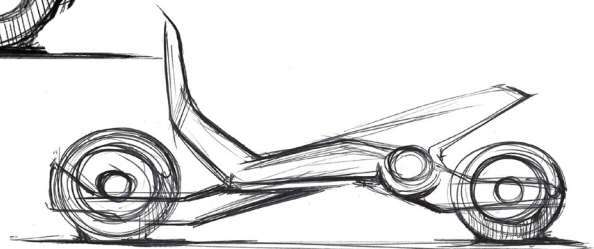
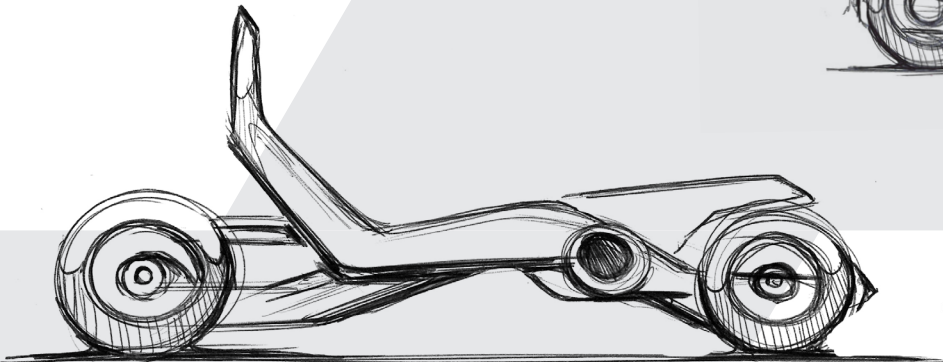
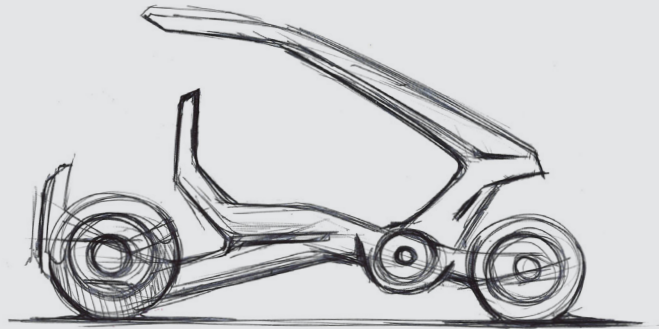
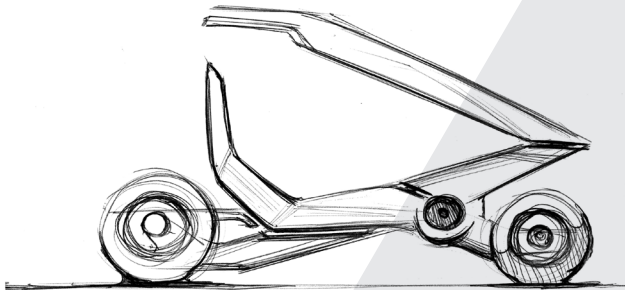
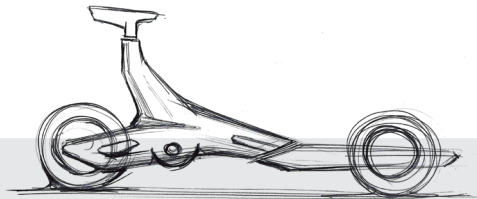
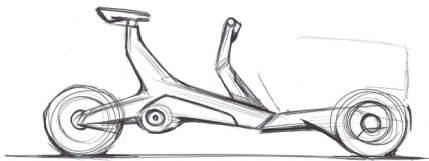


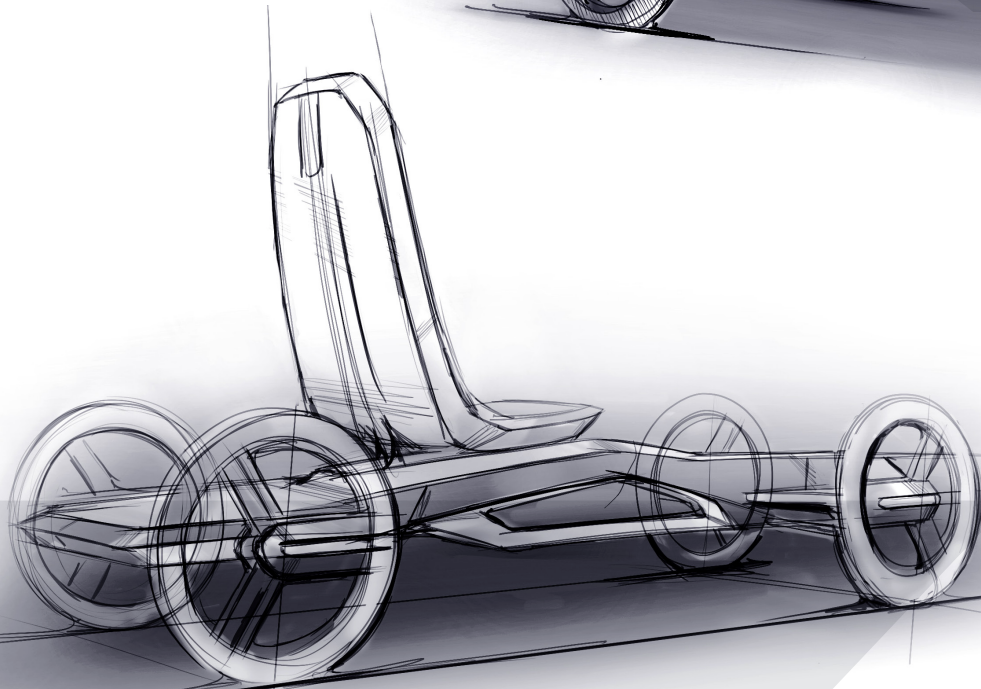
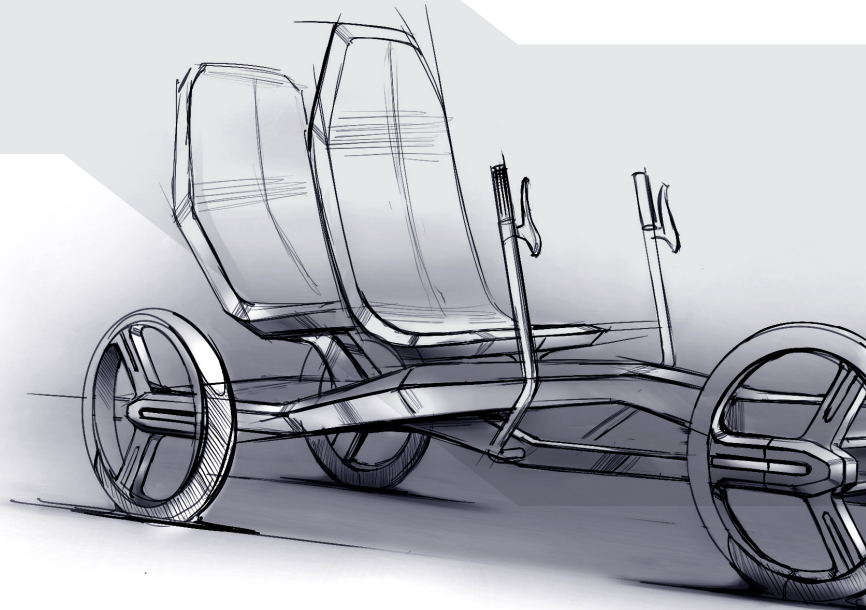
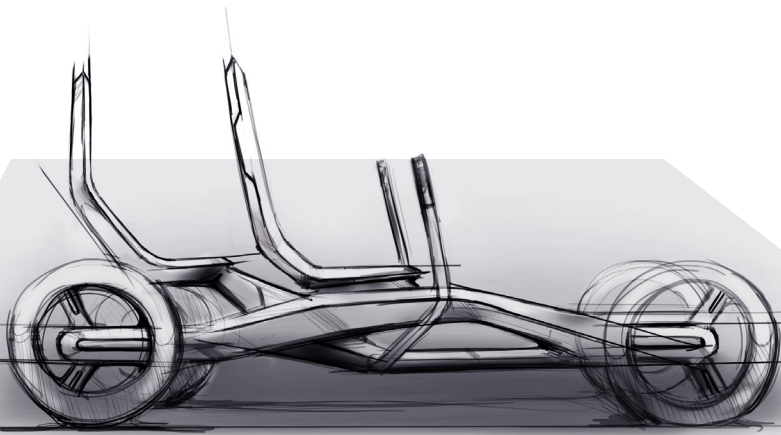
# Sketching

look at page 92-93

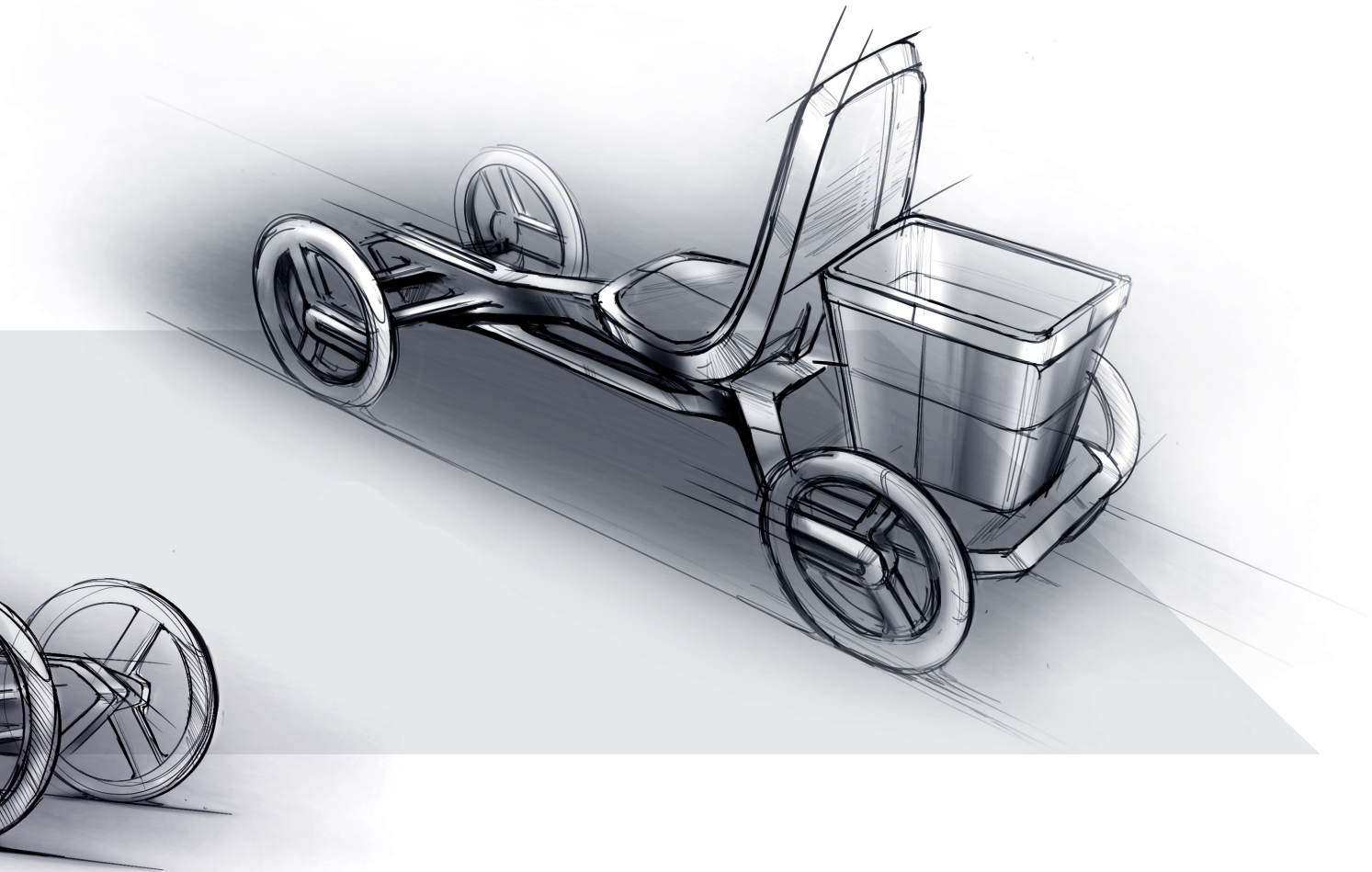
Product Design  
Criteria

look at product design criteria as a  
guideline while sketching









During ideation process, I tried to build a very rough mock-up based on my sketches to see the proportion and check if the components and the other elements are in the right place or not.

