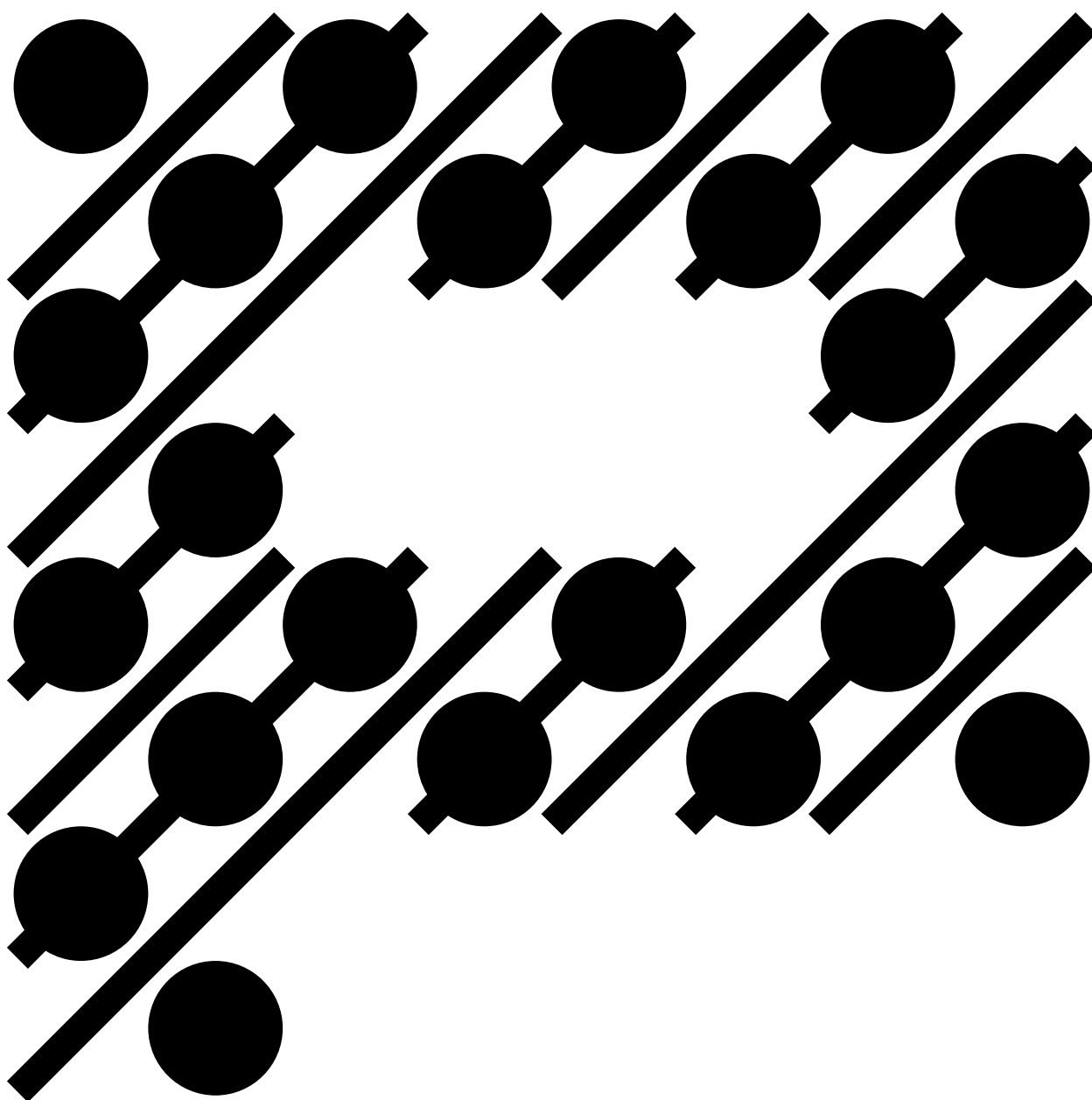# CYCLOPATH
Biking in Stockholm

R.19-02

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Preface

The report that you are about to read is the result of a creative and in some ways chaotic project, where students from different disciplines and universities worked with challenges that Stockholm, as a county and a city, is facing.

The city is our lab! - is the motto for Openlab. Students worked with challenges provided by Stockholm City and Stockholm Council in a wide range of areas. Within the framework of a 15 credits master-course, students worked in project-groups of 6-8 persons for one semester. To develop an understanding of the issue at hand, students engaged with the set challenges though the use of various research methods such interviews and observations, as well as literature studies. Students then developed a number of proposals for solutions, one of which has then been pursued to create a more concrete solution that is tested within real-world situations.

Whilst working together at Openlab, students from different disciplines met and interacted with each other – not always without complications.

However, in these meetings something new and exciting can emerge. Students carry with them experiences of interdisciplinary discussions and solutions - a very important competence for meeting challenges of the future.

The result of all discussions, analysis, and synthesis's is here documented in the report. Of course the report can only cover some parts of this dynamic and creative process. We who have worked as teachers in this course have our main function as coaches, providing tools during different phases of the project. The students work according to a process model based on *Design Thinking* and *SCRUM*. Creative ideas and systematic thinking merge together to a final project.

For us this is learning at its best – Freedom, Creativity, Social interaction, Engagement and FUN! But it is also based on real challenges in society – the idea is that Openlab's project should contribute to a better Stockholm for its inhabitants. **The city is our lab!**

Ivar Björkman,
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The Openlab Master's Course Report Series

13:01
Hitta rätt i vården
Ett värdigt åldrande

13:02
Vårdombud och Vårdagram
Rätt bil i rätt ruta
Hem & Vision

14:01
Levande stadsrum
LivsLabbet
Alla kan falla

14:02
Spira
Södersken
Zon 164

15:01 (English)
Increasing Patient Involvement in
the Healthcare System
Stockholm in Motion
Green Power of the Ecoflower

15:02 (English)
Grassroots Movements & Stockholms
Stad: Bridging the Gap
BikeMeSTHLM
The Step-Up! Planning Tool

16:01 (English)
Inside out
Elderly people & warmth
EduAction

16:02 (English)
Jobbtorg
Helping Hearts
Inspiring the Youth of Husby

17:01 (English)
The process wheel
Childish solutions
MindTrip-Making nursing homes more like
homes

17:02 (English)
Cykelbanan+
Finns I Sjön
Culturama
Stockholm Water Tap

18:01 (English)
The Dinner Dome
The Magic Button

18:02 (English)
Revival
SpiderWoman 2:0
Fireplace
Smart Square
DiContrast

Abstract in English

Cycling is considered to be a part of a modern urban lifestyle; a sustainable way of getting around that benefits the environment, one's health, general well-being, and productivity at work. Stockholm gradually becomes a bicycle-friendly city. In our project we are trying to examine ways of bicycle commuting stimulation and societal changes acceleration by using the design-thinking method. We are trying to develop practical solutions to make more working-age people commute by bicycle.

In our research, we realized that despite the growing trend cyclists fail to unite around the idea of bicycle commuting. This prevents them from acquiring a community-based tool of influence that can be effective for stimulating change both inside companies and on the city level. The collected data highlighted how social and psychological aspects can strongly impact people's daily decision-making about the way of commuting to their workplace. These findings made us focus on developing solutions that could help *to integrate cycling into working life, change its image and make it a social experience on multiple levels.*

The report presents several concepts with different requirements for the implementation, that are aiming to create a movement and make people unite around the idea of city cycling.

Sammanfattning på svenska

Cyklandet kan ses som en del av en modern livsstil; ett hållbart sätt att ta sig runt stan som gynnar miljön, människors hälsa, allmänt välbefinnande och produktivitet på jobbet. Stockholm blir gradvis en allt mer cykelvänlig stad. I vårt projekt försöker vi undersöka olika sätt att stimulera cykelpendling samt accelerera social beteendeförändring genom att använda design thinking-metod. Vi försöker utveckla praktiska lösningar för att få fler i arbetslivet att pendla med cykeln.

Vår forskning visade att trots den växande trenden cyklister i sig inte bildar en grupp. Detta förhindrar dem att utveckla ett sådant gemensamt verktyg för inflytande som kunde användas effektivt till att göra en skillnad både inom företag och på stadsnivå. Insamlat data lyfte fram hur sociala och psykologiska aspekter kan starkt påverka människors dagliga beslut om hur de pendlar till sin arbetsplats. Dessa resultat fick oss att fokusera på att utveckla lösningar som kan hjälpa till att integrera cyklandet i arbetslivet, ändra dess bild och göra det till en social upplevelse på flera nivåer.

Denna rapport presenterar ett antal koncept med olika krav för genomförandet, som syftar till att skapa en rörelse och få människor att förena sig kring idén om cyklandet i stan.

Content

CHAPTER 1
The first double diamond

Context

Challenge-giver: Cykelvänligast

Our challenge Biking in Stockholm was given by Cykelvänligast (the most bike-friendly) a sub-organization of the Environmental department of Stockholm City.

Cykelvänligast believes that the share of bike commute could increase if companies were more bicycle-friendly. Therefore the organization works with Stockholm's enterprises to encourage them to implement cycle-related improvements at their workplaces. The participating companies are asked to assess how bike-friendly their workplaces are by using Cykelvänligast 47 criteria. Thus, companies are assigned a ranking from 1 to 5 stars.
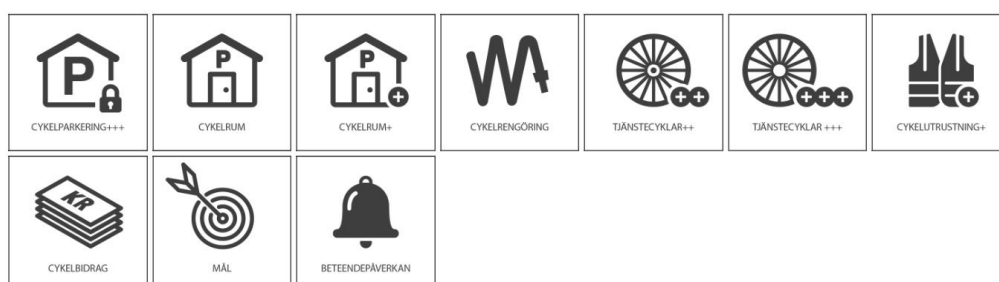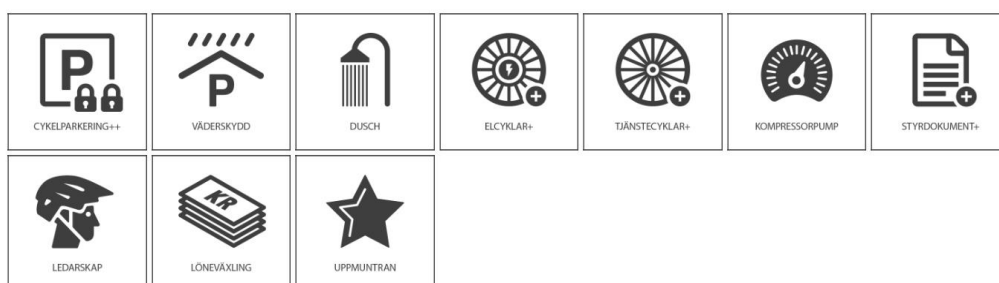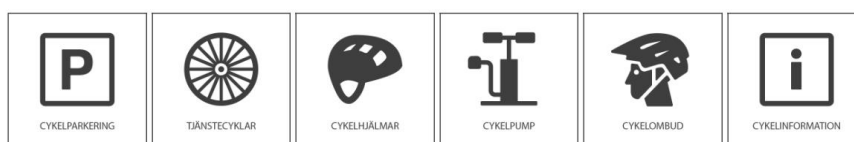

Image 1. List of criteria from Cykelvänligast, source: Cykelvänligast's website https://cykelvanligast.se/

Signing up for Cykelvänligast's programme also allows the companies to access coaching, be part of a network of like-minded companies, and gain exposure through Cykelvänligast's channels. In addition, Cykelvänligast rewards the Newcomer of the Year and the Bike Innovation of the Year, giving visibility to companies' efforts.

