

Balancing Autonomy in a Shared World

An Urban Mobility Concept for Cortina in 2035

Appendix

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A. Trend Analysis

A trend analysis was carried out in the defined domain to understand the future context in which the micro-mobility will operate. In this Appendix, the results of the analysis will be described and explained.

Methodology

The project's scope is to design a micro-mobility concept for the urban lifestyle in 2035 for the brand Cortina. To get a coherent view of trends relevant to this scope, research and trends regarding cities, mobility, and cycling are paramount. First, a lecture from Kruitbosch B.V itself described global macro-trends. Next, the Google search engine served to find popular (news) articles related to the topic. Google Scholar was used to discover relevant research (See Figure A1).

Search words	
- Mobility future city	-Future cities
- Mobility in the future	- Urban lifestyle future
- Cities in 2035	- Urban mobility
- Cities of the future	- Urban mobility future
- Mobility	- cars future
- Cycling future	- cars cities future
- Cycling cities future	- cycling decline
- City bikes	- mobility car future
- Bike of the future	- downfall bicycle
- Cycling 2035	- e-bike critique
- Cycling trends	- e-bike dangers
- Cycling trends western europe	- downside mobility future
- Cycling cities	

Figure A1: Keywords Trend Analysis

To prohibit a bias towards a future where cyclists would thrive (which would benefit Cortina), phrases both relating to a positive outlook on cycling (cycling cities future) and a negative one (cycling decline) were used. The domain of mobility is a saturated one with rapid research and development. Thus it was decided to limit the search to research more recent than 2018. Since the project's scope lies in the Western world, only papers in English relevant to the West were collected. Approximately 45 papers were collected this way. Of these papers, the abstracts determined their relevance to this trend research. Some papers were very informative but discarded nonetheless since they did not contribute to sketching a worldview of 2035 but focused only on the past, leaving twenty papers. From those, some offered great insights for the later stages of the project and not directly for the trend research and were put aside for that purpose. After this final selection, ten papers remained for conducting the trend research.

The remaining papers were read thoroughly to collect all trends and other relevant data in a document. From this document, post-its were created of all trends and put on a Miro board for clustering, resulting in 99 trends and developments. To find overarching themes, congruent trends were connected twice; the first was to indicate relevant clusters and topics, and the second was with two other students, one of Industrial Design and one of Policy Management, to ensure the scope contained all important trends. This final clustering led to an overview of trends causes for those trends and a foundation to endorse them (See Figure A2).

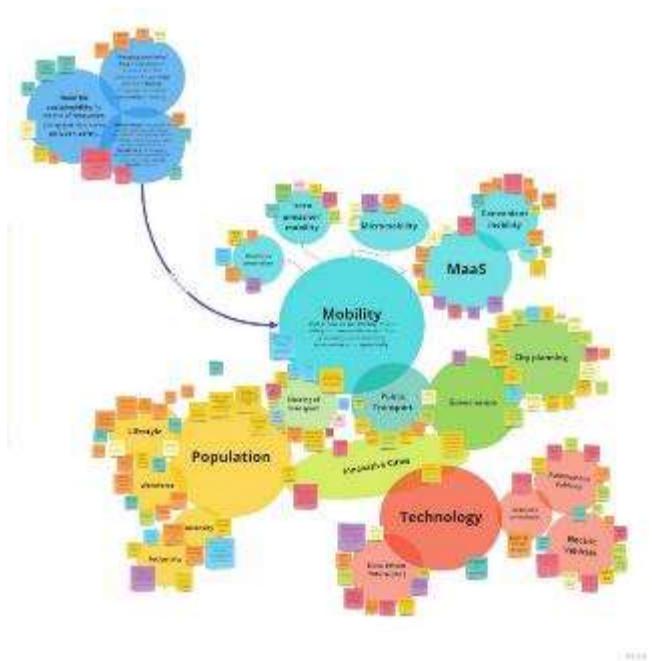


Figure A2: Trend Analysis Results

The trends found in the research are either a cause or a consequence of the world's changing perception of mobility, as described in Chapter 2, resulting from a growing need for sustainability, the changing population, and changing lifestyle. All affected areas will be addressed shortly with their respective sub-trends.

Mobility

As described before, the area of mobility is greatly affected by future challenges. Several sub-trends are present in the area of mobility in 2035.

- **Mobility & Lifestyle:** Lifestyle changes will lead to changes in mobility needs. People in urban areas will grow older, but their transport needs will increase. The number of young people owning a driver's license will remain the same in the coming years (Foresight Centre, 2021), resulting in a decreased demand for traditional vehicles and fewer parking spaces needed (Fong, 2019). The future customer wants sustainable convenience regarding mobility and other services (Tijssen & Kruitbosch B.V., 2022; Fong, 2019). Flex-working will become popular while the recognition of a healthy balance between work and private life becomes more apparent (Vandecasteele et al., 2019). In the meantime, the world's population will face a rising obesity pandemic due to a lack of physical activity (Foresight Centre, 2021).
- **Mobility as unnecessary:** In 2035, mobility will become a consumption good instead of a utility that can be purchased (Mulley & Kronsell, 2018). The concept of a 15-minute town (where everything citizens need is within 15 minutes of walking or cycling) is gaining popularity and is being implanted in several European cities (Foresight Centre, 2019). Mobility as unnecessary (also called low mobility) caters to the idea of proximity and stillness and argues that we should design living spaces that limit the need for mobility (Brömmelstroet et al., 2022).
- **'Zero-emission' mobility:** 'Zero-emission' mobility does not pollute the environment while used, making it a sustainable alternative to combustion vehicles. Walking and cycling are expected to provide crucial alternative transport (Vandecasteele et al., 2019) or complement transport (Rérat, 2021).
- **Micro mobility:** Digitalization is pushing toward more minor and more flexible modes of transport, impacting sustainability (Mulley & Kronsell, 2018). Micro-mobility offers

comprehensive solutions to current transport options, and the market share is expected to expand over the coming years (Fong, 2019).

Figure A3: Micro-Mobility. Tourists on Segways (Digi, z.d.)



Figure A3: Micro-Mobility. Tourists on Segways (Digi, z.d.)

- Mobility as a Service (MaaS): The status quo of mobility is currently changed by the concept of mobility as a Service

(Mulley & Kronsell, 2018) which entails bundling mobility concepts together and presenting them on one platform. It is expected to encourage consumers to omit private cars (Miskolczi et al., 2021). Public transport will be an essential means of transport in the MaaS landscape (Vandecasteele et al., 2019), as it lends itself to unbundling short to medium-distance transportation (Fong, 2019). The relationship between customers and transport providers will change as customers become more empowered because of digitalisation (Mulley & Kronsell, 2018). MaaS is a fragmented concept with no responsible leader to shape and form the services needed for a seamless mobility experience.

- Convenient mobility: Demand and preferences for mobility are diversifying, and no mobility user in the future will be the same, meaning that different forms of transport need to be combined to optimise travel flows (Foresight Centre, 2019). Integrated mobility platforms and algorithms, and data will optimise mobility services (Bouton et al., 2022). Mobility will be a flexible service, and urban transport solutions will use digital platforms to bring all available means of transport together (Vandecasteele et al., 2019).
- Sharing of transport: As explained earlier, the mobility narrative will change, and mobility will be seen as a collective good, fair, and shareable (Brömmelstroet et al., 2021). The dominance of cars must be reduced (Foresight Centre, 2021), and shared mobility models will become necessary, including vehicle sharing (Vandecasteele et al., 2019). Bike-sharing models are considered sustainable vehicle-sharing solutions (Duran-Rodas et al., 2020).
- Public transport: Public transport is becoming more recognised as an essential part of the mobility network in cities. Because of this recognition, the necessity due to population growth, and improving technologies, public transport is expected to improve during the coming years (Bouton et al., 2022; Vandecasteele et al., 2019). Public transport in the future will be a flexible service based on data and demand-based (Foresight Centre, 2021).
- Mobility Ecosystems: The rise of technology and the internet has significantly changed how people move around cities. Increased activity and exponential growth across several nontraditional areas of mobility can be expected over the next ten years (Heineke et al., 2021). Mobility ecosystems, which are systems that integrate various transportation options such as cars, buses, bikes, and trains, and non-mobility services such as package pick-up, have emerged as a solution to urban mobility challenges. Mobility ecosystems can improve the efficiency and sustainability of transportation systems and increase access to transportation for marginalised communities.
- Mobility Hubs: Mobility ecosystems in recent literature are described as clusters of either new, shared, or electric mobility services available at designated locations where travel demand is high, which can be integrated into conventional public transport services (Anderson et al., 2017; Bell, 2019; Coenegrachts et al., 2021). See Figure A4.

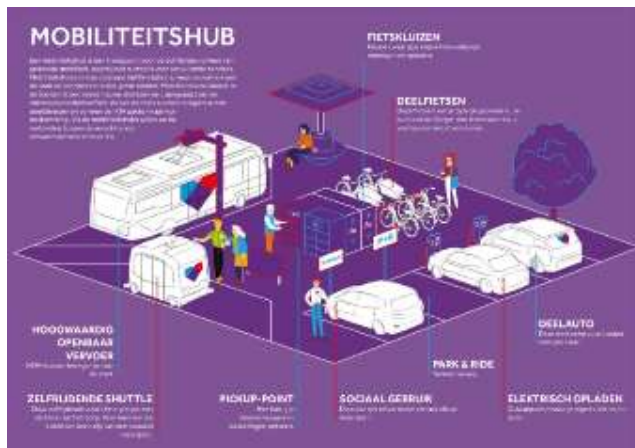


Figure A4: Mobility Hub

Population

As mentioned, the population of urban areas in Europe is expected to rise in the coming years (Lavalle et al., 2017), and people in cities will get older. This will put more strain on transport and require a different, more inclusive outlook on mobility.

- **Workforce:** As mentioned before, remote and flexible working is expected to become the norm (Foresight Centre, 2021). Due to the shortage of workers we are experiencing now, salaries will rise over the coming years (Tijssen & Kruitbosch B.V., 2022). The classic 'nine-to-five' lifestyle will no longer be the norm, and countries will try to attract talent from all over the globe. All these trends will also lead to a decreasing need for drivers and mechanics (Bouton et al., 2022).
- **Diversity:** Because of the diversifying population in cities, the need for mobility will diversify too. Every mobility user in the future will be different (Foresight Centre, 2021). Mobility may be regarded as a social interaction, where the street is a public space promoting diversity (Brömmelstroet et al., 2022).
- **Inclusivity:** There are better solutions than a private vehicle for everyone regarding mobility. Government has to implement regulations to promote inclusivity if it is not profitable for companies providing mobility (Mulley & Kronsell, 2018). Following this insight is the recognition that mobility must be inclusive and cater to different needs. Citizens in the future will co-create mobility strategies with policymakers, and cities will act as innovation hubs due to their proximity to stakeholders and easy interaction (Vandecasteele et al., 2019).
- **Governance:** Governments recognise the environmental and spatial issues regarding private cars and will regulate their use in cities (as some already do). Vandecasteele et al. (2019) expect urban governance to become more powerful in Europe, with cities acting as co-created innovation hubs. Policy-making will also be necessary to ensure inclusivity in new mobility models (Mulley & Kronsell, 2018). An important note is that governments have to find a new way to tax mobility since their significant stream of income (from fuel) will thin out (Bouton et al., 2022).
- **City Planning:** Vehicle sharing will become popular and reduce the need for parking spots and reduce congestion (Vandecasteele et al., 2019). Infrastructure in the future will favour shared transit and bicycling (Bouton et al., 2022). City planning in the future will consider consumer-friendly mobility scenarios (Bouton et al., 2022) and is data-driven (Fong, 2019). This allows for a different approach to city planning than is currently taken.
- **Innovative Cities:** Future urban mobility is shared, autonomous, and electric (Miskolczi et al., 2021). Better technology will connect citizens and improve public services and transport. Cities

will act as innovation hubs because of the proximity of stakeholders and easy interaction between them (Vandecasteele et al., 2019).

Technology

The majority of trends and developments need technology to support them. On the other hand, emerging technologies are the reason behind some trends. The following developments are the main reasons for changes in the urban mobility landscape.

- Data-driven future (Internet of Things): In the future, the relationship between customer and transport provider will change due to the empowerment of citizens because of digitalisation, pushing toward a smaller and more flexible mode of transport impacting sustainability (Mulley & Kronsell, 2018). Because of this digitalisation, data about citizens' travel behaviour can be collected, allowing algorithms to optimise mobility services and provide flexible, demand-based services through integrated mobility platforms (Foresight Centre, 2019; Bouton et al., 2022). Automation can realise smart mobility, where automated and electric vehicles go hand in hand with public transport. This will benefit congestion and the environment (Miskolczi et al., 2021).



Figure 3.10: Testing Autonomous and Automated Vehicles (Autonews Europe, 2021)

- Automated Vehicles: Automated and electric vehicles will provide a mobility solution with public transport (Miskolczi et al., 2021). Automated and connected vehicles will be integrated into MaaS concepts, decreasing the need for parking spots in cities together with public transport (Vandecasteele et al., 2019; Bouton et al., 2022). However, there are doubts about whether automated vehicles will be widespread and self-driving by 2035 because of the current lack of legislation regarding these vehicles (Foresight Centre, 2021).
- Electric Vehicles: Automated and electric vehicles will provide a mobility solution with public transport (Miskolczi et al., 2021). The electric vehicle is expected to be widespread by 2035 (Vandecasteele et al., 2019) due to policymakers who want to reduce carbon emissions and congestion (Fong, 2019), the decrease in energy prices due to the decentralisation of energy systems (Bouton et al., 2022), and their potential to be used as shared vehicles by MaaS concepts (Miskolczi et al., 2021). Because of rising gas prices, technological improvements, and the need for sustainability, batteries are expected to become cheaper (Foresight Centre, 2021).
- Hydrogen-powered vehicles: Various initiatives are underway in Europe to introduce 100.000 hydrogen-powered vehicles and 250 charging stations by 2025. This alternative to combustion engines might play an essential role in reducing the environmental impact of transport. However, the attitude towards mobility and sustainable alternatives must change to make hydrogen successful (Turoń, 2020).

The worldview regarding mobility will change in 2035. Instead of seeing mobility as a utility to be purchased, it will be seen as a consumable good. The reasons for this changing worldview are the need for sustainability, the changing population, and a lifestyle change, as described in Chapter 3.1.1. With

these trends in mind, a clearer view of mobility in cities in 2035 and bicycle trends are created for the project, and the first context factors that will be of use in the ViP method have been created.

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B. Context Factors

Ecological

We live on a finite planet with finite resources (principle)

Combustion engines emit emissions that are harmful to our planet (principle)

Walking or cycling is better for the environment than public transport or private cars (state)

CO2 emission is destroying our environment (principle)

Global warming is increasingly globally recognized as a problem (trend)

Brands are becoming more sustainable (development) due to demands from governments and customers (trend)

Research in alternative fuels is increasing (development)

Due to global warming (development), more people go vegetarian or vegan (trend)

Due to global warming (development), more people search for alternative transport methods from the plane or the car (trend)

Demographical

Almost one in three European cities will see their population increase by more than 10% in the next 30 years (developments)

By 2070, life expectancy in the EU will have risen to 88.2 years (development)

The population of cities will be more diverse (development) increasing the need for inclusive mobility options

Due to the increasing equality between men and women (development), and the decrease in the amount of children women have (development), people do not live in classical households anymore but in more single apartments (trend)

Biological

It is detrimental to a person's health to inhale combustion engine emissions (principle)

Movement is beneficial (or perhaps even crucial) to one's health (principle)

Plants need oxygen and water to survive (principle) and humans need plants to survive (principle)

Movement is beneficial to mental health due to endorphins (principle)

Political

Sustainable legislation (such as the right to repair) is increasing (development)

Citizens will be invited to co-create solutions together with municipalities (development)

The infrastructure of future cities will favor bike-sharing and public transport over private vehicles (development)

The decrease in private cars will free up space in cities that used to be parking spots (developments)

Congestion and traffic jams in cities are getting worse (development) so people tend to find alternative means of transport (trend)

There will be an increasing obsession with security, due to increased opportunities for information sharing and storage (development)

Political polarization will lead to a divide in the population (trend)

Psychological

The more choice a person has, the less likely it is that they will make a decision (principle)

People's brains are wired to choose the most convenient option (principle)

People are inherently reluctant towards things they are not familiar with (principle)

People get attached to their possessions and therefore care for them (principle)

People want to belong to a group (principle)

People tend to value order and make rules for chaotic situations, such as traffic rules (principle)

People care what others think and want to be trendy (state)

A bicycle is an extension of you as a person and gives freedom to go where you want (state)
Because of remote work and flexible hours (development), transport is no longer merely a means of moving from A to B, but can be regarded as a time for socializing or introspective (trend)
People need to feel safe and secure (principal)
People value freedom (principal)

Cultural

High school students want a bike with a crate (trend)
Cycling is Dutch culture (state)
Everyone wants to be unique (trend)
In many cultures, a street is a social place for everyone (state)
Teenagers have a smartphone around the time they go to high school (state)
The cultural norm is that, when it comes to transport, travel time is most important (state)
A bicycle is more and more an expression of identity (trend)
The society we live in is so convenient that we suffer from an obesity pandemic (state)
The demise of the nine-to-five lifestyle (trend) will result in more spontaneous activities (trend)
Everyone is connected and present on social media (trend)
People will be free to make their own choices and pursue the life they want due to societal norms diminishing (trend)

Economic

The nine-to-five mentality is disappearing and making way for a balanced lifestyle between work and free time (trend)
Companies are more flexible regarding remote work and hours (development)
Ownership is no longer the norm as products are often offered as a subscription or service (development)
Mobility as a Service (MaaS) platforms are increasing (development)
People value good service and a brand identity that fits them when purchasing a good that does not differentiate much from its competitors (state)
People rationalize big expenses (principle)

Technology

Digitalization is pushing toward smaller and more flexible modes of micro-mobility (development)
Integrated mobility platforms and algorithms will optimize mobility services (development)
The use of electric cars is increasing (trend)
The use of books is decreasing at schools and making way for digital alternatives (development)
In the future, more vehicles will be powered by electricity or alternative fuel (state)
The Internet of Things creates seamless and data-driven experiences but also calls for policy regarding data protection (development)