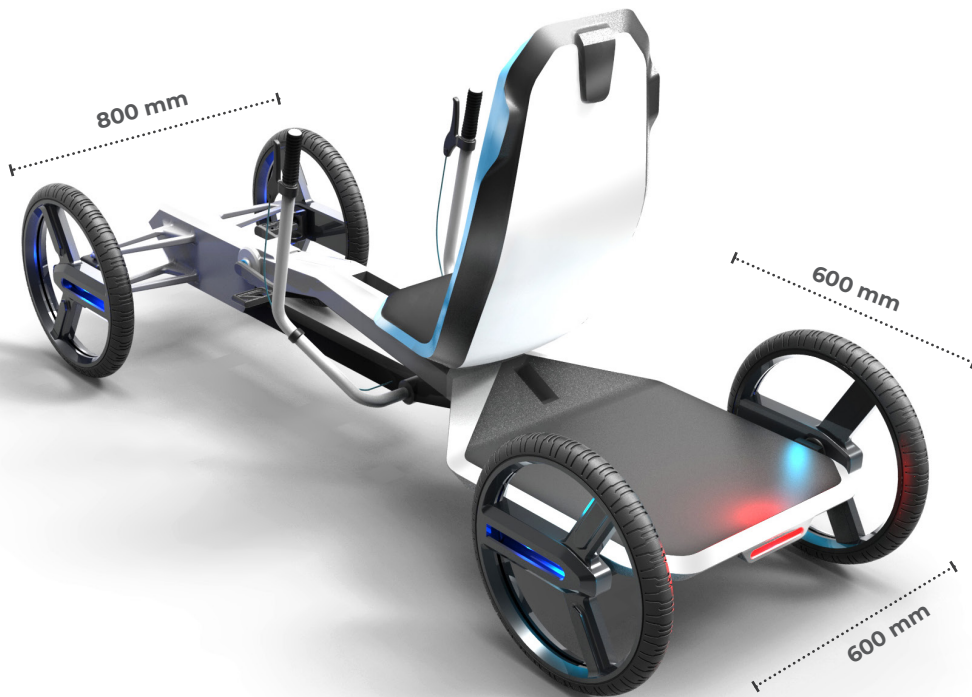
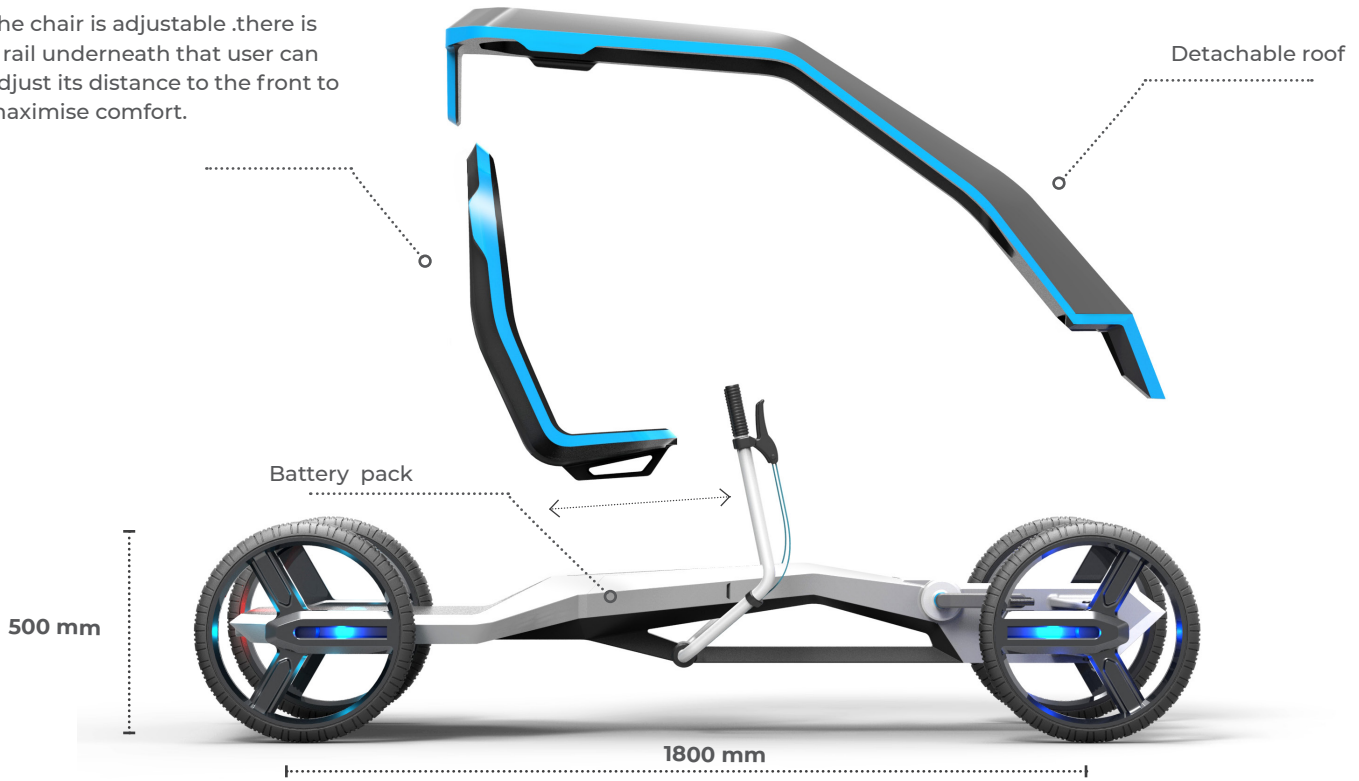




1100 mm

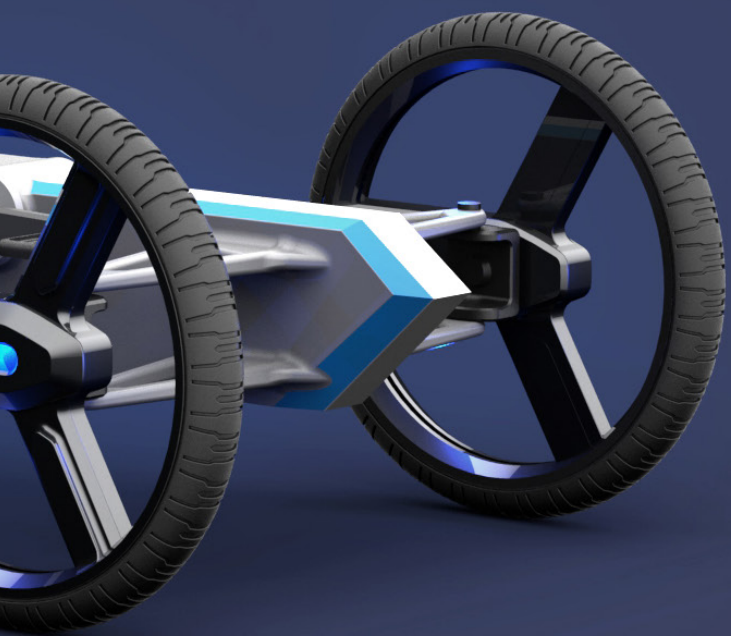


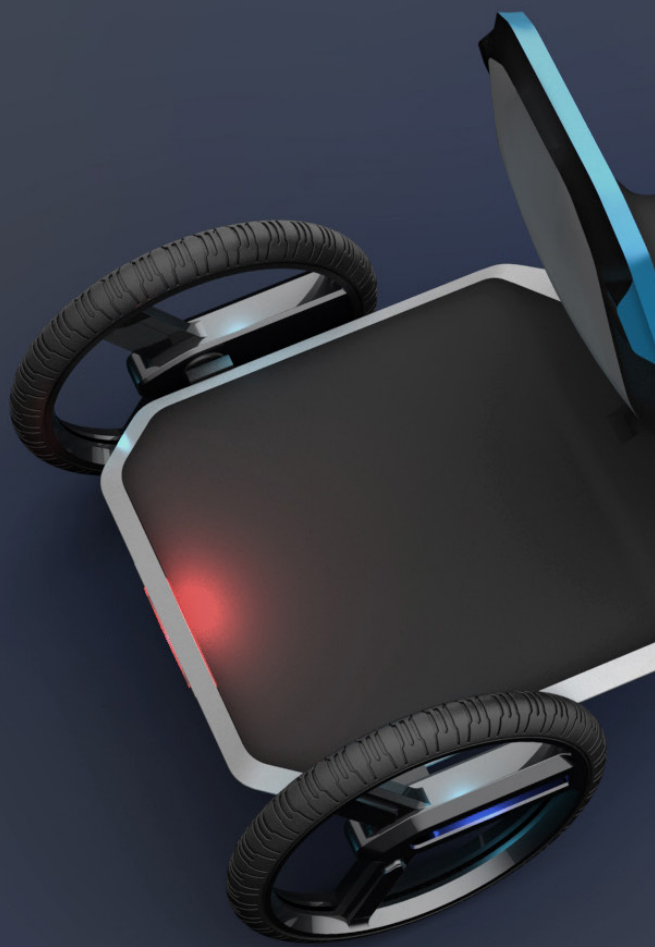
The chair is adjustable .there is a rail underneath that user can adjust its distance to the front to maximise comfort.