The organization aims at recruiting 100 companies and increase their share of cyclists by 5%.

Similar initiatives were implemented in other parts of Sweden: Uppsala Kommun, Region Västra Götaland and Halland, etc[1].

The Challenge

The challenge given by Cykelvänligast consists of two issues:

How to get companies to prioritize cycling and create bicycle friendly environment at their workplaces

How to encourage more employees to commute by bike

Biking in Stockholm

Today 15%[2] of Stockholmers commute by bike. Together with other cities located in the North-West area (Nordvästområde) of the Stockholm Region, like Solna or Sunbyberg, Stockholm has the highest number of daily commutes done by bike. This can be explained by the concentration of workplaces within Stockholm City and the North-West area.

Overall, the city has had a constant increase of bicycle commute since 1991, a phenomenon that has intensified in the recent period. However, strong variations can be noted over the year. The drop in numbers in July can be explained by the fact that most Stockholmers are on vacation during that period. Also cycling in Stockholm highly depends on the seasonality, therefore the winter season accounts for a low number of cyclists.[2]
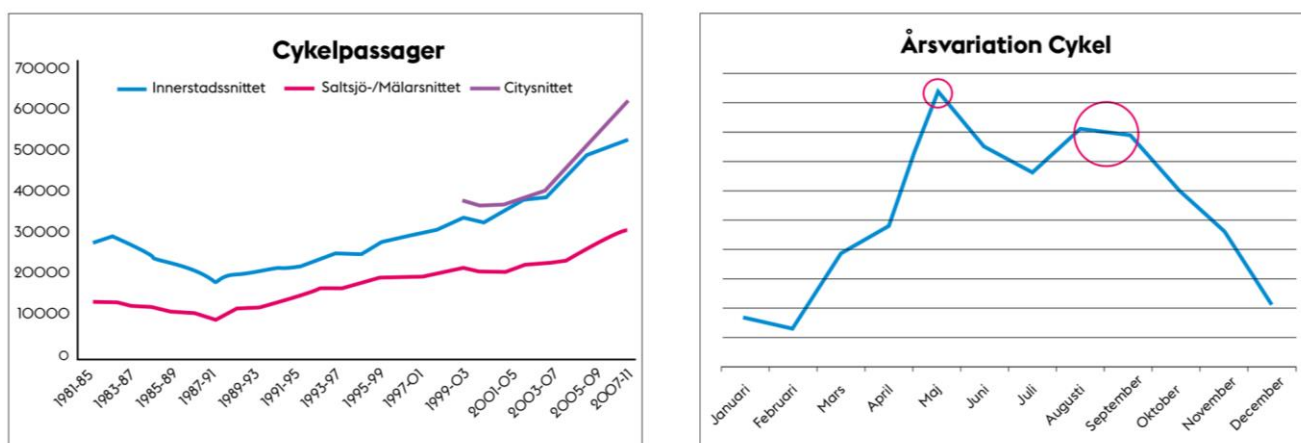
Image 2. Number of bike commutes measured over the year, Trafikkontoret.

Source: Stockholms Cykelplan

In addition, there are also strong variations in terms of WHO bikes in Stockholm today. Demographic study shows discrepancies between gender, age groups, and social groups. Even though women, young people (16-24 years) and low-income groups seem to be able to reach their workplaces relatively faster, they are also the groups that cycle less today.

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[1] Stockholm Region, *Potential for arbetspendling med cykel i Stockholms Region*, 2019.
[2] Stockholms Stad, Cykelplan, en del av framkomlighetsstrategin, 2015.

The study Cyklistvelometern[4] published in 2018 by Cykelfrämjandet shows that Stockholm is not perceived as a bicycle friendly city by its cyclists. Stockholm has a rather low score in each category compared to other cities in Sweden. For instance, the city received one of the lowest scores compared to other in statements "the lanes are large enough" and in "cycling is safe for young people and children".On the contrary, Stockholm is ranked higher than most of the other cities in statements "maintenance of the road during the winter" and "good access to lanes".

To conclude, there seems to be strong potential for more commuters to start biking. The strongest argument is the distance, with 70% of employees living and working in the Stockholm Region having less than a 30 minutes bicycle commute to their workplace. For Stockholm City this number increases to 85%.

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Our project, Biking in Stockholm developed during Openlab's master course aims to investigate the potentials.

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[4] Cykelfrämjändet, Cykelvelometern, 2018.

EMPATHIZING PHASE

Part I: Data collection

We started the "empathize" phase by defining the main target groups for interviewing and creating questionnaires both for individual interviews and online surveys. We classified the target groups under three main headings: companies, commuters and experts.

Firstly, we approached the companies as they form the basis of our challenge and are, according to Cykelvänligast, the ones with the most power of action. We divided them into participants who are part of the Cykelvänligast program, and non-participants. Essentially for the participants, we wanted to know what motivated them to apply to the program. Correspondingly for the non-participants, we wanted to understand the current situation with their workplaces and what could motivate them to become more bicycle-friendly. Data was collected both by carrying out surveys online and interviews in person.

Secondly, we approached some already established experts in the concerned field of biking, predominantly Viktor Nordahl Bäcklund, who is our challenge-giver and Tomas Grönqvist from Mioo Cycling AB.

We interviewed Viktor Nordahl Bäcklund to find out what stage of the research process we are in, and what kind of data is already available to us. Thus, we got contacts of companies for interviewing.

Meanwhile, from Tomas Grönqvist we wanted to get more insights on the Stockholm context. Before launching his company, Tomas surveyed employees of the business area of Kista. We learned that the main barriers for non-cyclists at the time of the study (2009) were: a) employees did not know the bike routes to work (google maps was not as widely used); b) the majority of them didn't know where and how to buy a bike; c) those who had bikes had them locked down in the basement because they were in need ofrepairs. Tomas Grönqvist also pointed at the need to address the issue of diversity and create accessible solutions. He referred to the expression "MILY" or "Men in a Lycra" which shows that urban cyclists are mainly athletic middle-aged men, with the means to "gear up".

Our third target was everyday commuters, cyclists and non-cyclists. We wanted to understand their experiences of cycling in Stockholm and what problems they met during the commute and at the workplace. On the other hand, we wanted to understand why non-cyclists didn't choose to cycle to work.

Part II: Data analysis

Companies

Based on the online surveys both with those companies that participate in the Cykelvänligast program and those not participating, we concluded that most of them are "sustainability oriented" whether in theory or in practice. Some of them have such positions as sustainability manager or sustainability coordinator.

In valuable aspects of being bicycle friendly almost all of them(90%) name sustainability as the main goal. But the following questions helped us to find out that behind this word stand slightly different motives. Some companies specify that for them "being environmentally friendly and actually make an impact" is important, which indicates reasons of ethical nature. Others want to get the "feeling of being environmentally friendly", their reasons are more psychological. Many speak of the "reputation of being environmentally friendly", their reasons are practical.
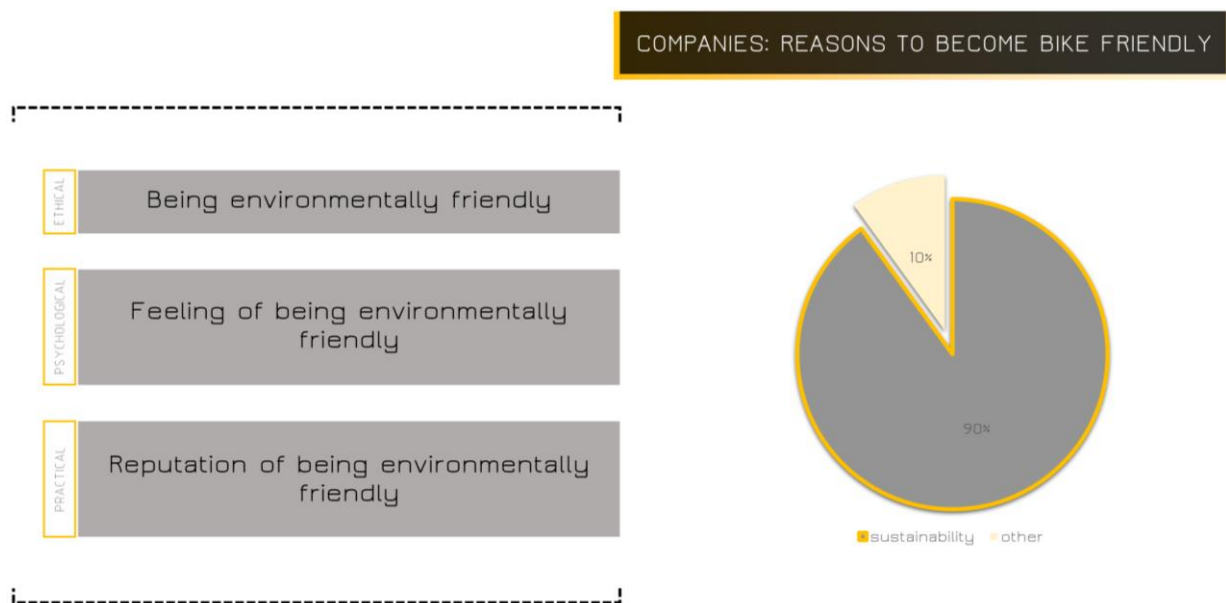

Image 3.

The other interesting detail appeared in answers to a question about the reasons for becoming more bike friendly. Sixty percent of participants and non-participants answered that it complements (would complement) their healthcare policy, 50% considered it being an investment as better health and wellbeing equals more motivated staff. Less than 30% referred to "improving working conditions for cyclists" as a reason. Major reasons are practical yet at the same time answers show that employers understand the benefits associated with commute by bike.
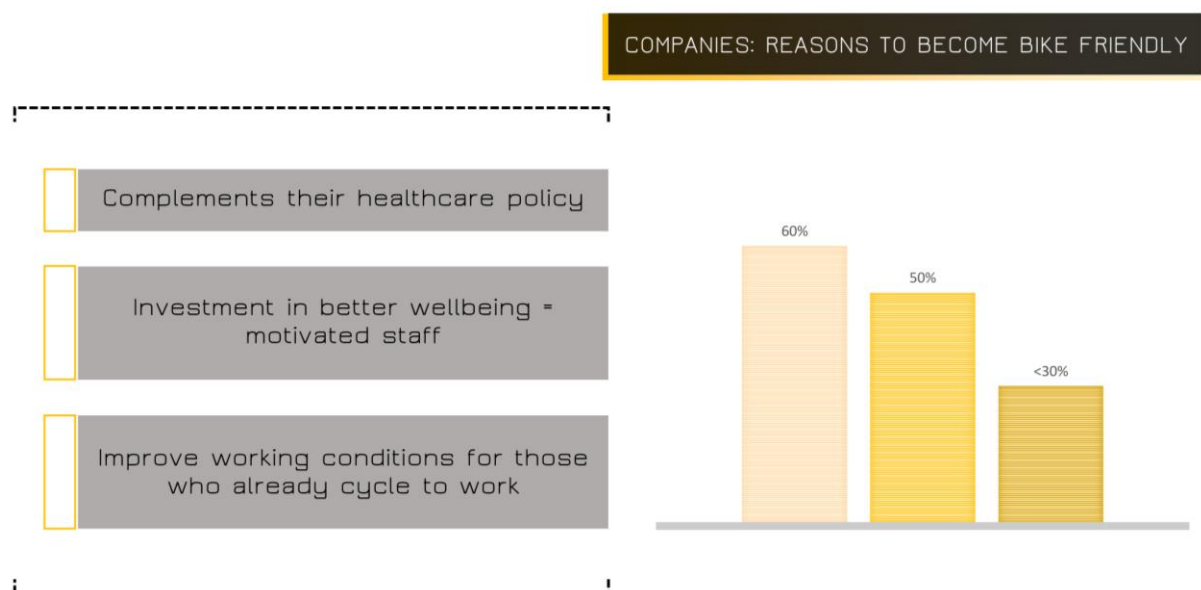

Image 4.