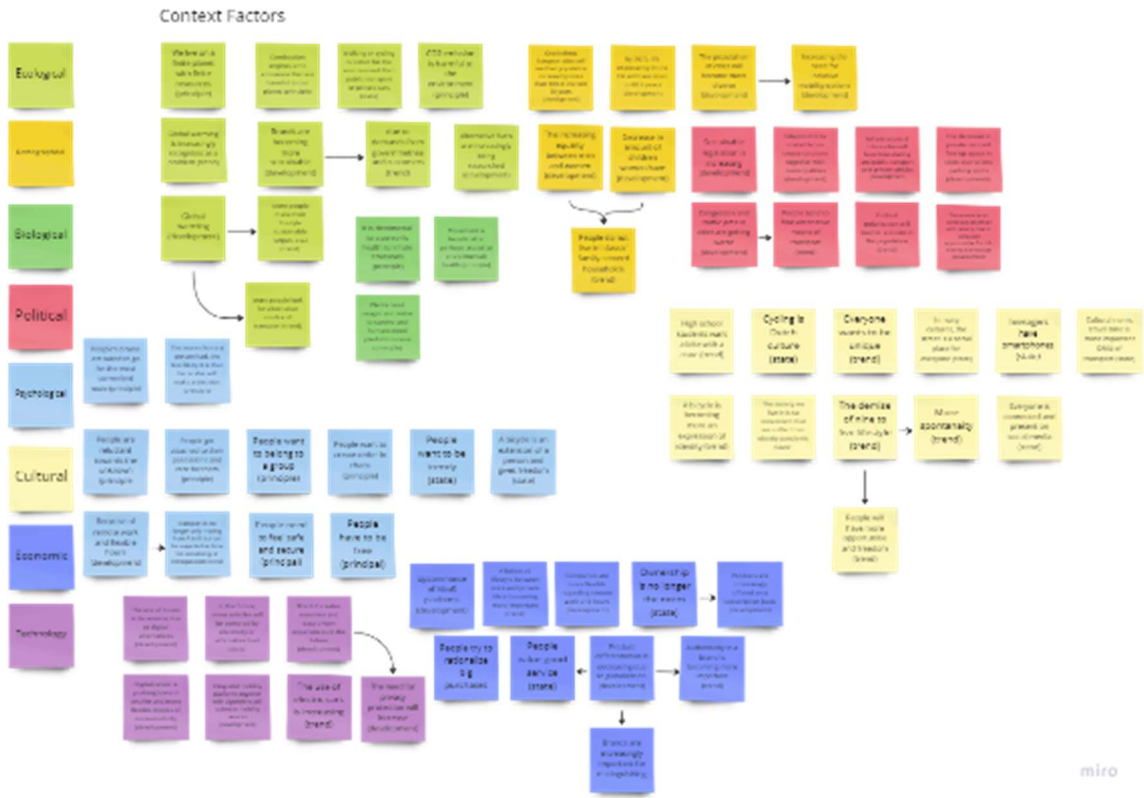


Figure B1: Context Factors clustered by domain. Narrative relationships are shown with black arrows.

miro

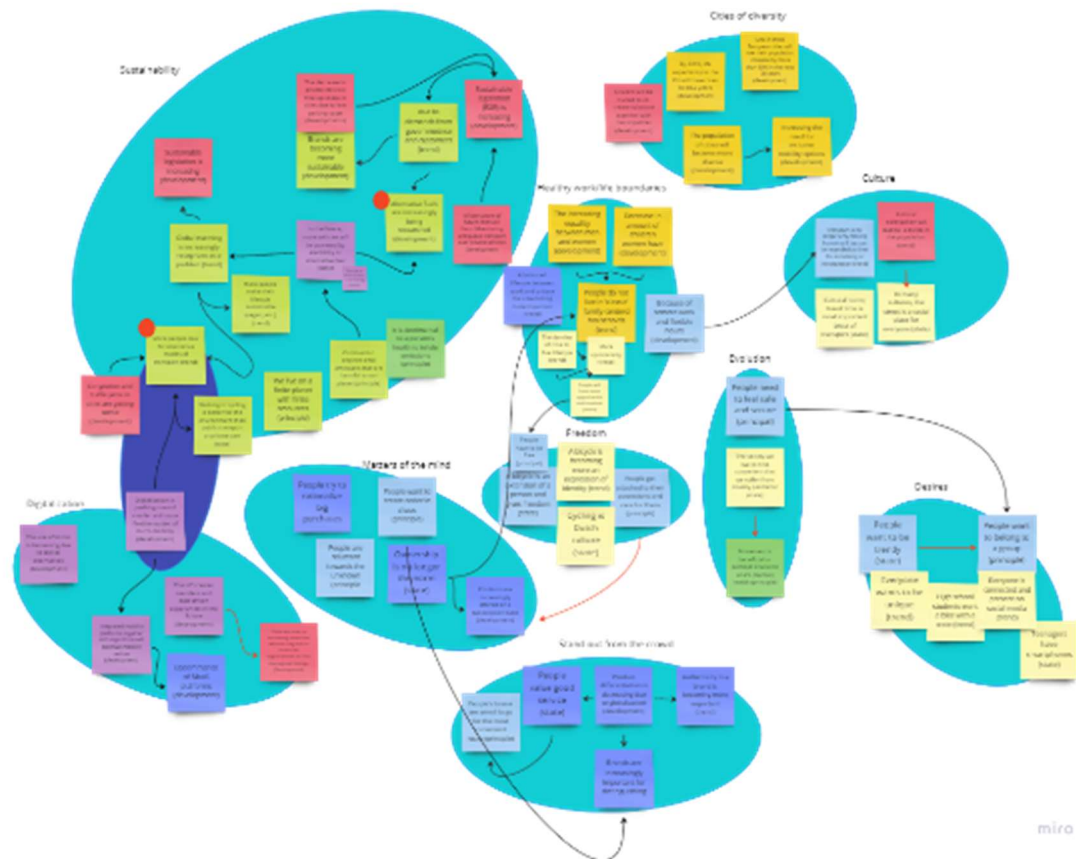
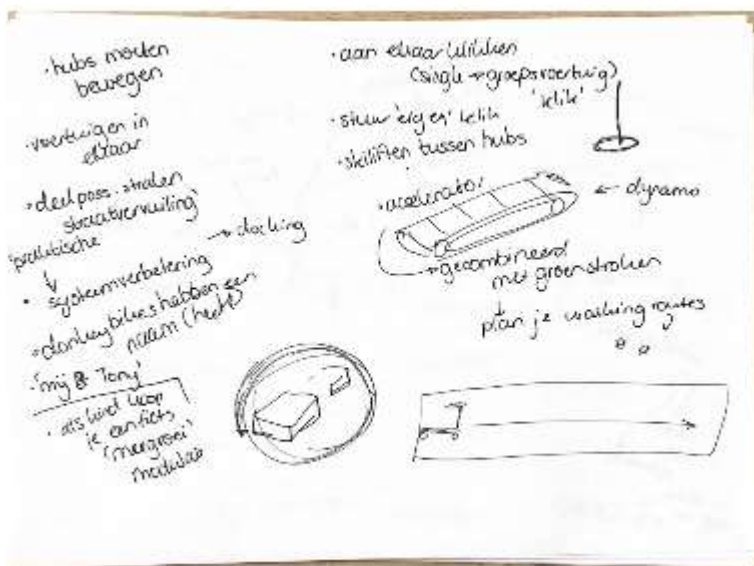
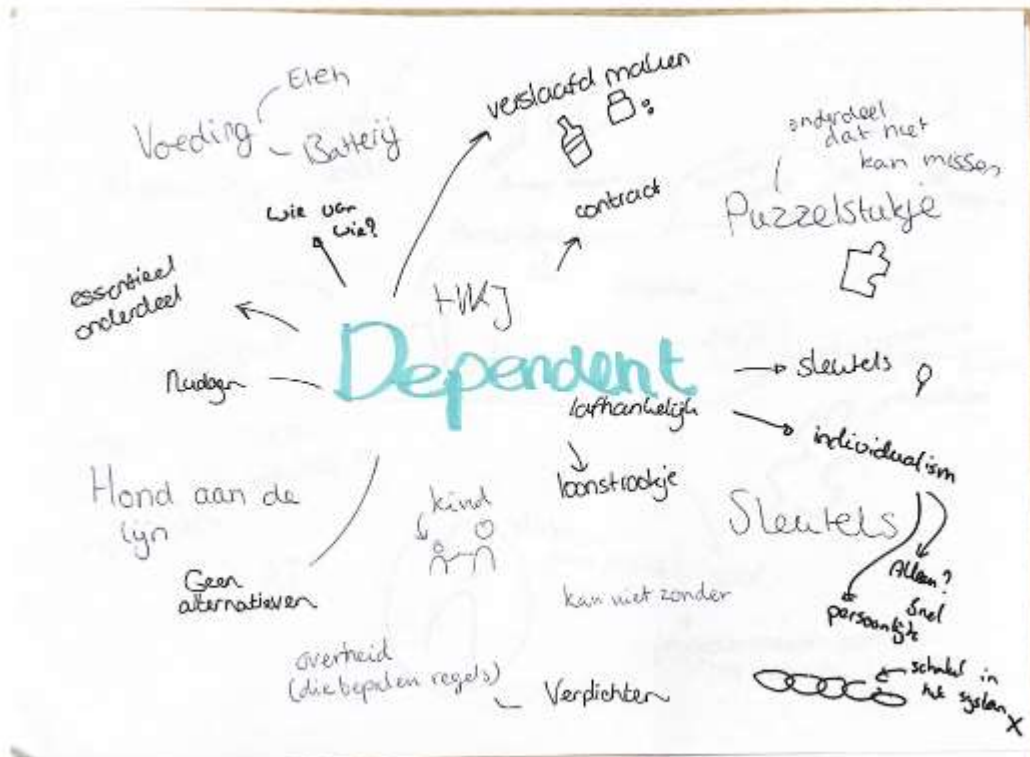


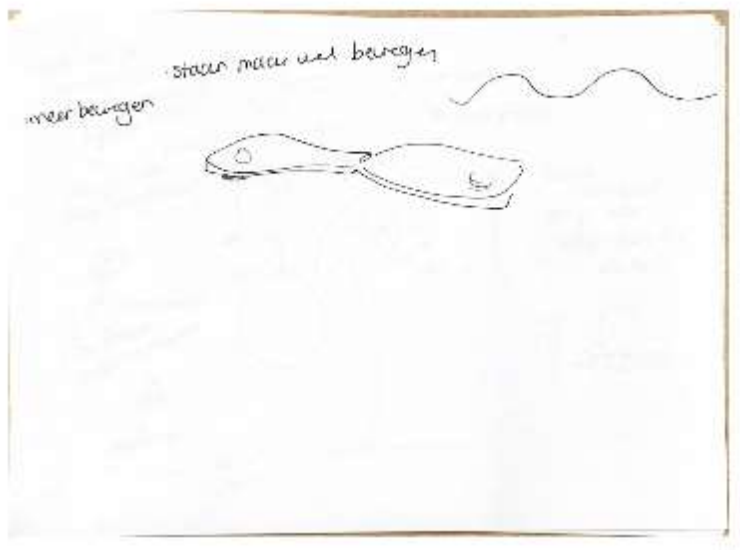
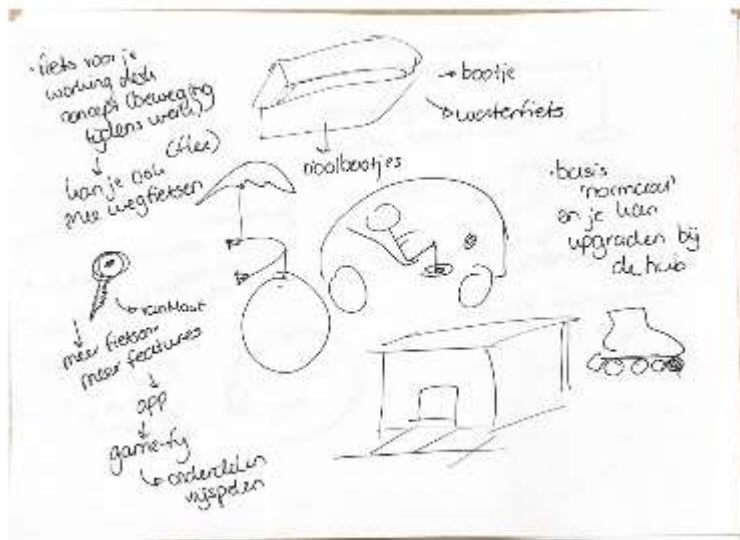
Figure B2: Clustering of Context Factors in themes. Dimensions are shown with red arrows.

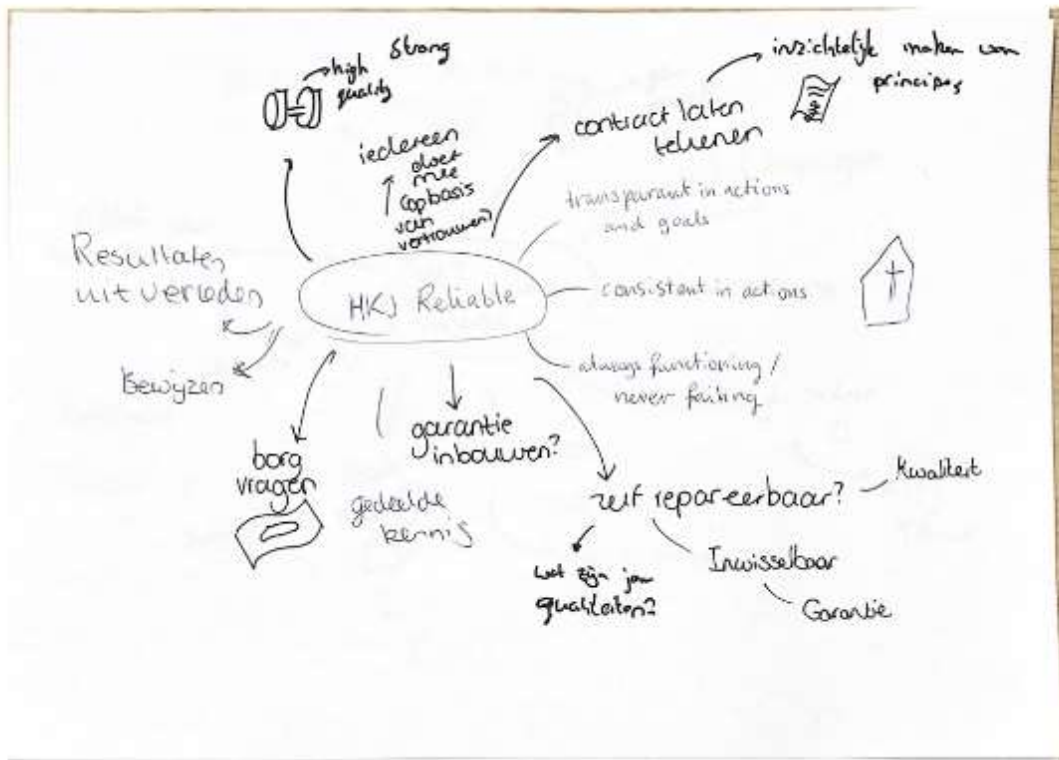
C. Answers Prize Question Dutch Design Week



