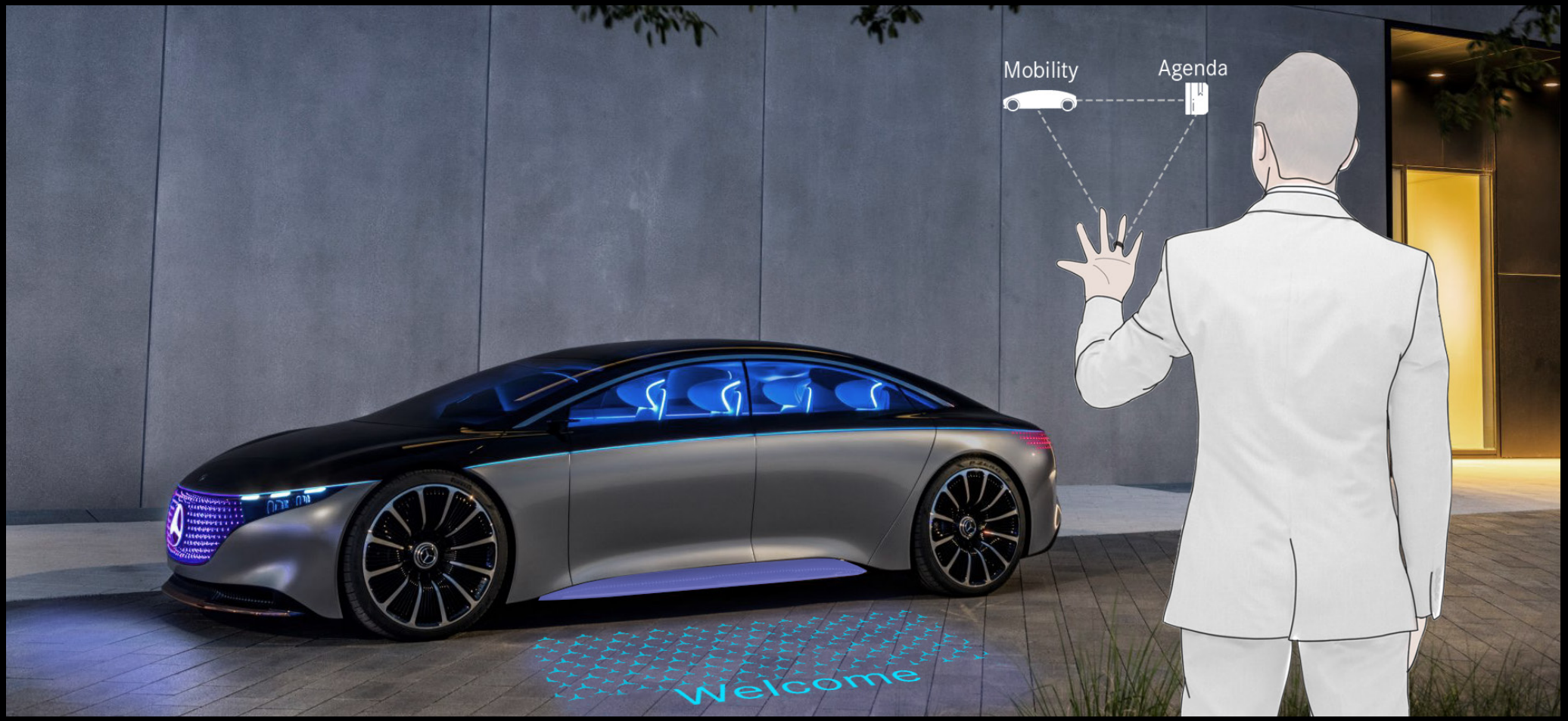

Sustainable Luxury in 2040 City Mobility

Graduation Report by Bas Hilhorst
Design for Interaction - University of Technology Delft

Mercedes-Benz
The best or nothing.

TU Delft

Delft University of Technology
Design for Interaction Master Graduation Report

This report and project is a collaboration with Mercedes-Benz AG ‘Society and Mobility Pioneer*ING*’ and is part of the TU Delft ‘Seamless Personal Mobility Lab’

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Dedicated to **Eveline Kager - van Wely**

Preface

Ever since I am a little kid I am interested in cars and having the dream to work for a car company. A father with petrol running through his veins, who brought me to several race-days at Zandvoort's racetrack when I was young and a mother's family with high interests in design; I knew what I wanted from a young age. Since I remember, I wanted to become a car designer.

Choosing my University in the 'Industrial Design Engineering' direction was the first step towards this goal. As my 'heroes' Laurens van den Acker, Adrian van Hooydonk and many others studied there, there was no other option for me...