 Other observations:

1. Companies rate themselves quite high in terms of bike friendliness, predominantly it's 3-5 points on a 1-5 scale.Yet when it comes to bicycle related facilities and perks they actually

provide their employees with - some have none, less than 58% have basic kit (parking+shower), less than 30% have something more.

2. Companies' representatives believe major reasons for their employees not to cycle are of external origin: distance, bad weather, poor infrastructure.

3. Both surveys and interviews in person left us with the impression that employers believe they've already done everything that depends on them.
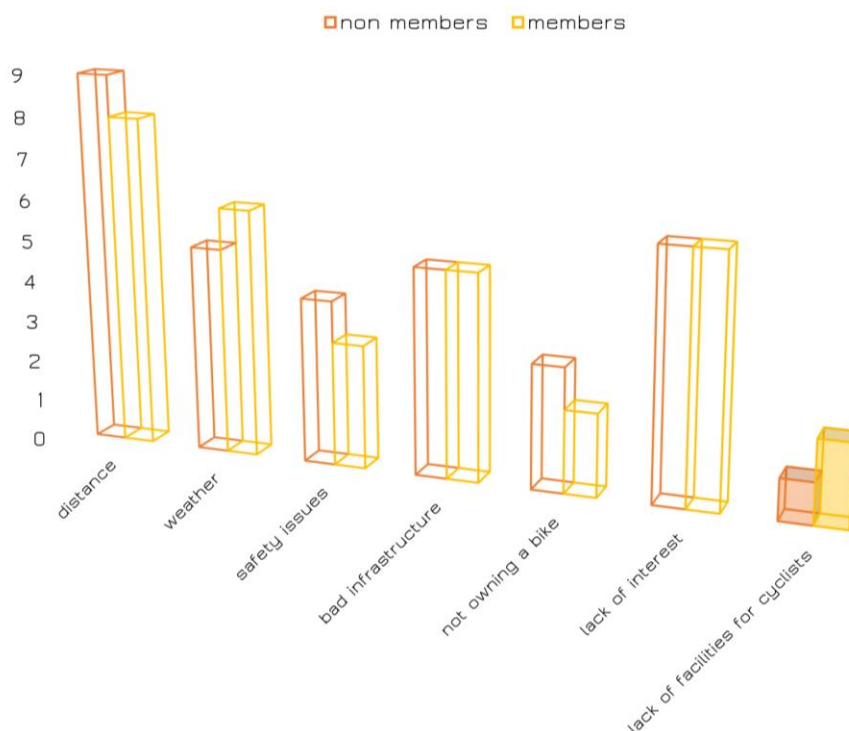

Image 5. Factors preventing employees from cycling to work according to employers

Commuters (interviews)

We started with interviewing random commuters on the street (cyclists and non-cyclists). The table below positive aspects and disadvantages of bicycle commuting pointed out by interviewees are organized in 6 categories: infrastructure related, facilities/equipment related, organizational/administrational, social, personal and others(misperceptions? prejudices?). Last column contains our first insights after performed interviews.

	POSITIVE ASPECTS	DISADVANTAGES	FIRST INSIGHTS
INFRASTRUCTURE RELATED	In Stockholm bike lanes are everywhere Infrastructure constantly improves	Poor infrastructure, bicycle paths abruptly end in the middle of the road Traffic flows dangerously cross No signs, hard to navigate Comparing to other Swedish cities(Göteborg, Umeå) Stockholm is believed to have worse bicycle infrastructure	Infrastructural problems are being mentioned predominantly by cyclists and don't seem to be an obstacle for them, but a thing to improve. If non-cyclists mention infrastructure, it's not more detailed than "infrastructure is bad", which makes us think they are biased.
FACILITIES/ EQUIPMENT RELATED	People mention e-bikes being comfortable but demanding when it comes to safe storage Company e-bikes are being mentioned as a good alternative	My office is bike friendly, we have showers but I try to cycle slowly not to sweat Don't use showers, too time consuming I use shower every time I cycle, but it feels bad, we have nowhere to put wet clothes and towels, I carry everything through the office	"Bike friendliness" makes a difference but what is perceived as such doesn't always work in practice for some reason. Provided facilities aren't being used, don't feel safe or private

ORGANIZATIONAL/ ADMINISTRATIVE	Cycling is more reliable than public transport with its constant glitches	Too far(unestablished public transport-bicycle links) Too dirty(road maintenance) Too dangerous(no traffic rules) Bikes cause chaos	People who live too far can't switch to bike at some point on their way as public transport-bicycle links aren't established People who live too far are unable to travel from the outskirts with bikes (no good special wagons on public transport) Organizational disadvantages were mentioned by non-cyclists, we wonder how much of them are based on prejudices
SOCIAL	"I feel like I'm a real Stockholmer while cycling" "I'm in Stockholm cycling community, follow FB group" I compete with my wife, while cycling together	Cyclists "not caring of rules" cause conflicts Car drivers "not following cyclists related rules" cause dangerous situations "None of my friends cycles"	Converting cycling into social experience seem to be an exciting idea Cycling being a part of one's identity can be key for integrating it in one's life
PERSONAL	Biking is fun Good for the health Reliable way of commuting Good to feel you're in control Safe way to go home at night Good to feel you're doing something for ecology	Used to performing other activities while commuting (reading, talking to friends); impossible while cycling Sweaty, not for work Too much effort Carrying capacity is too low Kids need to be safely transported	We wonder if it's possible to find a way to highlight those mentioned personal benefits and make them valuable for many and for each Is there something that can be done to make cycling more exciting, easier, more safe and practical? Can it be just a perception that should be changed?
OTHER MISPERCEPTIONS? PREJUDICES?		Too far(perception) Too dangerous(car driver's perspective) Bad weather Too hard(sloping landscape) Too slow	Many of those mentioning long distance as an obstacle actually live in 30 minutes cycling distance from work. Many of those pointing out that cycling is dangerous, too hard, slow or cold have never tried cycling to work, but observed it from a car seat.

Table 1. Interviews based positive aspects and disadvantages of bicycle commuting and first insights deriving from it

Based on our first interviews we created mister Average's "journey". We focused on the morning commute as according to the interviewees, most of the problems and barriers preventing people from cycling have to do with their morning routines. Mister Average has a child and often cycles to work. We compared his reflections with the ones we got from another mister Average, who drives to work.

With red we marked zone where problems and barriers preventing from cycling sit, according to both Mr. Average cyclist(C) and Mr. Average non-cyclist(N):
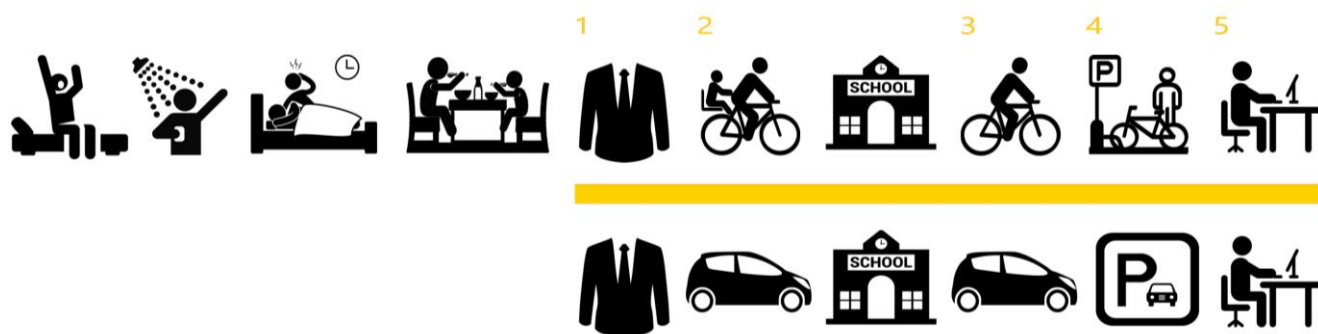

Image 6. Mister Average's "journey"

1. Clothes choice: "Cycling or normal clothes? What if weather changes? To change at work or not?" (C)
2. Way to school with a child which requires extra safety (N)
3. Hectic way to work (N)
4. Struggle with unsafe and busy parking (C)
5. Time consuming (N) shower at work which doesn't feel private enough (C), problems with personal belongings storage (C), need to have some rest after the ride (C), need to be on time (N).

We were amazed to uncover some interesting contradictions:

- Cyclists say that clothes choice together with keeping them clean is a problem they face, even though their office has changing rooms and other needed facilities.

- Cyclists say that they have showers and lockers at work but they try to cycle slowly not to use them.

- Provided facilities don't seem to work as they have to: they don't feel safe or private.

- Car drivers believe they live too far to cycle even though we figured out that wasn't the case(30 minutes cycling distance).

- Car drivers are convinced that their offices are very bicycle friendly.

- ·Car drivers don't want their clothes to get dirty but don't consider taking shower at work as that's too time consuming.

It made us wonder why bicycle facilities aren't being used and using them is considered so time-consuming.

On the other hand, we spotted some perception differences between cyclists and non-cyclists which made us think of non-cyclists being biased lacking actual experience.

We needed more information and decided to approach people within one particular company which has all facilities that are defined by Cykelvänligast as criterion of bicycle friendliness. We wanted to compare answers and catch the differences in perception of the same conditions.

We were amazed to realize that:

- Despite having everything needed, relatively few people cycled to work (which made us think if criterion of bicycle friendliness were defined correctly, or maybe companies' measures in an attempt to be considered as more bike friendly were just nominal)

- Those who cycled complained about facilities. Complaints were the same(too few shower cabins, nowhere near to put wet belongings, unsafe parking) but everyone believed it was their personal problem "we have everything, it just doesn't work for me"(it made us wonder why they don't share their experiences).

- People who didn't cycle on the contrary believed their workplace was very bike friendly, all the facilities were provided (which made us think they were planned by a non-cyclist).

