

A hand-drawn illustration in a sketchy, light-colored style depicting a future public transport network. In the center, a yellow and white bus is driving on a curved road. To the right, a yellow and white train is moving along a track that curves upwards. In the background, there are buildings, including one labeled 'SCHOOL' and another labeled 'STATION'. A person is walking on a path near the station, and another person is standing near a bus stop. The overall scene suggests a seamless and integrated transport system.

# A design vision and strategy for a user-centred high quality public transport network in 2040

Appendices, March 2021  
Seamless Personal Mobility lab

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This report is commissioned by the Seamless Personal Mobility Lab.

March 2021

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## A - Project brief

### Personal Project Brief - IDE Master Graduation

## A design vision and strategy of a high quality public transport network

project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

|            |                |
|------------|----------------|
| start date | 07 - 09 - 2020 |
|------------|----------------|

19 - 02 - 2021

end date

## INTRODUCTION \*\*

In a part of the Netherlands called the 'Randstad' you have Randstadnet (R-net), which is a high quality public transport network. A public transport network has the potential to enhance the environment in which people live, work and relax. An important aspect for this enhancement is the quality of the network. The quality of a public transport network is determined by many factors. These are, among others, the time it takes to reach the destination, the frequency of the schedule, reliability to the schedule, safety and comfort (Redman et al., 2012).

## R-net and its stakeholders

The goal of R-net is to improve the public transport network so it will be a full-fledged alternative for the car in 2028 (Wilt & Bergsmann, 2017). It is an initiative of multiple regional authorities in the Randstad and started in 2011. The authorities together have decided on requirements for R-net. They are self-responsible for the pace of including R-net at the public transport concessioners. The regional authorities work together with the regional operators, see figure 1. A total of nine operators are to carry out the promises of R-net. This includes bus, tram, metro and regional trains. These operators however also still work with their own beliefs.

### Branding R-net

For the traveller, R-net is recognisable by a corporate identity with the colours red and grey. This branding is seen on the different vehicles and stops along the route, see figure 2. However, the operators branding is also still visible. In a report about the public image of R-net it was found that the brand awareness by the residents of the Randstad is growing, 60% of them have heard of the name R-net (Wilt & Bergsman, 2017). However less than 10% of those people know what R-net really stands for. Of all travellers questioned, reliability was said to be the most important factor of high quality public transport, with frequency and speed not far behind.

## Measurement of high quality public transport

Measuring the quality a public transport network is valuable to know what could be improved about the service. However, according to Rietveld (2005) you have to be aware that public transport suppliers tend to overestimate the quality of the service they provide, compared to customer's evaluations. This is because their methods focus on the overall, on average performance, while individual user's experiences do not. For example, the average performance of the reliability on a specific busroute was nearly perfect, but the one time the bus had a massive delay stays into the minds of those passengers, resulting in a bad customer evaluation.

### Relevant developments

There are multiple developments happening in the field of public transport. First, the Mobility as a Service (MaaS) trend. This trend strives to provide a user-centric mobility distribution model via a single platform to create convenience, reliability and flexibility. Furthermore, there is an impact of the COVID-19 virus on public transportation. In the Netherlands passengers need to wear a mask and may have different needs regarding a high quality public transport network, for example their feeling of safety. They might prefer a less crowded bus over speed.

space available for images / figures on next page

### Personal Project Brief - IDE Master Graduation

introduction (continued): space for images



image / figure 1: Regional authorities and regional operators of R-net



image / figure 2: Branding R-net on vehicles and platforms

## PROBLEM DEFINITION \*\*

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

As stated in the introduction, the authorities are self-responsible for including R-net at the public transport concessions. However, they are not uniformly strict on the requirements of high quality public transport. This has resulted in a discrepancy in quality between different parts of the Randstad. For example, a bus line in Amsterdam of R-net would never be permitted to be named R-net by a different authority, because it won't qualify to 'high quality'. This could be harmful for the brand of R-net, because they cannot provide the same promise of high quality, which in turn could create a confusing situation for the traveller.

Furthermore, the operators of R-net also still have their own beliefs and branding which are not always in line with the brand R-net. This could also lead to confusion for the traveller, since the network is called R-net while they might be travelling in a bus by Arriva. It is unclear if the traveller believes in the added value of R-net. As less than 10% of people who have heard of R-net know what it really stands for, it seems the effort of R-net's branding are not having that much effect. Lastly, due to recent trends and developments, the needs of the traveller regarding to high quality transport network have most likely changed since the start of R-net in 2011.

## ASSIGNMENT \*\*

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... . In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

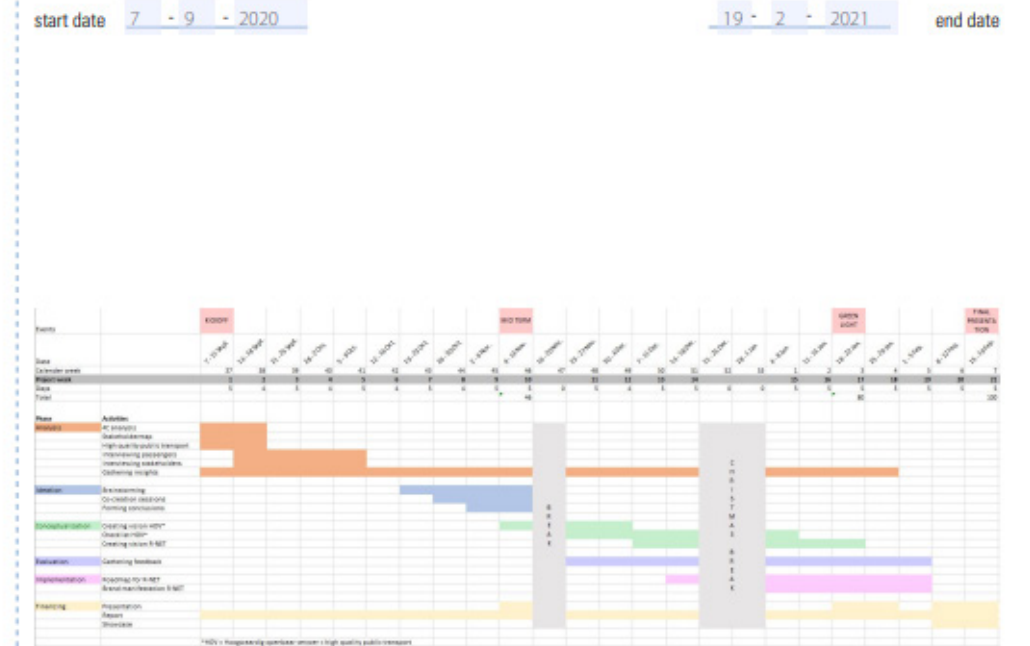
Create a design vision of a high quality public transport network on the basis of traveller's needs. Translate this vision in what this means for the organisation of R-net and their branding.

The expected outcome of this project is

- 1) a design vision of high quality public transport network. This will be an easy to understand concept which is suitable for the different stakeholders. The design vision will create an aligned understanding of the traveller's needs regarding a high quality public transport network.
- 2) A strategy in the form of a roadmap for R-net, in which is explained how to reach that design vision in different steps. This strategy will include advice on the organisation of R-net and their branding.

## PLANNING AND APPROACH \*\*

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.



The 100 days of this project stretches out over 21 project weeks, because of some personal days in between.

I will be doing qualitative research in order to define requirements for a high quality public transport network according to different stakeholders and what they believe it should stand for. Furthermore, I will interview the different regional authorities and operators in the way they make the decisions based on that. This will lead to a shared design vision of a high quality public transport network. Then a roadmap will be made of what R-net needs to do to implement that vision. Furthermore it will tell more about the brand manifestation of R-net.

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, ... . Stick to no more than five ambitions.

In the project description created by the Seamless Personal Mobility Lab it said "on the basis of the traveller's needs". This caught my eye because I like doing qualitative research. I get a lot of energy from talking to people and trying to find out how they understand the world and thereby their needs. However, I lack the experience of approaching those people and thereby want to gain more confidence about this during this project.

I believe in the concept of co-creation since I experienced during my internship that it creates concepts truly valuable for the users and they believe in the concept themselves. During my internship I learned more about methods of co-creation and how to implement creative formats/artefacts during the different steps of the design process. From research, to ideation, to validation, I want to include people in my process. I want to get more experienced in this during my graduation project. I like facilitating and want to improve this skill even more.

Furthermore, I am interested in visual thinking/communication. Visuals are a strong communication tool and I want to use this during my project. I am getting better and better at it, but I also want to work at this during my project.

This project is also interesting for me because of amount of different stakeholders. During my SPD programme I found out how important stakeholder management to create something they also believe in and want to implement. I see this project as an opportunity to find out what my level is in this.

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

B - Fundamental needs



**Competence**

Having control over your environment and being able to exercise your skills to master challenges.

*Rather than feeling that you are incompetent or ineffective.*



**Autonomy**

Being the cause of your actions and feeling that you can do things your own way.

*Rather than feeling as though external conditions and other people determine your actions.*



**Purpose**

Having a clear sense of what makes your life meaningful and valuable.

*Instead of lacking direction, significance or meaning in your life.*



**Community**

Being part of and accepted by a social group or entity that is important to you.

*Rather than feeling you do not belong anywhere and have no social structure to rely on.*



**Relatedness**

Having warm, mutual, trusting relationships with people who you care about.

*Rather than feeling isolated or unable to make personal connections.*



**Impact**

Seeing that your actions or ideas have an impact on the world and contribute to something.

*Rather than seeing that you have no influence and do not contribute to anything.*



**Recognition**

Getting appreciation for what you do and respect for who you are.

*Instead of being disrespected, underappreciated or ignored.*



**Security**

Feeling that your conditions and environment keep you safe from harm and threats.

*Rather than feeling that the world is dangerous, risky or a place of uncertainty.*



**Beauty**

Feeling that the world is a place of elegance, coherence and harmony.

*Rather than feeling that the world is disharmonious, unappealing or ugly.*



**Morality**

Feeling that the world is a moral place and being able to act in line with your personal values.

*Rather than feeling that the world is immoral and your actions conflict with your values.*



**Fitness**

Having and using a body that is strong, healthy, and full of energy.

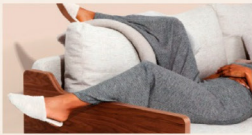
*Rather than having a body that feels ill, weak, or listless.*



**Stimulation**

Being mentally and physically stimulated by novel, varied, and relevant impulses and stimuli.