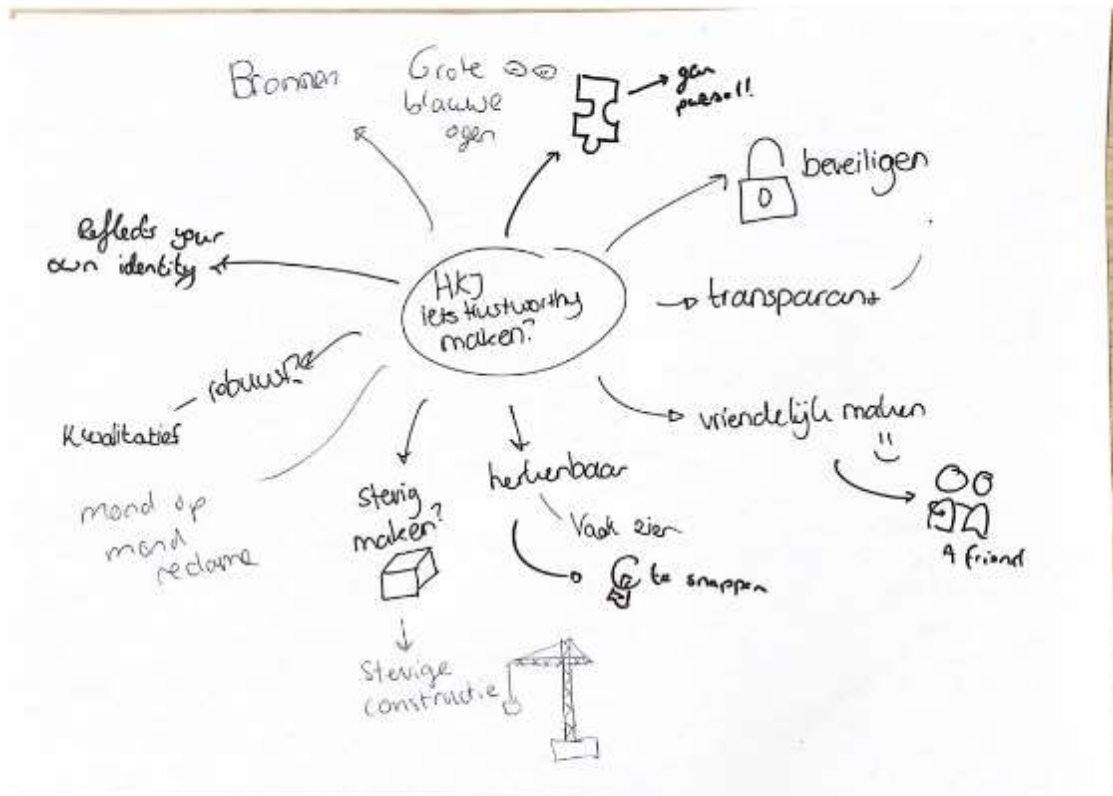
D. Brainstorm & Brainwriting Sessions



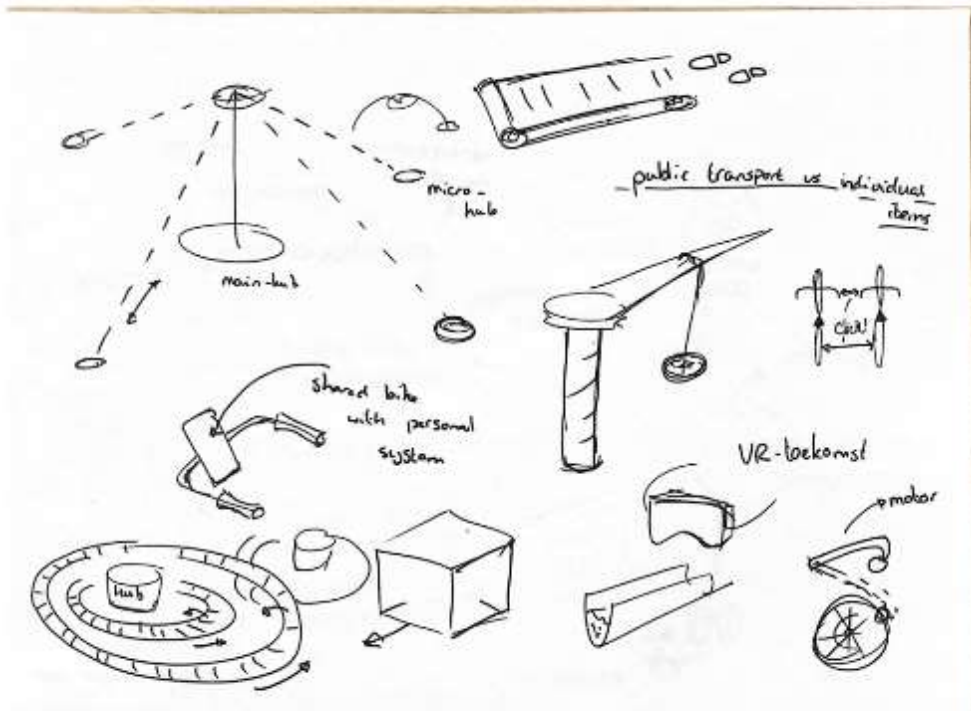




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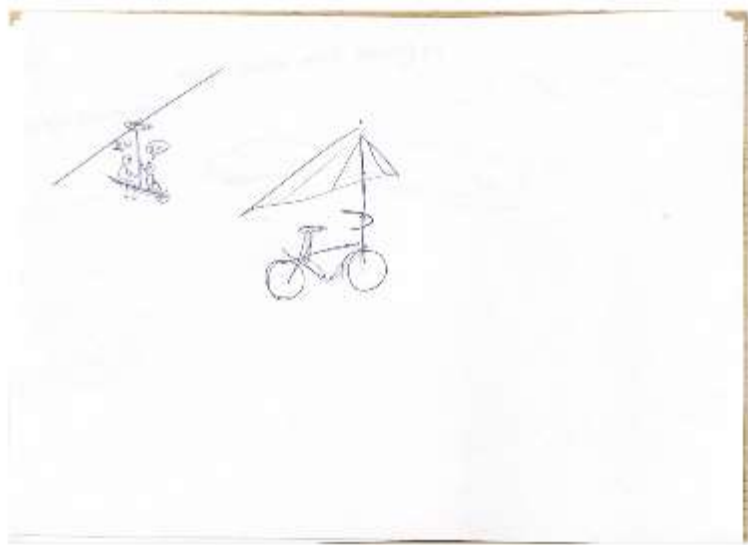
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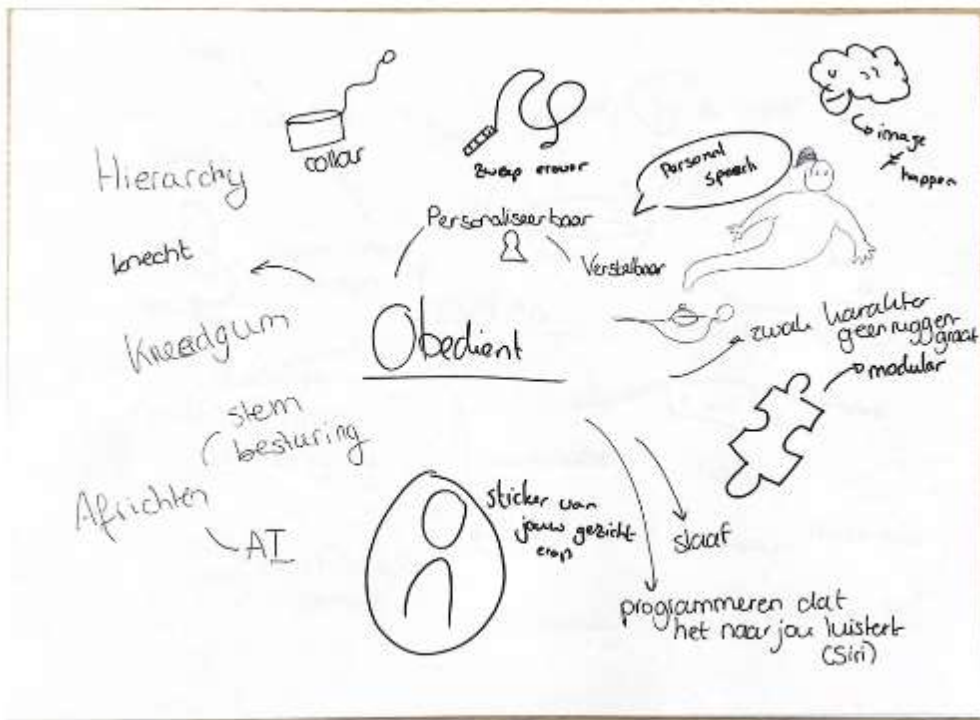


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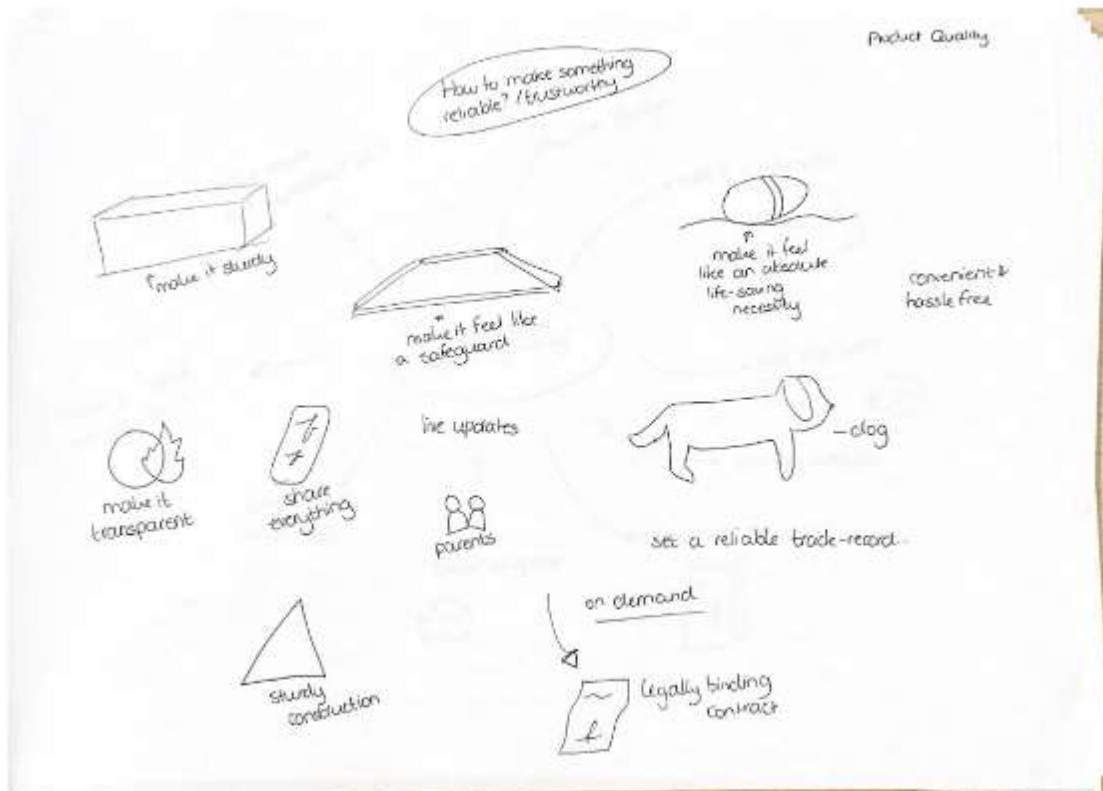
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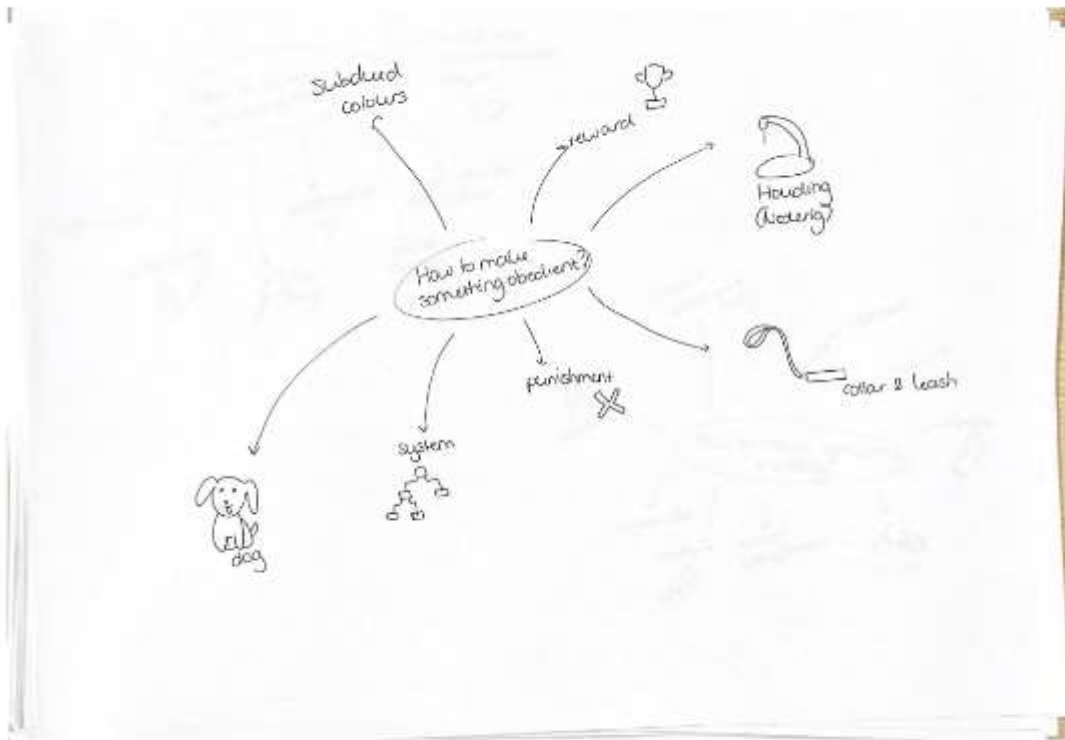
Brainwriting



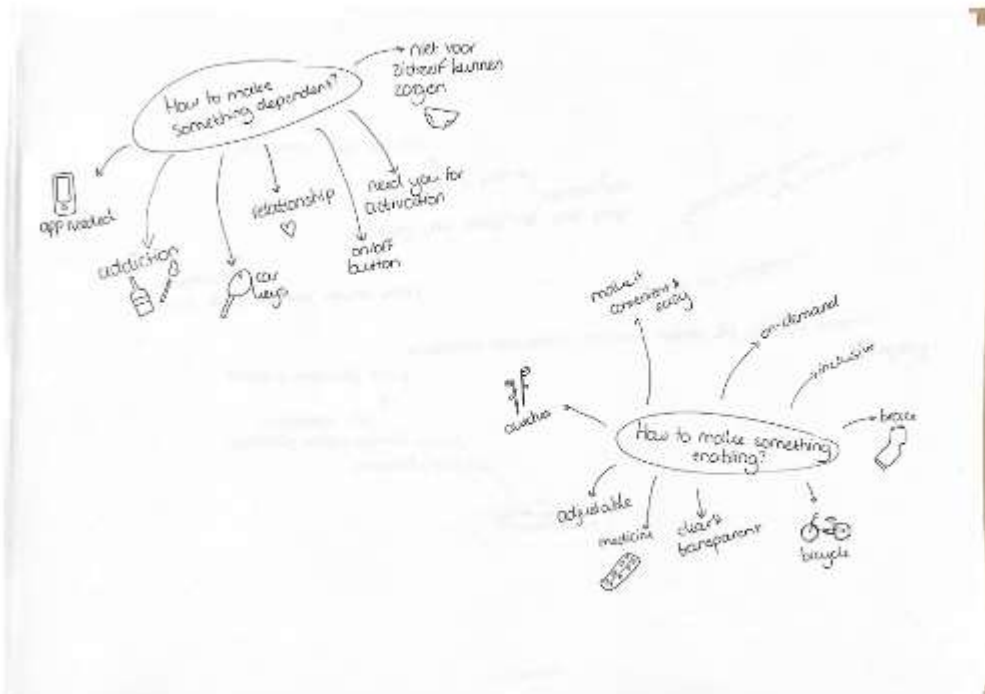
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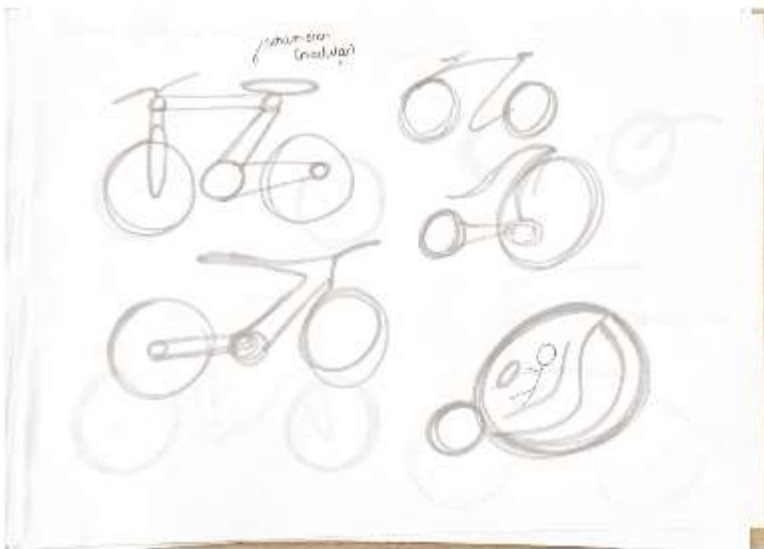
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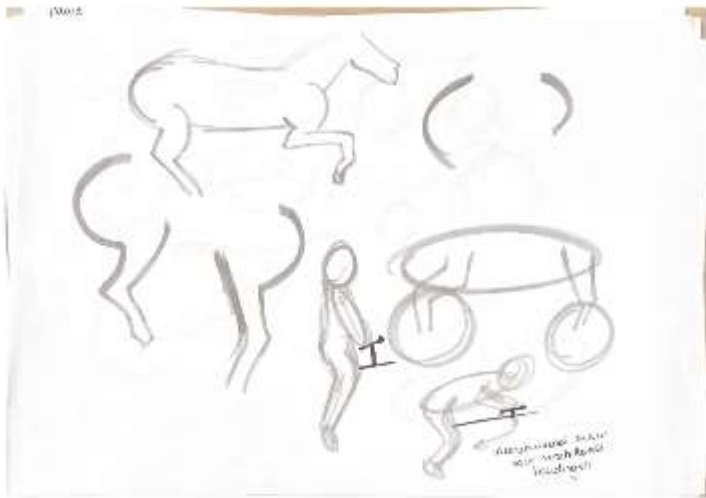


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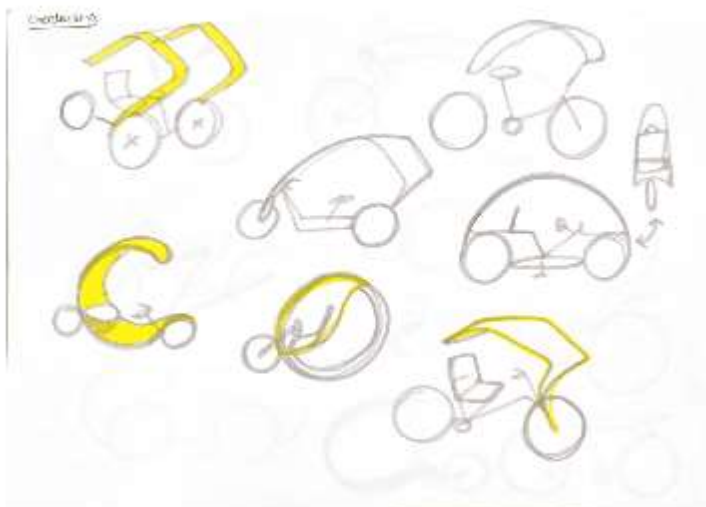




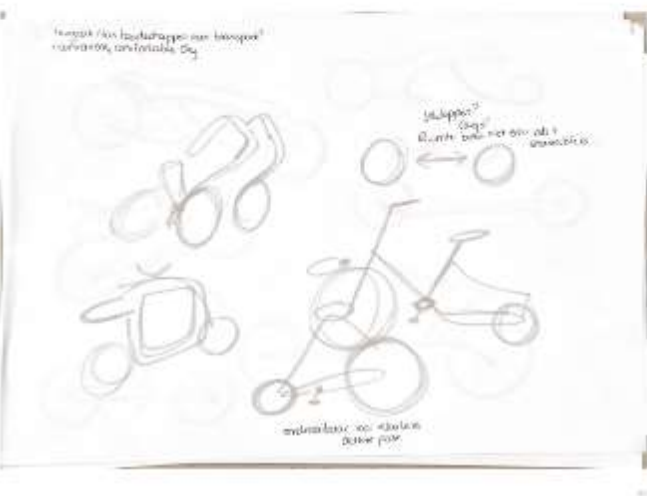
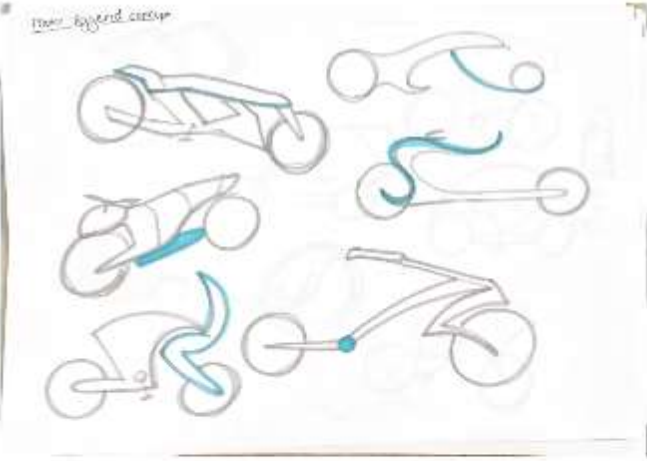
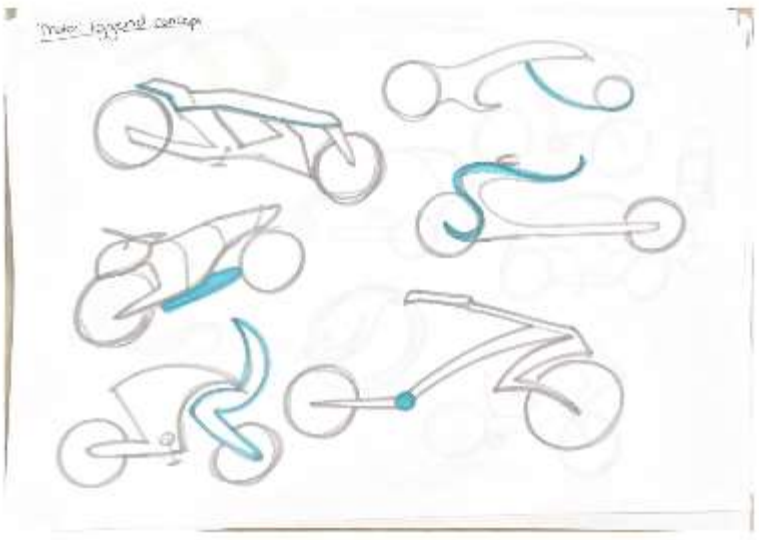
1902