DEFINING

Part I: Creating personas

Meta-user journey

With additional data we created a meta-user journey. Even though interviewees tend to point at the morning commute as the most problematic part, there are many more aspects that influence the decision making process of a commuter during the day.
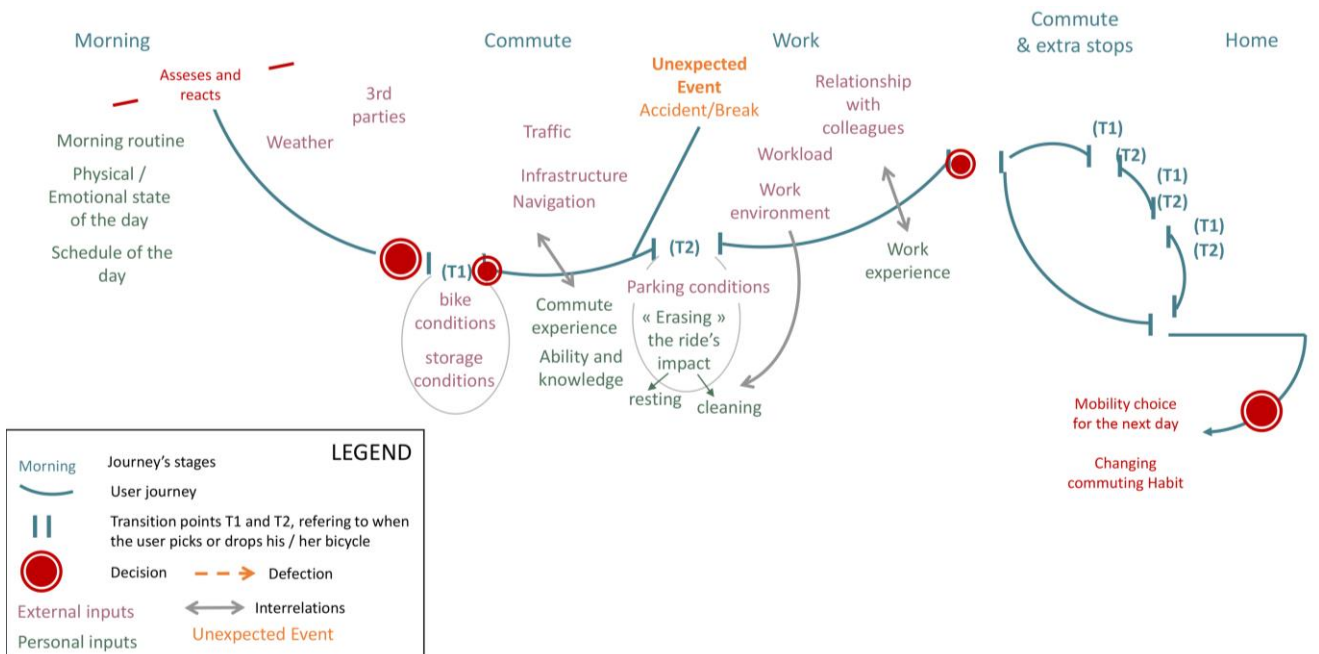

Image 7. Meta-user journey: what influences the decision to commute by bike?

- We identified several points of friction that influenced the user's mobility choice and his / her experience of the commute: the morning before the commute, the commute itself to and from work, the workday, and evening. In addition, there are some "transition points" that play an important role: picking up and parking the bike. Especially when arriving to work, the user needs to "erase" the trace of the commute so it doesn't have any impact on his / her time as an employee.

- The user's decision is based on his / her assessment of external and internal inputs, from his perception of his/her personals conditions, weather, interactions with third parties (like children, or friends), his/her perception of the day's schedule, etc.

- Even though there is one major decision made in the morning, the user is constantly re-assessing, and there is always a potential for deviation (the user leaves his / her bike and continues with another mode of transportation).

- The overall experience (how was his/her day and the commute) will influence the mobility choice for the next day, and decision to make it a commuting habit.

- The user's journey is more complex than a linear Home > work > home journey, which the mobility solution should accommodate to.

Personas

Our three personas embody findings of the empathy phase. Together they represent three types of commuter with different characteristics and needs.

INGRID, 45

Ingrid has always been a cyclist. She has a nice bike that she uses every day to commute, first with her child on the backseat and then from the kindergarten to work.

She **needs** properly organized higher quality facilities at work to park, shower and store her personal items. She **needs** time to drink coffee and relax after her ride. She **needs** to socialize and share her experience with other cyclists at work.

Insights

- That smaller companies didn't have enough space for extra amenities.
- That it's not enough just to have bicycle-related facilities but to design and locate them properly.
- That bicycle related facilities are not user-generated.
- That feedback are not requested from employees.
- That there are not enough cyclists at work to stimulate changes.
- That measures companies undertake are just nominal.


LEIF, 30

Leif bikes from time to time but doesn't have the motivation as his environment doesn't particularly promote biking.

Leif **needs** flexibility as he's not always sure of his plans. He **needs** easy mobility solutions that don't conflict with his current habits and his friends' habits. He's encouraged by the group movement.

Insights

- That mobility choices depend on cultural norms and deviating from it could be embarrassing.
- That commuting should also be a social activity.
- That biking needs to be more mainstream to create habit change (be the norm).
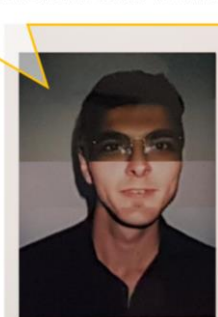
GUNNAR, 40

Gunnar commutes by car, transports his teenage kids to school. His major concern is safety, he presumes cycling is slow, uncomfortable and unsafe. Believes his workplace is very bicycle-friendly.

He **needs** his commute to be safe and quick. He **needs** to know his kids are protected on the road. He **needs** his clothes to be neat and clean. He **needs** to be in control. He wants cyclists to know the rules.

Insights

- That there is a discrepancy in the perception of barriers between cyclists and non-cyclists: climate, safety, need for facilities.
- That some biases can be dispelled by trying to cycle to work (making the effort to cycle).
- That distance appears as one of the barriers even though according to Stockholm Region 70% of Stockholmers live in less than 30 minutes bike ride from their workplace.

Part II: Re-defining challenge and point of view

After gaining insights from each of the three personas, we concluded that it would be game changing if:

- Bicycle-related facilities were organized properly

- Companies could cooperate to create shared cycling facilities

- There was better communication between employees and employers

- The everyday biker became a visible figure that commuters could relate to

- Cycling was perceived as fun and safe

- Scared non-cyclists had the opportunity to try cycling in a safe environment

Based on this we started re-defining our challenge.

It seems like problems with physical environment just aren't properly communicated to responsible people. We wonder if this problem can be solved by creating strong and growing community of bicycle commuters within each company and in Stockholm.

In return it could motivate companies to prioritize cycling, serve as an advertisement for a certain lifestyle and convert cycling into a social experience.

We concluded that it's not just about encouraging companies to prioritize cycling. It's about integrating cycling into employees' working life. Our redefined task is following:

How do we integrate cycling into working life, change its image, and make it a social experience on multiple levels?

IDEATING AND PROTOTYPING

Based on our previous findings, we started with the ideation phase and were able to cluster ideas under the following categories :

- Challenges and competition
- Commute Funnifying
- Physical Environment
- Bike community
- Governance

To identify the ideas with the most potential and the best one to prototype, we used NOW/HOW/WOW matrix.

Part II: Ideas

Cyclo Plaque: Info board: communication, integrating, social experience.

The idea is to unite people around the bicycle commuting at workplaces. The board will serve as a center of communication, creating a spirit of unity. The following features could be on the board:

- "Mark your route" option, to make people share experiences, suggest beautiful places around the city
- How did you commute today?
- Cyclist of the month (based on previous)
- Beautiful picture from the commute route of a winner to inspire others and show that cycling to work is an independent experience.
- % of bike commutes monthly (how "green" we were this month)
- Feedback(leave comments about how office environment supports your way of commuting)
- Nice places in other parts of Stockholm
- Events
- Ambassador contacts

Image 8. Cycloplaque

Cyclobath - HUB: social experience, providing shared facilities for smaller companies.

In this concept we were trying to give bicycle commuters a place where they could park, change, take shower if needed, and more importantly, gather around a table to have a pause after the ride, drink coffee and share experiences.

This small hub, (or pop-up pitstop) can fit into 3 car parking places, it's elevated and accommodates 30 bicycles beneath.

It can serve as a club platform, stimulating people to unite around the idea of bike commuting. Being a potential starting point for a further development. Strong community would push both

employers and city and they would invest into development of shared bike facilities(extra modules can be added to a hub to convert it into a bigger formation: bicycle station).

The idea with hub and its further development is built around the theory that there are many small companies that simply don't have enough space for extra amenities and those must be organized elsewhere.

Image 9. Cyclobath

Cyclopath - signs/Map: navigation

The idea is developed on the initial perception altering concept. Many pointed long distance as the main barrier for them when it comes to cycling, while statistics and further questions showed that distance wasn't really that big. That made us think that it could be effective to show people minutes instead of kilometers on the signs, to show that it doesn't take much to get to the workplace by bike, often less then by car or public transport. Another aspect we are trying to cover here is bad navigation in Stockholm and showing potential interesting routes to inspire people to cycle more.
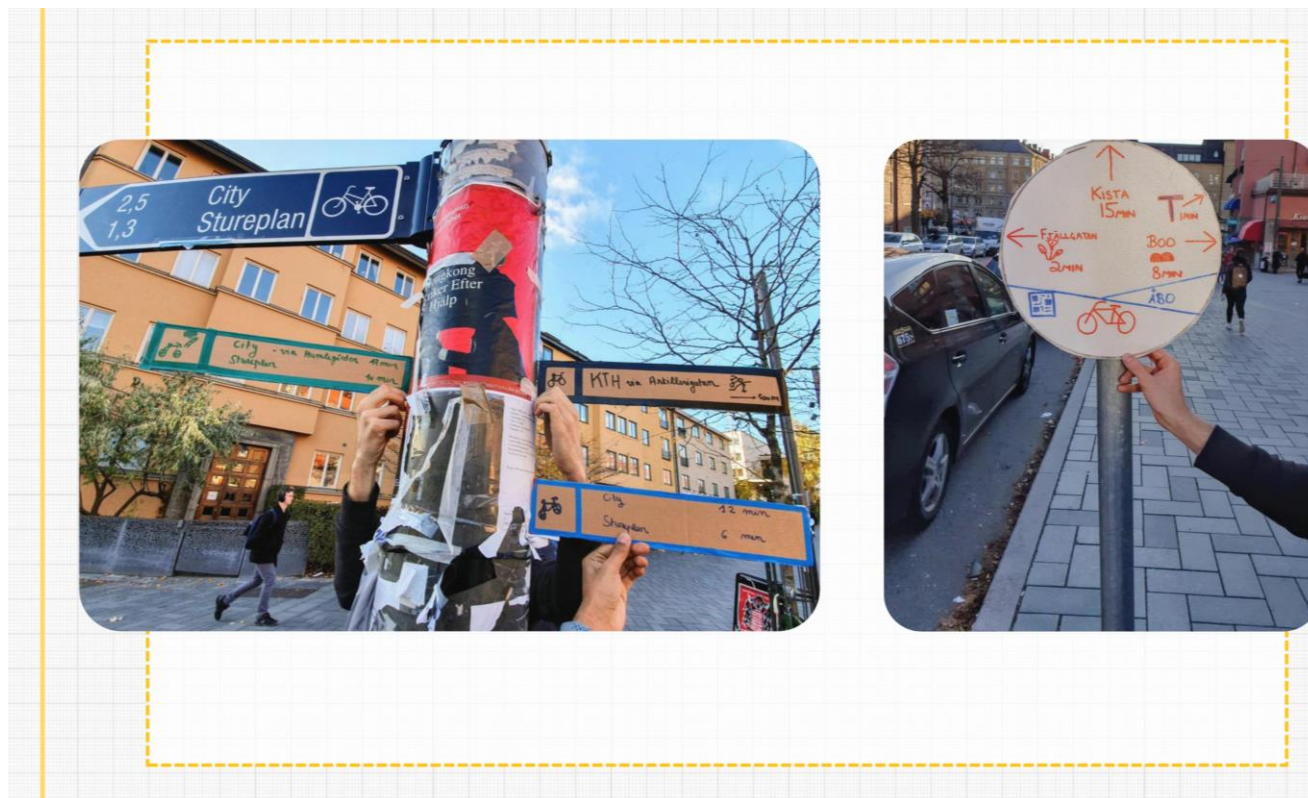

Image 10. Cyclopath

CycloDash - game: social

The idea was inspired by the step counter fitness challenges that made people in Stockholm companies compete with each other while taking promenades and improving health. Employees admit that it actually made them start walking. We are trying to use the same mechanisms of competitiveness to promote cycling among employees.