*Rather than feeling bored, indifferent or apathetic.*



**Comfort**

Having an easy, simple, relaxing life.

*Rather than experiencing strain, difficulty or overstimulation.*

Fundamental needs

(Desmet & Fockkinga, 2020)

## C - Sensitising booklet

## YOUR JOURNEY

Thank you for participating in this research about the quality of the public transport network in The Netherlands. This booklet is about your specific travel experience in public transport. After the booklet is filled in, we will go over your answers and I will ask some additional questions. There are no wrong answers and it will be fully anonymous.

*In this booklet you will document your journey. It contains a few questions to create a timeline of your travel experience, see other side. Let's begin!*

## PREPERATION

- 1 What is your final destination (e.g. home/work)? Write at:  in your timeline
- 2 Where do you travel from? (e.g. home/work)? Write at:  in your timeline
- 3 What means of transport are you using? Use them on the line based on the time you spend with them.  
 walking  
 bike  
 bus  
 train  
 tram  
 metro
- 4 Do you have any transfers between the means of transport (e.g. catch a different train?) Draw this and include the expected time you have for the transfer.
- 5 Is there anything else you want to include in your timeline? If yes put this also in the timeline.

DURING

- 6 What moments during the journey do you feel positive? Draw the emotion you feel in the timeline, describe with keywords what happens.
- 7 What moments during the journey do you feel negative? Draw the emotion you feel in the timeline, describe with keywords what happens.

AFTER

- 8 Can you shortly describe the overall experience of your journey?
- 9 When looking back at your journey, where and when do you think the quality of the public transport was good?
- 10 And when and where could the quality be improved?

## YOUR JOURNEY TO WORK - the timeline



## YOUR JOURNEY BACK HOME - the timeline



D - Interview guide

|                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|
| <b>Introduction;</b>                                                                                        |
| -            thanks for taking your time                                                                    |
| -            permission to record the interview                                                             |
| -            consent form                                                                                   |
| <br>                                                                                                        |
| <b>Current situation – the specific commute</b>                                                             |
| 1. Can you explain your journey using your timeline (Sensitising booklet)                                   |
| - What happened?                                                                                            |
| - How did you those things make you feel?                                                                   |
| - Why?                                                                                                      |
| <br>                                                                                                        |
| 2. Can you explain the answers you gave in your sensitising booklet?                                        |
| <br>                                                                                                        |
| 3.How could the journey be made more nice? How could it have a better quality?                              |
| <br>                                                                                                        |
| 4. So which aspects do you find important in the public transport network?                                  |
| <br>                                                                                                        |
| 5. And why did you choose to commute with the public transport network in this journey? And why in general? |
| <br>                                                                                                        |
| <b>Previous experiences</b>                                                                                 |
| 6. How was this journey different or similar to other journeys? How so?                                     |
| <br>                                                                                                        |
| 7.            Can you give an example of a memory of a nice journey? Why was this nice for you?             |

|                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 8. Can you give an example of a memory of a not so nice journey? What happened? What could have improved the journey? And why?                    |
| <br>                                                                                                                                              |
| <b>Future experiences</b>                                                                                                                         |
| 9. Imagine you can create your desired future high quality public transport network? How should it look like? (try to push outside the box ideas) |
| <br>                                                                                                                                              |
| <b>R-net</b>                                                                                                                                      |
| 10. Do you know R-net?                                                                                                                            |
| <br>                                                                                                                                              |
| 11. What do you think it stands for?                                                                                                              |
| <br>                                                                                                                                              |
| 12. What associations do you have with R-net (show R-net pictures for reference)                                                                  |
| <br>                                                                                                                                              |
| 13. Which disadvantages or advantages do you see with R-net?                                                                                      |
| <br>                                                                                                                                              |
| 14. Do you make use of the R-net or would you in the future? And why?                                                                             |
| <br>                                                                                                                                              |
| <b>Closing</b>                                                                                                                                    |
| Thank you for taking the time                                                                                                                     |

E - Found needs interivews

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Comfort</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Comfort applies to a comfortable surroundings in which the commuters travel, for example the train or bus needs to be new, clean, have comfortable interior and temperatures. This applies also to the waiting areas like the station or a bus shelter. Another thing that was mentioned was a cup of coffee you can drink in the train which brings comfort.                                                                                                                                                                                      |
| <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Ease</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| For the commuters ease was important in the sense of that they don't need to watch the road and that they are being transported without any effort. Furthermore, the need of ease comes back for the wish to extra facilities like the OVfiets and the information apps. Especially those facilities have been from the last couples of years and will most likely increase even more according to the commuters. Another thing that was mentioned was the wish for long enough transfers between connection so the commuter doesn't need to rush. |
| <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Free of worries</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Free of worries was mostly mentioned as a answer of why commuters prefer a direct route. Because then they are sure that they can keep their seat and there is no the worrying of missing the next train. Clear, actual and accurate information was also important for the commuters, this gave them peace of mind. Also a frequent schedule and guaranteed place for the bike provides free of worries, because then the commuter does not need to plan.                                                                                         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>In control</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Another reason why commuters want accurate travel information is because the need of being in control. This way, they can anticipate on the information and make decisions accordingly. The need of being in control came also from wanting a free choice of orientation of seating place for the commuter.                                                                                                                                                                                                                                                                                                                                                                                                  |
| <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Reliability</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Every one of the commuters found reliability one of the most important things. There were different means of being reliable mentioned; in the operating schedule and in de provided travel information. They wanted to trust those elements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Feeling of safety</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| The need of feeling safe is important for commuters. This need was found from different aspects. First, because of safety measures undertaken by the organisation, like lights, checks, camera and enforcement of the rules. But also, people want to be aware of what is happening in their surroundings to make sure they are safe. However, the commuters believes the feeling of safety can be improved with the way the drivers drive. They could drive the bus more safe, responsible and considerate of the passengers. Due to the current situation of COVID-19, people prefer quiet trains, so they have less chance of contamination. So this is also an important wish for the feeling of safety. |

**Privacy**

Privacy was often mentioned in the interviews. The commuters want to have enough space and be as little as possible disturbed by the other travellers. They mentioned they don't want to hear other's awkward conversations and prefer to shut them out.

**No waste of time**

The frequently heard wishes of fast connections, direct/efficient routes and not standing in traffic actually comes down to that people value their own time. They don't want to waste this by waiting, having a transfer, have too many stops along their route or go via a detour.

**Innovation**

The need of innovation was mentioned by the commuters. They are happy to see innovations happen and especially if this influence the speed of their public transport route.

**Efficient travel time**

Commuters have the need to spend the time they travel efficiently. This came back in a frequently named wish for a place to sit so they could do something. This was either working or relaxing. Other wishes were also related by those two, like a good and trustworthy internet connection and well behaved travel companions who won't disturbed them. This way they can work or have time for themselves to reach their destination well-rested.

**Accessibility**

Another need is that public transport is accessible for everybody and that it is inclusive. An example mentioned by the commuter is that it should be low costs so it will attract more people.

**Trustworthy organisation**

The need for a trustworthy organisation was mentioned by the commuters in different ways. First, the organisation should be responsible for their (tax)money and should invest this wisely. The commuter doesn't want to see a waste of money, like a bus shelter which is never used. Furthermore, the commuter wants good and safe organisation skills when something goes wrong, like a delay or other problems. The commuter wants an organisation in which they can believe that they are doing the right thing for them.

**Sustainability**

Last, the need for sustainability was often times mentioned to be a good reason to choose for public transport. The commuter would like to see this improved, for example with electric buses.

F - Desired future visions according to commuters

*Desired vision of the public transport system*

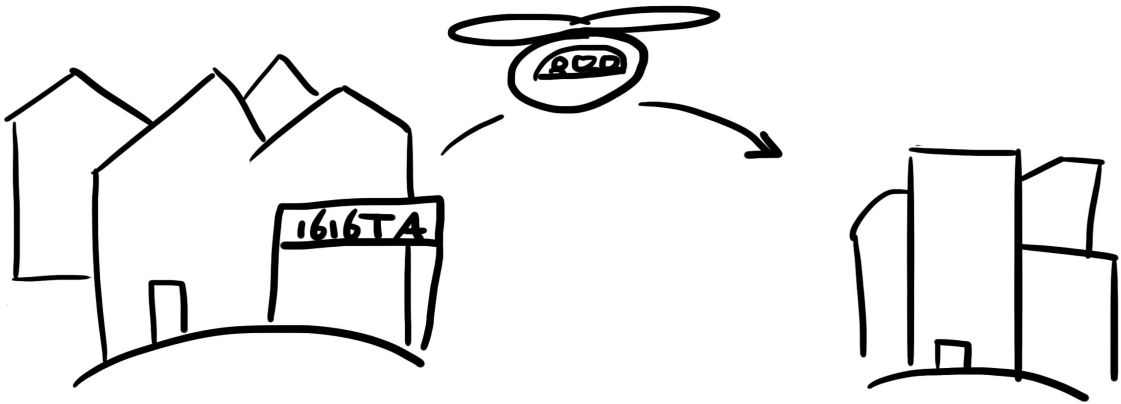
Autonomous first class metro



- |                                                         |   |                         |
|---------------------------------------------------------|---|-------------------------|
| > High frequency                                        | → | No need to plan         |
| > Less stops as possible                                | → | Efficient               |
| > Smart operating schedule, trains fast, close together | → | Efficient               |
| > No change on mistakes / delay                         | → | Know what to expect     |
| > Always first class                                    | → | Guaranteed place to sit |

Desired vision of the public transport system

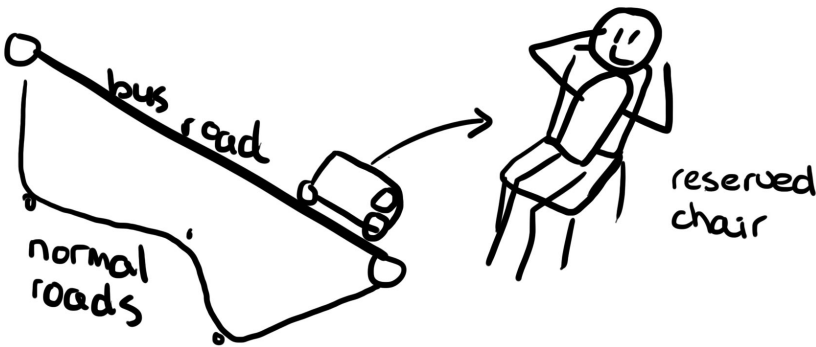
Carpool to work in a smart drone system



- > Through the air with a drone → Fast
- > Direct route from home to work → Fast and efficient
- > People with same route → Efficient, no stops
- > Organised by the NS → Reliable organisation
- > In small groups → Costs efficient
- > Clean → Comfortable
- > Quiet for sleeping → Well rested at destination