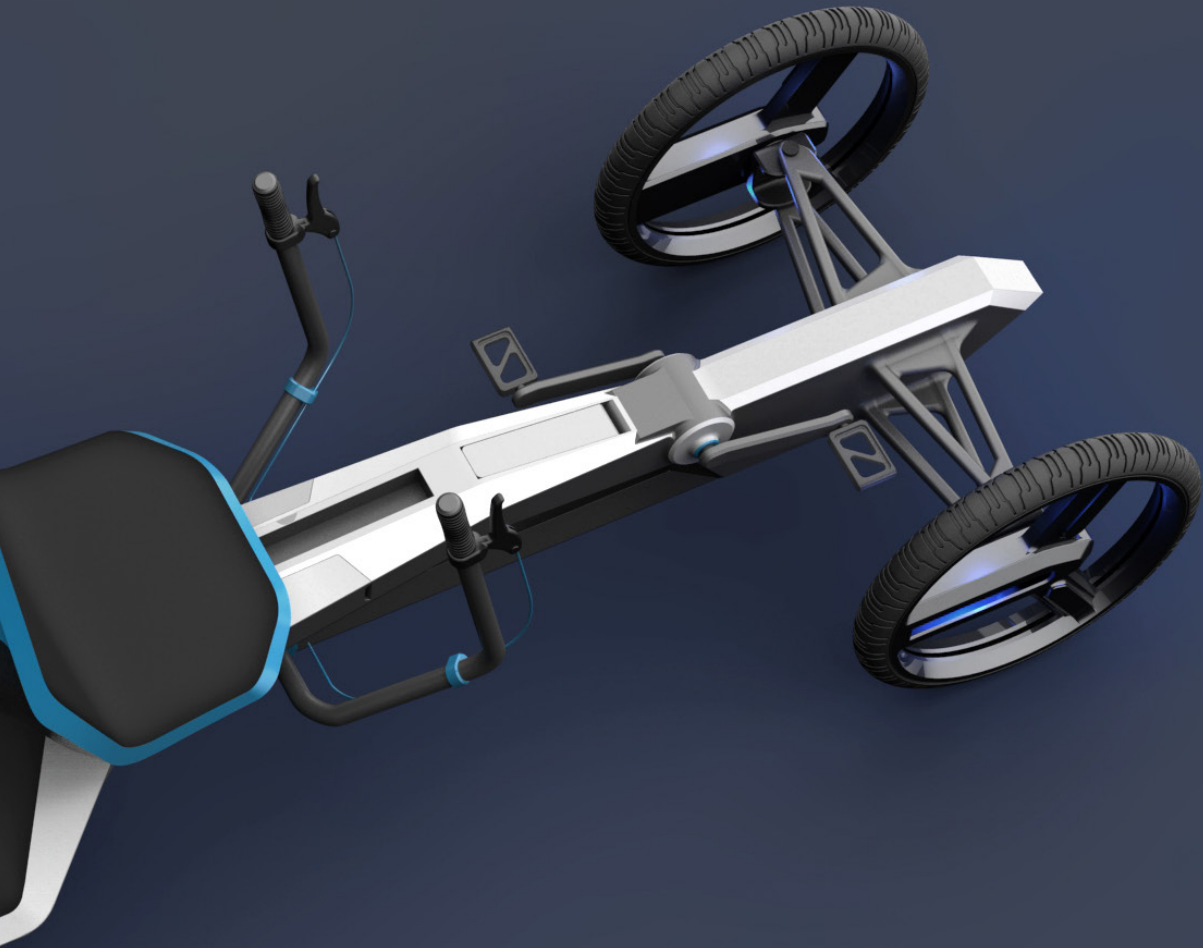














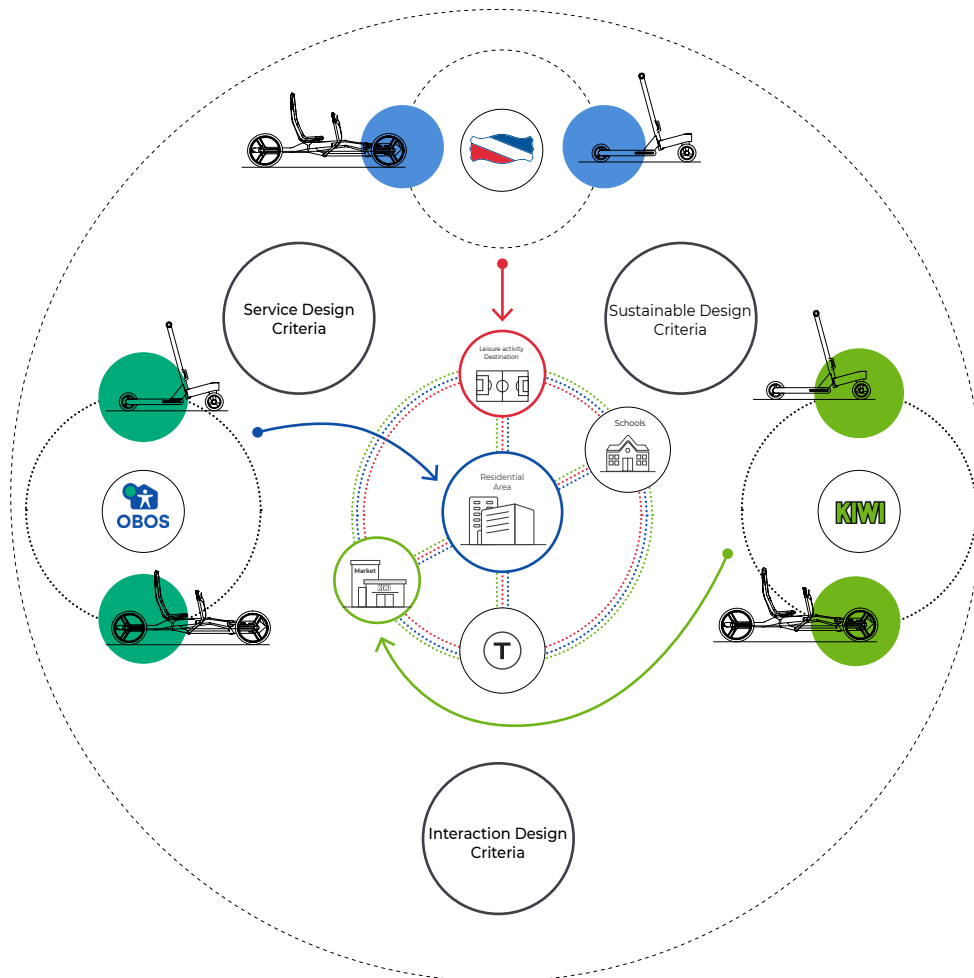
## 3D printing

After finishing with the 3D model, I decided to print them in 1/10 scale to see how they look. It's always great to see the result in your hand and feel it in a more tangible way.

# Second Step

## System, Service, and Interaction

In this stage, I am going to describe and illustrate the System, the Service, and the interaction part of my Design proposal using four possible scenarios.





# Four Possible Scenarios

• **In the first step,**

I going to present the context of my scenarios, which is a fake neighbourhood, and then I will go through the actors and stakeholders with a brief introduction of them, which is based on real future potential actors.

↓ **In the next step,**

I will go through four possible scenarios using the actors and the context described in the first step.



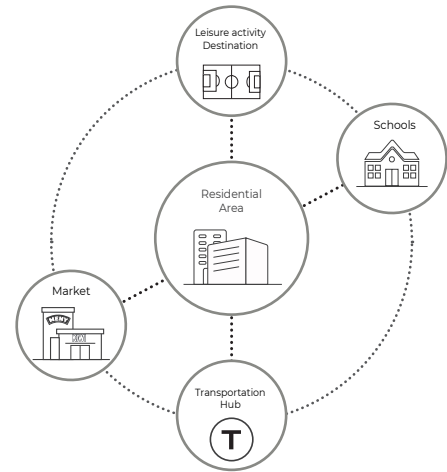
# The Context

## Grandalen

Grandalen is a fake neighbourhood in Oslo, which has the same infrastructure as Bjerke, and other neighbourhoods in Groruddalen.

The reason that I am using a fake neighbourhood to describe my idea is to avoid being involved in technical aspects and details of any specific neighbourhood which distract the focus from the main idea.

**The situation of the main destinations like markets, residential areas, transportation hubs, and Educational and leisure activity destinations all are located based on Bjerke.**



# The Actors

## OBOS



OBOS is Norway's largest residential construction company with 215,015 homes under management and 416,800 members at the end of 2016. 71 percent of the Obos members live in Oslo and Akershus.

In Grandalen, a big part of residential area is built by OBOS. Recently Obos provided a Shared Mobility Transportation Service for the Obos residents in this area. Members can access to the fleet through the Obos app.





# Hasle Løren



Hasle Løren Is a sports club in Grandalen .They are running different sport activities like Football, Ice hockey, and basketball...

Majority of the teens and Youngers in Grandalen are a member of this sport club and they are a big fan of it. They like their team and they are considered a big support for the club.

**Hasle løren recently provided a local Shared Transportation Service in their circumstance for the members of the club. Hasle Løren colorized and personalized their own fleet to be an outstanding representation of the club in Grandalen and express the passion of the fans.**



# KIWI mini price



Kiwi is a Scandinavian supermarket chain that has 650 retail outlets in Norway, and 102 in Denmark.

Kiwi has a big store in this neighbourhood Grاندalen. They recently introduced two new local transportation services inside the neighbourhood. One of them is a new **Local Shared Mobility Service** for the customers and the other one is a **Local Food Delivery Service** for local customers inside this neighbourhood using the same fleet.





## Local Food Delivery Service

**Local Food Delivery Service** is a new service offered by the Kiwi store at Grandalen branch. The idea here is to decrease the need for driving to the store for shopping by bring them to the customer's house in a more sustainable way using electric micro motilities.

Kiwi hired several new employees from Grandalen (local workforce) to help them with the new food delivery services, as they know Grandalen better and they will help them to manage the fleet in that area too.

# Scenario 1

## Hussain

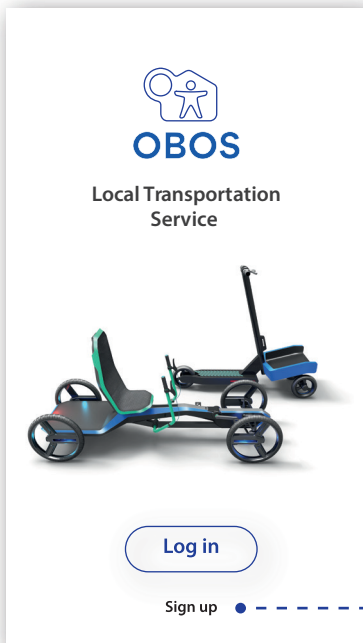
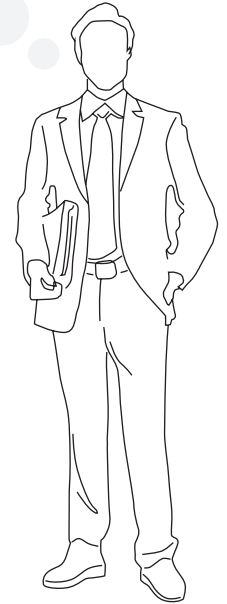
is 30-year-old working as an engineer in downtown. He lives in Grandalen for around 5 years at one of the **Obos** apartments in that boroughs.

Every morning he used to take his car to the T bane station and parked his car there and take the T bane to the city centre to work.

### Now he has another option.

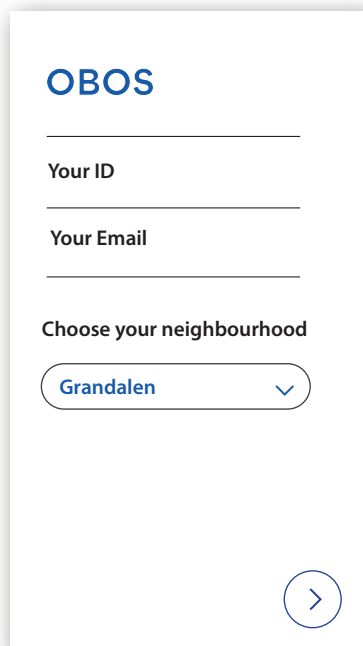
Recently Obos provided a **Shared Mobility Transportation Service** for the Obos residents in the area to cover the first and last mile travel in the coverage area. This is something that Hussain was always looking for it.

I need something to cover my First and Last mile travel in the neighbourhood because walking to the T bane station takes a lot of time (20 min) and it is not worth taking my car to the T bane station anymore.

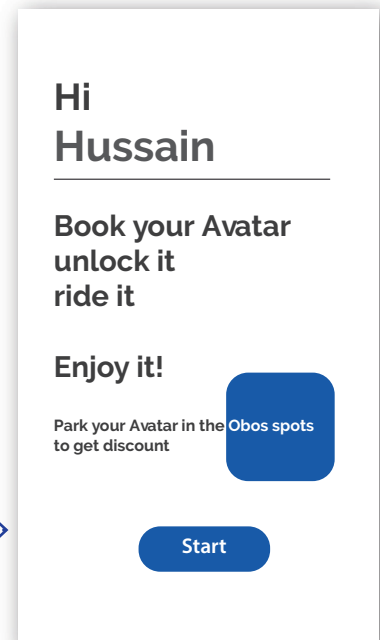


He downloads the app to get access to the Fleet.

He sign up in the app



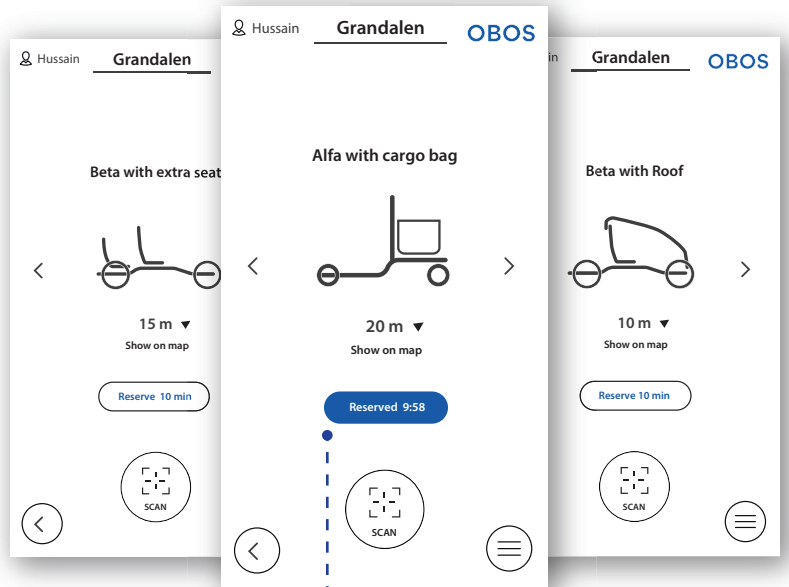
Registration



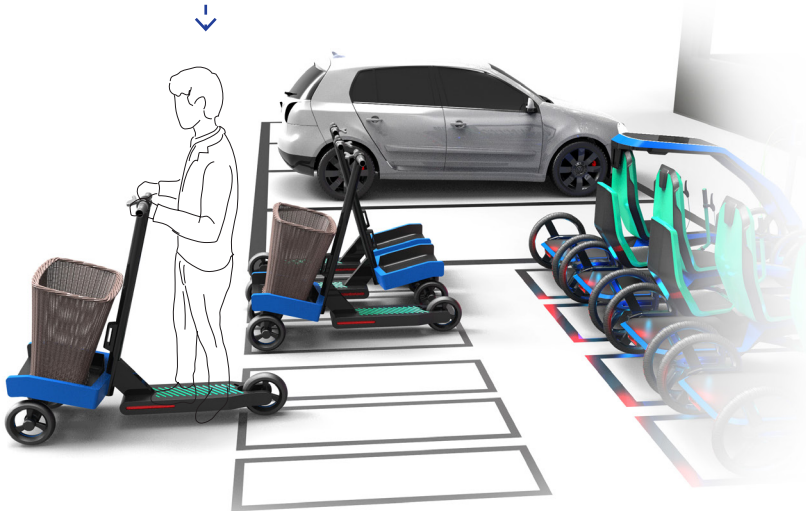
Now he has access to Obos Local Transportation Service.

It is Monday morning and Hussain wants to go to work. He opens the app in order to reserve a fleet from Obos.

He starts thinking about which type of Vehicle fits him better. He booked Alpha because he only have a bag, and it is not raining outside.



He took the Alpha to the T bane station.

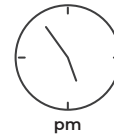
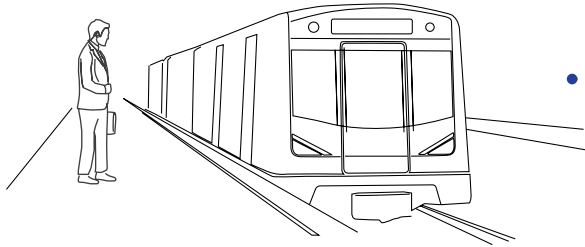
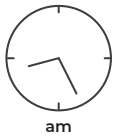


When he arrived to the T Bane station, He parked it in the **Obos parking Spot** to get some discounts.