CycloDash is a city map based augmented reality game. The idea is to make people form teams at work to "conquer the city" together, collecting morning and evening commutes through certain routes and finding architectural, artistic or natural "treasures" around the city.

On the map "conquered" destinations will be marked with the color and logo of a company, if its employees cycle by/across certain objects most frequently. Extra points will be gained for commuting in bad weather and taking on special challenges. The game will be designed in a way that draws players attention to the surrounding, inspiring further exploration and showing that commuting by bike is beautiful.

It will also benefit the companies' reputation of being bike-oriented and thus sustainable.

We tested this idea through the participation in the Venture Cup competition and it got the Flemingsberg Science Award:

https://venturecup.ideahunt.io/ideas/309cf942-9f46-46cf-ae9e-5a6fb5d38bbf

Image 11. CycloDash

Cycloday - event: social experience, communication.

The idea is to have a one-day event focused on biking for a whole company. It aims to encourage employees to interact with each other and to offer new insights into cycling. The day will include team activities related to cycling, like a competition and a biking tour in the city. In addition, the company will present its bike-friendly strategy and provide opportunities to try out different cycling-products.

We hope that this event could inspire people to cycle but also to create team spirit within the company. Cycloday could even be a kick-start event for companies that want to become more cycle-friendly.

Image 12. Cycloday

Cyclorack - social/integrating experience at work through competition, expanding on the Cykelvänligast platform (and using designated bike parking as a way to measure participation)

The Cykelvänligast platform is already a competition, but it could present more potential if utilized differently. This solution proposes a new dimension to the competition, where the member-organizations compete in having the most active community of bike-commuters. This approach should be more involving for organizations that does not start out with the best facilities. Hence, a one star organization could still win over a five star organization. Additionally, there are profiles for each organization, which displays the progress and score-board in the competition. This would give the employee themselves a feeling of impact, and promote a sense of team spirit in the social environment at the workplace. The scoreboard is updated daily, or through a live-feed, bringing more action into the competition.

The challenge with this solution is how to measure participation. For this we came up with an idea that also addresses the problem of insufficient places to park bikes safely and conveniently. The rack uses an app connected to the organization's profile on the expanded Cykelvänligast platform, where the employees has the benefit of reserved parking spots with automatic locks in a designated area close to their workplace. This app also registers their participation and relays the data to the web-platform.
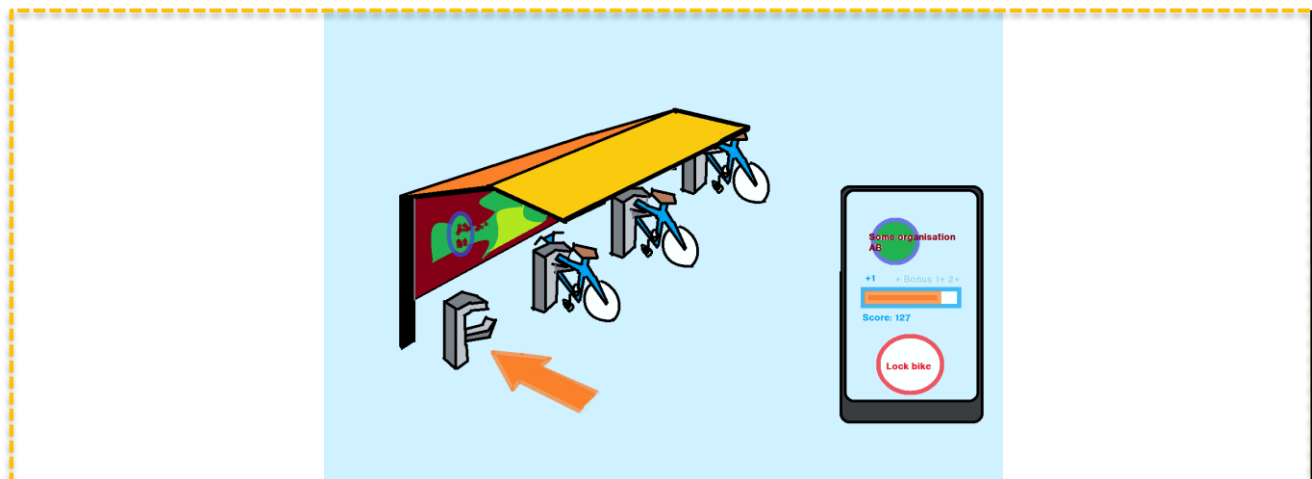
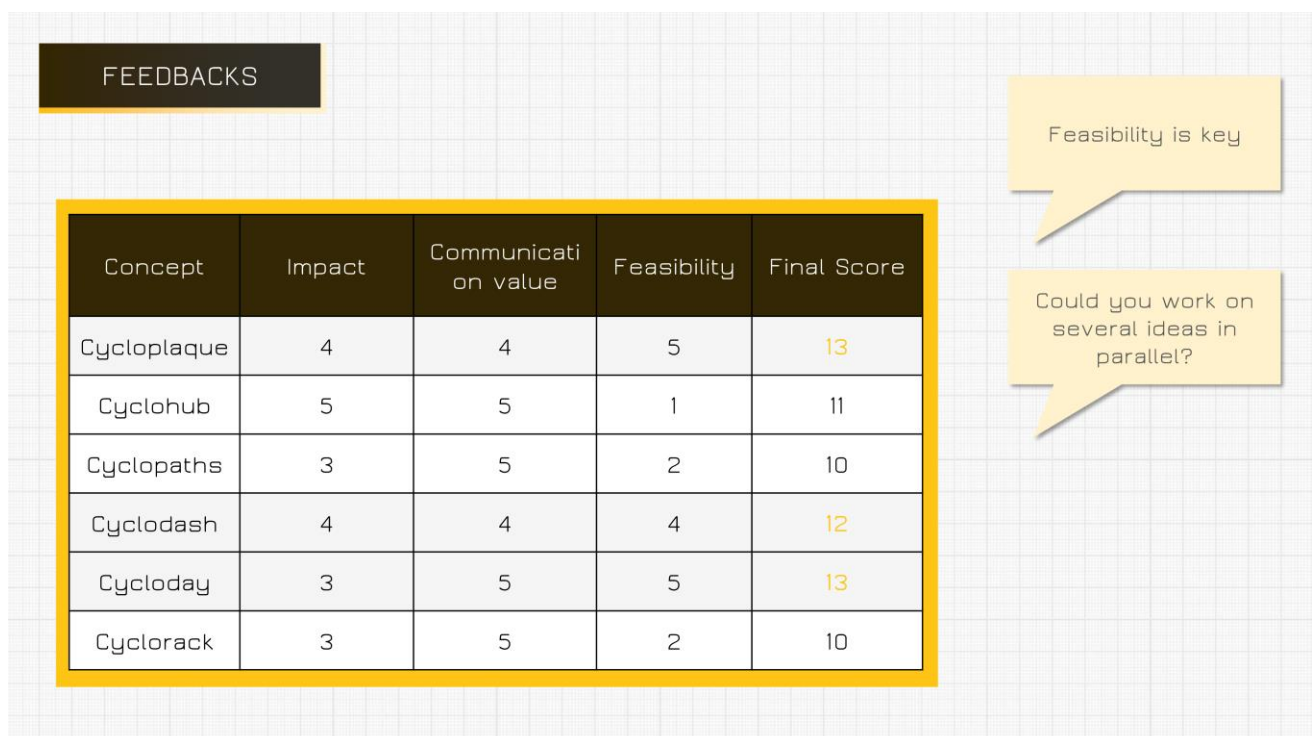*Image 13. Cykelvänligast platform*

Image 14. Cyclorack

CHAPTER 2

ITERATION

During the second part of the course we focused on developing one solution: The Commuter Board 2.0. We will present here how and why we selected this idea, and the methodology we followed to develop the final solution based on the original concept.

FEEDBACK

With our mid-term presentation we were able to engage dialogue with the audience and our challenge giver. They provided us with valuable feedback that guided us in the next steps of our work.

- Audience members pointed out that if the employee has a meeting or does not operate in their own business, information about and ability to access the facilities of other organizations would be convenient.

- There was also a discussion about how to influence the city of Stockholm as a whole to invest in cycling infrastructure.

- Finally it was noted that perhaps company policies could conflict with cycling promotion, especially with regard to safety and inclusion.

Concept	Impact	Communication value	Feasibility	Final Score
Cycloplaque	4	4	5	13
Cyclohub	5	5	1	11
Cyclopaths	3	5	2	10
Cyclodash	4	4	4	12
Cycloday	3	5	5	13
Cyclorack	3	5	2	10

Feasibility is key

Could you work on several ideas in parallel?

Image 15: Feedbacks from Challenge Giver

According to our challenge giver, some of our concepts were similar to what they had ideated about: Cycloday-event and Cycloplaque.

Feasibility was the main factor for their ranking. They considered the Cyclopaths-signs, Cyclohub and the Cyclorack major infrastructural challenges that would not be easily implemented as infrastructure is not the competence of their department. The possibility of combining the concepts was brought up. Overall, our challenge giver was interested in all the concepts and considered taking them to the next political level.

CONCEPT EVALUATION

In order to select one of our ideas, and ensure continuity with the previous findings we broke down our point of view into several criteria, based on what is crucial for our personas(Ingrid, Leif and Gunnar) and for our challenge giver(Cykelvänligast).
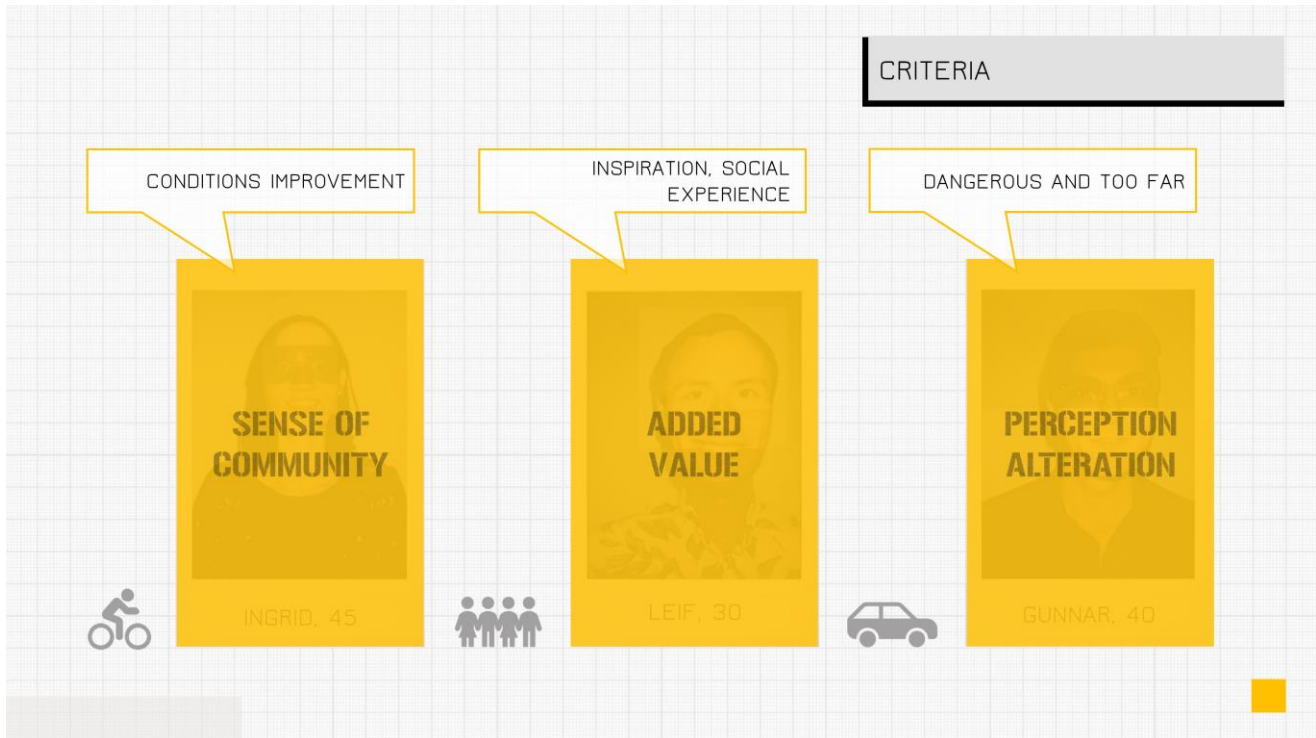