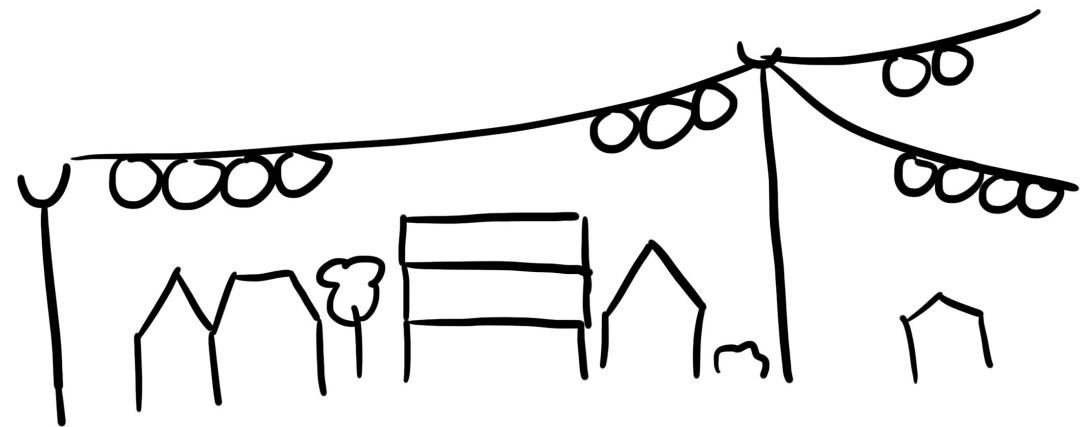
Desired vision of the public transport system

Buses using own, efficient, roads



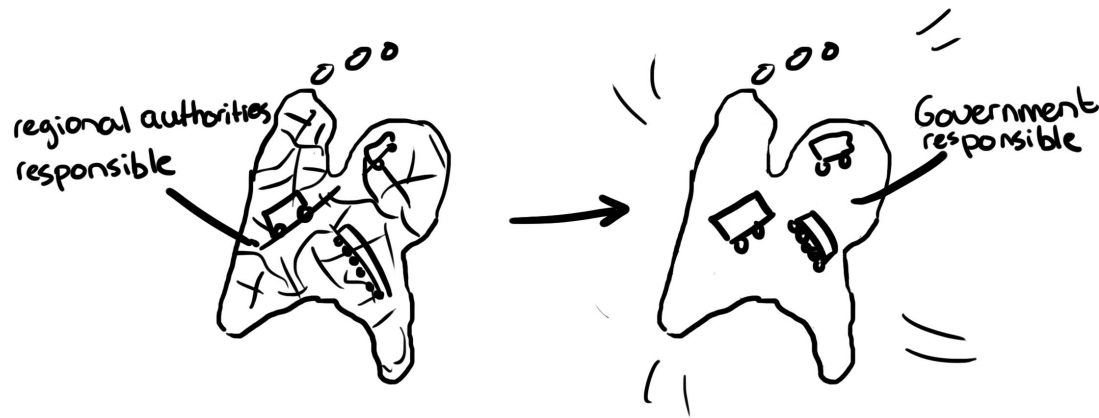
- > Own bus road → Efficient & Fast (Time is valuable)
- > Reserve place → Guaranteed place to work
- > Using smart sytem to reserve → Easy to use
- > Always up-to-date information → Knowing for sure you will reach destination on time
- > For everybody accessible → Syats public transport
- > With a nice cup of coffee → Treat yourself

Travelling like with a skilift



- > Everyone in their own egg/bubble. → Privacy & Security
- > Seeing the environment change → Time to adjust
- > Not go too fast → Time to prepare of process work
- > You are being transported → No worries & time for work
- > Direct, no transfers → Efficient
- > Clean → Comfortable

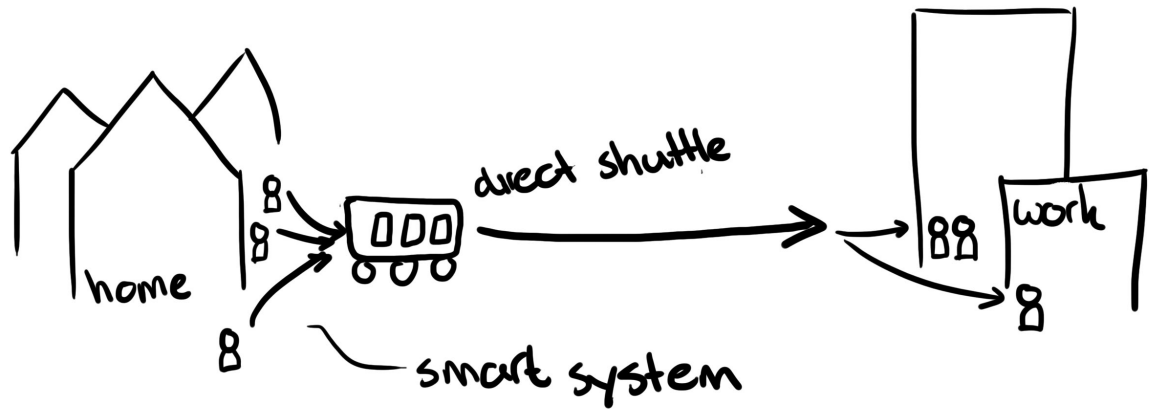
Change from decentral organisation to central by the government



- > Lower costs to attract more people → Sustainability
- > Government responsible → Better organisation by seeing it as a whole
- > Seeing public transport as a whole → Less cancelled routes
- > Less cancelled routes → Better mobility services for elderly
- > Less waste of money → Cheaper tickets
- > Better reliability → Feeling of control in situation

Desired vision of the public transport system

Travelling with a smart, direct shuttle



- |                                                                |   |                                     |
|----------------------------------------------------------------|---|-------------------------------------|
| > Travelling directly to destination                           | → | Efficient & Fast (Time is valuable) |
| > Travelling in a shuttle                                      | → | No city full of cars                |
| > Travelling together with people nearby with same destination | → | Still 'public', so sustainable      |
| > Clear information                                            | → | Being in control                    |
| > Smart system                                                 | → | Efficient                           |
| > Good security, not possible to go without 'checking in'      | → | Feeling of safety                   |

# G - Authorities in R-net

**Province Noord-Holland**

The province of Noord-Holland is located in the northwest of The Netherlands. They are responsible for the public transport within all the municipalities except for those of the Amsterdam Transport Authority. The only regional operator in Noord-Holland is Connexxion.

**Province Flevoland**

The most part of Flevoland is operated by OV Regio IJsselmond, which is a subsidiary company of Connexxion. They strive for a good availability in time and place, sufficient comfort and a good feeling of safety. The municipality of Almere and Lelystad are self-responsible for their public transport by bus. In Almere operates Keolis, in Lelystad Arriva. Lelystad is not part of R-net.

**Amsterdam transport authority (Vervoersregio Amsterdam)**

As client is Amsterdam Transport Authority responsible for the public transport in fifteen municipalities, among which the city Amsterdam itself, see figure X. Its focus is creating the optimum accessibility within the area and act as director for this. The area is divided in four parts with each their concession. These include the bus, metro and tram. GVB, Connexxion and EBS are the operators of the concessions in the area. Next to granting concessions works the transport authority together with (regional) road administrators and operators to improve the public transport services.

**MRA**

The province Noord-Holland, province of Flevoland and the Amsterdam Transport Authority collaborate together as the Metropoolregio Amsterdam (MRA). They believe by working together the challenges and ambitions of the future can better be tackled. The vision of MRA for the public transport is, together with the bike and car, being part of an integrated and emission free system by which residents and visitors can travel fast, sustainable and efficient from door-to-door. €15,4 billion euros is needed to achieve the goal of the desired network in 2040. This vision is in line with the general vision of public transport in The Netherlands discussed in chapter X.

**Province Zuid-Holland**

The province Zuid-Holland is responsible for the public transport with the exception of the Rotterdam-The Hague metropolitan area (MRDH). This comes down to three concessions which are operated by Arriva, Qbuzz and Connexxion. Furthermore, in 2005 is decided that the province will be responsible for two train connection; between Dordrecht and Geldermalsen and between Gouda and Alphen aan den Rijn. This is the reason only those train connections belong to R-net, because the other connections are owned by the government of The Netherlands.

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H - Overview strengths and weaknesses R-net

**strengths**

- R-net forces the authorities to collaborate with each other.
- R-net has a clear collaboration agreement in the board agreement.
- R-net has a strong reputation among the operators and road administrators.
- R-net seems to be the reason for an increase in demand of high quality public transport.
- R-net seems to be the reason for the stakeholders to make more money available for high quality public transport.
- implementation of R-net takes place at a clear moment, with a new concession.
- The authorities and operators of R-net believe in the concept behind R-net as it increases the quality of the public transport network.
- Brand awareness has been rising.
- R-net has its own website.
- R-net has its own Facebook page.
- R-net has had multiple campaigns to increase brand awareness.

**Weaknesses**

- Conflict of interests between the different stakeholders
- None of the stakeholders have R-net as their top priority
- A feeling of responsibility is missing from the stakeholders
- Commitment, time and capacity is lacking in the board of representatives
- The structure of the collaboration between the authorities makes it impossible to make overarching decisions of R-net as a whole.
- Insufficient communication within the board and to the rest of the organisations
- Operators don't have enough say in the decisions made about R-net
- Routes are transformed into R-net even though they are not high quality enough nor have this potential and nobody is stopping this.
- The traveller is not involved in the conversation about R-net causing a lack of knowledge about their needs
- The requirements of R-net in the concessions are often less strict as should be according to the R-net handbook.
- All the elements of R-net need to collaboratively come together at the same time with implementation, but this timing is difficult leading to confusing situations
- R-net is becoming outdated instead of being a premium brand, because they are not innovating.
- Implementing R-net with urban operators is a struggle, because of the negotiations.