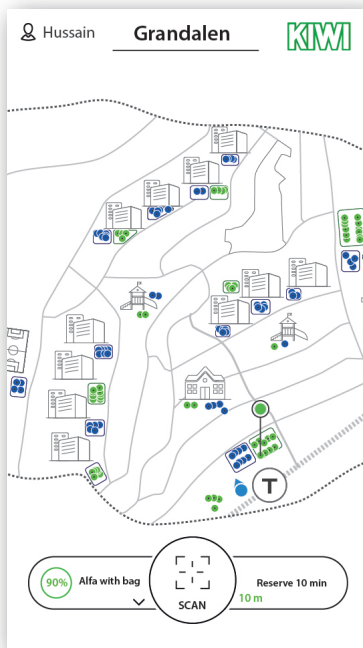
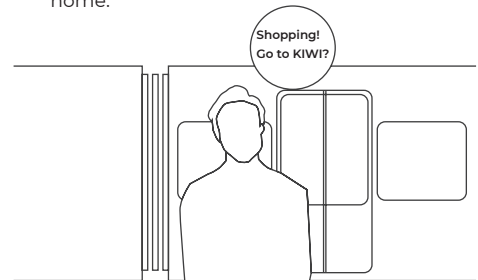
After that, He tooks the Train to the city centre to work.



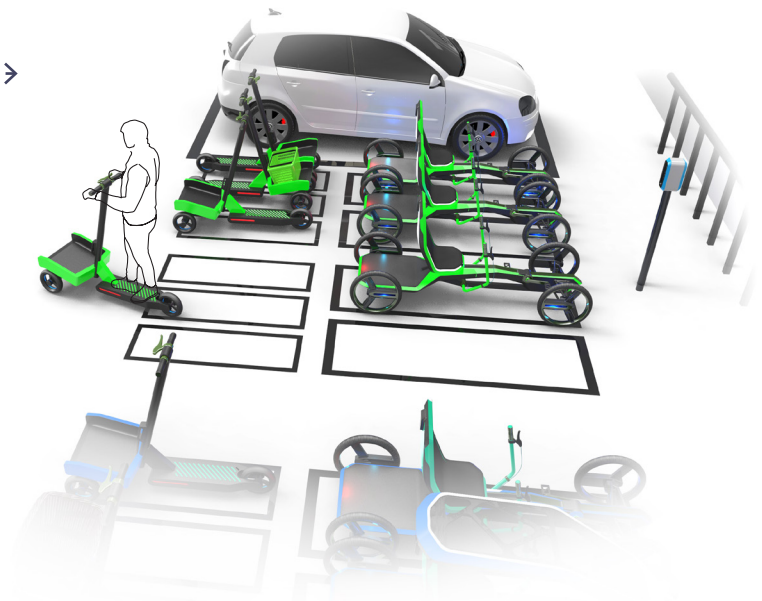
In the T bane station, There are many different fleets belong to different private owners like Kiwi , Obos ,SATS , and Hesel Løren. As he planned to go to Kiwi, he decided to take the Kiwi fleet because it would be **free** if he parks the vehicle at kiwi spot beside the Store.



It is 5pm and Hussain is coming back from work. He arrived to the T bane station inside Grandalen. Hussain wants to go shopping before going home.



He starts driving the Alpha to Kiwi store which is almost 1 km away from the station.



He opens his Kiwi app and he scans the available Alpha vehicle belong to Kiwi to unlock it.

When he arrived to Kiwi, he parked the vehicle there at the Kiwi parking spot, and he got his money back through the system as he parked it in the Kiwi store parking spot.

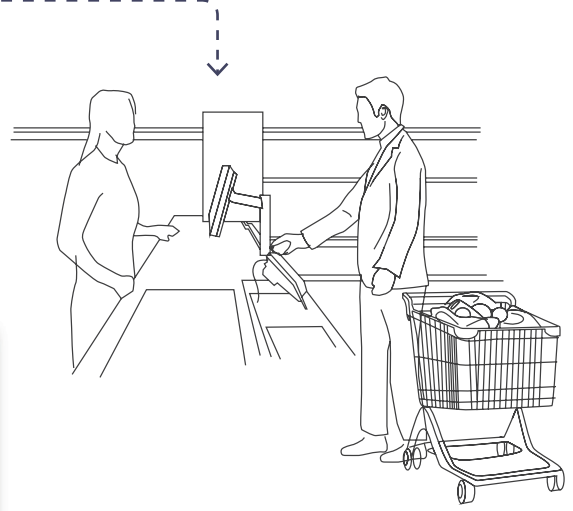


**KIWI**

**Hope you enjoy using our service!**

As you parked your avatar at our main parking spot, your drive would be free of charge!

home



Hussain did his shopping. Then he goes to the cashier to do the payment.

**Salgskvittering**  
 KIWI Grandin  
 ORG.NR. 937 846 231 MVA  
 Foretaksregisteret  
 Grandalen 72, 0324 OSLO

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HVETEMEL SIKTET IIXG	5% 9	,00	
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STIMOROL MAX STRAUB/LIM	15%	90	
PEDIGREE SCHMACKOS 43	15%	75,40	
ADVENTUROS STRIPS290G	5%	4,60	
JORDBARSYLETTOY LETT NO	5%	95,40	
EVERGOOD DARK ROAST	1%	31,90	
KYLLINGELET IL HUN	1%	39,90	
NUGATTI ORIGINAL 500G	5% 8	4,90	
VID SEK			
BAREPOSEKIWI <sup>2</sup>	5% 1	,60	
<b>REUNDING</b>		<b>367,8</b>	
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Bax: 10287221646  
 20/11/2019 19:09 Overf.:297  
 BankAxept \*\*\*\*\*5394-2  
 AID: D578000021010 TSI: 680

As you shopped more than 300 NOK, you get a free access to our local transportation service.

Just scan the barcode using your app and enjoy your ride :)



In the receipt, there is a barcode that gives him a free access to the Kiwi Local Transportation Service as he bought more than 300 NOK.



## Thank you for scanning!

you get a free access to our fleet.

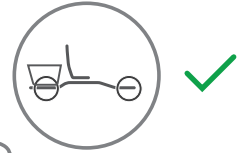
remember to use it in an hour.

## Enjoy it!

Kiwi Local Transportation Services

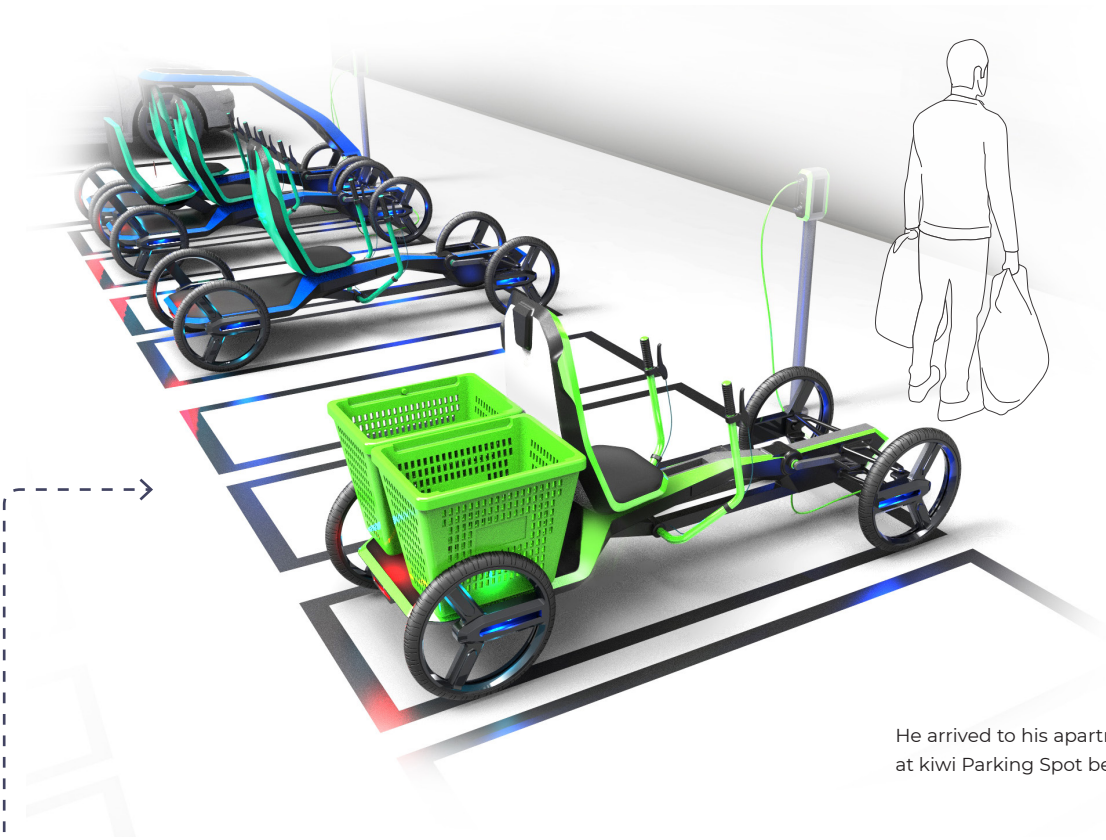
Scan

Now Hussain want to go home and he has several bags, so he decided to take the Beta version as it has more cargo space.



He puts his bags in the shopping cart on the vehicle before driving it home .





He arrived to his apartment. He parked the vehicle at kiwi Parking Spot beside his apartment.

### Electric charging Station at Kiwi parking Spot

Kiwi designed a parking spot near the apartment, which contain several charging stations for the vehicles.

Users can plug in the fleet to the charging station provided if they are out of battery.

**Kiwi Local Transportation Service** also provides some discounts for those who help them with charging.

The users are very interested in keeping the fleet fully charged because they know that it is there for them, and it is probably them who are going to use it again.



# Scenario 2

## Sarah and her family

Sarah is a 40-year-old woman who lives with her husband and her 7-year-old child in Grandalen at one of the **Obos** apartments .

She is a nurse at ullevål hospital. She works from 8 am to 3 pm every weekday.

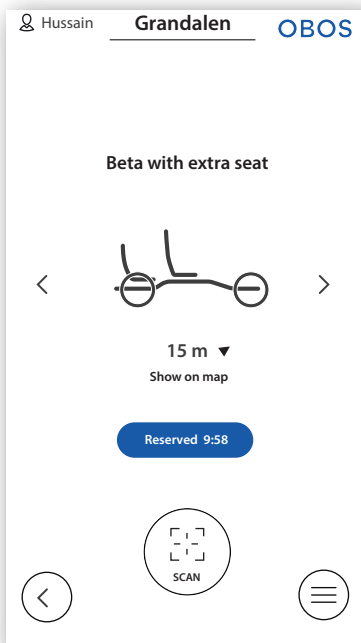
She used to commute using her private car because she has to drive her child first to the school in the morning and bring her back on the way home.

The school is in the neighbourhood but it is time consuming for her to walk to school every morning. Consequently, she prefer to use her car.

### Now she has another option.

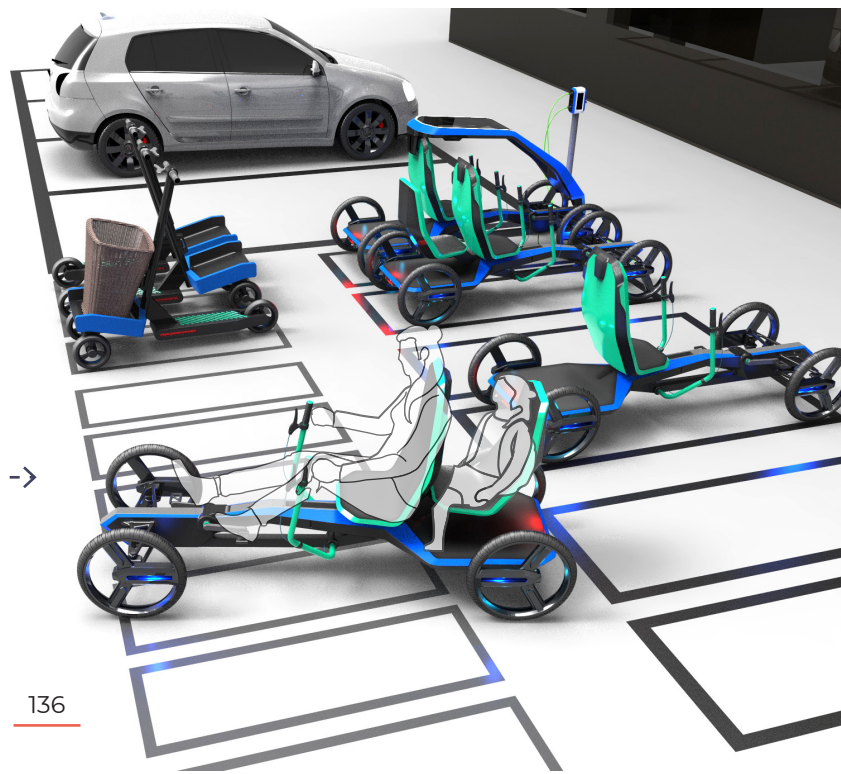
Recently Obos provided a **Shared Mobility Transportation Service** for the Obos residents in the area.

I wish we could have something for our internal movements in Granadalen. Something more efficient than cars



It is Monday morning and Sarah wants to go to work, but she has to take her child to school first. She opened the app in order to reserve a vehicle from Obos.