Image 16. Personas and evaluation criteria

Create a sense of community:

o Does the idea create a sense of community within companies, giving employees the opportunity to inspire each other and exchange knowledge, as well as to influence the company's facilities and policies?

o Does it create a sense of community between cyclists and new means of influence at the scale of Stockholm?

Generate added-value for the commuters.

o Does the idea provide an added value to the commute, and generate a positive experience for the cyclist? Inspiration? Motivation?

Change the image of cycling:

o Does the idea promote a different image of cycling?

o Does the idea (concretely) make it easier and more accessible to commute by bike?

Feasibility:

o How easy will it be for the challenge-giver to implement? Does it match their competencies?

o Does it provide an answer to his needs (original challenge and target groups)?

o Ability to engage actors and users?

Concept	Change the image of cycling		Create sense of community		Added value	Feasibility (challenge-giver)		Total
	Image promotion (outreach)	Accessible and easy commuting	Community (Company)	Community (Stockholm)	Health/self develop., emphasis, landscape, city explor., competition	Implementation	Impact	
Cycloplaque	4	4	5	4	5	5	4	31
Cyclohub	5	5	4	5	3	1	5	28
Cyclopaths	3	5	2	2	5	2	3	22
Cyclodash	3	4	5	4	5	4	4	29
Cycloday	4	4	5	4	5	5	3	30
Cyclorack	2	3	3	3	4	2	3	20

Image17. Evaluation

Similarly to Cykelvänligast's evaluation, Cycloplaque, Cycloday, and Cyclodash got the highest scores. They combine high points in image promotion, community, and implementation. However solutions with the highest scores in "accessible and easy commuting" didn't go through because they involved infrastructural changes, and therefore failed in terms of implementation. This made us wonder if we could reconsider the concepts behind these ideas, in an attempt to ideate them differently and integrate them to other solutions.

PART I: Ideation

The idea behind selecting one concept was to be able to incorporate a variety of other concepts into it. Consequently, we went back to the drawing board and ideated with three main concepts, namely CycloDash, CycloPlaque and CycloDay.
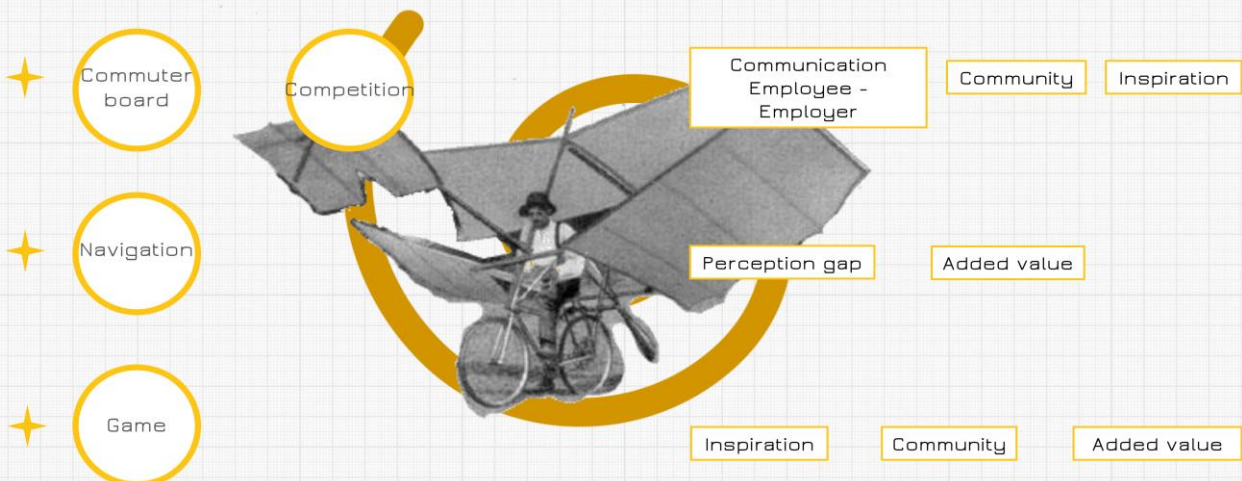

Image 18. Ideation

Our working process was similar to the first ideating phase. The difference was that we focused more on determining what features would be most valuable to keep and the ease of implementation.

We started the ideation with the **Cycloplaque** concept, that scored highest in the evaluation. It also had the highest potential to include other concept's features. We focused on the simplicity of having just one board that was visible to everyone and created a sense of community among cyclists. We came up with different ideas including a Web page layout, feedback kiosk design, etc. Elements of the sign concept and competition were added and tested together. We also thought that as a part of this solution, there could be an online-based map, where people could interact. Moreover, we came up with some new features which hadn't been touched upon before, and tried to incorporate them and perform assessments, for example a simple Push Button app for giving feedback about feelings associated with the commute.

Further we ideated about the **Cyclopath** concept. The original idea didn't score high in the evaluation, but the idea behind it can easily be included as part of another solution. We started to think that we could add informative symbols to an online-based map of Stockholm. We also got an idea for planning a pop-up event with a specialized cycling route around Stockholm. The event would occur during a limited period, and there would be several pop-up signs placed in different parts of the city. We thought this kind of event could present cycling as an exciting activity and inspire people to explore Stockholm by bikes.

From our solutions, **CycloDash** was the most potential concept to succeed in making cycling a fun and exciting activity for employees. Working with this concept, we decided to keep the gamification approach in mind, developing features of our final last solution. Moreover, we liked the idea of making people form teams at work and challenge each other to commute by bike more.

In conclusion, the ideation phase was worked upon to address aspects such as employee communication, creation of a sense of community, perception gap while at the same time coming up with ideas which had a merger of core ideals from each of the ideas defined before.

PART II: PROTOTYPING. COMMUTER BOARD

The Commuter Board is **a digital and interactive platform that provides cycling-related information, engage companies and employees by making them part of a cycling competition, and allows cyclists to connect with each other** and discuss cycling policies within their workplaces. The idea is to encourage people to cycle and improve conditions for cycling in Stockholm by building an active cyclist community. We believe that if succeeded, we can make biking in Stockholm more enjoyable and increase the number of commuters cycling every day.

To help our challenge giver convince companies to become part of Cykelvänligast, we have also created a physical version of the Commuter Board. It is a simple solution that companies can have in their offices and use for supporting their employees to commute by bike. The highlight of this improved commuter board is that it can be integrated with mobile devices thereby providing both general and user-specific information. The solution also provides potential for generating revenue from advertisements.

PROTOTYPE

The main idea of a commuter board is built around the planned intervention into the office environment of Stockholm companies. The board can exist either in a physical form(a paper version can be sent to the companies representatives, being an advertisement and a starting point) or a digital one(interactive screen) The interaction with the board will be possible either

directly(in the case of a touch screen)or through the app installed on the phone, which in its turn will contain personalized information and will serve as a mobile commuter board add-on.
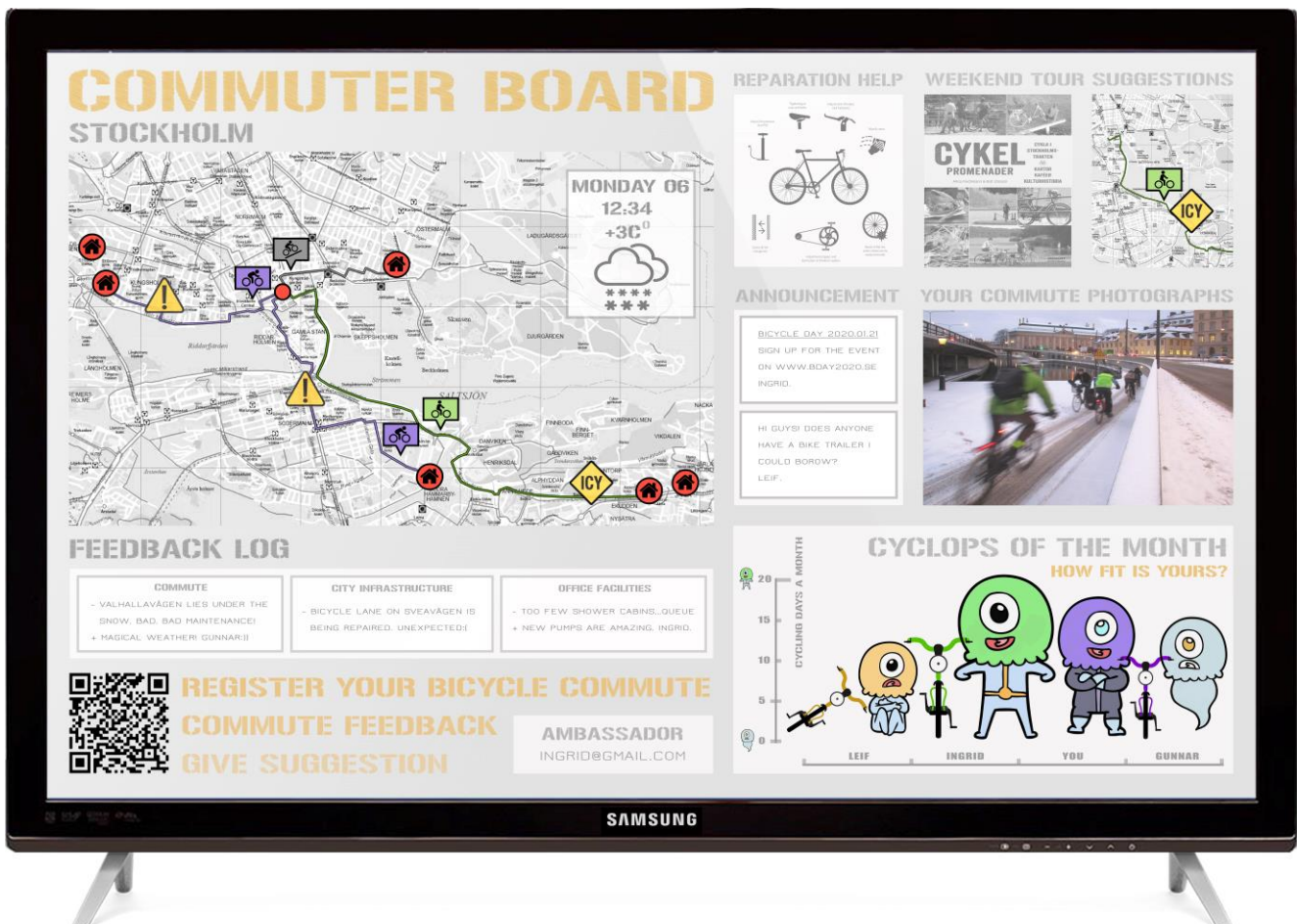

Image 19. Office commuter board

- The map will keep commuters updated about the traffic, road and weather conditions, bicycle facilities around the city and other practical information for cyclists, will also help plan the route.