# I - Iterations future vision

## Weaknesses

- Compensations in the negotiations between the authority and urban operator about implementing R-net leads to different executions.
- R-net is positioned as one brand, but actually stands for different things depending on area and operator.
- The brand R-net is under pressure. The operators find it hard to communicate its distinctive features and question the value for the traveller.
- R-net is confusing for the traveller as the modalities look like just another operator, display a lot of other brands and the name R-net is similar to RET.
- The traveller does not know what R-net is or stands for.
- The traveller does not see R-net as a premium brand.
- The social media page is outdated.
- They have no customer service
- An overarching branding/communication strategy is missing

## Iteration 1

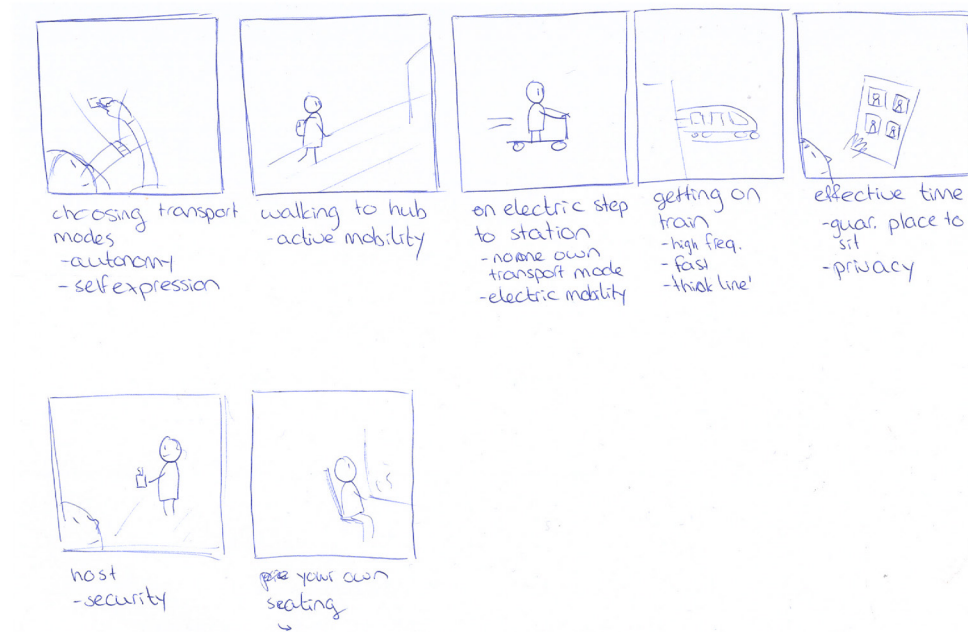
The first iteration consisted of a scenario with different steps in the future journey from travelling from home to work. The trends are either reflected directly or indirectly and act as behind the scenes enablers or motivators.

### Scenario

A person will choose to go to work only when necessary. A desired transport mode is chosen and he would walk to a hub. He drives on an electric step to the station and smoothly gets on the train through life data. In the train he can spend his time effectively. His work is close to the station so he can walk the last-mile.

## Proud to travel with the public transport network

In the future the commuters should choose for the public transport network instead of, for example, the car and would feel proud by this. Proud because they would help the people and planet as public transport is considered the more sustainable and space effective alternative.



Iteration 2

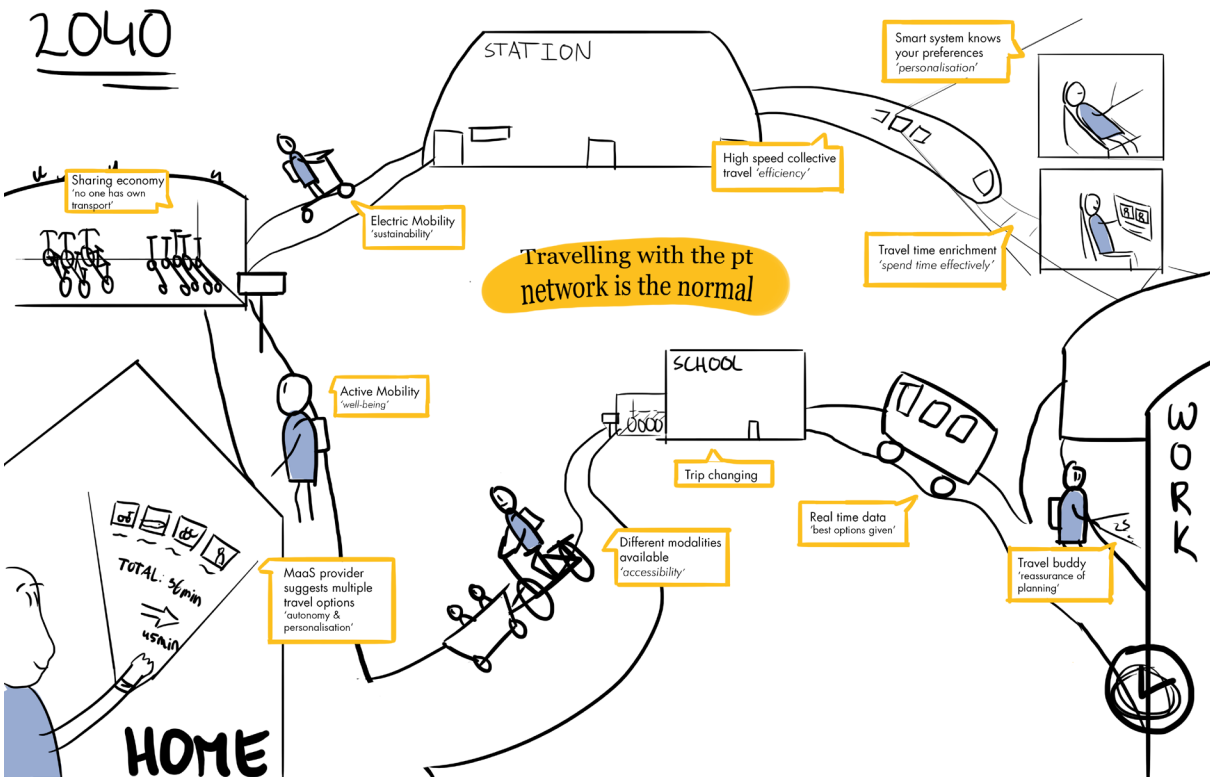
The second iteration has a bigger focus on some selected trends relevant to the public transport network. Also needs found in the co-creation sessions are incorporated. The scenario consists of the same elements as iteration 1, however it is transformed into one visual to make it more attractive. Also, the journey back home is included in the scenario, see figure X.

Scenario

The start of the scenario is equal to iteration 1. However the journey back home shows a more complete picture. The person takes a bus directly from his work to school. There he can get a bike also suitable for transporting his kids.

Travelling with the public transport network is the normal

In the future, in 2040, travelling with the public transport network is the normal. This would mean a lot of people would choose for this option and are content with the journey.



Insights from validation for iteration 3

Presentation R-net

During a meeting with the 'core team' members of R-net the future vision was presented and generated an in-depth discussion, see figure X. In general they could imagine the vision and found it realistic. However, they did see some obstacles. They saw themselves as a part of this chain by offering some mobility solutions, like the bus.

Other insights:

- It is good the traveller is put at the center.
  - Missing the option to stay at home
  - The bus in the vision could very well be a BRT (Bus Rapid Transit) bus as this concept works with direct routes
  - This vision would need customisation in a lot of different parts, for example in different cities.
  - Its striking the car is removed from this vision.
- With all good efforts to increase capacity in public

transport, it will still not be enough to remove the car.

- Logistical problems of all the people going to the station with a step in the morning, how can guarantee availability?
- Interesting to think about the role of the government in this vision.

Insights from others

The vision was also discussed in an informal way with the supervisory team and some commuters. It was found that it could have a stronger connection with my analysis. The commuters all reacted in a positive way and would be very happy to see this really happening. The commuters argued they would be more willing to use the public transport network. However most people could not envision eliminating their own (e) bike completely.

Iteration 3

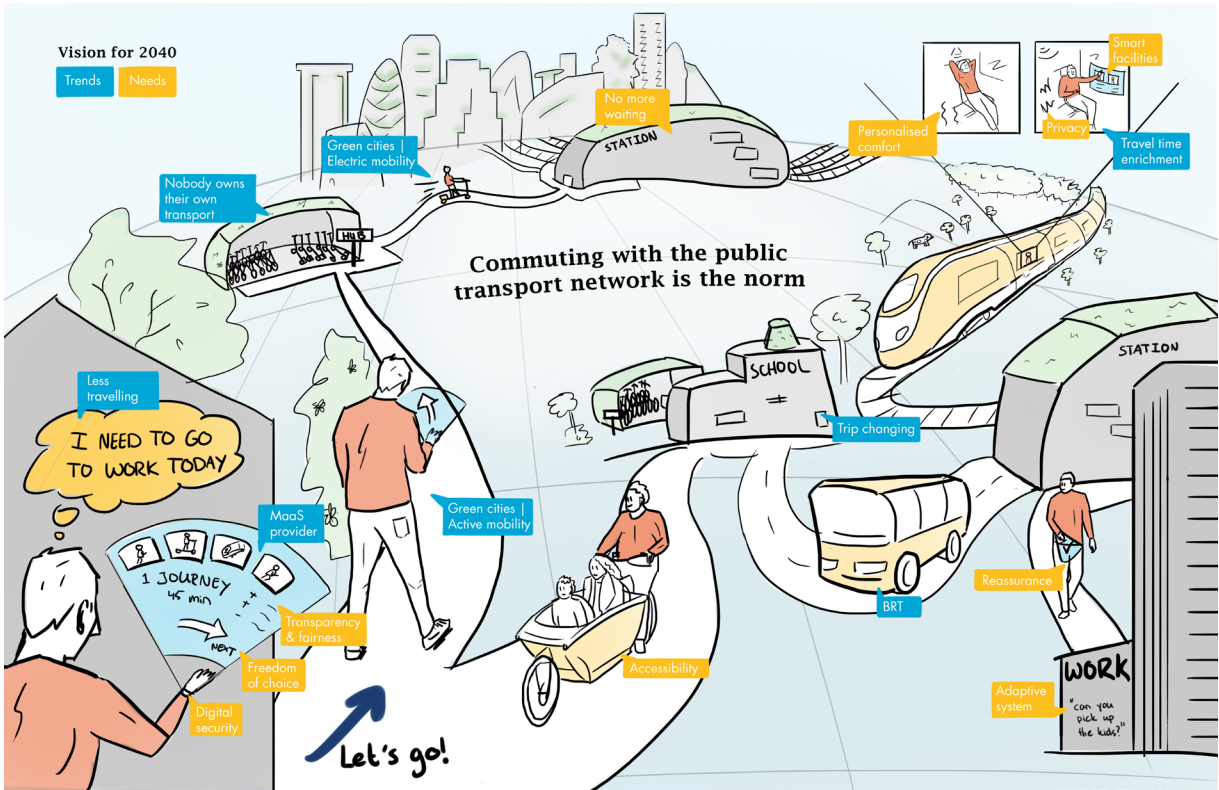
With another reflection on the analysis phase and the input from the meeting with R-net stakeholders, a final iteration was made. This iteration shows a clear difference between the trends and needs from my research. This will be further explained in chapter six. Furthermore, the design is more attractive and professional which is important to present it with confidence. See figure X.