She reserved Beta with extra seat version as she wants to carry her child to school too.

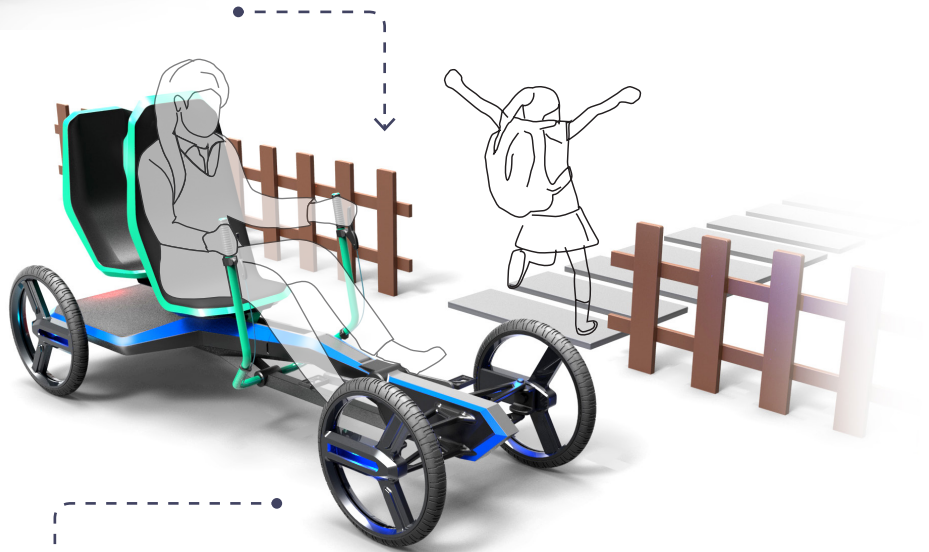


She goes downstairs, she unlocked it using her phone and she starts driving her child to school using the **Obos Local Transportation Service**.





She is on the way to school with her child.



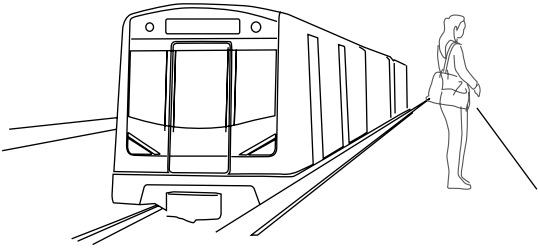
She drops her child at school.

Then she drives to the T-bane station to go to work using public transportation. She parks the vehicle at the **Obos Parking spot** near T-bane station.





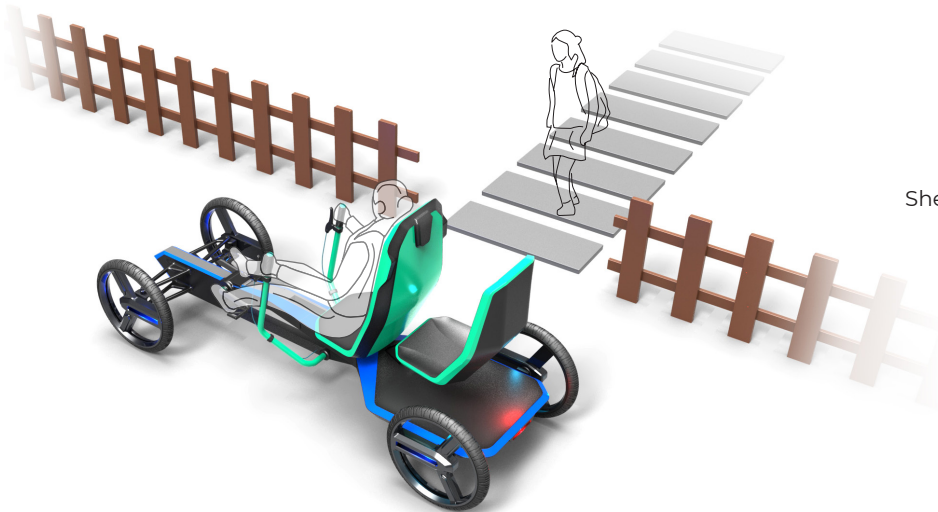
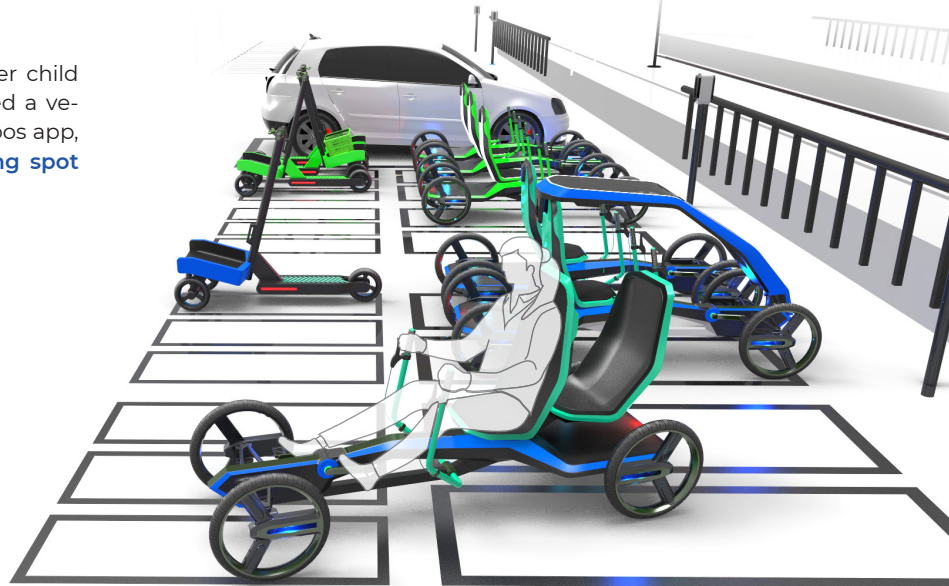
pm



It is 3 pm and Sarah is coming back from the hospital. She arrives to the T bane station near her home.

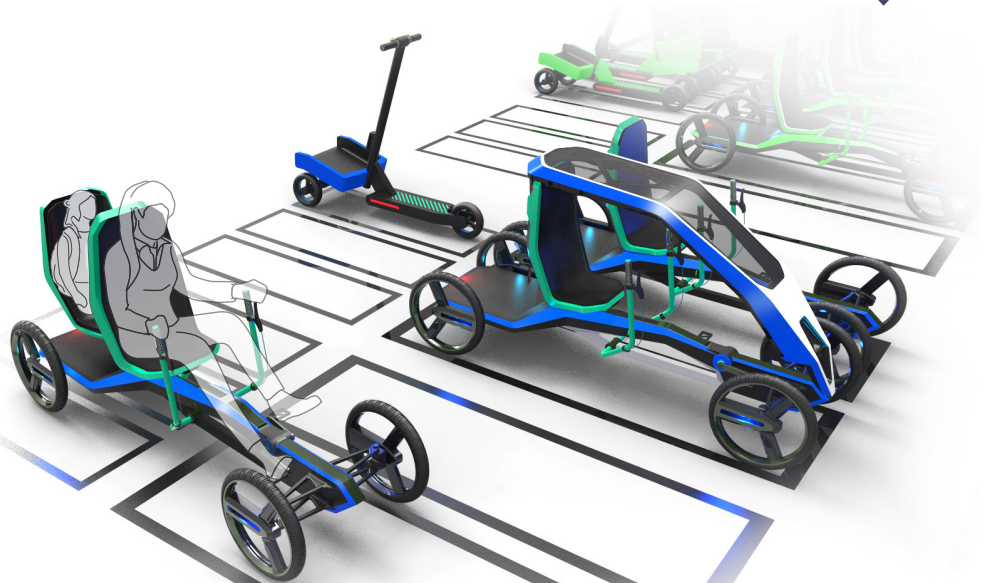
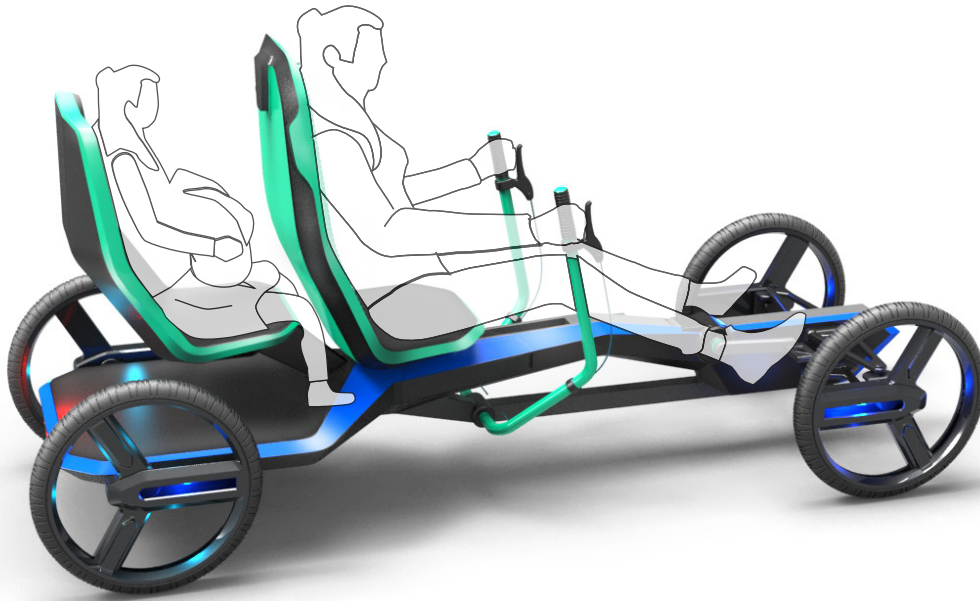


As she knew that she has to pick up her child from the school first, she already booked a vehicle with extra seat from Obos using Obos app, which is already parked at **Obos parking spot** near T bane station.



She drives to school to grab her child.





They arrive to their apartment. She parks the vehicle at the **Obos parking spot**.



# Scenario 3

We want to hang out altogether doing some group activities inside the neighbourhood, and express our feelings towards our club:)

## Emad and gangs

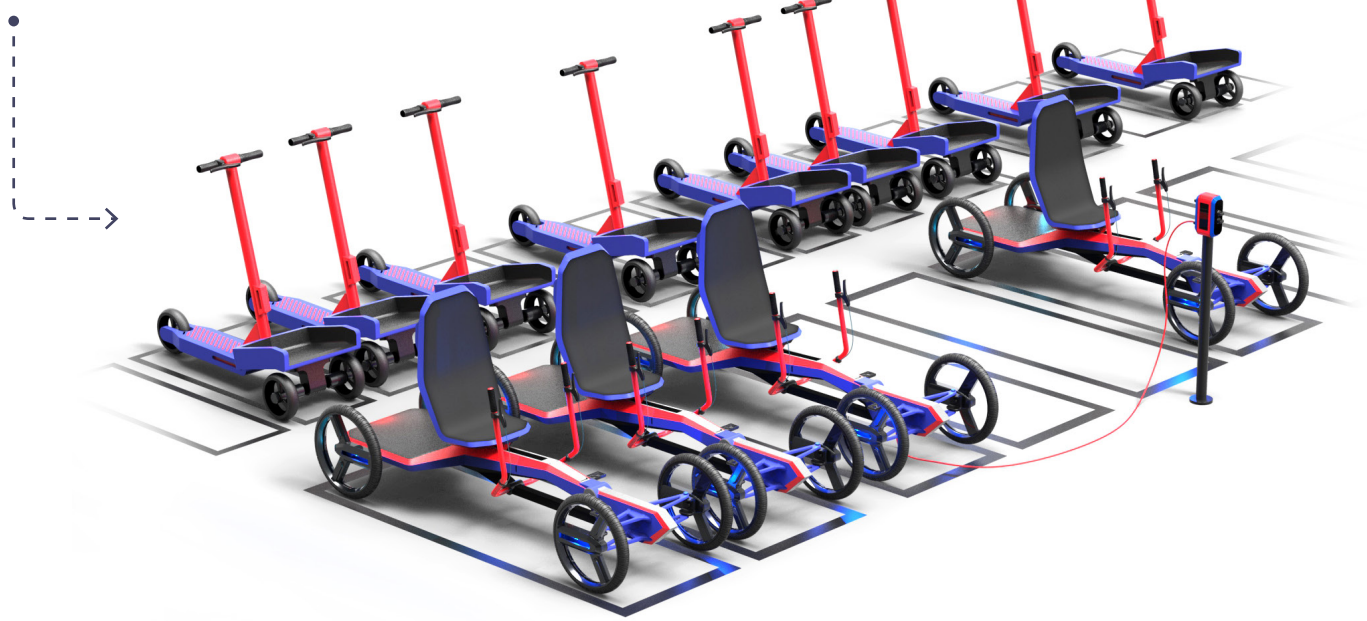
Emad is 18-year-old boy live in Grandalen area He is a young sporty character and loves his neighbourhood Ice Hockey team, Hasle løren. He usually hang out with his friends in the neighbourhood quit often and they usually go to the gym club together. All of his friends are a big fan of Hesle Løren Sports club. Recently **Hesle Løren** club provided a **Local Transportation Service** for the club members. It is personalized and have some cultural elements of the neighbourhood and the team to make the users feel engaged and proud.