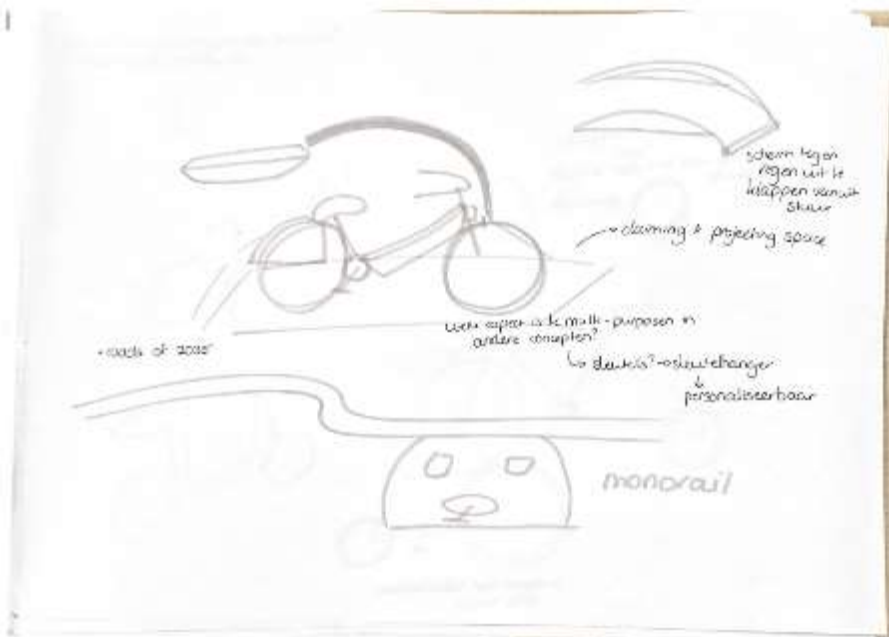


1903



1904

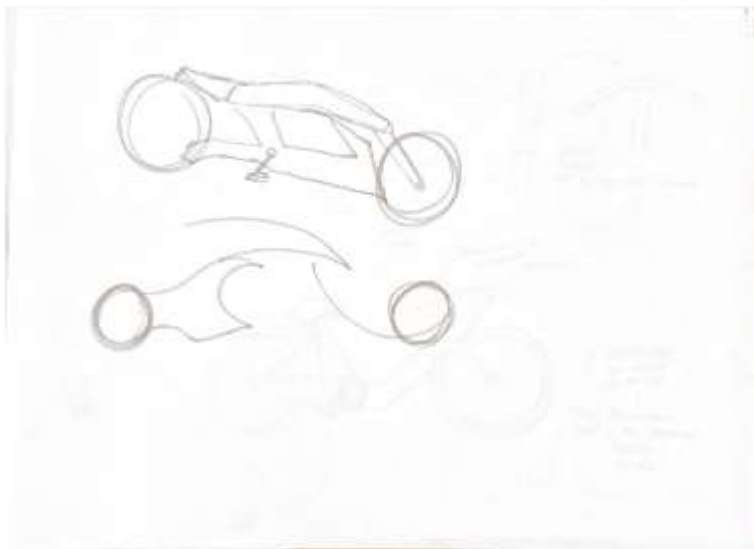




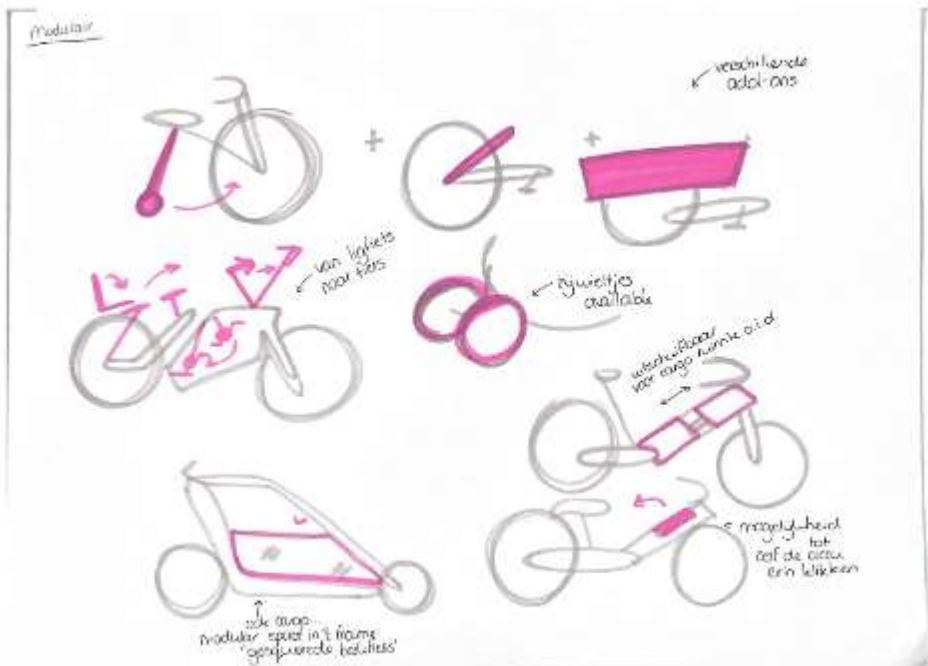
11111

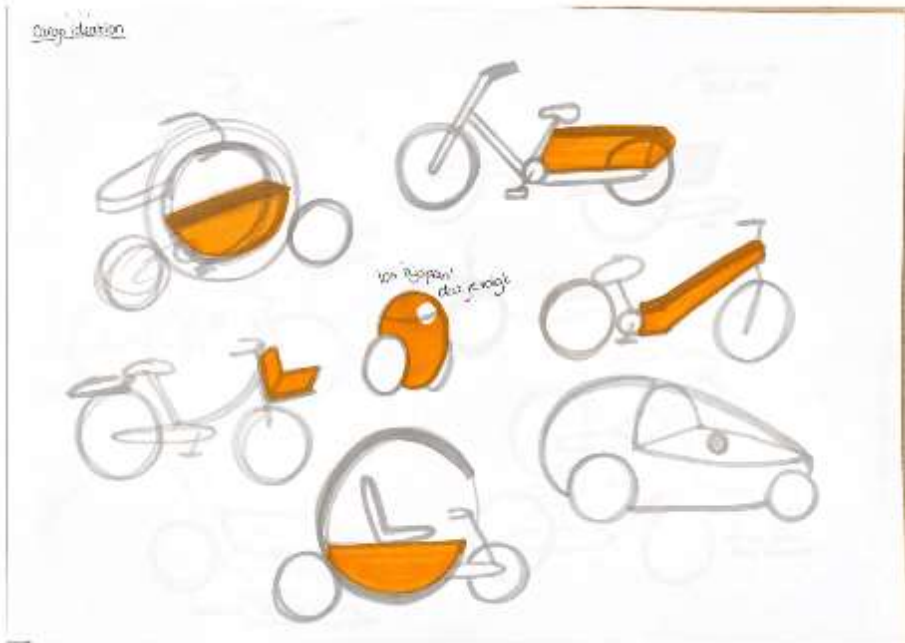


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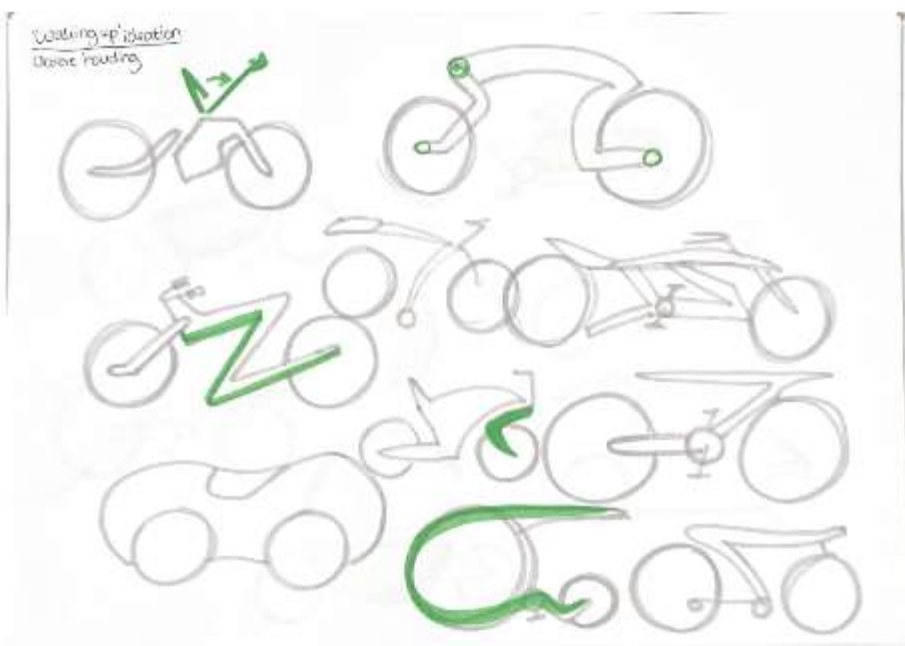


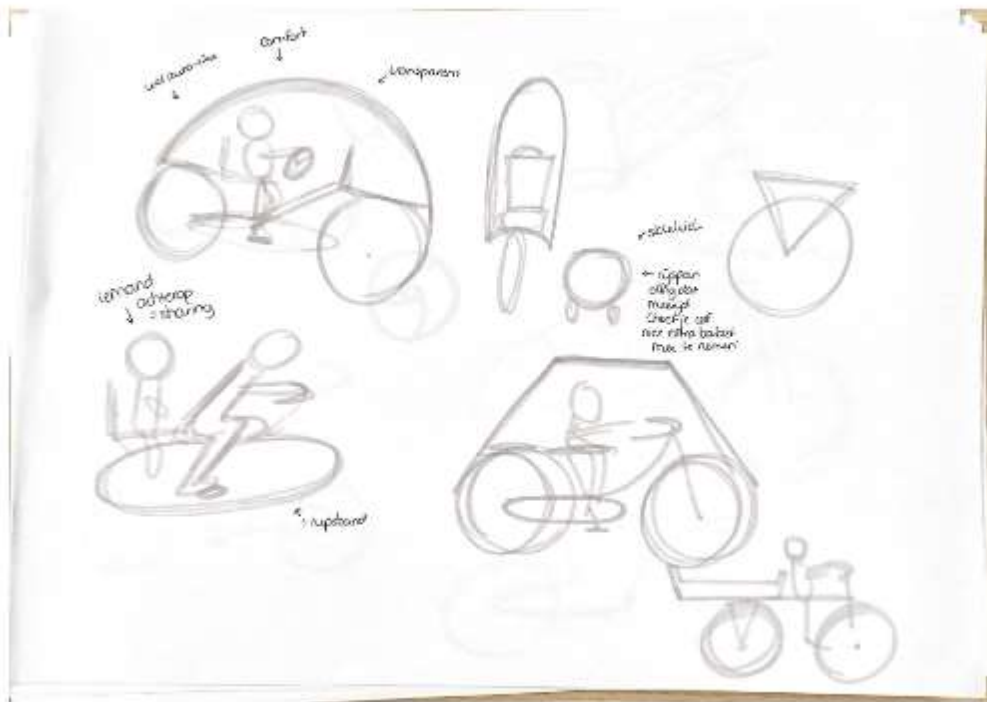
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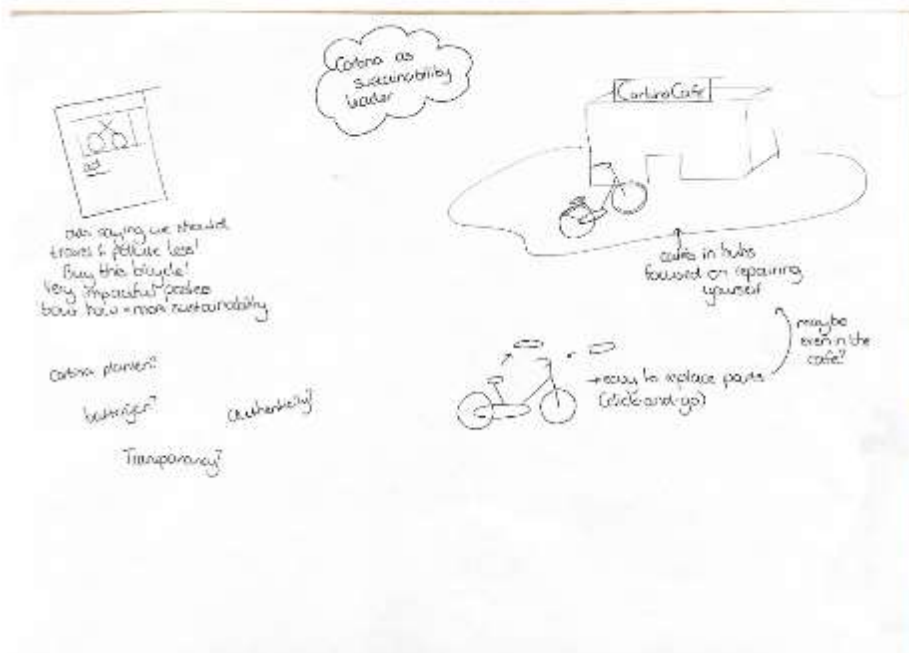
mmp





miru

Brainwriting after design context



miru



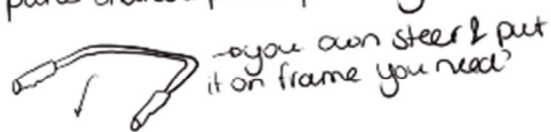
Mobility concepts Cortina can provide



collaboration with NS? Or other hub & mobility providers?

first shared e-bike platform?

parts shared / parts privately owned?



Shared



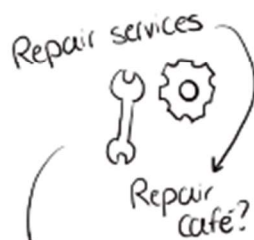
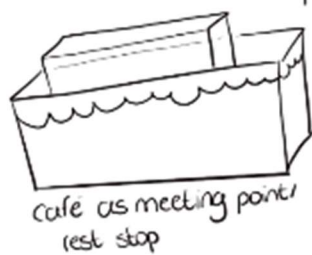
Place in hub system outside of providing mobility

What will be present at an urban hub?

community "focused"



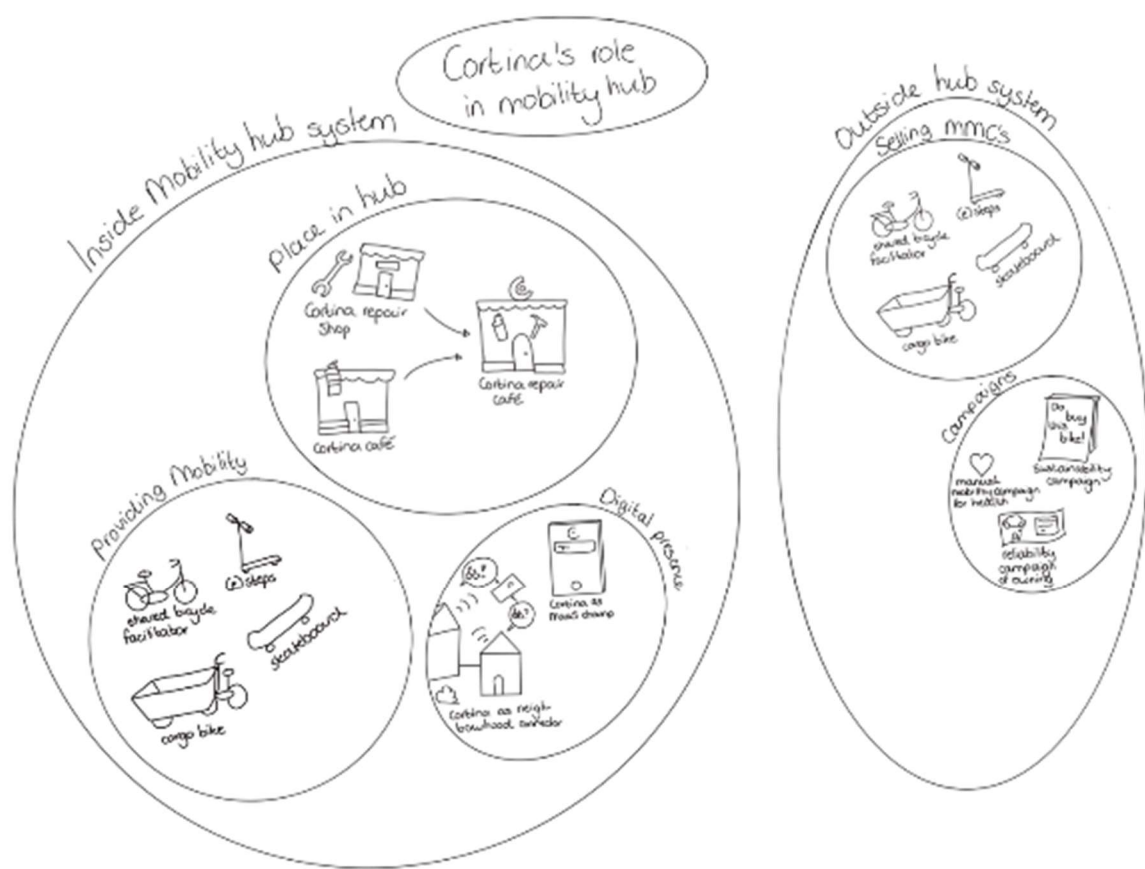
book/plant exchange



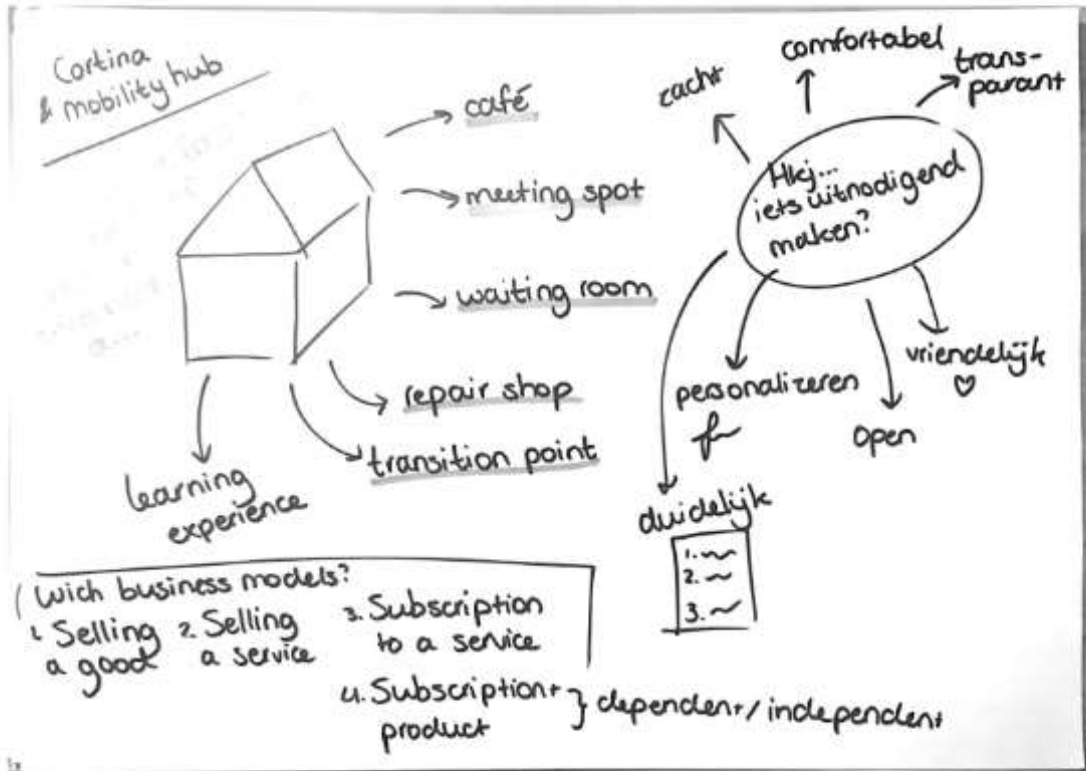
Daycare / petcare?