Scenario

The scenario is very similar to the previous iteration. The biggest difference is the ‘adaptive system’ which got a recognisable reason to get the kids from school.

Commuting with the public transport network is the norm

The title has changed to make it more clear the focus group are commuters. The public transport network is the norm, the needs of the commuter are satisfied.



Inkomertje

Even wakker worden, pak een voorwerp waar je trots op bent.



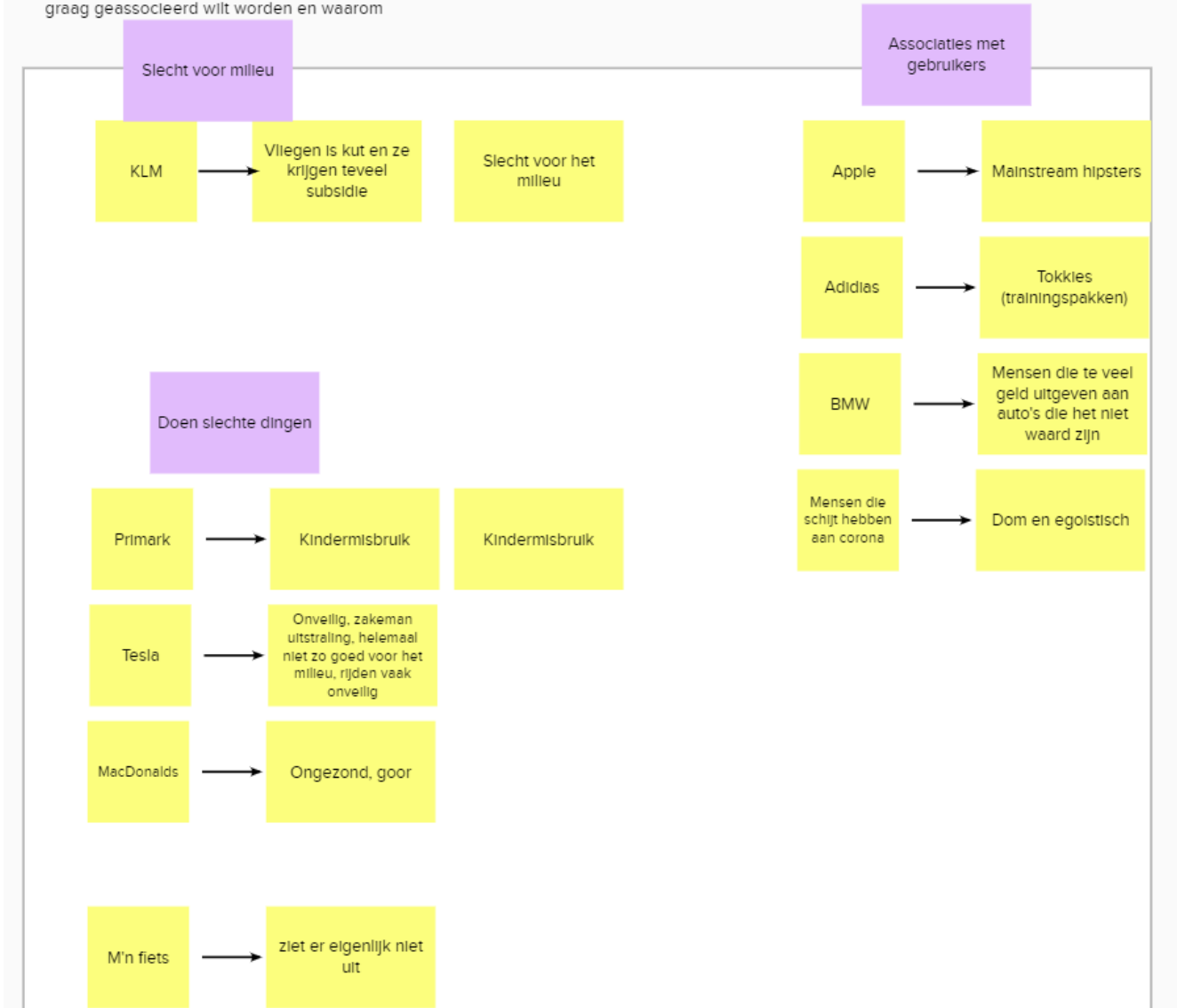
|                                                                    |                                          |  |
|--------------------------------------------------------------------|------------------------------------------|--|
| gelukt ondanks dat het moeilijk is en het andere (zusje) niet lukt | haha mij lukt het wel, zelfs eerste keer |  |
| kort mee bezig maar boven verwachting goed gelukt                  | goed gelukt in 1 keer                    |  |
| Mee kan doen in de straat                                          |                                          |  |

## Merken/bedrijven

Schrijf op een post-it met welke merken/bedrijven je graag geassocieerd wilt worden en waarom



Schrijf ook op met welke merken/bedrijven je niet graag geassocieerd wilt worden en waarom



## Thema's

Welke overkoepelende thema's zien we bij waarom we wel of juist niet geassocieerd willen worden?

Wat zijn de 4 belangrijkste?

Persoonlijk  
laten zien  
wie je bent

Ergens bij  
willen  
horen

Goed is voor  
de planeet,  
zowel sociaal  
als natuur

Het goed is  
voor mezelf



## Jij in 2040



Vul de linker rij van het profiel in

Vul de rechterkant van het profiel in

**Naam: Marieke**

Leeftijd: 43

Huishouden: Samen met man, twee kinderen en een hond

Woonlocatie: Spaarndam

Werk: Escape room/spellen ontwerpster

Werklocatie: Haarlem/Amsterdam

Ik reis naar werk met: Fiets en/of auto

Hobbies: Hardlopen, softbal, bakken, leuke dingen doen met de kinderen

Dit maakt mij trots:  
- mijn kinderen  
- mijn sportiviteit  
- het hebben van eigen hobbies  
- mijn creatieve baan

Ik kies voor het openbaar vervoer netwerk in 2040



JA



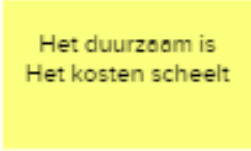
NEE

Waarom?

Omdat ik de toekomst van Spaarndam niet rooskleurig in zie wat betreft het openbaar vervoer, het is nu al slecht bereikbaar en ik verwacht dat daar niet veel in gaat veranderen.

Ik zou trots zijn om met het openbaar vervoer netwerk te reizen in 2040 wanneer:  
- Ik het zou doen ondanks dat het niet praktisch is  
- Als ik beter zou weten dat het goed is voor het milieu  
-

|                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Naam: Suzanne</b>                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Leeftijd: 44<br><br>Huishouden: Marc, hond, misschien kinderen, dan 2<br>Woonlocatie: Randstad,<br><br>Werk: Ontwerper (wss serious games)<br><br>Werklocatie: Randstad<br><br>Ik reis naar werk met fiets en als het regent een toekomstig ov/service systeem wat van deur tot deur brengt met abonnement<br>Hobbies:<br>- zellen<br>-volleybal<br>- fotograferen<br>- piano spelen<br>- Hardlopen | Ik kies voor het openbaar vervoer netwerk in 2040<br><br><div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <br/>         JA       </div> <div style="text-align: center;"> <br/>         NEE       </div> </div><br>Waarom?<br><br>Duurzaam, geen verantwoordelijkheden, sociaal, makkelijk, staat altijd klaar |
| Dit maakt mij trotst:<br>- Duurzame keuzes maken<br>- Eigen huisje boompje beestje hebben gebouwd                                                                                                                                                                                                                                                                                                   | Ik zou trots zijn om met het openbaar vervoer netwerk te reizen in 2040 wanneer:<br>- Het duurzaam is<br>- Deur tot deur brengt<br>- het altijd klaar staat (je kan het niet missen of iets)<br>- Schoon is<br>- Goedkoop is<br>- Meer vriendelijke en vooral snellere werknemers                                                                                                                                                                                                                                                                    |