- Feedback function and feedback log will help share experiences regarding the commute, city infrastructure and office facilities.

- "Register your commute" function can be available through granting access to the mobile phone tracker data in the app or directly, scanning the QR code for the quick registration and feedback.

- Bike commute registration and counting will give information for the competition. "Cyclops of the month" is a tamagotchi - like creatures competition, where one feeds and trains cyclops, collecting bike commutes. "How fit is your cyclops?" scale will also underline the personal development aspect of cycling. One also will be able to compare own results with those of other cyclists around Stockholm. Company also can compete with its total results.

- Another function: sharing pictures from the commute can help inspire cycling showing how beautiful it is.

- Among other functions are suggestion giving, weekend tour tips, reparation help, announcements board.

The digital commuter board is made of two portals. One is accessible to all Stockholmers where they can find information about traffic conditions, pictures from peers and resources, as well as a personal commute tracker and individual results. In addition there is a company portal, which is private to the company and its employees. There, employees can discuss

cycling facilities and policies within their companies, find information about events and contact point, and follow the progression of the company in the cykelvänligast competition.
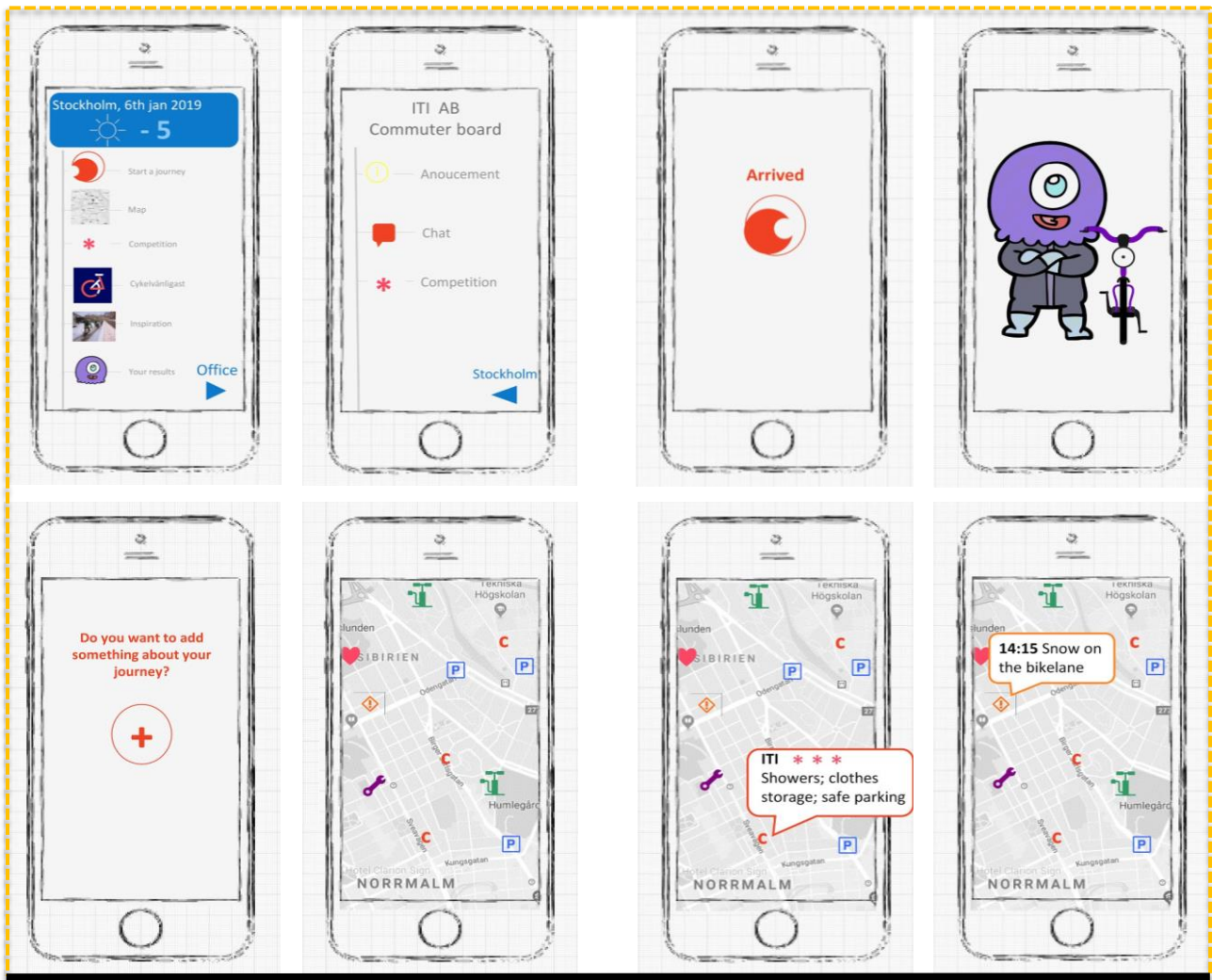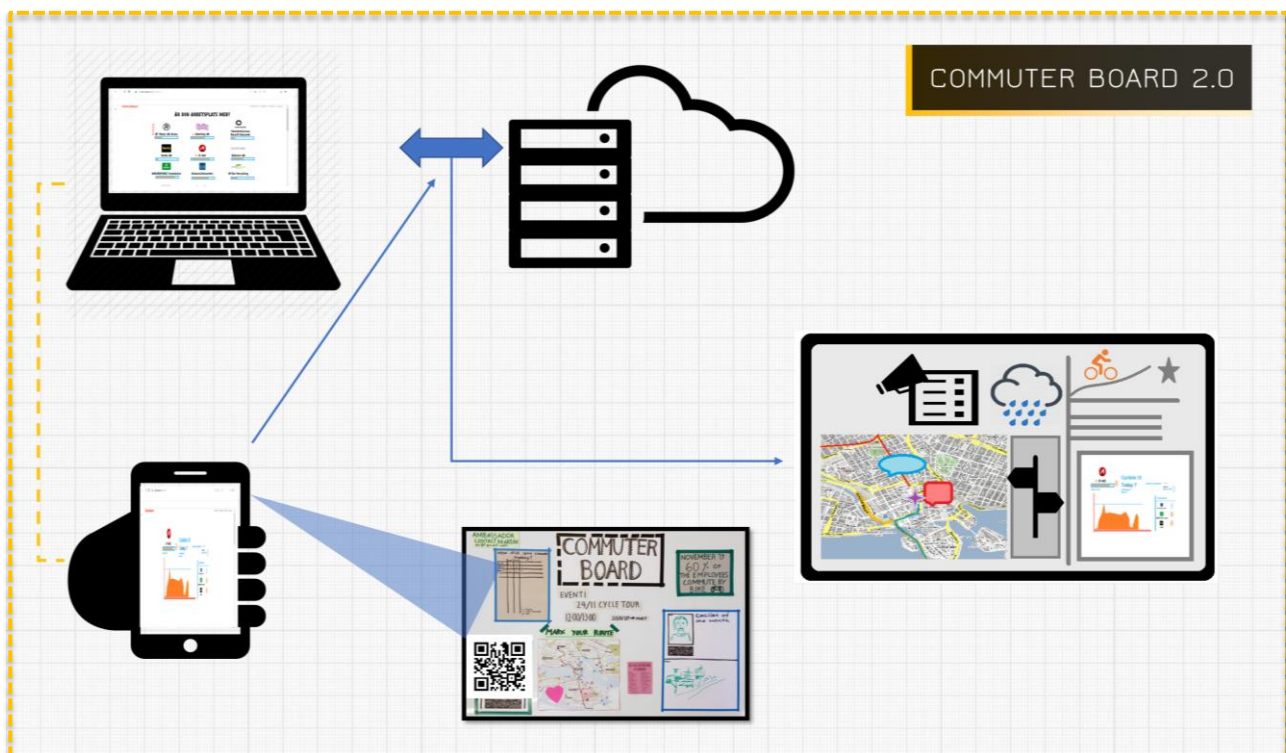

Image 20. Mobile Application

Image 21. Functional scheme

Implementation plan:

1) Seek for potential collaborators.

2) Develop the platform with UX designers and developers. Seek for already existing solution that could be adjustable for this platform.

3) Ask feedback from test-users and develop forward

4) Launch the platform with a marketing campaign in collective traffic.

5) Maintain and redevelop the platform.
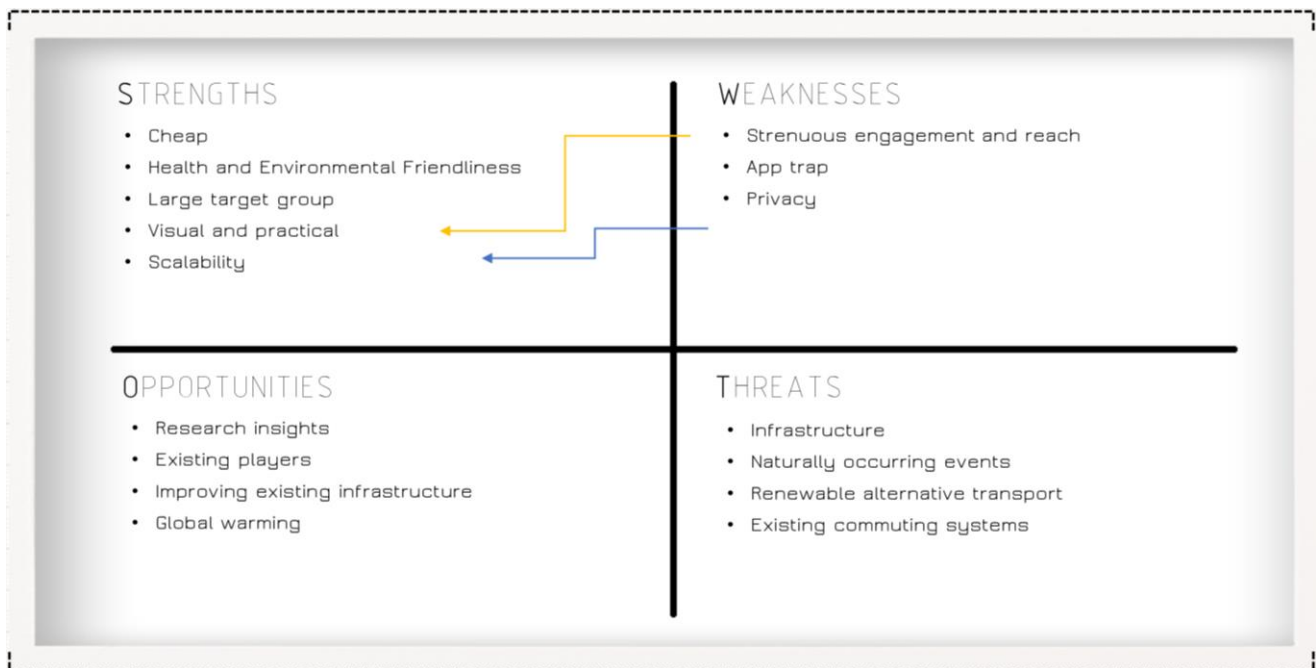
PART III: SWOT Analysis

Image 21: SWOT Analysis.