There would be a hockey match today at Hesle Løren club, and it is expected to have a lot of people and fans from outside and inside of the neighbourhood coming to the stadium to see the match.

Consequently, the club decided to set up its transportation fleet at several destinations inside the neighbourhood and the stadium itself to help the members and fans in terms of transportation.

**T** bane station at Grandalen near the club is one of the destinations





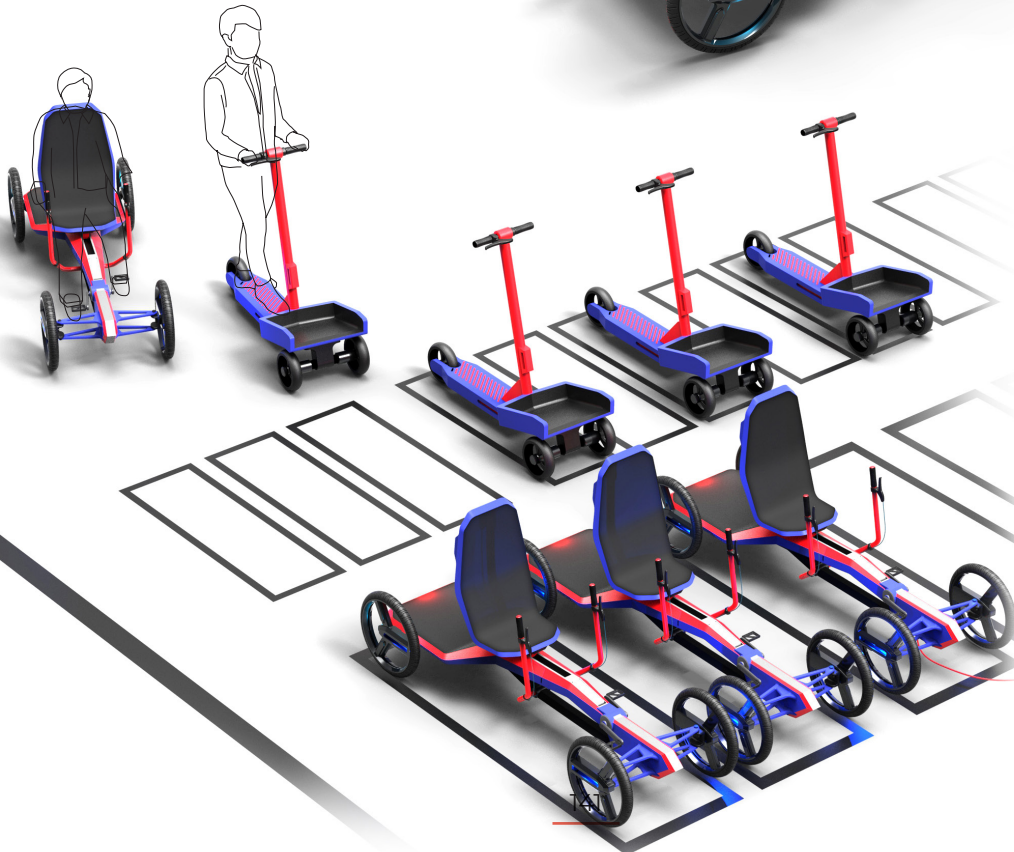
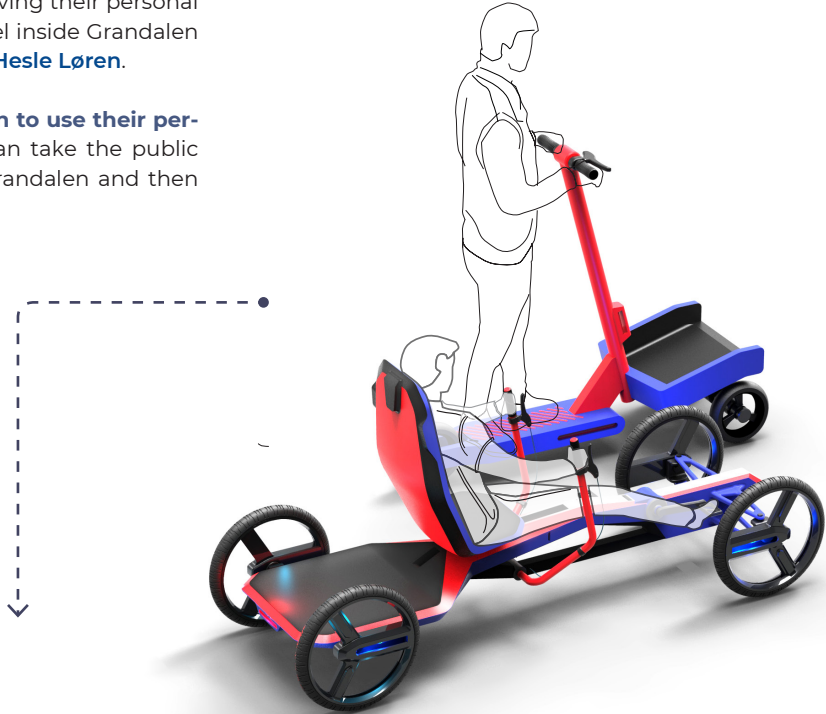
Emad and his friends want to go the stadium to see the match today. A couple of them like Sam and Jan live outside of Grandalen. Sam and Jan both used to take their own cars to the stadium in every match but now they have another option too.

As they are a member of the club, they notified that **Hesle Løren** provided a **Local Shared Transportation Service** in Grandalen. One of their main reason of driving their personal cars to the stadium was the last mile travel inside Grandalen neighbourhood ,which is now covered by **Hesle Løren**.

**Consequently, they have no other reason to use their personal cars to go the stadium** as they can take the public transportation to the T bane station in Grandalen and then take the Club fleet to the stadium.

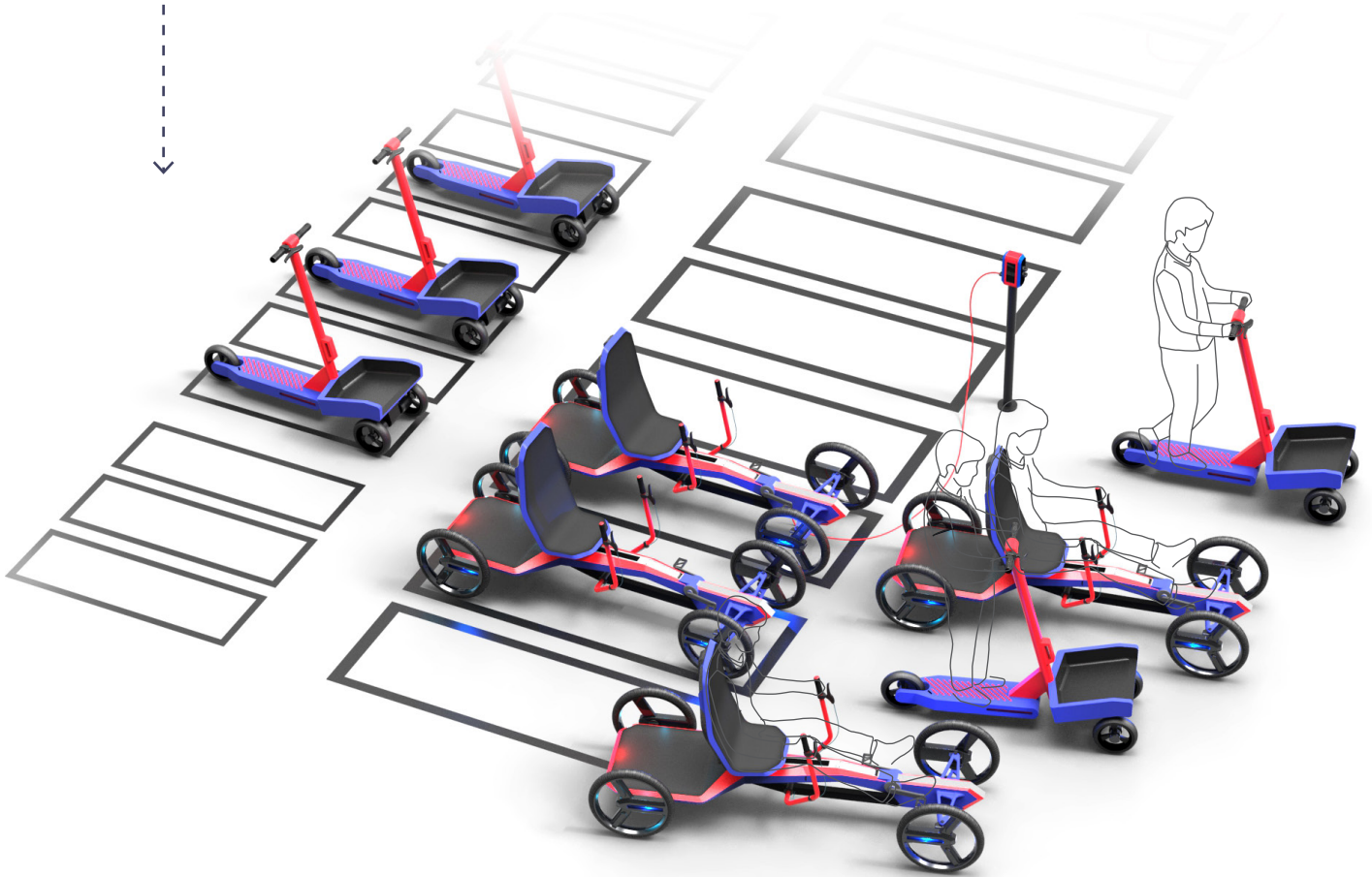
Sam and Jan arrived to the T bane station at Grandalen, and they unlocked one vehicle each to drive to the stadium. Sam chose Alpha but Jan was more interested in Beta version.

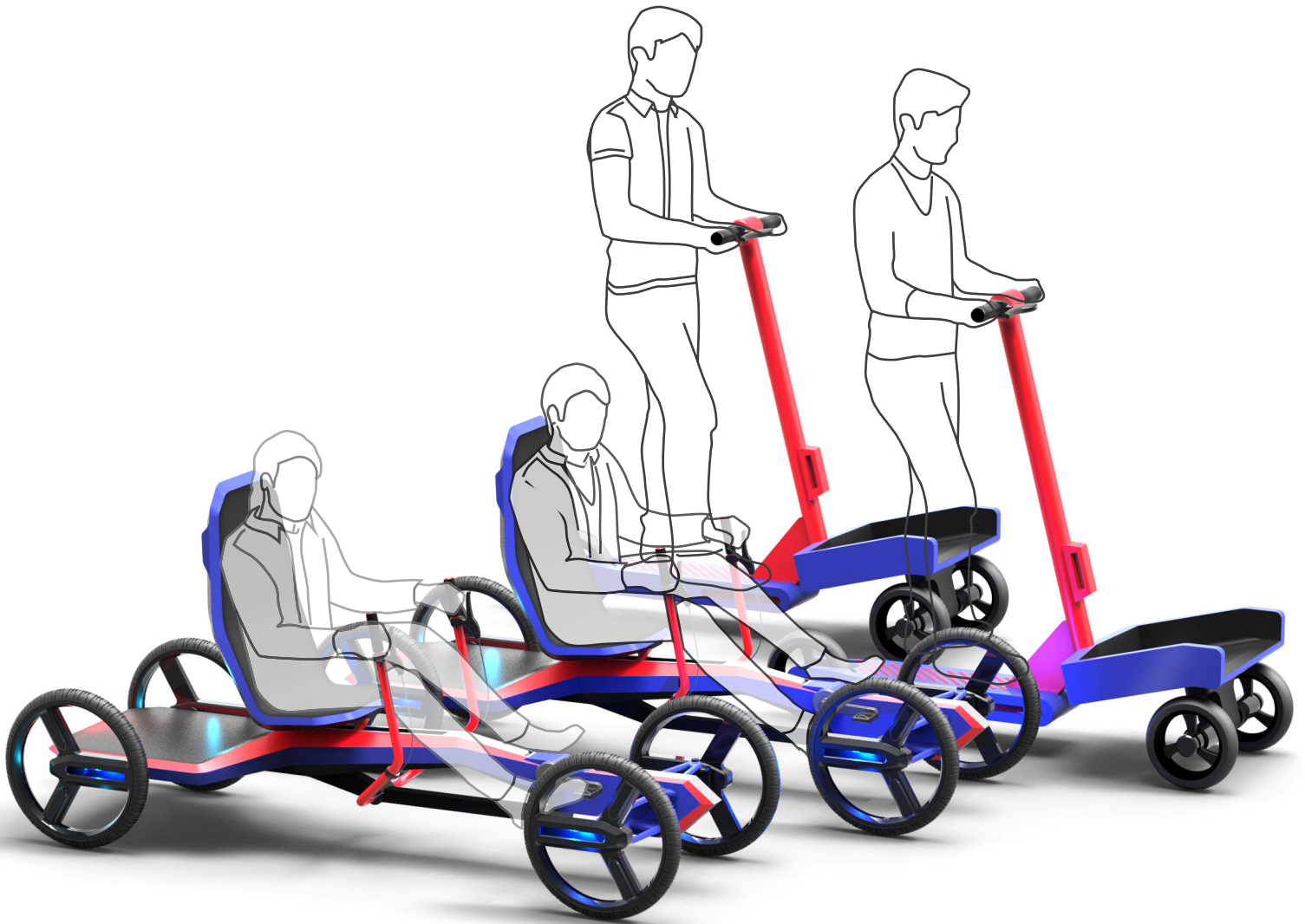
Sam and Jan arrived to the Stadium



Sam and Jan met Emad and her girlfriend at the stadium. they enjoyed the game together and now they want to go out.