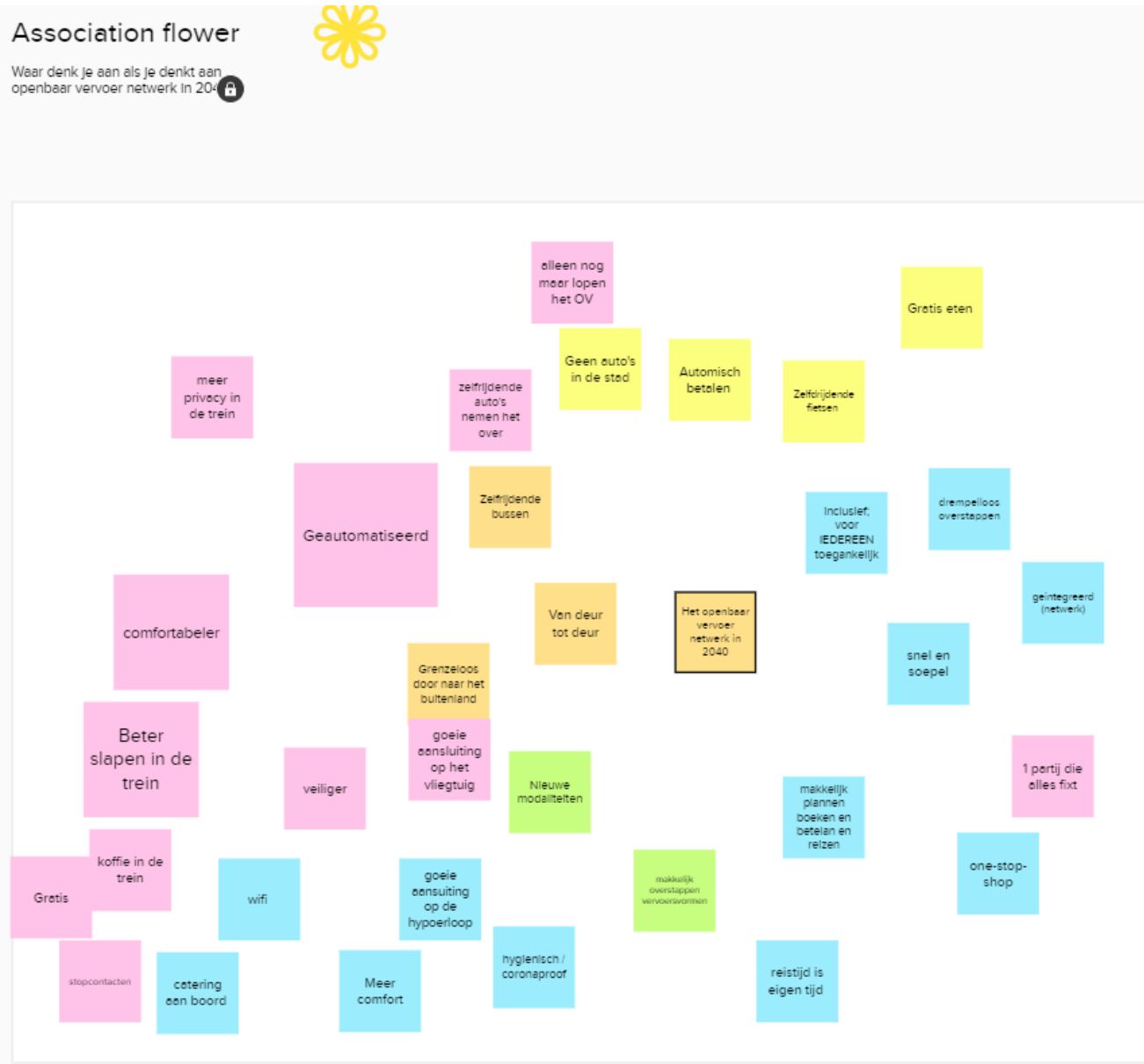
|                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Naam: Hanneke</b>                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Leeftijd: 46<br><br>Huishouden: Gezin met huisdieren<br><br>Woonlocatie: Buiten de randstad of een buitenwijk met een grote tuin<br>Werk: landschapsarchitect<br><br>Werklocatie: In de stad<br><br>Ik reis naar werk met: Fiets<br><br>Hobbies: Sporten in teamverband, muziek maken, wandelen, | Ik kies voor het openbaar vervoer netwerk in 2040<br><br><div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <br/>         JA       </div> <div style="text-align: center;"> <br/>         NEE       </div> </div><br>Waarom?<br><br>Ik denk dat in de toekomst openbaar vervoer veel meer omvat dan nu, nu zijn er bijvoorbeeld ook al deelauto's en ov fietsen. In de toekomst kun je op veel bestemmingen komen met het ov denk ik. |
| Dit maakt mij trotst:<br>- <br>-                                                                                                                                                                            | Ik zou trots zijn om met het openbaar vervoer netwerk te reizen in 2040 wanneer:<br>- <br>-<br>-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



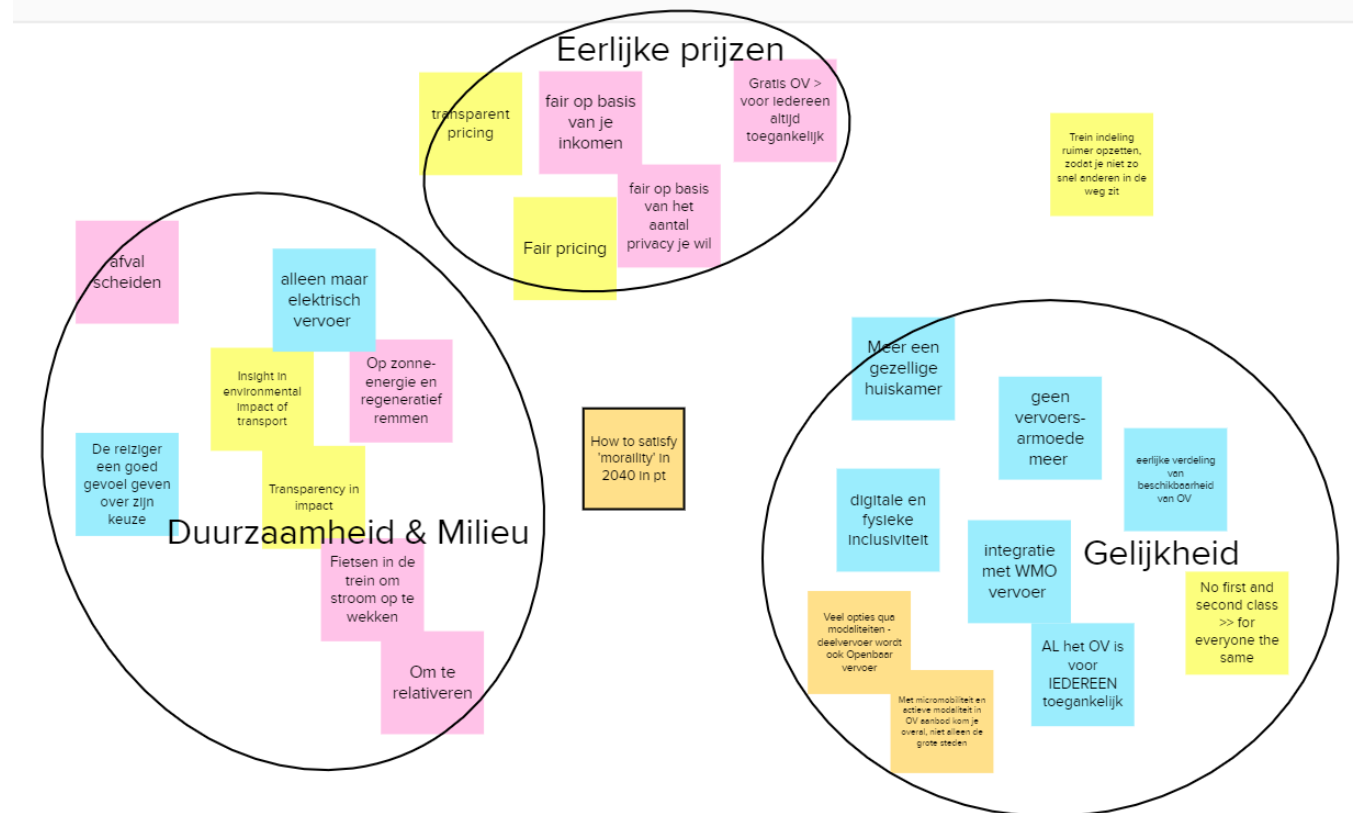
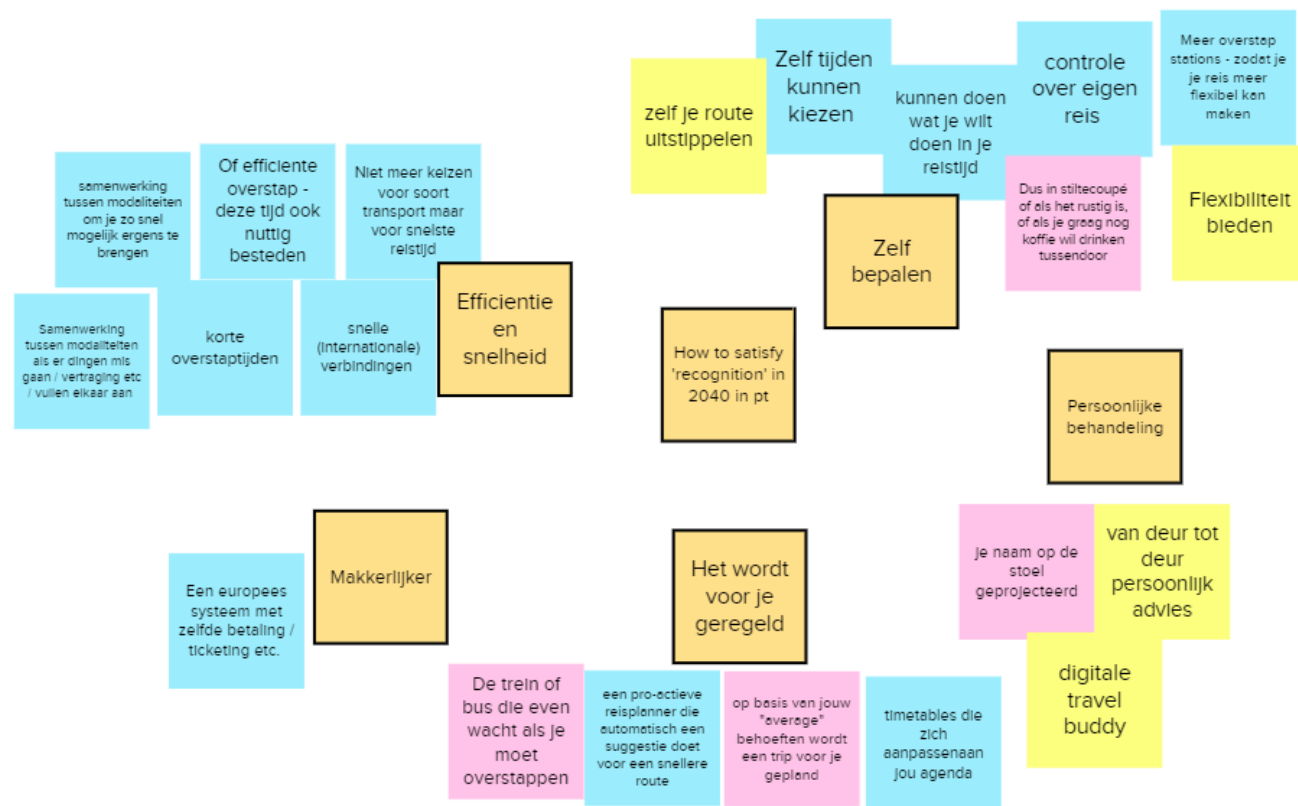
# Voor iedereen comfortabel zonder erbij na te denken