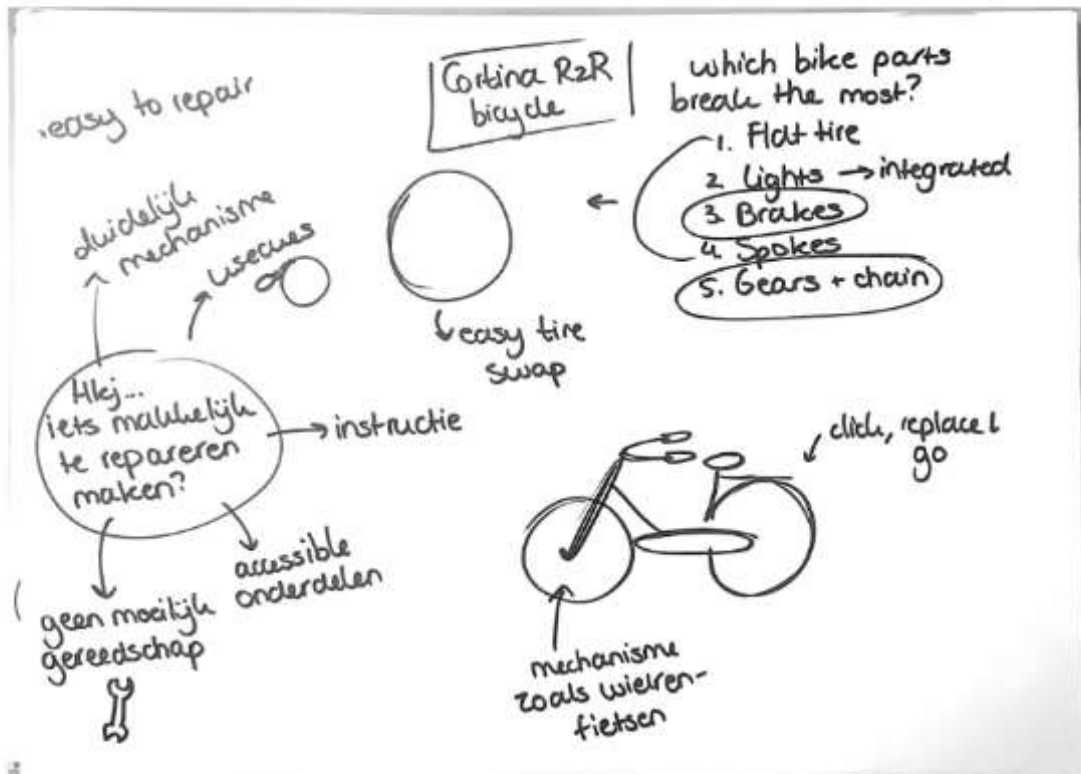


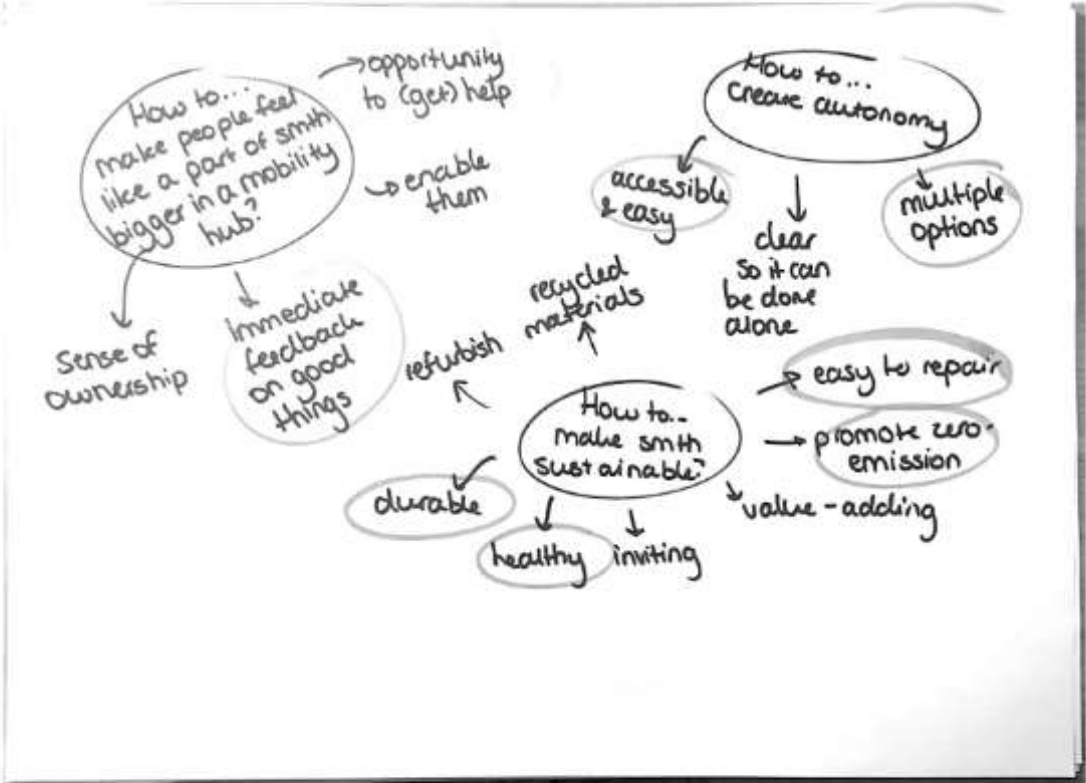
easy to repair Cortina bikes? "swappable parts" → convenience of Swapfiets without €

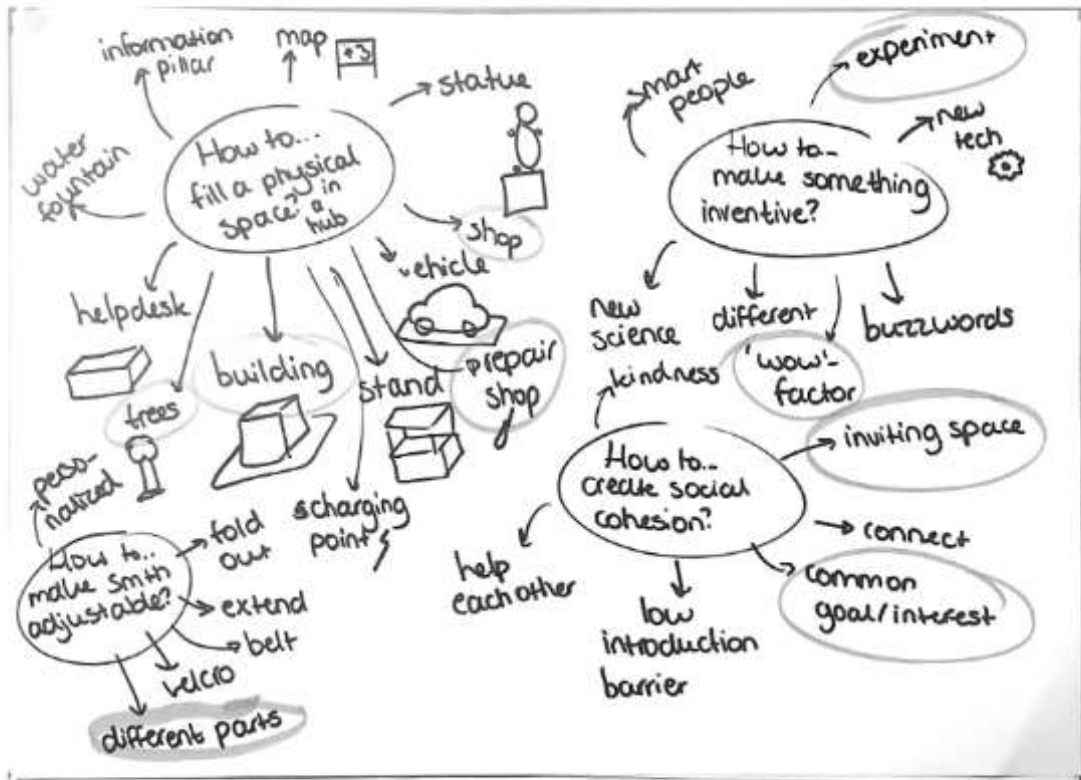


Brainwriting for concepts









miro

Concept 3. Cortina R2R cafe



- A place for everyone in the neighbourhood to (get) help repairing their bicycle.
- Great way to use vendors that would go out of business bc of shared/subscription models.
- Social cohesion + getting to know others
- Possibility to trade? Borrow from others or
- Park neighbourhood-owned mobility here.
- Make bikes with repair as USP
- Charge non-Cortina people
- Sustainable

Concept 2. Cortina exchange



- Cortina hub is a place to 'swap' your mobility choice.
- Subscription based.
- Parts/entire vehicles will be swapped, depending on users need.
- System like 'OnzeAuto'
- You know with who you share

Concept 1: Cortina innovation point



- 'Transparent' & open space in hub where new forms of micro-mobility can be tested.
- People can participate in optimization
- Selling point for Cortina products

E. List of Requirements

Brand Cortina

1. The design must stand out from its competition.
2. The design must adhere to Kruitbosch' sustainability goals, characterized by the cycling industry climate commitment in 2021.
3. The design must be authentic to Cortina's heritage as a brand that started from collaboration and unmet market needs. This will benefit the brand as authenticity is crucial to a brand's success (Beverland, 2018).
4. The design must convince Kruitbosch' management that it will be a successful endeavor for Cortina.
5. The design must adhere to Cortina's cultural values, being fresh, on trend, inventive, and open.
6. The design must if possible be manufactured either in-house or locally to decrease the dependency on foreign suppliers.
7. The design must keep in mind that there are approximately 800 vendors selling Cortina bicycles in the Netherlands and works together with many other bicycle related brands owned by Kruitbosch.
8. The design must follow the characteristics of Cortina as defined in the Brand Identity Prism
9. The design must provide Cortina with a viable and realistic business model.

Urban life in 2035

10. The design must be suited to urban life in Western Europe in 2035 and all its diverse citizens.
11. The design must take into account the changing worldview of mobility as a utility to mobility as a service (MaaS).
12. The design must accommodate different urban lifestyles and provide the opportunity for mixed utility (going to work, hauling groceries, going to school, etc.).
13. The design must operate in a mobility ecosystem where all citizens have access to a convenient integrated journey planner providing (shared) travel accommodations catered to their preferences (MaaS).
14. The design must operate in urban areas where mobility mainly flows through hubs located within 15-minute of one's residence.
15. The design should offer additional benefits over alternative mobility modes to ensure competitive advantage.
16. The design must be viable in a society where mobility is mainly operating via an ecosystem (regardless of whether it will be part of that system).
17. The design must operate confirm EU legislation and be in line with its environmental ambitions.
18. The design must offer flexibility, convenience, and autonomy to its users.
19. The design must not have a distinction between a female and a male version, as the reasoning for this distinction stems from convictions not applicable in the 21st century anymore and adheres to the rising importance of equality between men and women (Horowitz & Fetterolf, 2020).
20. The design must be easy to repair by either customers or bike shops to adhere to the expected Right to Repair legislation in Europe (Tijssen & Kruitbosch B.V., 2022), (Svensonn et al., 2018). This will increase customer convenience and decrease the need of scarce resources.

Vision

21. The design must make people feel like they have a hero-sidekick relationship befitting Cortina's brand identity relationship, encouraging responsibility and care for the concept while evoking a sense of exploration and adventure.
22. The design must operate in the worldview titled 'You'll own nothing and you'll be happy'. This worldview is characterized by shared responsibility for each other and the planet, trust, and a sustainable lifestyle necessary to save the planet.
23. The design must make the user feel like a part of something bigger without losing autonomy so they can be their authentic selves while interacting with the concept.
24. The design will have the following product qualities: shareable, dependable, reliable, responsible, and adjustable, inviting, enabling, trustworthy, adjustable.
25. The design will encourage people to engage in sustainable behavior, which is defined as a healthy lifestyle for both the user and the planet
26. The design should not serve as a less active replacement of an active transport method to not participate in the obesity pandemic.
27. The design must evoke an interaction and function equivalent to an equestrian center
28. The interaction between the product and the system will elicit social cohesion and shared responsibility for a common goal while ensuring self-expression.
29. *The design must make people feel like a part of a community with a common goal, resulting in a shared sense of responsibility, social cohesion, and high levels of trust.*
30. *The design must nudge people to make autonomous choices beneficial for the greater good.*
31. *The design must make people feel like they have a hero-sidekick relationship befitting Cortina's brand identity relationship, encouraging responsibility and care for the concept while evoking a sense of exploration and adventure.*

F. Weighted Criteria Matrix

		GRADUATION STUDENT			DESIGN STUDENT			CORTINA EMPLOYEE		
		INNOVATION			CAFÉ			EXCHANGE		
DESIRABILITY		WEIGHT								
1. Authenticity	10	8	7	9	9	9	7	9	8	5
2. Value Proposition	8	2	4	7	8	8	5	7	8	5
3. Convenience	4	4	5	5	8	8	6	5	7	7
FEASIBILITY		WEIGHT								
4. Regulation & Legislation	10	7	4	5	10	9	8	7	7	6
5. Resources Cortina	5	5	8	4	8	9	6	6	3	8
6. Supply	3	7	5	6	8	9	8	3	5	5
7. Achievability	2	8	8	8	10	9	6	8	8	6
VIABILITY		WEIGHT								
8. Brand Identity	10	9	6	7	9	9	7	8	5	8
9. Competitive Advantage	8	8	6	8	6	9	7	5	7	5
10. Business Model	6	2	4	7	7	7	5	6	5	5
11. Risk	4	2	3	6	5	7	3	4	5	5
RESPONSIBILITY		WEIGHT								
12. Healthy Society	10	6	8	8	8	9	5	8	7	7
13. Sustainability	8	5	6	5	9	9	6	8	7	7
14. Inclusivity	7	9	7	8	8	8	6	7	5	6
15. Social Cohesion	5	2	6	6	9	9	8	8	9	5
TOTAL WEIGHTED										
Graduation Student			5.91			8.23			6.96	
Design Student			5.84			8.61			6.50	
Cortina Employee			6.78			6.28			6.08	
TOTAL WEIGHTED AVERAGE			6.18			7.71			6.51	

The weighted scores describe how much a criterion aids in fulfilling the project goal of creating a visionary micro-mobility concept for urban living for Cortina in 2035.

The criteria authenticity received a weight of 10 (the total weights add up to 100), as being in line with Cortina's brand identity is crucial to gaining a competitive advantage. The same implies to the Value proposition criteria; the concept must offer something valuable to potential stakeholders, including Cortina. Lastly, convenience for users involved is essential to make the product successful eventually, but not so much as authenticity and value do in light of the project goal, hence its lower weight of 4.

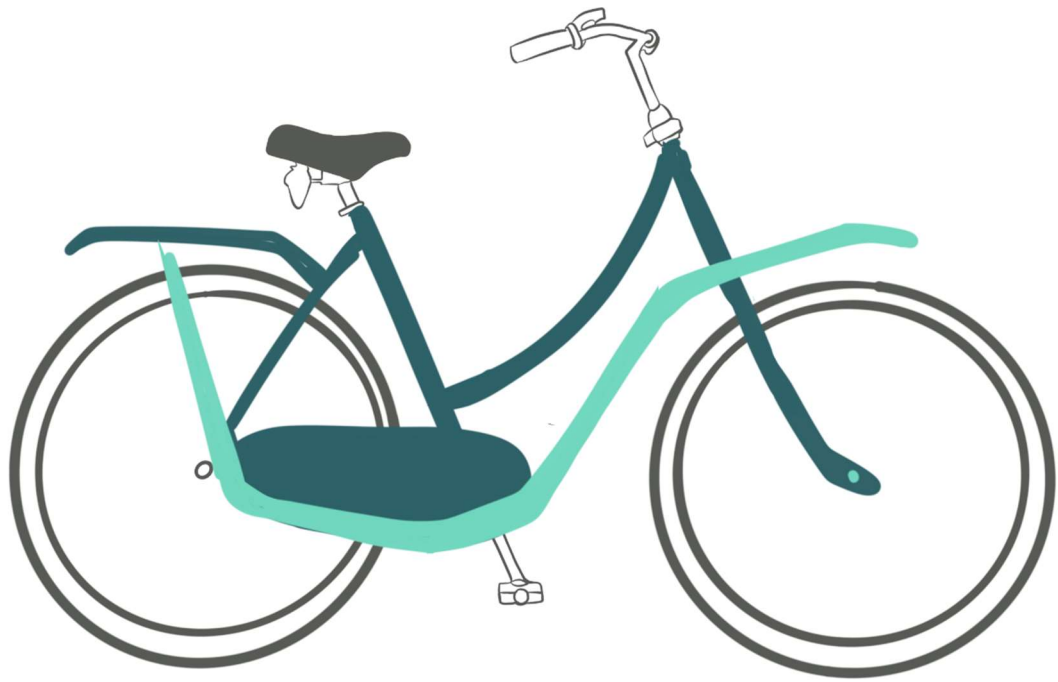
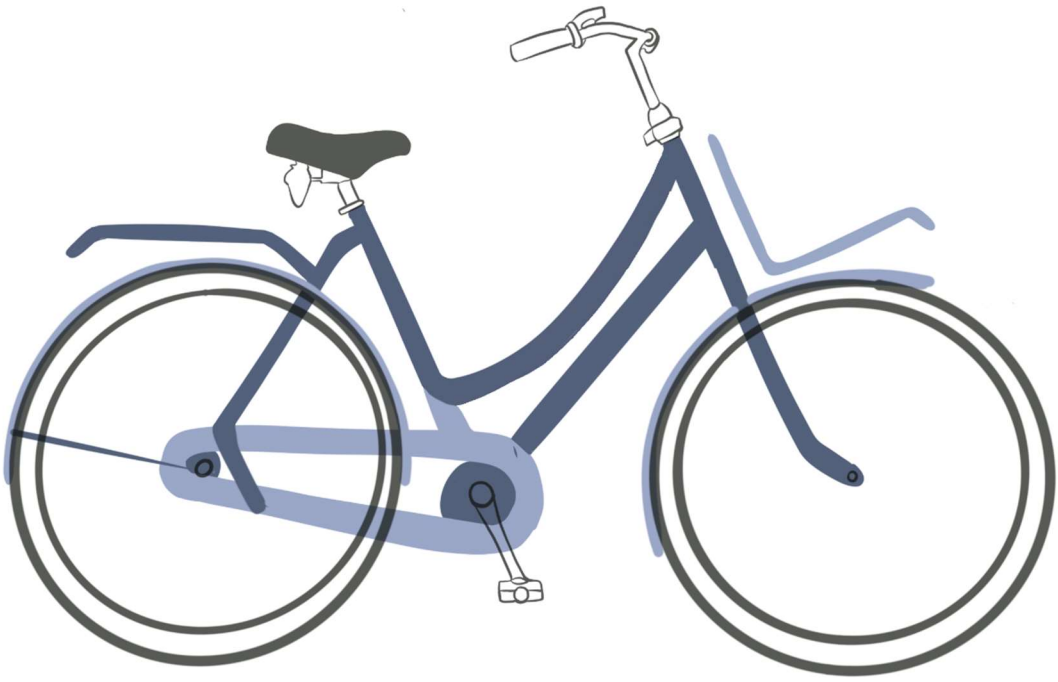
Feasibility is less important than the other criteria categories as the project's goal is not to present a proof of concept or detailed product. However, it is vital that the envisioned concept and strategy are achievable with the information gathered during the project. Regulation and legislation are the most significant barriers to launching a new product or service, especially in mobility hubs, as determined in Chapter 5.2. This criterion also describes the expected Right to repair legislation from Chapter 2. Another essential criterion for a concept's feasibility is whether Cortina has the resources needed. However, the concept will exist in 2035, so the idea behind the criterion is to estimate whether Cortina could acquire the resources needed by that time, therefore the score of 5. Lastly, supply and achievability describe whether enough resources would be available to acquire from suppliers and whether new technologies needed will be ready in 2035. They both received a lower weight as they are very concrete and thus do not significantly influence the project goal of creating a visionary strategy and concept; plus, both criteria are hard to estimate for 2035.