They all went out to take one fleet each from **Hesle Løren Local transportation Service**. They want to hang out in Grandalen for a while together.





# Scenario 4

## Kiwi Food Delivery team

Kiwi recently launched a **Local Food Delivery Service** in Grandalen area. They hired a local professional team to do the deliveries and make this service actually work. Jan, Mohammad, Amir, and Johannes are working there. They all are residents in Grandalen too, so they know this neighbourhood quite well too.

**“Now residents in Granalen does not need to come to the store for shopping. They can just order what they need and receive it at door in 30 min”**

Says Mohammad  
An employee at Kiwi

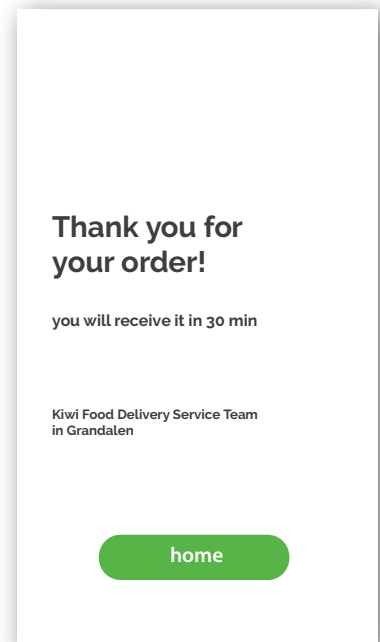
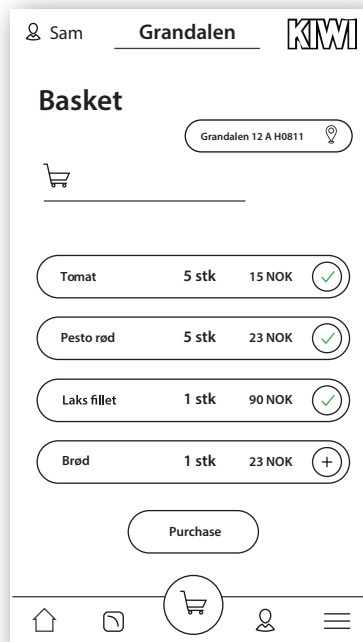
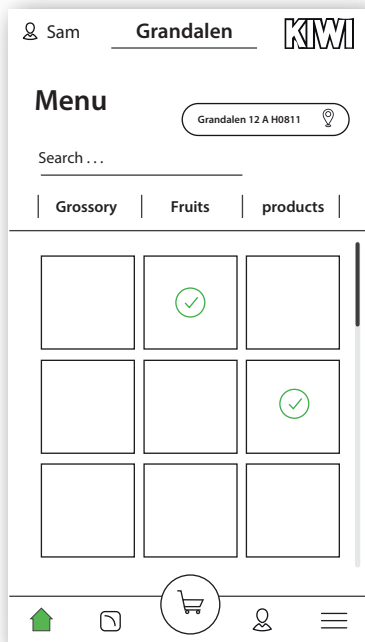


# Ahmed

He lives in Grandalen. He uses **Kiwi Food Delivery Service** quite often.

It is morning and he need some food for his breakfast.

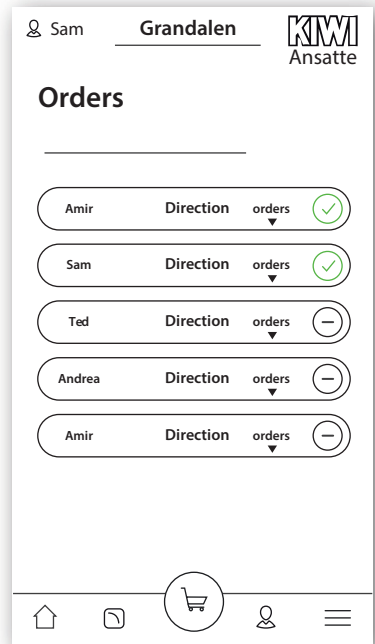
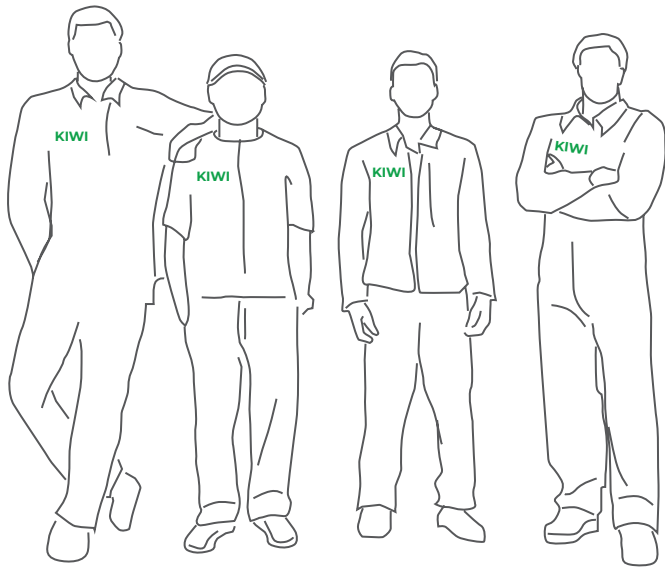
He opened the Kiwi app to order some food.



He ordered some food like Bread, cheese and butter

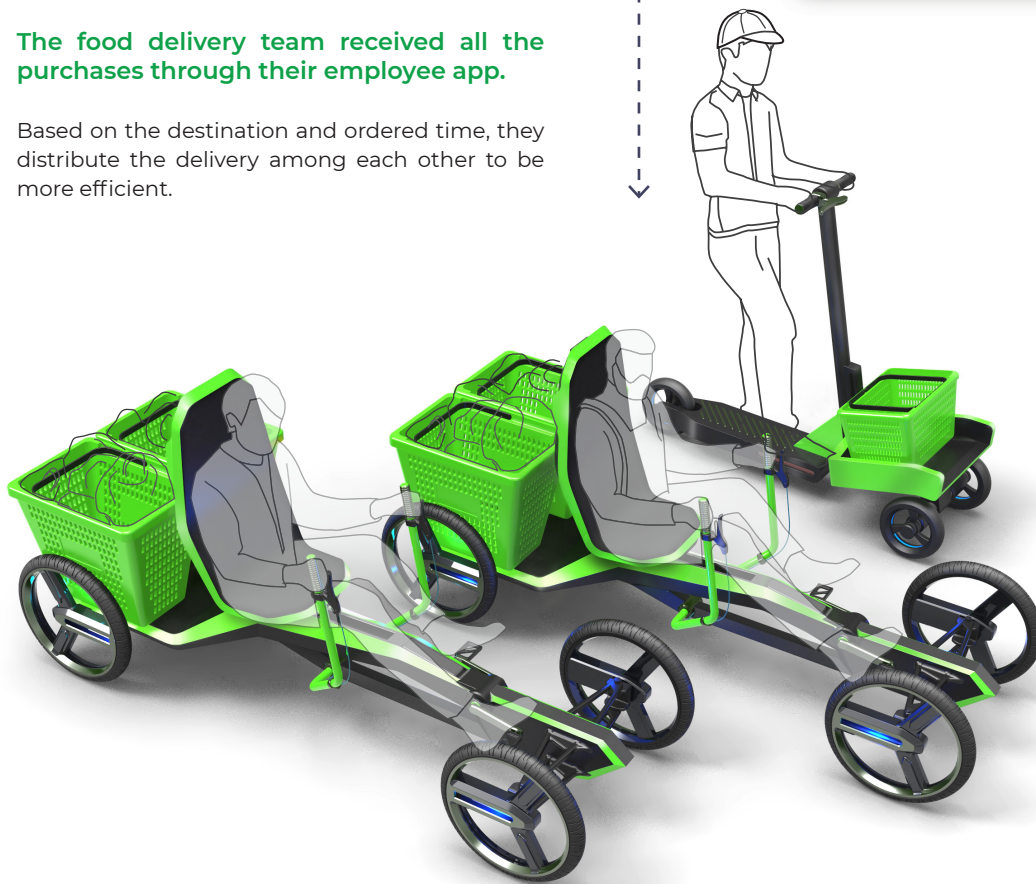
He purchased it

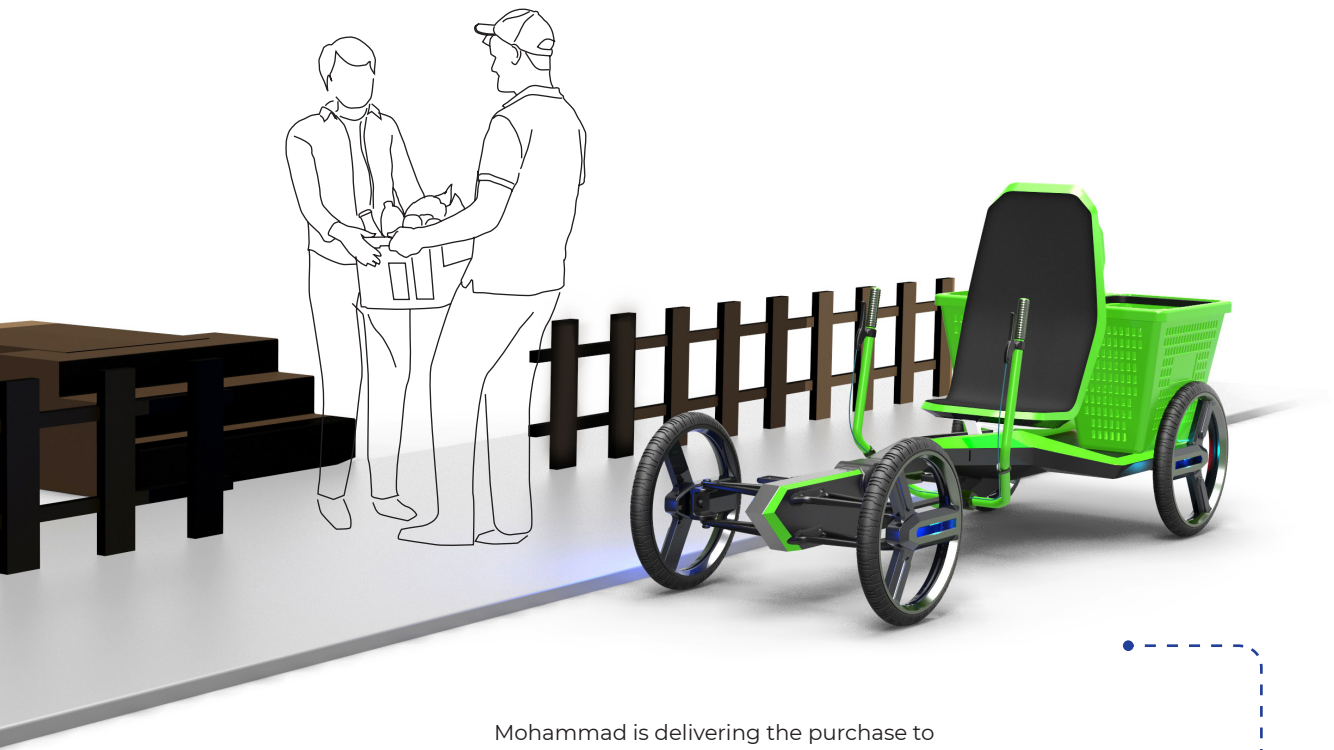




The food delivery team received all the purchases through their employee app.

Based on the destination and ordered time, they distribute the delivery among each other to be more efficient.





Mohammad is delivering the purchase to Ahmed at his house in Grandalen.