K - Co-creation session 2







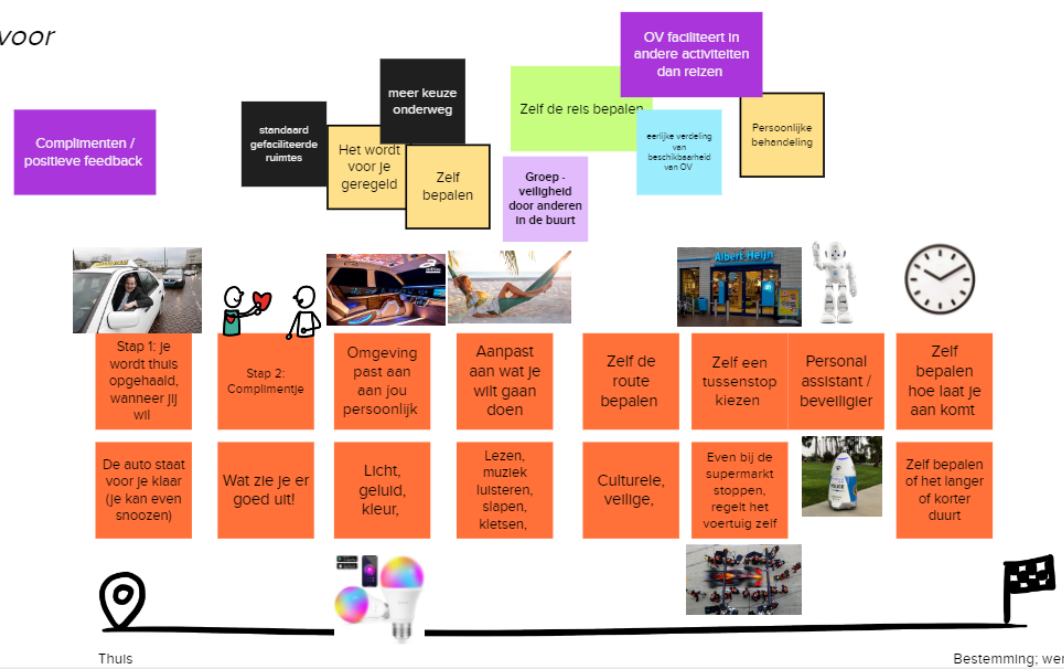
Toekomst scenario

Hoe ziet de reis met het hoogwaardige openbaar vervoer netwerk eruit in 2040 van deur tot deur? Werk visueel en geef het een titel!

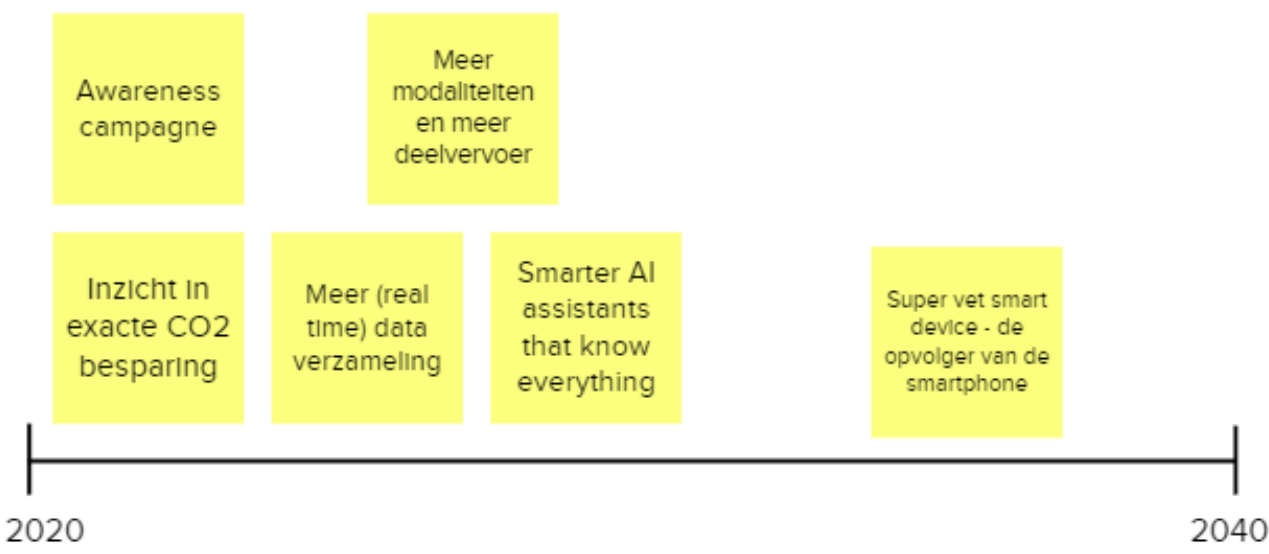
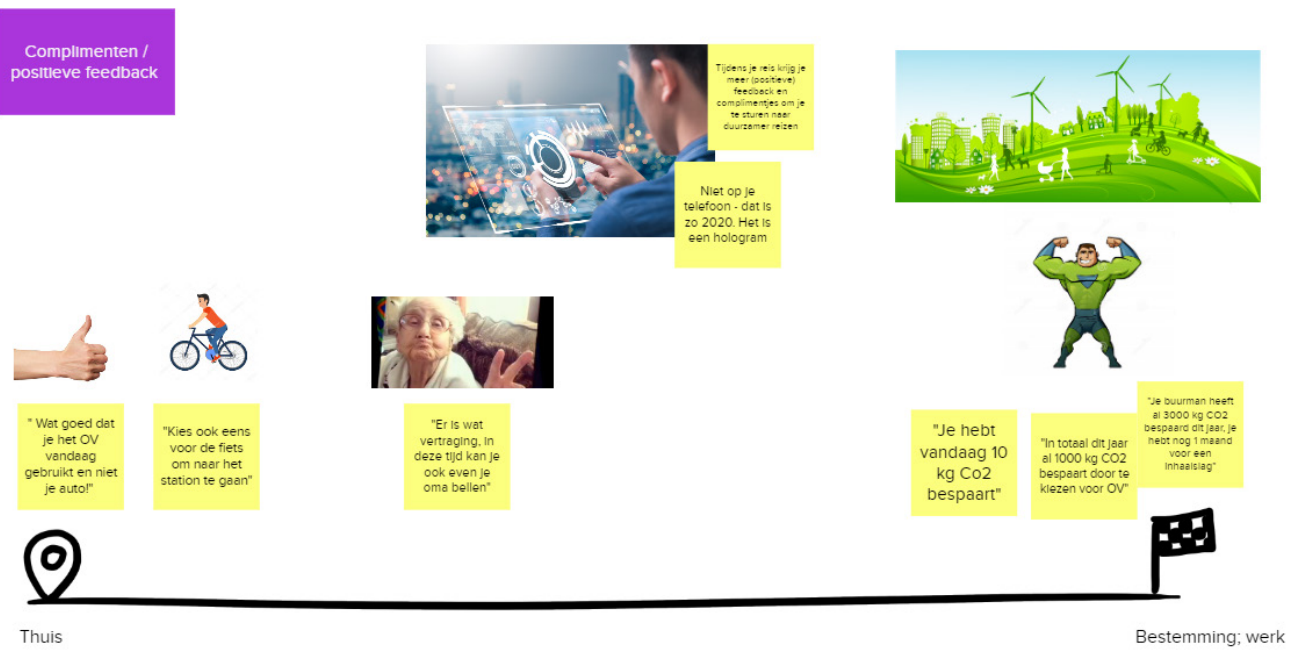
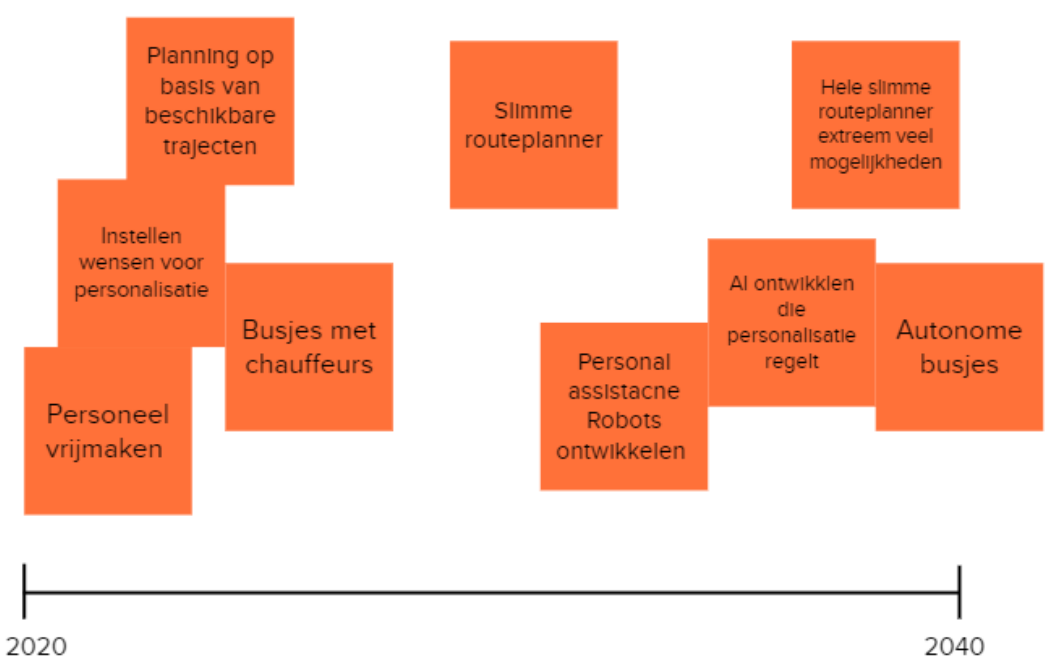


Mogelijkheid om te doen wat je wilt

Geen zorgen voor morgen



De nodige stappen



# L - Trends

## Demographic trends

**Growing cities:** The number of inhabitants in cities continues to grow at the expense of the numbers of people in the countryside. This increase puts pressure on the public spaces in the cities. It is getting too busy in the streets, on the roads and in public transport. Some cities are starting to introduce car-free neighbourhoods or find other ways to ward of cars as cars relatively need a lot of space, for example for parking.