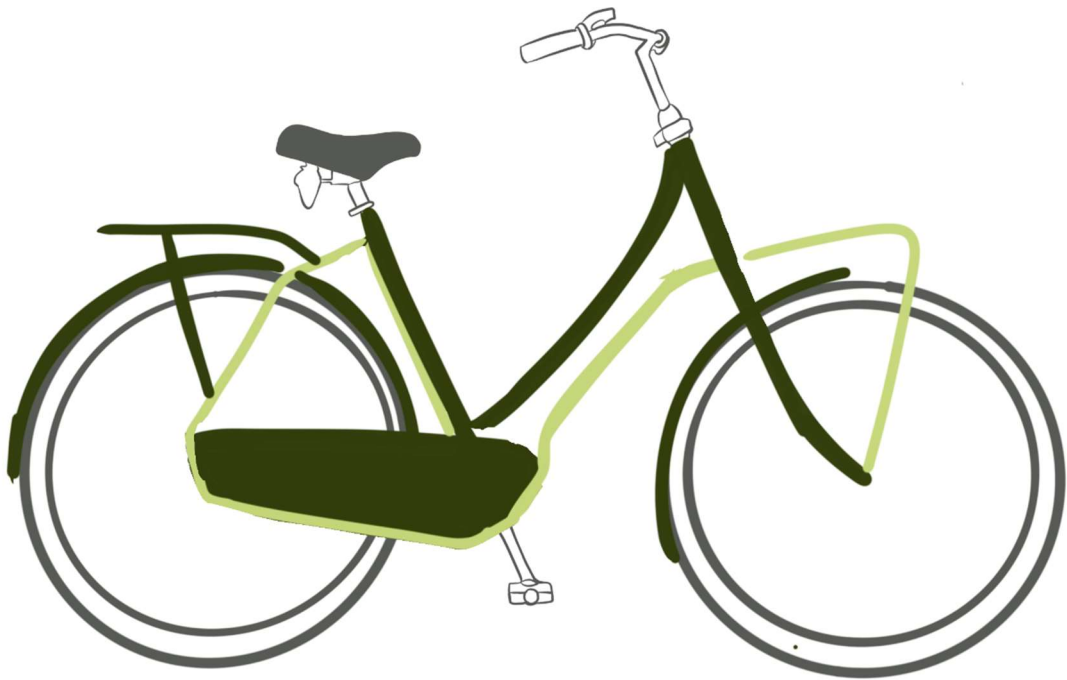
The viability is important to the concept as Cortina has to make money from it and keep it alive. The concept must suit Cortina's brand identity as a visionary concept represents a brand's desired direction, hence the weight of 10. A competitive advantage and a profitable business model are both critical, albeit slightly less, in light of a visionary concept; therefore, the scores of 8 and 6. Lastly, the risk involved for Cortina must be remembered when judging the concept, as very high-risk endeavours might not be worth taking. However, a visionary concept is allowed to include some risk, so the score of 4.

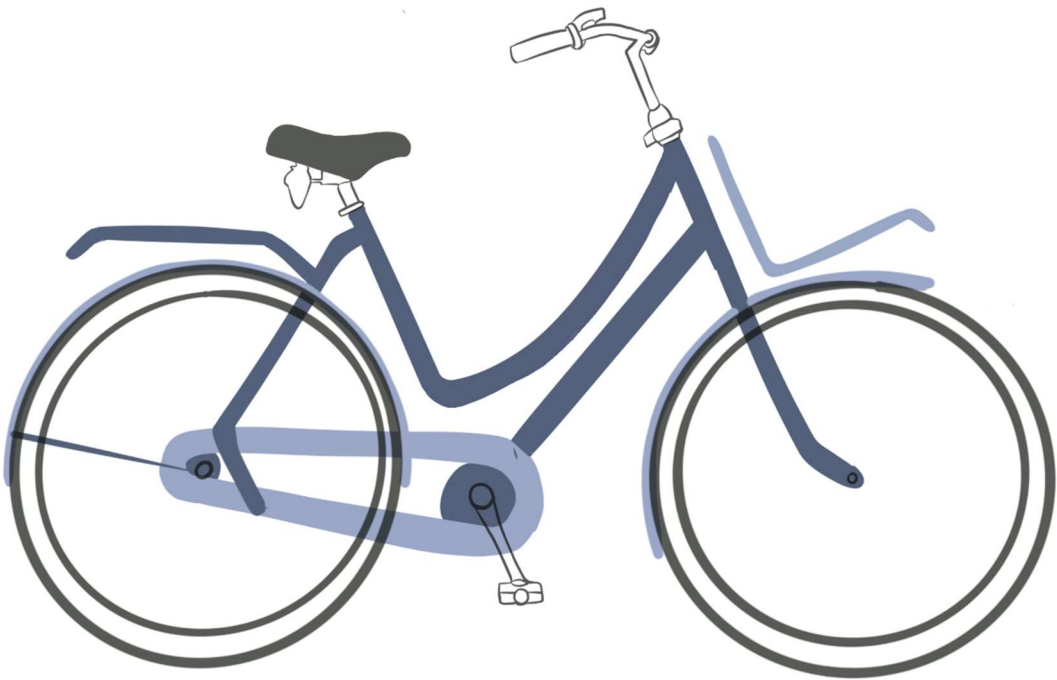
The last category is responsibility, which is thoroughly intertwined with the vision for this project, as described in Chapter 5. The concept must adhere to this vision, hence the weight of 10 for the criteria encompassing the core of this vision; encouraging people to live a healthy lifestyle. The same logic applies to caring for our planet; therefore, a score of 8 on sustainability. The last two criteria are derived from the worldview in Chapter 4 and Trend analysis in Chapter 2 and describe the need for cohesion in our changing cities. These aspects are both important but less than the core of the vision; therefore, their scores of 7 and 5.

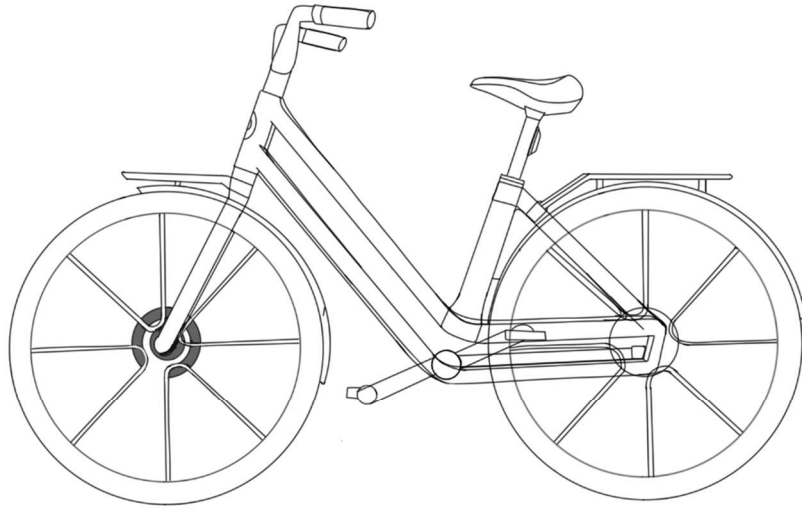
G. Ideation Sketches Repair Bike



















H. Exploring AI-generated images for inspiration



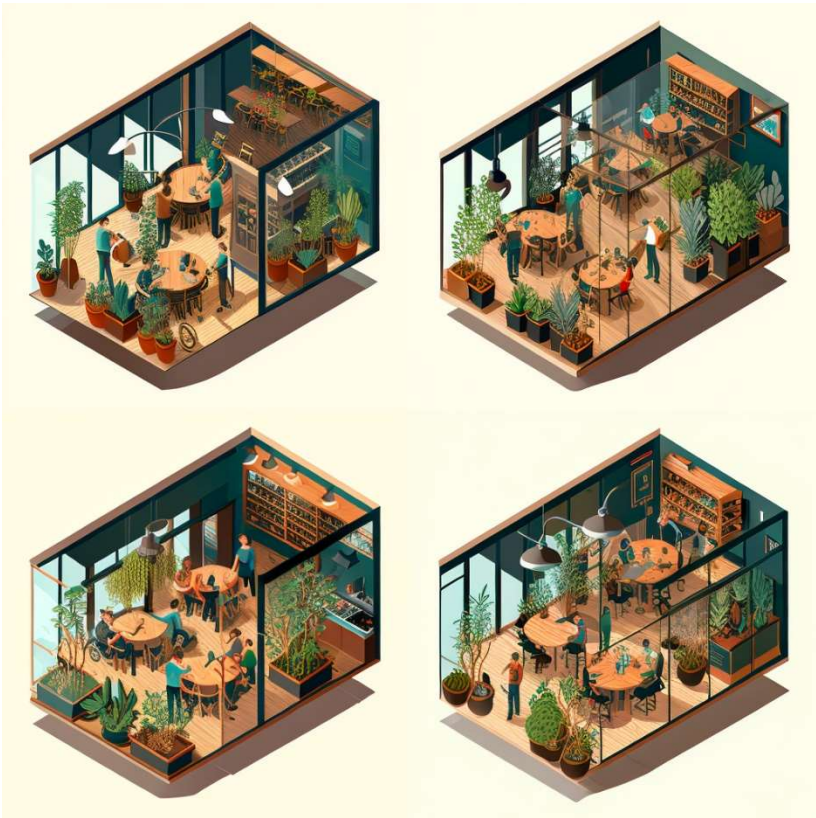
Figuur H1: big restaurant with glass doors, wood and plants. People are repairing bicycles in the restaurant. Vector images style (Midjourney)



Figuur H2: Big restaurant with glass doors, wood and plants. Located in a mobility hub. Show entire large floor plan in 3D (Midjourney)



Figuur H3: cafe at a mobility hub in 2035. We see the entire cafe with glass doors, lots of wood and plants (Midjourney)

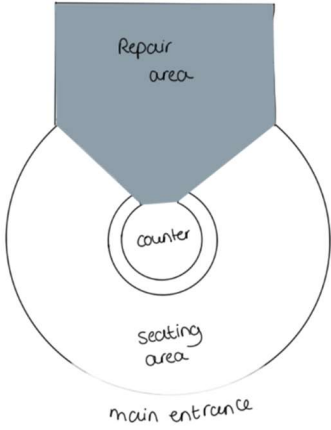
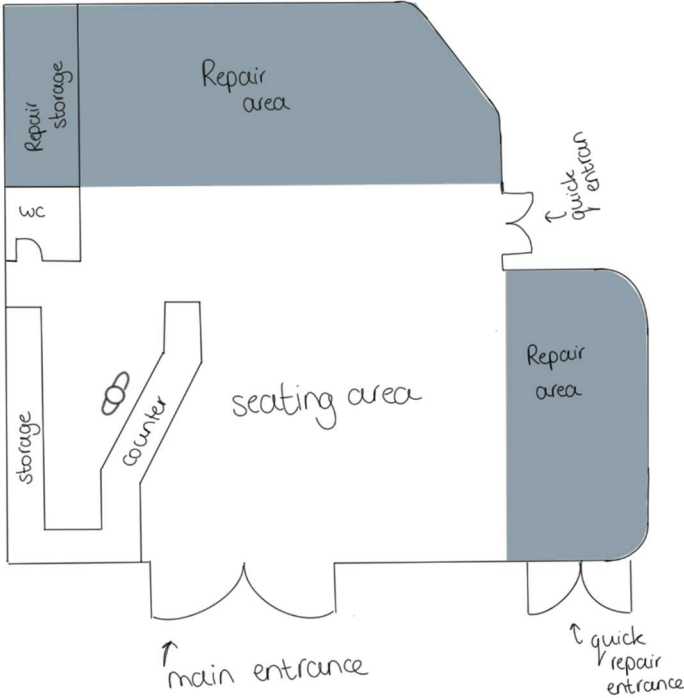


Figuur H4: big restaurant with glass doors, wood and plants. Located in a mobility hub. Show entire large floor plan in 3D (Midjourney)

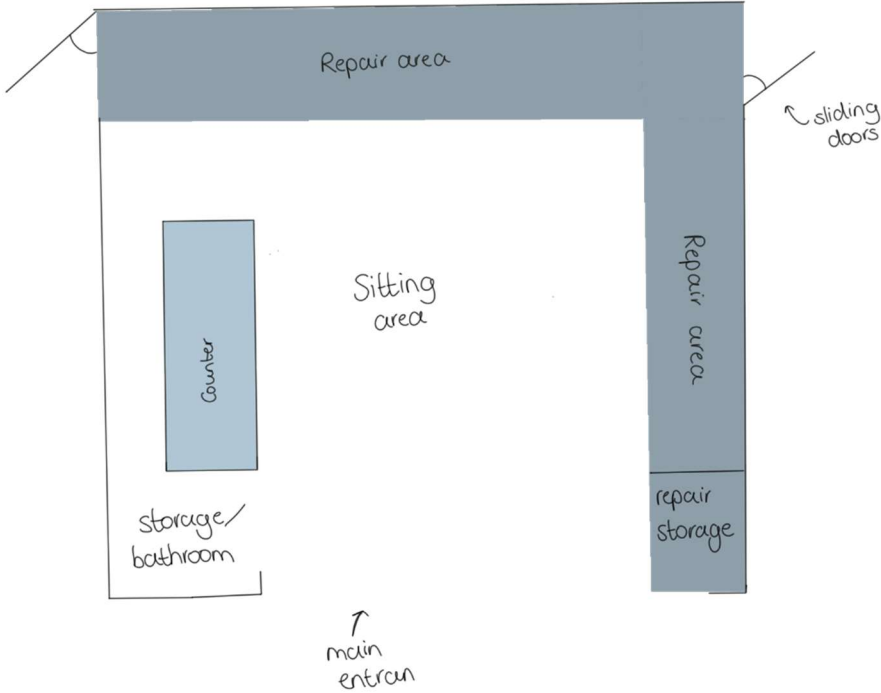


Figuur H5: restaurant with glass doors, wood and plants. Located in a mobility hub. Show entire building in 3D perspective (Midjourney)

I. Layout Ideation



Hub lay-out



J. Interview Notes

This Appendix includes notes made during the interviews of chapter 8.1. Not every interview generated notes as they were more casual conversations. The ones that were created are shown in this Appendix

Shared Car Customer

- Buurt kende elkaar al goed. Je leert elkaar toch wel kennen; als je elkaar een idioot vindt ga je niet delen.
- De buurt was al betrokken, zorgt voor elkaar, vaak een borrel in het buurtcentrum
- Mobiliteit delen bevordert cohesie in de wijk
- Geen nadelen
- In zeven maanden is het één keer misgegaan qua beschikbaar. Een extra account bij Greenwheels kan dit opvangen
- Noodzaak van een zelfde concept met een fiets wordt niet ingezien. Fiets gebruik je te vaak en kost te weinig
- Deelscooters zijn genant, OV-fiets is super
- Doelgroep van gedeelde dingen zijn wel mensen die al met het OV gaan.
- Het is raar dat parkeerplekken zo goedkoop zijn (60 euro voor een jaar) als een vierkante meter om op te wonen 4000 euro kost.

Project Leader Mobility Hubs Noord-Brabant

- De meeste plannen zijn niet realistisch
- Elke hub en elk initiatief is maatwerk
- Gemeentes kijken naar de provincie voor wat ze moeten doen m.b.t. mobiliteit
- Deelfietsen worden ondergesneeuwd door scooters en stepjes
- MaaS apps gaan er komen en worden binnen 5 jaar ook wel gebruikt. De MaaS app is de digitale kant van een 'hub'.
- Alles moet in kleine stapjes met constant reflecteren (learning by doing)
- Stop met nieuwe dingen bouwen; kost klauwen met geld en maakt verlies. Focus op het uitbreiden van voorzieningen bij bestaande mobiliteitspunten (zo wordt het een hub).
- Financiering en exploitatie is ingewikkeld, zelfs al binnen overheidslagen

Cortina Dealer

- Mensen betalen voor gemak; het geld is aanwezig
- Glanzende frames komen weer in de mode
- Mensen moet je actief uitnodigen voor onderhoud
- Onderhoud in de eerste 2 jaar is het belangrijkste
- Kabels moeten van nylon ipv. Schroeven en staal
- Mensen willen transportrekjes en kinderzitjes
- Het aantal werknemers in de werkplaats is een bottleneck voor het aantal reparaties dat wordt gedaan
- Een nieuwe fiets gaat gemiddeld 7 jaar mee

Brand Strategist Cortina

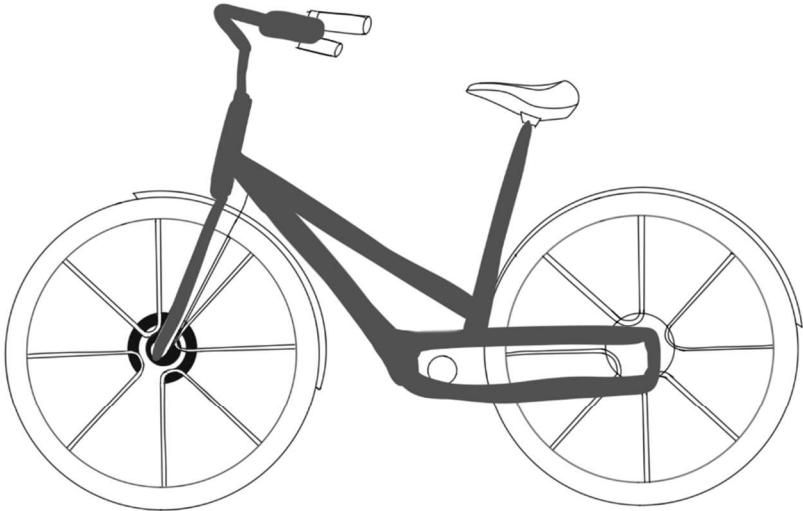
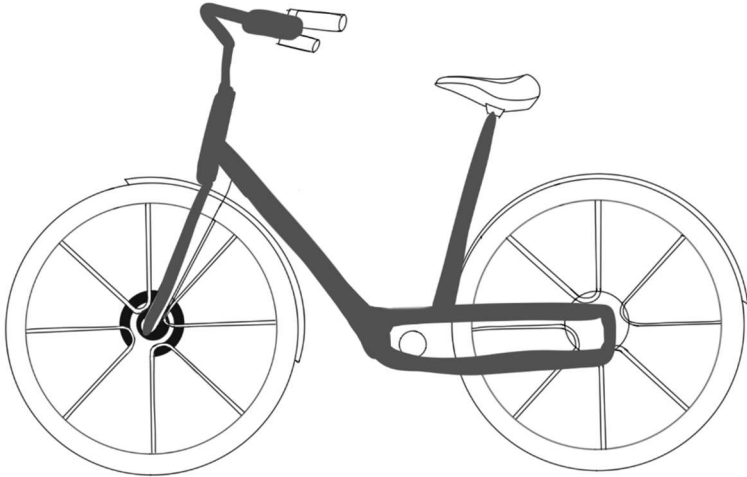
- Een fiets is te goedkoop om te delen