Mohammad is driving to the next destination



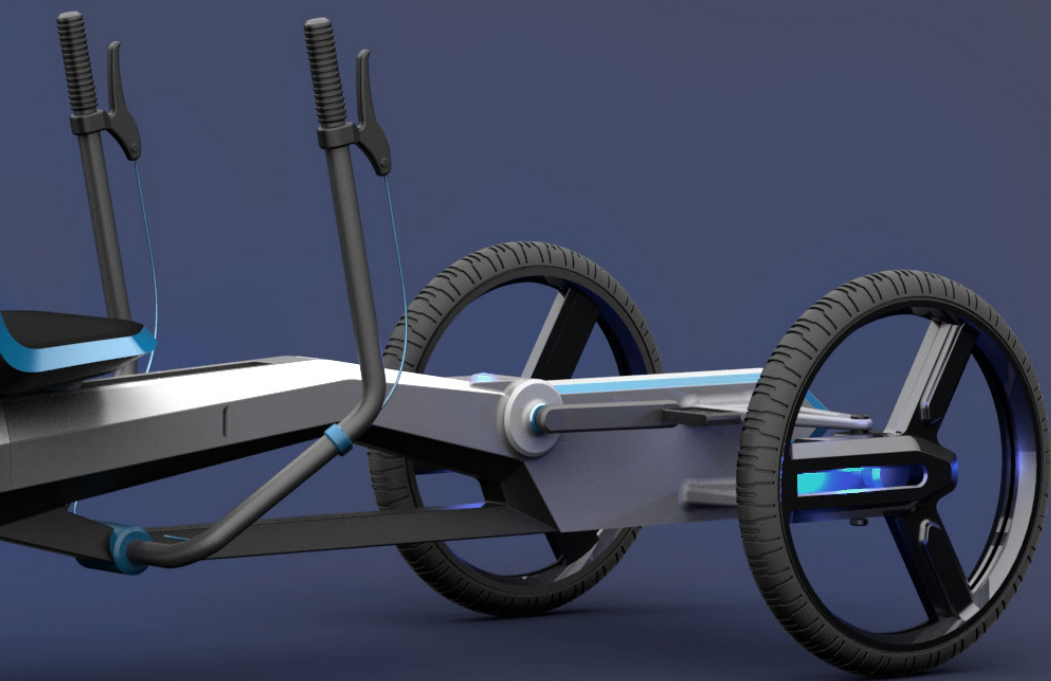


07

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REFLECTION







# Reflection

## My Reflection on the Project

In the early phase of this project when I faced with a huge amount of information in a quite complex context, I felt myself lost several times and I was asking myself what exactly I am trying to do and what exactly would be my delivery.

Solving current shared mobility problems in Oslo area? Yeah that was the initial idea, but in the design process I understood that there are a lot more going on in this context Thanks to holistic design approach, and I think that is exactly the value of design.

In this project, I tried to be process oriented than solution oriented, which was quite challenging but at the same time very interesting.

This project challenged my in many different ways. Working on a multi-disciplinary project individually in a diploma project was an ambitious decision, and I am not regret that, although it was very demanding and difficult.

Now after finishing this project, I feel more confident as a Design graduate to join the design industry.

This project gave a great opportunity to use all design skills I learned in the last 7 years of Design Education in different disciplines into one project. This was something I was always looking for, and I am happy about that.

# Acknowledgment

## Supervisors

I would like to express my special thanks to my supervisors **Steinar Killi** and **Ted Mathews** who helped me a lot with their valuable insights and critiques in this project.

In addition, a great thanks to my External supervisor **Magne Ekerum** for his great support and constructive suggestions during this project.

## AHO (The Oslo School of Architecture and Design)

I would like to say thanks to **AHO** too. I had a great time here at AHO. I just want to tell you that I love you, and I loved to be here every day studying and working in this fantastic atmosphere among many talented students.

You encourage me to be a better designer by giving me a lot of new perspectives in Design and teach me what a holistic Design approach really means.

## Friends and Family

A huge Thanks to all my friends and family that were always my great support. I just want to say that I am proud of you and I love you all.

Shahrooz  
Puria  
Adrian  
Ahmed  
Mehdi

## Experts

Thanks to

**Fredrik Brodtkorb** , CEO Cityrabbitt

**Sture Portvik** , Manager of E mobility

**Johan Høgåsen-Hallesby**, CTO Urbansharing

**Morten Rynning**, CEO CityQ

for their valuable insights.

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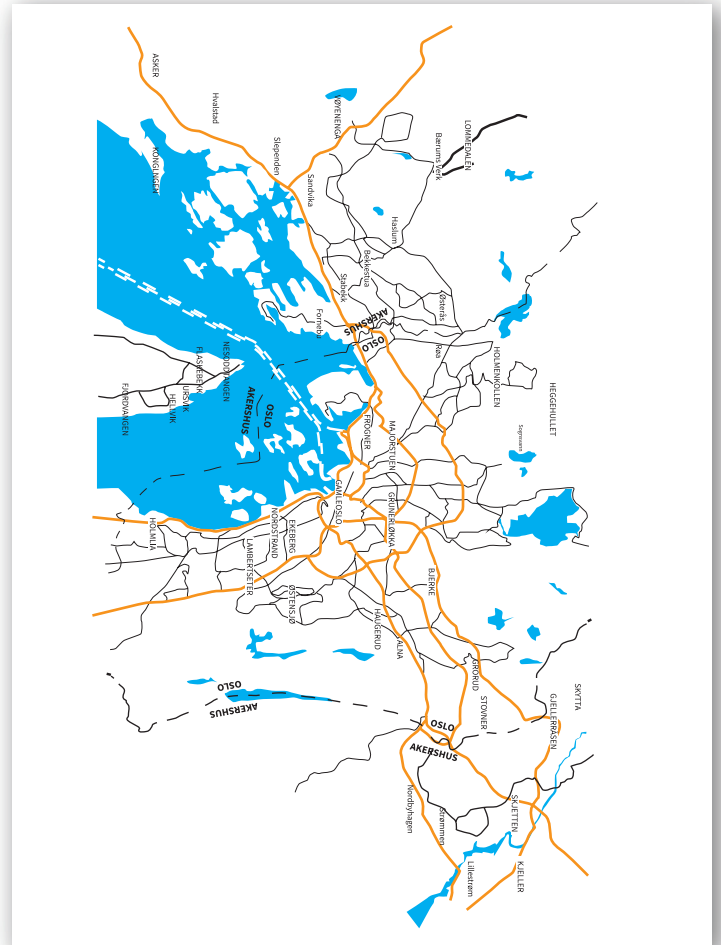
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# Appendix

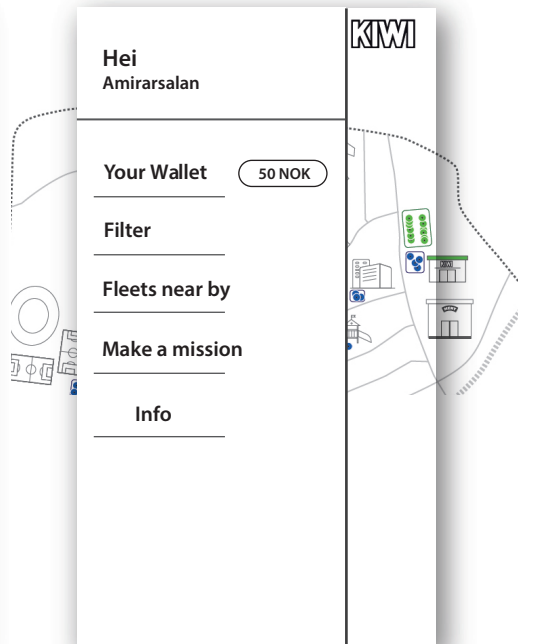
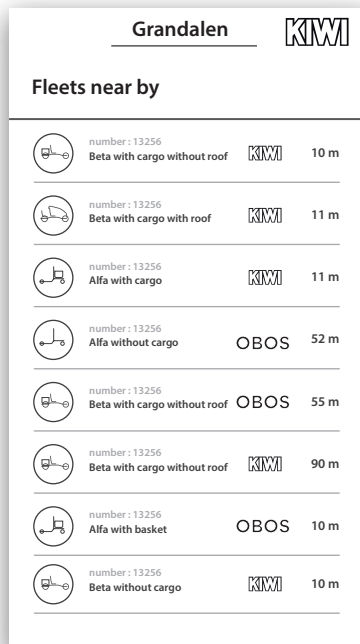
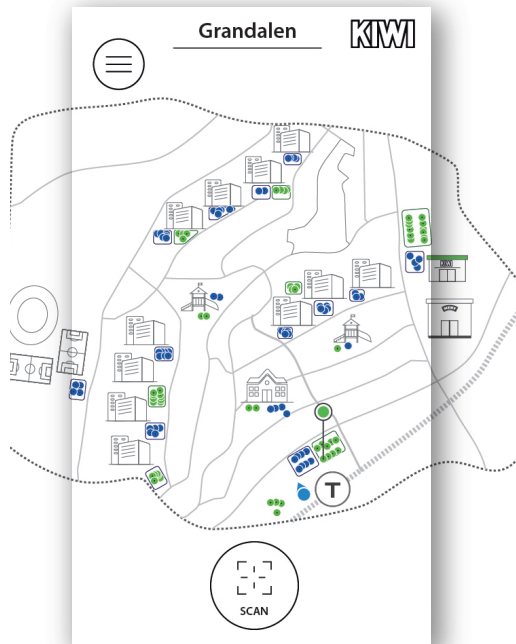
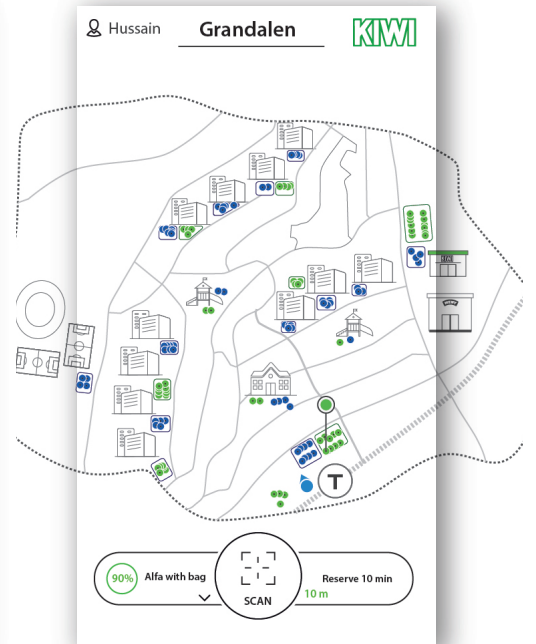
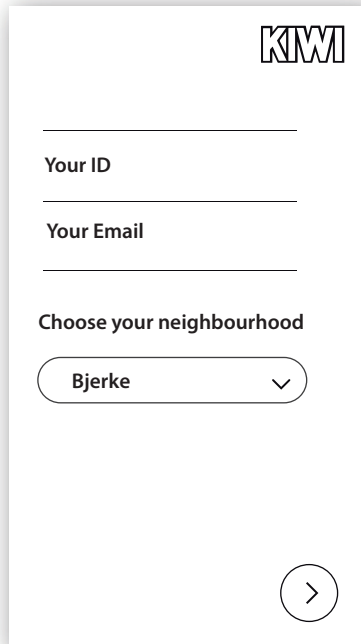
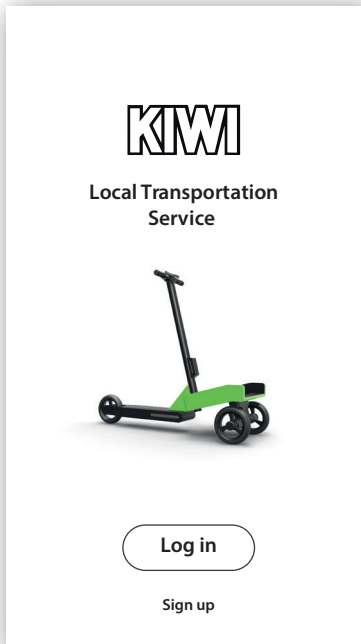
Diploma Survey

1.What is your name and How old are you?	
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3.Wat are you Doing in Oslo? .... <input type="checkbox"/> Working <input type="checkbox"/> Living <input type="checkbox"/> Tourist Visiting	
4.What kind of Transportation do you use in Oslo?	
Personal mobility	Car <input type="checkbox"/> Bike <input type="checkbox"/> cargo Bike <input type="checkbox"/> Motorcycle <input type="checkbox"/> kick Scooter <input type="checkbox"/>
Public transportaton	Ruter <input type="checkbox"/>
Shared mobility	Scooter Sharing <input type="checkbox"/> Bike Sharing <input type="checkbox"/> Carsharing <input type="checkbox"/>
other	<input type="text"/>
I use car sharing mobility Brand	
Din Bybil <input type="checkbox"/>	Nabo bil <input type="checkbox"/> None of them <input type="checkbox"/> other <input type="text"/>
How often do you use them?	
what is your purpose and Destinations?	
How do you feel about that?	
I use Scooter sharing mobility Brand	
Voi <input type="checkbox"/>	Tier <input type="checkbox"/> Circl <input type="checkbox"/> lime <input type="checkbox"/> Zvipp <input type="checkbox"/> other <input type="checkbox"/> None of them <input type="checkbox"/>
How often do you use them?	
what is your purpose and Destinations?	
where do you usually use them?	
How do you feel about that?	
I use Oslo Bysykle <input type="checkbox"/>	
notes: ..... ..... ..... .....	

contact: amirarsalan.shamsabadi@gmail.com  
Mobil: 92565188



I conducted a survey in the early phase of my project to get to know more about how people in Oslo city moves around and what they think about shared mobility in Oslo.




UI/UX of the Kiwi app

# Beyond Sharing

Is an interdisciplinary design project that explores the possibilities and opportunities of shared mobility as a potential driver to a more sustainable urban transportation by focusing on suburban areas in Oslo county as a potential context.

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# Beyond Sharing

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Diploma Design project  
Autumn 2019

AHO