**Individualism:** You can't speak anymore of the city or the citizen. The masses are fragmentised and locations, positions, preferences, opportunities and ambitions are different for everybody. Never have there been so many small households. The individual sets more and more requirements for customization and freedom. Also social media plays a big role in individualisation by personalising the information people see. This creates a separation of people with different lifestyles who don't meet and talk to each other anymore.

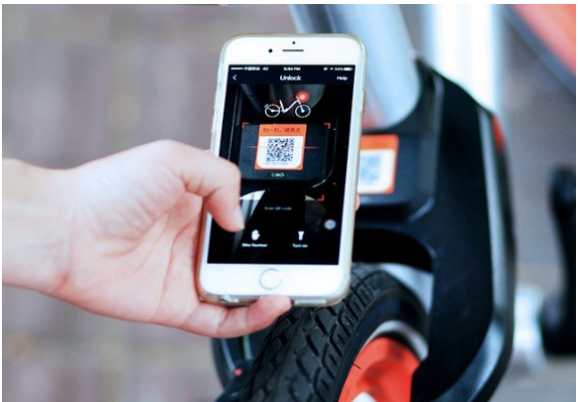


**More complex lives:** There is an increase in the activity patterns for people. People have more and more roles and responsibilities that they have to combine in their life. This is also reflected on the travel behaviours of people. They don't just go directly to their destination, but go from A to B via C and D. They come from work but get first some groceries and then pick their child up from day-care.

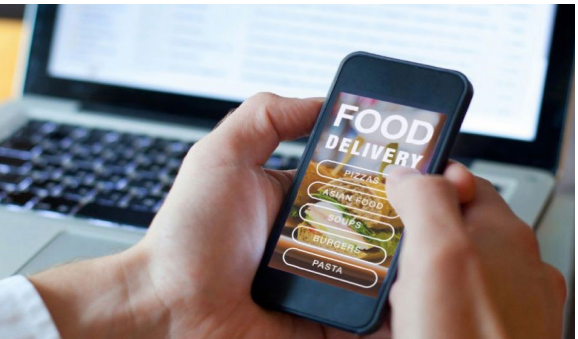


## Economic trends

**Pay-per-use:** Servitization and pay per use has been introduced over the last couple of years. People pay for the use of the product, instead of the product itself. For example with the bike, with Swapfiets where people pay a monthly fee to have a bike and repair services to have the guaranteed a bike. In the upcoming years this will increase with the micro mobility services. Experts believe this will eventually also be introduced with cars, as it provide insights into the actual costs and therefore can make a more realistic choice.



**Less travelling:** Shopping from home has been a trend for a long time now. However, due to the COVID-19 pandemic now also working from home is the normal. Furthermore, people are getting used to communication with friend from home. Experts believe people will also keep working from home during some days of the week. Therefore, people have less need to travel.

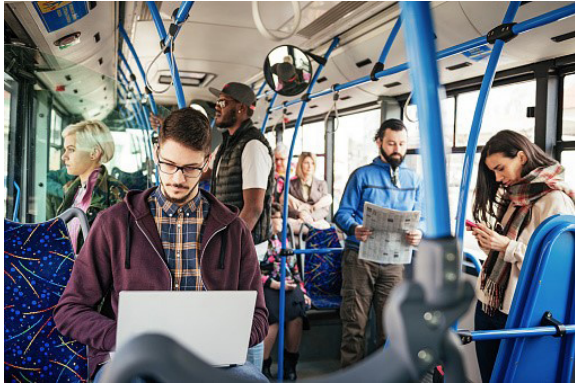


Socio-cultural trends

**Flexibilisation.** The way people work is changing in which the importance of time-and location preferences develops with the help of new technological advancements. More and more working takes place outside the real offices and office hours. For example that people choose for working in a “workhub” with all different people in which you can rent a place which is accessible with public transport. This trend has also the potential to decrease the peakhour rush, because travelling will be spread over a longer period of time.



**Travel time enrichment:** Experts believe that the time people spend in public transport more and more changes into working time and therefore spend it more effectively. They will for example have virtual meetings and there will be facilities available to make this possible.



**Active mobility:** The interest to walking as a mode of transport is increasing. Also because of electric bikes in The Netherlands more people travel by bike instead of by car or public transport. The electric bike is a good alternative for distances up to 15 kilometres. This is beneficial because of health reasons and for the quality of the public spaces. This realisation is getting more attention of people and the authorities.



Technological trends

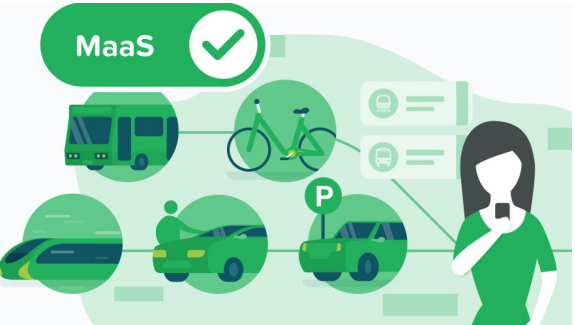
**Real time data gathering and providing:** The sensors in our phone, home, offices, transport modes and public places gather increasingly data about us and the people around us. With the help of algorithms predications are made about behaviour and with this it can give advice in our lives. For example, it gives the most optimal travel route and real time travel information. However, we need to watch out for digital exclusiveness and also keep in mind the people without the smartphone.



**New forms of (electric) mobility:** Over the lasts years, new forms of electric mobility have been introduced. For example, electric bikes, scooters, steps and hover boards. Expert believe drones and the Hyperloop could be implemented in this list in the future.



**MaaS:** Mobility as a Service is a new concept that integrates different mobility services into one single digital platform for a door-to-door transport and planning. In the Netherlands are several pilots to experiment with MaaS. The new technology trend of real time data gathering and providing makes this possible. Most likely it will be a complex network with collaborations between competitors.



Ecological trends

**Green cities.** Cities are warding of cars and having green in cities is becoming more important as the benefits, for example cooling of the city and mental health, are gaining more attention.



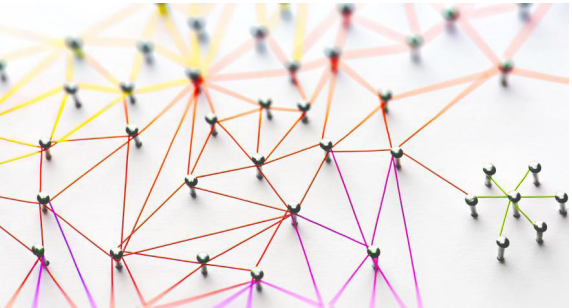
Car shame

The current trend is flight shame. People realise the harm flying does to the environment and travel more conciously. The next thing on this could be car shame, as this is also bad for the environment with CO2 emmissions.



Policial trends

**Complex networks** The worls is becoming more and more complex as everything can connect with each other. These network has its benefits, but also its challenges. In the future it is expected to become even more connected.



Competitor collaborations

In this connected world, competitors are forced to work together to achieve the same goal. This is because the challenges were are facing today, like climate change, it impossible to tackle alone.



M - Evaluation on requirements CH2

| RQ | Short description                                                                                      | Score | Explanation                                                                                                                                                                                                                                                                                                                                                           |
|----|--------------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | maintain or even increase the advantages of the current public transport                               | ++    | All three advantages have a big focus in the new design of the high quality public transport network. Furthermore, because the goal is to attract car-users to the public transport network, these advantages will have more effect in the future on the public spaces.                                                                                               |
| 2  | enough capacity for the expected growth                                                                | +/-   | The result of the capacity growth will need to be further analysed. However, as organisations can join and expand more easily, it is expected to grow                                                                                                                                                                                                                 |
| 3  | a reflection of the general future vision of the public transport network made by the Dutch government | +     | The proposed future public transport network will at least fulfil 3 out of the 4 objectives, because it will be emission free due to the requirements set by B1-net. Furthermore it will create a door-to-door experience and most likely the traveller will rate the network highly. However, more research will need to prove if the capacity will also grow by 40% |
| 4  | a door-to-door travel experience by combining different means of transport                             | ++    | This is a requirements directly implemented in the concept                                                                                                                                                                                                                                                                                                            |
| 5  | provide certainty to the traveller about their journey                                                 | ++    | This is implemented in the concept of B1-net in multiple ways. First B1-net is in direct contact with the traveller and provides this certainty with multiple means of communication. Second, the certification structure provides certainty for the traveller. Last, the data sharing provides certainty.                                                            |
| 6  | convince car users to switch to a public transport commute                                             | +/-   | Because the high quality public transport network will be the norm and the car users will be explained how they will receive certainty, the network becomes more attractive. This, together with the right interventions can persuade commuters to switch to public transport.                                                                                        |
| 7  | address the future fulfilment of the six fundamental needs                                             | +     | This is a requirements directly implemented in the concept, but however could be further evaluated with commuters when it is possible again to travel with the public transport network.                                                                                                                                                                              |
| 8  | have a peak of positive emotion and a high positive emotion at the end of the journey                  | +     | This is a requirements directly implemented in the concept, but however could be further evaluated with commuters when it is possible again to travel with the public transport network.                                                                                                                                                                              |
| 9  | an integrated digital platform (MaaS / Trip)                                                           | ++    | This is a requirements directly implemented in the concept                                                                                                                                                                                                                                                                                                            |
| 10 | be efficient making it smart, fast, comfortable, and sustainable                                       | +     | The network puts the traveller at the center and the stakeholders in the network work closely together. Because of this, the network will achieve this requirement                                                                                                                                                                                                    |
| 11 | have a balance between integration and innovation                                                      | ++    | This is a requirements directly implemented in the concept. The collaboration of B1-net will be regulated with a governmental organisation to create integration, while also private parties join the network creating innovation                                                                                                                                     |
| 12 | make use of a certification structure to allow third parties to join                                   | ++    | This is a requirements directly implemented in the concept                                                                                                                                                                                                                                                                                                            |
| 13 | facilitate collaboration through a roundtable conversation structure                                   | ++    | This is a requirements directly implemented in the concept                                                                                                                                                                                                                                                                                                            |



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