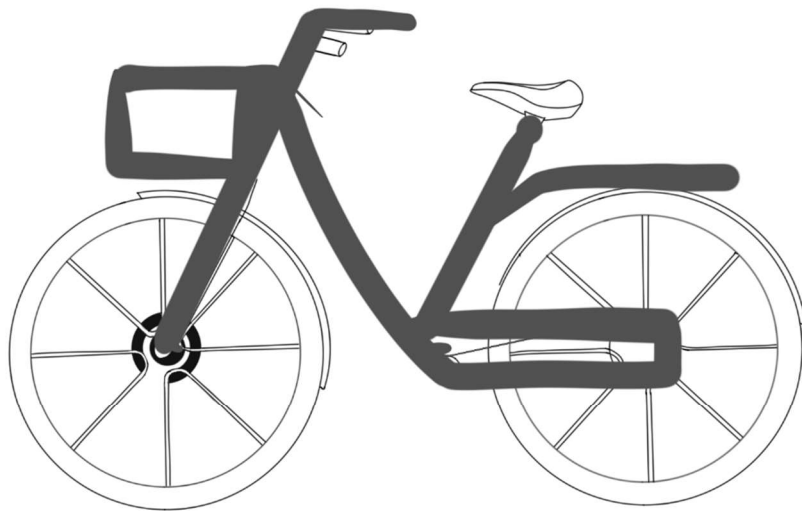
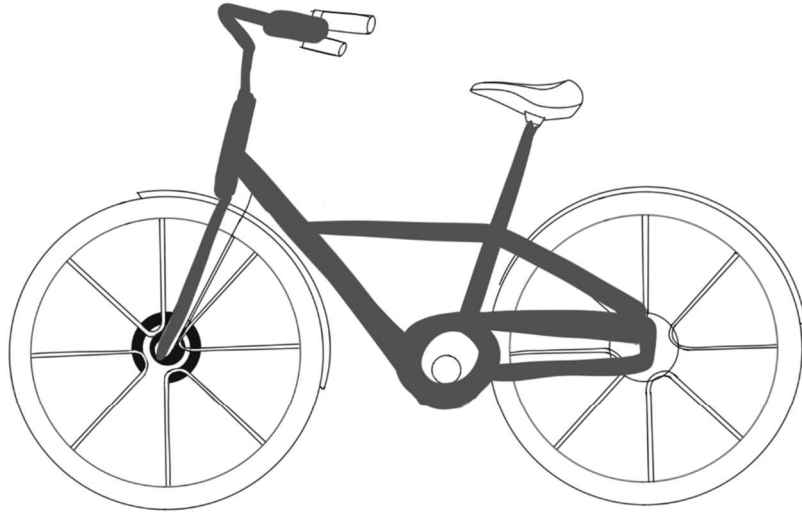
- Cortina Café ziet er gezellig uit
- Wat is het verdienmodel van een manege en hoe kan je dat gebruiken in het concept?
- Welke doelgroep en welke locatie?
- Maak gebruik van dealer netwerk; de cafés zouden daar wel in passen
- Denk ook aan scholen en educatie voor samenwerking met het café

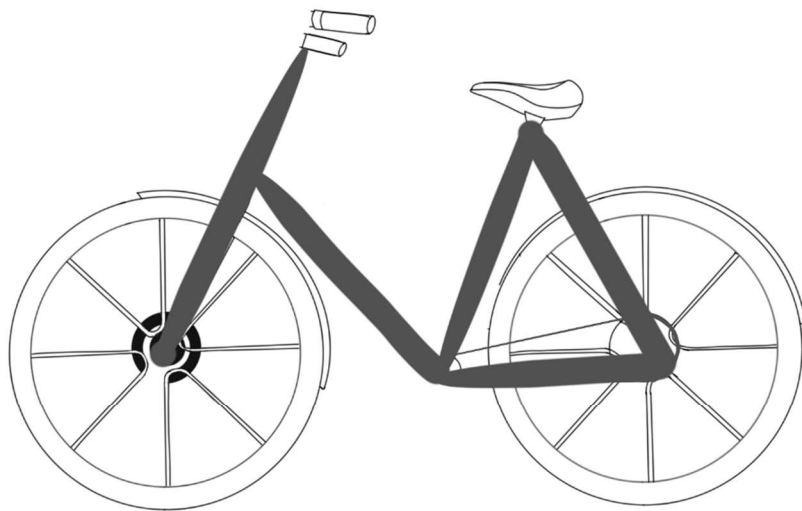
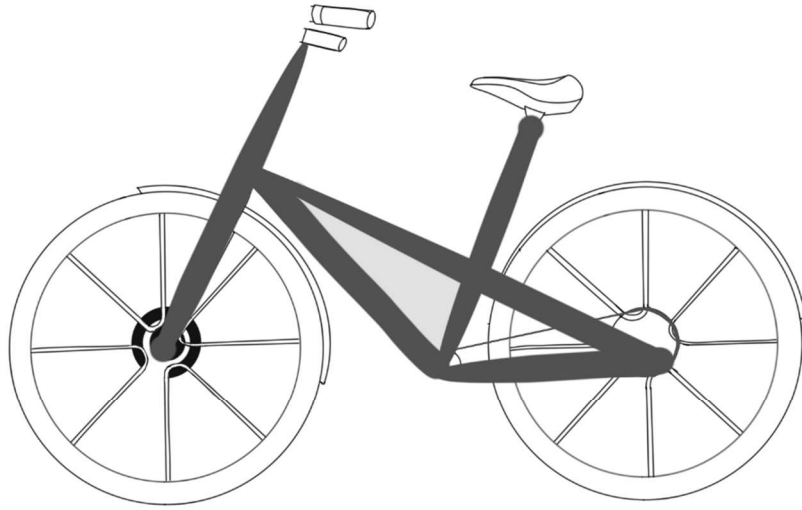
Circular Economy Expert

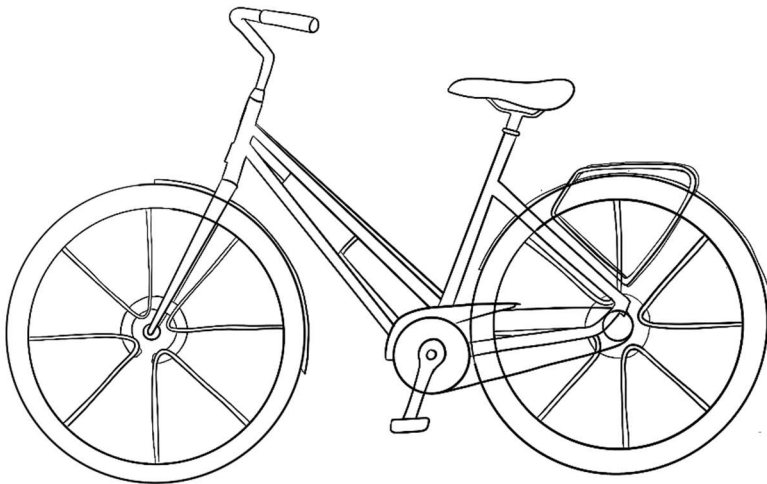
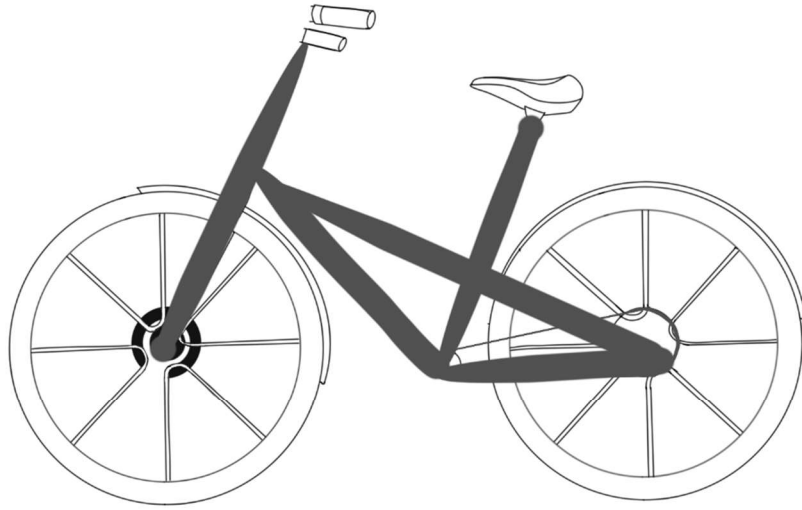
- Mensen laten dingen graag doen
- Sustainability is hip, repareren niet
- Knolling; netjes neerleggen van gereedschap
- Als je iets als kind leert is het als volwassene normaal

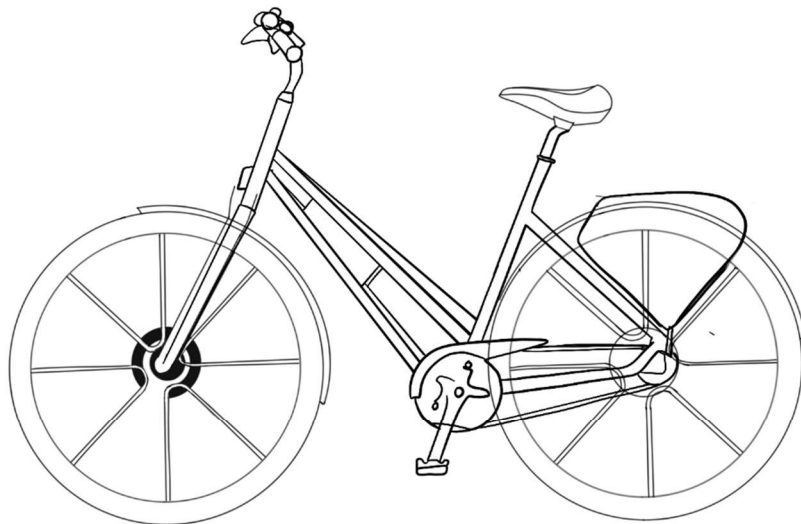
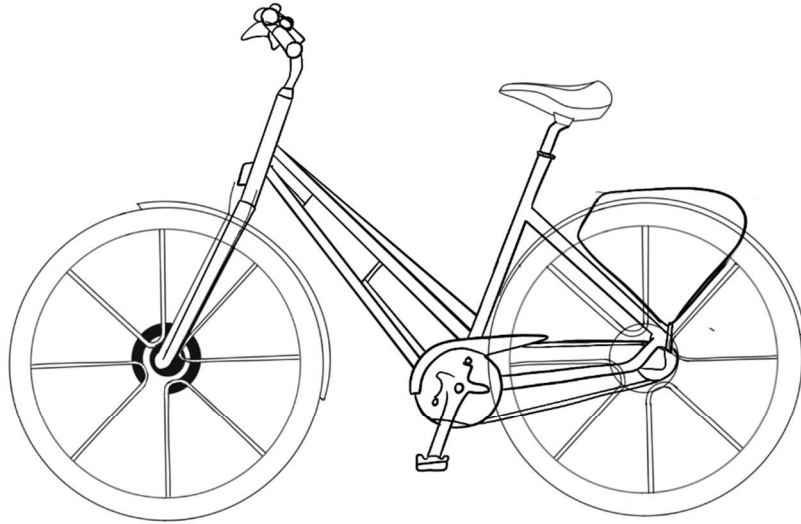
K. Final Iteration Repair Bike

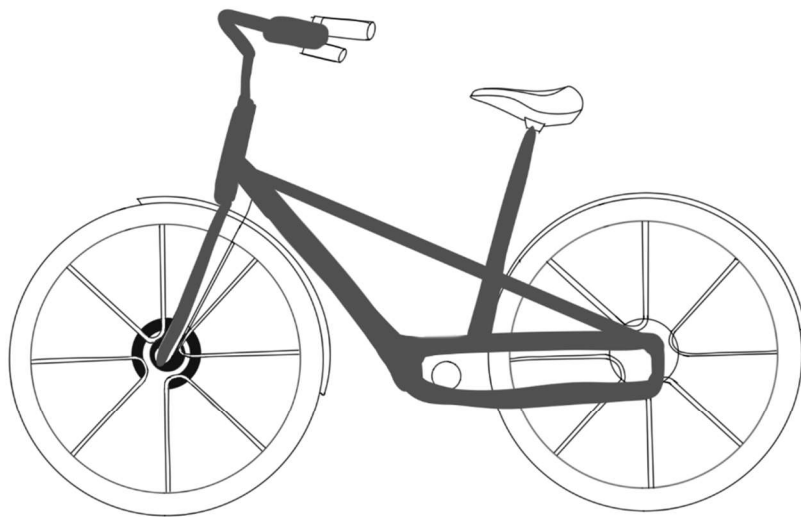
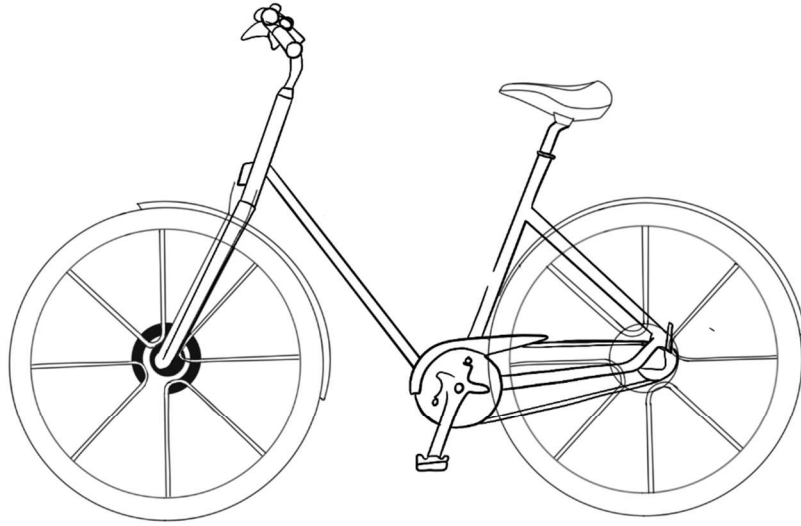












L. Questionnaire Final Concept

Feedback Mobility Concept 2035

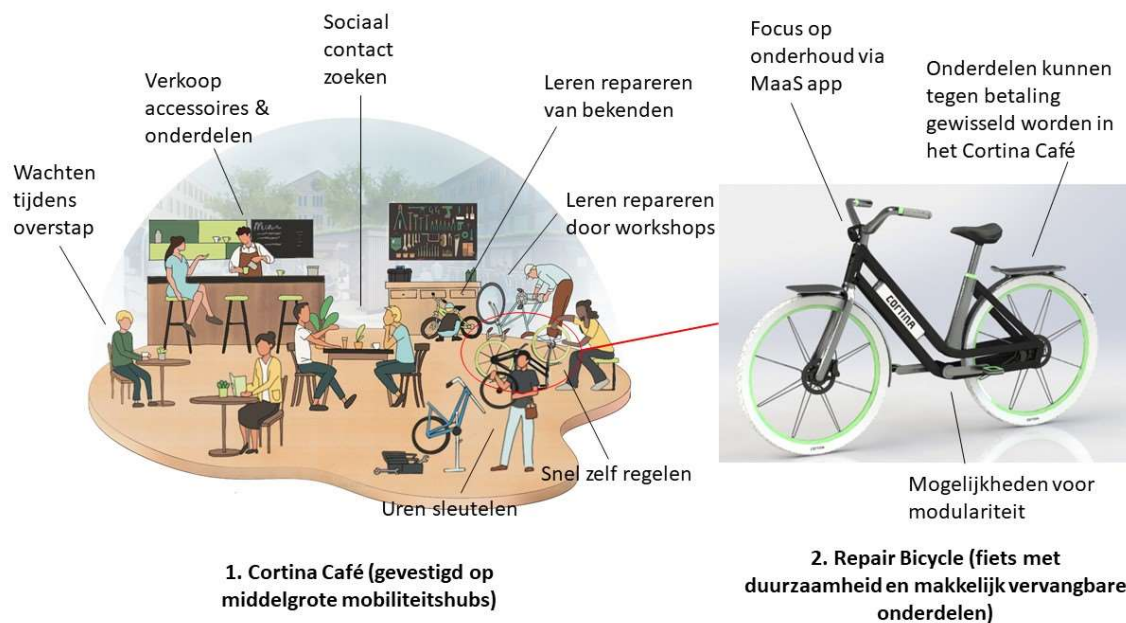
Alvast bedankt voor het invullen van dit formulier! Het zal ongeveer 5 à 15 minuten duren afhankelijk van de lengte van het antwoord.

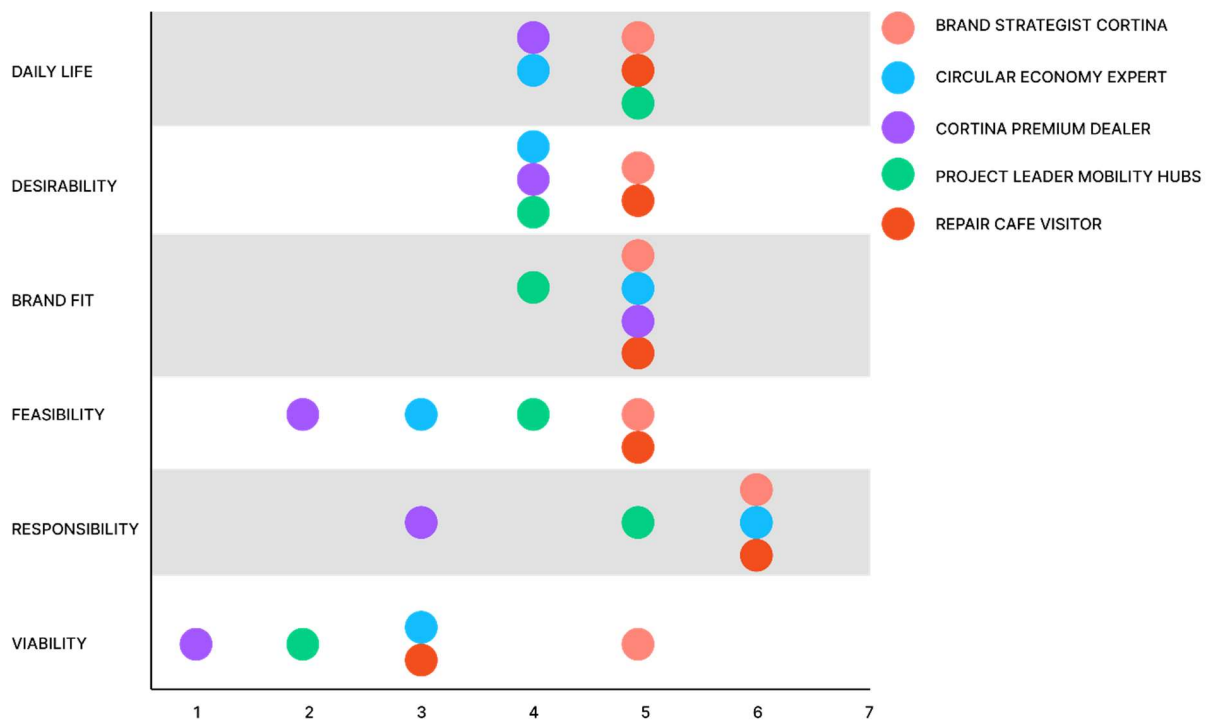
Het doel van deze vragenlijst is om feedback te vergaren op het mobiliteitsconcept dat is bedacht voor mijn afstudeeropdracht voor Cortina. Wees vooral eerlijk en voel je vrij om suggesties voor verbetering te geven; dat gaat mij alleen maar helpen. Houd in gedachten dat het concept een 'ideaalplaatje' is voor 2035. Met 'omwonenden' wordt bedoeld; alle mensen in semi-stedelijke gebieden die een mobiliteitshub (groot of klein) binnen 15 minuten lopen/fietsen van hun huis hebben.

Sommige vragen zijn misschien wat lastig te beantwoorden met weinige context, maar al jullie inzichten zijn waardevol en wie weet stuit ik op iets wat ik nog niet had overwogen. Daarom ook na elke vraag een korte ruimte voor toelichting; hier hoor ik graag waarom er voor een bepaald antwoord is gekozen en uiteraard andere op- en aanmerkingen!