To develop our solution further, we used SWOT-analysis. By analyzing weaknesses and possible threats that the concept 'The Commuter Board', we were able to focus on aspects that were urgent to look into. Identifying the strengths and opportunities convinced us to continue to work with the solution and to make the concept even a stronger business case.

Strengths

Our aim to improve cycling conditions in Stockholm is a socially responsible act since cycling is an environment-friendly activity with various benefits. The solution 'The Commuter Board' is an easy and straightforward concept and very much visible. Its impact can be seen directly by the target group, which is big and flexible because the majority of the people in working-age can cycle and are also enjoying it. Since our solution is based on the idea that employees could experience similar positive feelings even during their daily commute, it is engaging both for employers and employees to be involved with.

The execution of our solution is inexpensive because it requires less technological development. The end-product can also be combined with other service providers which will probably reduce its production costs. After the concept has become realized, it is easy to scale up, since it is simple and easy to implement at the city level. Moreover, the end-product can generate potential advertising revenue for companies.

Weaknesses

There is a dilemma as to how we encourage commuters to use this tool without being too demanding for them because the platform relies on people's willingness to get involved and contribute. Mobile applications can easily become complex since these are simple to build and develop. Hence, it is easy to add additional features to ensure that an application could cover all the objectives, but this is also a common trap. The pursuit for more features in the existing concept can lead to complications and make the end-product too challenging to use. GDPR will also complicate technological development because logging and collection of data could be vital for further improving the platform.

There are already several map-based itinerary apps available such as Google Maps and Citymapper that might be further developed to meet our objectives (this could on the other hand be incorporated into our solution as a feature). Also, there are other actors that work to improve cycling conditions in Stockholm. Cykelfrämjandet is a non-profit association working on various projects and building public opinion towards the media and decision-makers. However, the major competitors for our solution *(and for biking in general)* are the alternative means of transport, which are presumed to be much safer or more comfortable in comparison.

Opportunities

As discussed before, there are already other existing cycling-related associations. Cykelfrämjandet falls in line with the ideals and the kind of goal this project wants to achieve. Instead of seeing these other actors as competitors, collaboration with them could probably become highly valuable. The end-product can be combined with other service providers which would probably reduce its production costs.

Insights on topics such as health benefits of cycling and current-trends might influence the decision-makers and stakeholders positively. The effects of global warming might seem controversial, but the recent rise in climate awareness may lead to an increase in the utilization of sustainable transportation alternatives. There, cycling will be in the most basic category.

Threats

Current challenges in infrastructures and overall cycling friendliness are the main threats for succeeding in the increasing number of bike commuters. Moreover, other means of transportation are considered mainstream. People's interests in cycling can also decrease as a result of technological innovations. As an example, electric and autonomous cars constitute the forefront of the revolution in renewable alternative technology.

PART IV: BUSINESS CASE

As a business case, our solution targets the public sector, laying the groundwork for reaching the end-users at a later stage. Our customer is not one defined by a sector in which they operate, but the municipal authority itself. While the public sector might be very task-specific and unfit for innovation, it is also a dimension of society where the rules for innovations are vastly different. When the value of an innovation is measured in qualitative and abstract terms, we are not bound to primarily sell it by its promise to bring a financial return on investments. However, the core question is; Why should Stockholm Stad invest in *our* solution?

The costs and benefits for the commuter board addresses a complex issue with multiple stakeholders including the municipal administration, local organizations and employees. Hence, our solution concerns both public and private stakeholders. It would be an investment to develop the digital infrastructure required, pertaining to the digital dimension of the service. It should be noted that this utilizes resources that Stockholm Stad has already invested in Cykelvänligast, and is rather expanding on the project. This is an important factor that plays into our decision not to develop the infrastructure independently, as the foundation is already laid through the existing Cykelvänligast platform. Additionally, we would need a broad implementation and establishment as a public service in order to distance ourselves from the market of fitness applications and other private platforms.

Estimated costs

To develop the service, we expect to employ a team to develop the new cykelvänligast platform to develop the infrastructure and programs.

Assuming iOS platform and a monthly salary of 40 000 sek, for three programmers over three months puts the platform development costs at 475 000 sek approximately (3*3 *40.000kr/month + employer costs 31,42% * 360.000 kr).

Based on the 1,5 million sek budget that Stockholm city has for their whole biking project, we estimate that upkeep, communication, promotion and running of the service would cost at around 17.000sek a month. Additionally, we estimate a suitable monitor could be provided at 4000sek for the employers who wants full integration with the digital infrastructure. For the 'analogue' version of the board, plaques could be provided at an arguably insignificant cost, approx. 300 sek per designed board. Over time, this service could possibly become more commercialized, reducing the costs of running the service.

Alternative costs

In terms of other alternative costs, it is as previously noted, hard to estimate. As an example, Trafikverket has calculated that the overloaded transport nodes development will cost 100 billion kr in 2021. There are currently 570 000 people currently working in Stockholm. Other undesirable outcomes of not investing in this solution would be less growth in commutes done by bike, less incentives for collaborative efforts to improve stockholm as a city for bikes, less improvements for cyclists at their workplace and no expansion of cycelvänligast, making funds already invested less efficiently spent. Moreover, there would probably come alternative costs related to overall wellness because regularly cycling decreases risks for several diseases like heart problems, depression, dementia, cancer, early deaths.

As our solution is one for the public sector to address policy goals where the values that are pursued are qualitative, it is more appropriate to focus our business case on the efficiency of the concept. There are some estimates that can be drawn up to create an idea of the required funds. Our solution also provides the part-taking companies with an option to integrate their workplace with the broader digital infrastructure. This option comes at a cost for them to buy the hardware, unless they already have a monitor to allocate to the purpose. We have decided that this is a stage further down the line, and is detached from the business case itself as what we aim to do is to develop the digital infrastructure.

* * * * *

Finally, what is important to note is that our business case is the investment into an efficient solution with many qualitative results or desirable outcomes that are indirectly linked to the product itself, but an outcome of its implementation. Some of these are better physical and mental health, less tear on roads, less congestion in traffic, increased productivity of employees and the image of Stockholm as an innovator for cyclists.The project is in itself somewhat of a novelty, as it would involve the municipal authority as an active part of an innovation process. We are sure it would gain attention from other local authorities pursuing the same goals, and this could possibly present us with a market for up-scaling.

As we have emphasized, cycling is a sustainable way of getting around that benefits the environment, one's health, general well-being, and productivity at work. This makes investing in our solution to a socially responsible act.

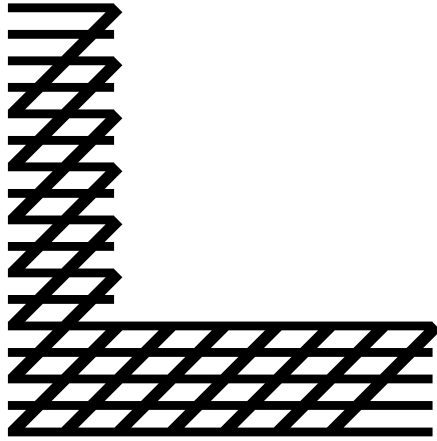[5]Trafikverket, Rapport om gång och cykling, hälsa och en hållbar utveckling, 201
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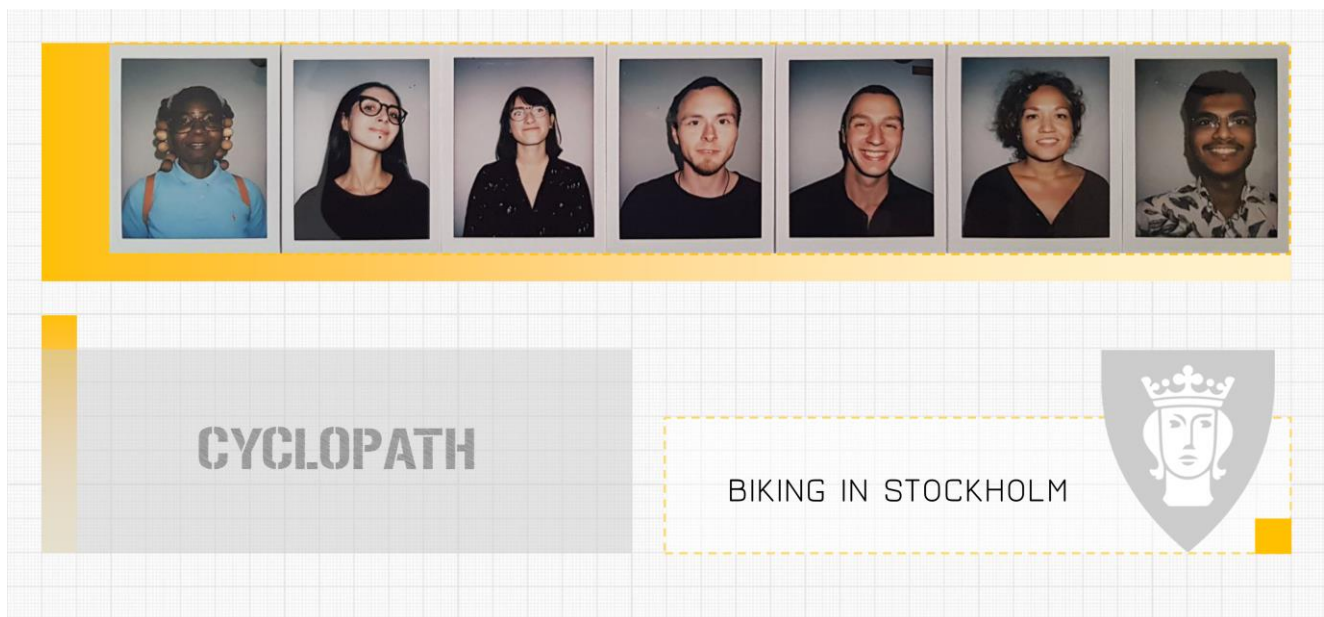
CYCLOPATH

Cycling is considered to be a part of a modern urban lifestyle; a sustainable way of getting around that benefits the environment, one's health, general well-being, and productivity at work. Stockholm gradually becomes a bicycle-friendly city. In our project we are trying to examine ways of bicycle commuting stimulation and societal changes acceleration by using the design-thinking method. We are trying to develop practical solutions to make more working-age people commute by bicycle.

In our research, we realized that despite the growing trend cyclists fail to unite around the idea of bicycle commuting. This prevents them from acquiring a community-based tool of influence that can be effective for stimulating change both inside companies and on the city level. The collected data highlighted how social and psychological aspects can strongly impact people's daily decision-making about the way of commuting to their workplace. These findings made us focus on developing solutions that could help *to integrate cycling into working life, change its image and make it a social experience on multiple levels.*

The report presents several concepts with different requirements for the implementation, that are aiming to create a movement and make people unite around the idea of city cycling.

CYCLOPATH

BIKING IN STOCKHOLM

Openlab is a creative centre that provides opportunities for finding solutions to challenges in society. In cooperation with our partners and other actors, we create proposals for innovative solutions for the Stockholm region. We do this across the lines between different disciplines and professions. The reports from Openlab are results from students interdisciplinary cooperation within the framework of a 15 ECTS master course.