Overzicht Concept

Het concept bestaat uit twee delen: 1) Het Cortina Café en 2) De Repair Bicycle. Deze onderdelen versterken elkaar; de Repair Bicycle is een fiets gefocust op duurzaamheid en heeft makkelijk te vervangen onderdelen die altijd beschikbaar zijn (tegen een kleine betaling om verspilling tegen te gaan) bij het Cortina Café. Het Cortina Café is gelokaliseerd in middelgrote buurt hubs (waar allerlei soorten vervoer en voorzieningen samenkomen) en is er voor alle soorten reizigers en omwonenden. Het biedt een wachtplek, ontmoetingsplek, klusplek en leerplek voor iedereen die daar behoefte aan heeft, of je nou wel of niet Cortina klant bent.





Vragen (antwoorden op de Likert Scales zijn te zien in bovenstaande figuur). De uitgebreide toelichtingen zijn van boven naar beneden van de brand strategist, the circulaire economie expert, de cortina premium dealer, de project leider mobiliteitshubs en de repair café bezoeker.

**1. In hoeverre levert het concept een positieve bijdrage aan het dagelijks leven van omwonenden in 2035? (Geen positieve bijdrage – Enorm positieve bijdrage)
Waarom levert het wel/of geen positieve bijdrage?**

- wel als ontmoetingsplek, vraag me wel af of mensen niet liever ontzorgd willen worden in plaats van zelf sleutelen aan een fiets, het is ook best specialistisch soms (helemaal met E-bikes). Wellicht goed onderzoeken welke doelgroepen dit zouden doen en daar specifiek op inspelen. Welke consument heeft / neemt hier tijd voor en wat wil deze consument daar dan doen
- ik denk dat de focus op 1 partij (Cortina in dit geval) te gelimiteerd is, waardoor het maar een gelimiteerde bijdrage is.
- Als het goed wordt uitgerold kan het een succes zijn, echter zal het, wanneer het een single brand Cortina model wordt zal het commercieel een krappe propositie worden. wellicht is samenwerking met andere merken een mooie toevoeging waarbij makkelijk uit te wisselen onderdelen universeel zijn.
- "In mijn ogen werken dergelijke concepten alleen in hoogstedelijke omgevingen met veel in en uitstappers. Op de grootste NS-stations zie je nu af en toe niet eens een een fietsreparatie service. En dan gaat het om tienduizenden in- en uitstappers.
- Het sociale onderdeel zou kunnen werken in een drukke wijk. In mijn ogen is het succes wel afhankelijk van 1 of meerdere trekkers/ enthousiastmakers die iets van de plek maken. Bijvoorbeeld door activiteiten te organiseren."
- ik denk het wel, als een gezellige buurtplek of iets dergelijks

2. Hoe groot schat je de behoefte aan het concept in van omwonenden in 2035? (Geen behoefte – Zeer positieve behoefte)

Waarom denk je dat omwonenden in 2035 wel of niet behoefte hebben aan het concept?

- als family doelgroep zie ik wel deze plekken ontstaan, zoals bibliotheek met speelplekken, heppie (concept in zwolle) voor kids, daar kan je kind spelen, zelf winkelen of koffie drinken etc. Je kan niet iedereen aanspreken, kies een of twee duidelijke doelgroep(en) en sluit daarbij aan aan de behoeften
- + Naar het makkelijk vervangen van onderdelen zal zeker behoefte zijn
- + In stedelijk gebied zal het wellicht een optie zijn wanneer mensen in een ontspannen omgeving kunnen werken terwijl de fiets gerepareerd wordt.
De rol van ontmoetingsplek schat ik kleiner in omdat hier veel andere opties voor hebben.
- "
- Voor het fietsgedeelte denk ik dat je simpelweg te weinig traffic hebt. En het sociale gedeelte zou kunnen werken in een heel druk stadsgedeelte met voldoende omwonende en in- en uitstappers. Daarnaast is dus een trekker nodig die wat van de locatie maakt.
- Volgens mij zoude mensen er wel gebruik van maken maar ik weet niet of iedereen zelf kan en wil sleutelen

3. In hoeverre vind je het concept passen bij het merk Cortina? (Totaal niet passend – Zeer passend)

Waarom vind je het concept wel/niet passen bij Cortina?

- ik denk wel dat we niet alles moeten willen en de samenwerking moeten aangaan met brand ambassadeurs / horeca concepten. wat is ons verdienmodel? (op waarde, duurzaamheid, ...etc)
- ik denk dat iedere fiets reparabel moet zijn. Helaas is dat vaak niet het geval door het gemis aan tools en dan vooral special-tools. Ik hoop dat dit veranderd in de toekomst.
- Het is wel vernieuwend, dat past bij Cortina
- Geen idee wat Cortina is.
- ken het merk niet zo goed

4. In hoeverre denk je dat het neerzetten van dit concept realistisch is voor Cortina in het stedelijke landschap van 2035 (ervan uitgaande dat mobiliteitshubs en MaaS er gaan komen)? (Totaal onrealistisch – Zeer realistisch)

Waarom vind je het concept wel/niet realistisch vanuit Cortina's perspectief?

- er moet een duidelijk verdienmodel aan gekoppeld zijn, kan op marketing waarde, financieel, duurzaamheid, etc
- hoe staat de fietsenmaker in dezen? Wat is zijn functie? hij is de professional.
- Dit zal commercieel slecht haalbaar zijn. Wanneer je hier partners in zoekt zal het moeilijk worden om dit als single brand concept te ontwikkelen
- Zie eerdere antwoorden.
- Ik denk dat het ingewikkeld gaat zijn maar wel haalbaar

5. In hoeverre vind je het concept wat toevoegen aan de maatschappij (maakt niet uit op welk vlak; milieu, gezondheid, cohesie, etc.)?

Op welk vlak vind je het concept iets toevoegen (of niet) en waarom? (Voegt niets toe – Voegt zeer veel toe)

- dat is mij nu niet helemaal duidelijk ;-)) maar ik kan me voorstellen dat het zeker waarde kan leveren en een goed verdienmodel aan gekoppeld kan worden

- Wij als fietsvakhandel vervullen de grootste delen van dit concept op dit moment al.
- Ik denk dat het vooral op sociaal vlak wat kan toevoegen. Haalbaarheid fietsgedeelte heb ik mijn twijfels bij.
- Het is heel goed dat er gekeken wordt naar meer duurzame oplossing zoals reparatie. Daarin voegt het zeker wat toe

6. Hoe groot schat je de winstgevendheid van het concept voor Cortina? (Totaal niet winstgevend – Zeer winstgevend)

Waarom schat je de winstgevendheid laag/hoog in?

- hangt samen met de keuzes die je maakt qua doelgroep en wat je doel is qua opbrengst
- zelfreparatie levert weinig op voor Cortina. Samenwerken met fietsmakers zou een pre moeten zijn. De hub zou bij hun geïntegreerd kunnen worden.
- Om de kosten van het opbouwen en in stand houden van dit concept te dekken zullen er enorme volumes fietsen verkocht moeten worden
- Ik vermoed dat er geld bij moet. Dat zou je als overheid kunnen overwegen in het kader van sociale inclusiviteit of andere maatschappelijke thema's
- Zoals al eerder aangegeven, het is een ingewikkeld concept met veel betrokkenen. De directe winstgevendheid lijkt me een uitdaging, al gaat er misschien wel meer verkocht worden wat dan ook weer geld oplevert

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser

STUDENT DATA & MASTER PROGRAMME

Save this form according to the format "IDE Master Graduation Project Brief_ familyname_firstname_studentnumber_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1!

family name	<u>van Ginkel</u>	Your master programme (only select the options that apply to you):
initials	<u>A.S.</u> given name <u>Amber</u>	IDE master(s): <input checked="" type="checkbox"/> IPD <input type="checkbox"/> Dfl <input checked="" type="checkbox"/> SPD
student number	<u>4553810</u>	2 nd non-IDE master: _____
street & no.	_____	individual programme: <u>31 - 12 - 2019</u> (give date of approval)
zipcode & city	_____	honours programme: <input type="checkbox"/> Honours Programme Master
country	_____	specialisation / annotation: <input type="checkbox"/> Medisign
phone	_____	<input type="checkbox"/> Tech. in Sustainable Design
email	_____	<input type="checkbox"/> Entrepreneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right!

** chair	<u>Msc. Hoftijzer, J.W.</u>	dept. / section:	<u>HCD</u>
** mentor	<u>Dr. Ir. Hiemstra-van Mastrigt, S.</u>	dept. / section:	<u>DOS</u>
2 nd mentor	<u>Veenolijk, A.</u>		
	organisation: <u>Kruitbosch / Cortina</u>		
	city: <u>Zwolle</u>	country:	<u>Netherlands</u>

comments
(optional)

⋮

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..



Second mentor only applies in case the assignment is hosted by an external organisation.



Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

Procedural Checks - IDE Master Graduation

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Msc. Hoftijzer, J.W. date - - signature _____

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 27 EC
 Of which, taking the conditional requirements into account, can be part of the exam programme 27 EC

List of electives obtained before the third semester without approval of the BoE

YES all 1st year master courses passed

NO missing 1st year master courses are:

name C. van der Bunt date 01 - 11 - 2022 signature CB

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

Content: APPROVED NOT APPROVED

Procedure: APPROVED NOT APPROVED

- late submission project brief explained by chair

comments

Monique von Morgen

14/11/2022

name J.W. Hoftijzer date 10 oktober 2022 signature MvM

Urban micro mobility concept for Cortina in 2035 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 05 - 09 - 2022 24 - 04 - 2023 end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

Cortina wants to conduct a strategic project to sharpen the focus on its future products and services. The strategic project is called 'Vision 2035' and will from now on be referred to as the graduation project. The project will 1) investigate the development of cities in Western Europe, mobility, and bicycles in 2035, 2) explore what products/services/accessories will be desirable for the future sketched in step 1, and 3) combine this in a final concept and design direction that suits the Cortina brand. Kruitbosch Zwolle B.V. is a retail partner for specialist bike shops and owns multiple brands of bicycles and accessories, including Cortina.

In this project, a visionary micro-mobility concept will be created confirming the following values:

- Ideal fit with urban living in 2035
- Ideal mixture between form and function
- A sustainable design (in this brief, sustainability will mean a long-lasting, inclusive micro-mobility concept with consideration of its impact on the environment)

Stakeholders involved are citizens of cities in 2035 that participate in traffic, regulations- and law administration, municipalities, customers of Cortina, and other suppliers of transport. Questions that come to mind are; what will a daily-use mobility concept look like in 2035 considering the fast-paced development of EVs? What will happen to the design of cities? Will they become more friendly towards bikes? How will this influence Cortina's vision? And how can this vision be a sustainable one considering the planet's ever-decreasing resources? Cortina itself can also be seen as a stakeholder since its board needs to be convinced that the result of this project will create enough value to pursue.

Examples of current transportation methods within a city are walking, cycling, scootering, driving (cars), trams, and buses. People's decisions for one or the other regarding the characteristics of the transport facility depend on quantitative factors such as travel time, monetary costs, availability of parking, reliability of travel, and/or qualitative factors such as comfort, convenience, safety, security, demands of the driving task and the opportunities to undertake other activities during travel (Ortuzar, Willumsen, 2011).

Opportunities for this project could be rapidly improving technologies (such as better batteries, 3D printing, smart materials, IoT, etc.), the increasing pressure for sustainable solutions (both budget-wise and resource-wise), and the rising awareness of the benefits of a healthy lifestyle including movement. Lastly, the scope of the design will limit itself to cities in western Europe, of which most are already fairly catered to cyclists, which lends for easier implementation of a new micro-mobility concept. The target user of the new micro-mobility concept is currently undefined and will stem from the research done in the project.

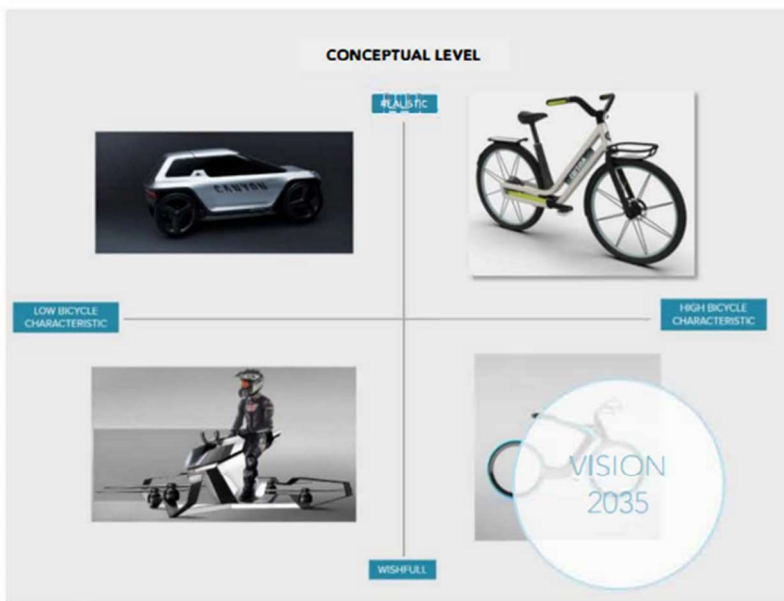
Limitations to the project can be that 2035 might feel far away but is a relatively short time when speaking of new vehicle development, trends such as Mobility as a Service (MaaS), the risk of implementing new technologies and the fact that Cortina operates in a competitive space with sizeable competitors.

space available for images / figures on next page

introduction (continued): space for images



image / figure 1: Different forms of (micro-)mobility (Tiwari, 2019)



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.

Cortina perceives that large and small players alike are making quick developments on the mobility market and wants to stay in the lead. Therefore, a new vision and concept for the daily-use micro-mobility concept of 2035 have to be developed. The scope of this project is limited to Western European cities.

ASSIGNMENT **

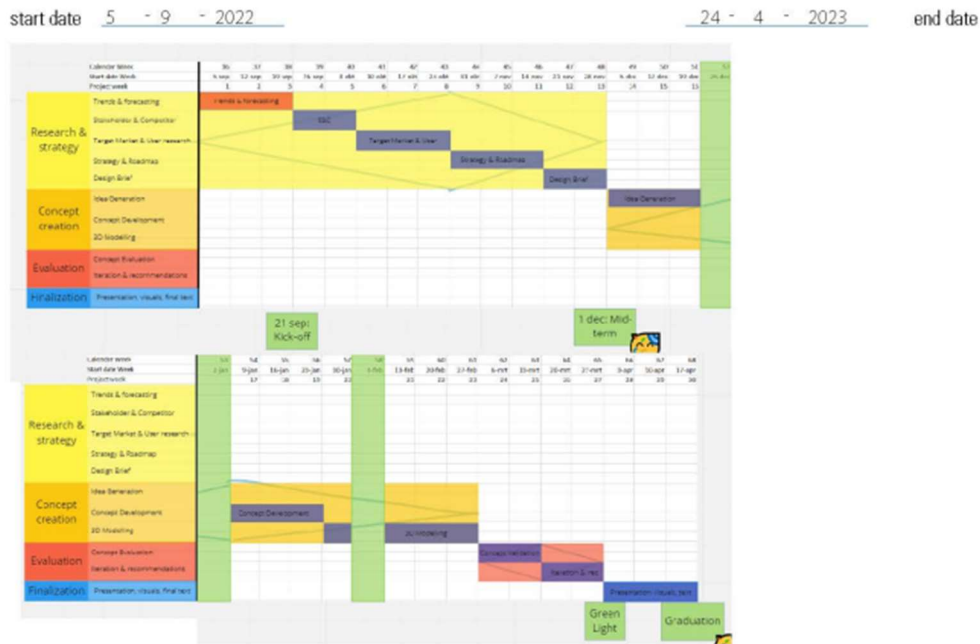
State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service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

I will research urban living in 2035 and generate a strategy and vision for Cortina that enables them to stand out from its competitors while adhering to its sustainable beliefs. Cortina will have a strategy for their future bikes and a tangible concept for inspiration, PR, and further development. The result of the graduation assignment will be a design strategy and a digital model of a micro-mobility concept based on research.

To adhere to both SPD and IPD the project will conclude with the following:- Perspective on 'urban living' in 2035 (trends & forecasting, target group & insights, basic concept layout)- A micro-mobility concept that is driven by the found 'urban lifestyle of 2035' (sketch ideas, design development, creation of prototype, rendering & visualization)

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 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 project is divided in 3 phases. Each phase is made up of smaller activities with an end date and -goal for accountability and milestones. The phases can be described by double diamonds, as can be seen in the visual. At the beginning of each phase, I diverge by collecting data/ideas, and converge by drawing conclusions from findings. The planning is iterative since I am learning along the way, and will be finetuning according to my results. The merging of two masters and the long timespan of the project require flexibility, since the second and third phase will be dependent on results from phase one. Some methods are listed below together with a phase, which are tools that have been collected and recommended to me and which I might use for the project. Many more will surely follow.

Phase 1: Research & Strategy Phase:

- Trends and forecasting (3 weeks) (Trend analyse, DESTEP, macro-micro analyse Kruitbosch)
- Stakeholder- and competitor analysis (2 weeks) (portfolio analysis, brand analysis)
- Target market & user research: (3 weeks)
- Strategy & Roadmap (3 weeks): (identity prison, frame creation, roadmapping)
- Design Brief (2 weeks):

Phase 2: Concept Creation Phase

- Idea generation (3 weeks): (ViP, HKJ, brainstorm, Harris' profile, weighted criteria)
- Concept development (3 weeks):
- 3D modelling phase (4 weeks):

Phase 3: Evaluation Phase

- Concept Evaluation (2 weeks)
- Iteration & recommendations (2 weeks): (roadmapping)

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.

This project adheres perfectly to both my masters and enables me to prove that I can successfully combine SPD and IPD by setting up a strategy and translating it into an actual prototype. I want to prove my competencies regarding trend research, target group insights, and the creativity needed to create a concept based on research. I want to show that I can implement methods such as road mapping, VIP, and frame creation that I learned in my SPD master. I want to prove my competencies in planning, project management, and contact with stakeholders, which I perfected during the ACD course from IPD. Lastly, I want to prove my competences in design drawing, using visualization software (Adobe & Procreate) to deliver quality presentation material. This adheres to my electives 'design drawing for presentation' and 'automotive sketching'.

A learning objective of mine is to research carefully and make sure my decisions are sufficiently motivated by my research, as tend to be stubborn and go with my gut without fully being able to scientifically explain my decisions. During this research I can make use of the expertise and knowledge at Kruitbosch and my own graduation board.

Another learning objective is to improve my CAD skills since I have not developed these much beyond the level we had to reach in our bachelor's. I want to be able to model a part or prototype on my own and 3D print it for my concept.

My third objective is to perfect my time management skills. I am very competent in planning out of necessity since I am chaotic. I have managed to meet most of my deadlines way before they were due because I plan rather conservatively. I would like to challenge myself more, however, by sticking to a routine and finding a healthy balance between not being stressed, but also not having a lot of time left before the deadline to ensure I use all the potential I can get.

Lastly, this can be an opportunity to find out what kind of design career I want to pursue; a strategic or integrated one. Or both?

FINAL COMMENTS

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

Modelling Transport, Fourth Edition, Juan de Dios Ortuzar and Luis G. Willumsen, © 2011 John Wiley & Sons, Ltd. Published 2011 by John Wiley & Sons, Ltd. Blz 208
 Tiwari, A. (2019, januari). Micro-mobility. yourstory.com. <https://yourstory.com/journal/micro-mobility-edc6x8f1y1>