During my studies, and mostly my masters 'Design for Interaction', my interests changed from 'car design' towards 'Future mobility Design'. Having the opportunity to do an internship at Daimler was a dream come true. Working with people from the automotive industry in Research and Design of 'Society and Mobility Pioneering' made me realize this is what I want. Living in Stuttgart and being able to gain experience in the automotive industry while working on several different topics showed me I was on the right path.

This graduation project is the end of a journey, but marks a new beginning. The end of my studies, but also the end of an amazing period in Boblingen/ Stuttgart, where I was able to collaborate with one of the biggest car companies in the world for my thesis. Who would ever think that...
The experiences and knowledge I gained are priceless. I am looking to the future with confident, knowing this process formed to into the person I am...

Even though the circumstances weren't as easy as expected, with Covid 19, being 'locked' in a foreign country, missing family, friends and having some personal circumstances, I am happy I can say; enjoy reading this report. My graduation report for 'Design for Interaction, in collaboration with Mercedes-Benz AG and Delft Seamless Personal mobility Design Lab.

Abstract

This Master Thesis is created in collaboration with Mercedes-Benz AG, Society and Mobility Pioneering department.
The project focuses on ‘sustainable luxury in 2040 city mobility’. With ‘Personal Luxury Sharing’, Mercedes-Benz will be able to be a role model in the future city center. Where cities change into ‘livable cities’, seeing a declining role for the car as king of the roads, Personal Luxury Sharing brings Mercedes-Benz in the city center as future role model.
Personal luxury Sharing is a service where personally owned Mercedes-Benz’s are part of the MaaS-system by sharing a personally owned vehicle. As cities will have more strict regulations on vehicles, such as bans for polluting cars or single-occupancy vehicles, using Personal Luxury Sharing enables the car owner to enter restricted city areas, by combining the best of both worlds; the advantage of a personally owned vehicle and a shared vehicle.
Personal Luxury sharing is as a personal mobility assistant. Connected to your agenda, it creates the best route to your preferences, taking into account your mood, willingness to share, openness and possible travel options. It introduces you to other Mercedes-Benz drivers to extend your network.

Explorative research and design are done to get an understanding of the three pillars ‘luxury’, ‘sustainability’ and ‘mobility’ in a future city environment. All in order to create a ‘2040 city worldview’ and vision for the future concept. As Mercedes-Benz is strongly represented in the ‘hardware’ luxury, with their vehicles, Personal Luxury Sharing focuses on luxury in freedom, feeling privileged with a trustful and demand less concept within the familiar Mercedes-Benz environment. the user perceives benefits on multiple levels. This enables the user to have a behavioral change to both experience luxury as well as being sustainable. Luxus mit gutem Gewissen. Inspiration was taken from hotel-like luxury, having it always with you, without being demanding.

The ideation led to a full concept, with an interior concept and exterior design for a suitable vehicle, together with the personal luxury sharing service, connected to your personal device agenda. To add a ‘status object’, an interactive token was added. After evaluation and validation, the concept was brought back to the Personal Luxury Service, connected to your mobile agenda and ring to interact with, having a useful status object that is always with you

Besides city access and the possibility of extending your network, The personal luxury service will provide the best of both worlds, owning and sharing.

A personal car is more than something to go from A to B with, as it is one of the most expensive products owned, after a house, for example, most people do have an emotional bond with their car. It is a sign of freedom, being able to bring you wherever you want, or doing with it whatever you want. With buying one, you are able to choose the one (Mercedes-Benz) that suits you most, with your preferred options, design, or layout. As a disadvantage, it can be a ‘burden’ when looking for a parking lot and takes a lot of space when it is not used, or only used by one person.

A shared car brings advantages as the freedom of parking it wherever you want for free, having multiple ones available, and access to more city areas. On the other hand, there are also some disadvantages. As people don’t see it as ‘theirs’ you never know how the previous owner leaves it for you. As you share it with a lot of others, you never know what happened before. This also means that personal items cannot be stored or left in the car. If you have special needs, or a baby in a fixed seat, this option becomes even less interesting.

Combining both, and thus having the luxury of a personal car with your personal belongings, that you can share with others brings the best of both. Having the access and privileges the same as a shared vehicle, joining one when your personal car is not available or to extend your network with other Mercedes-Benz owners. All this in your own hands, available when you want, not used when you don’t want to. Together this makes Personal Luxury Sharing the best option for city mobility, Luxus mit gutem Gewissen.

Personal Luxury Sharing
Luxus mit gutem Gewissen

Content

1. Introduction

The car industry is having its biggest revolution since the invention of the automobile itself, in 1886. In their ‘Mobility Studie’ German organization ADAC describes it as “We are facing a similar revolution as the world did when the car was invented 125 years ago. Hidden behind all the apparent continuity lies an evolutionary transformation of the mobility system, which must not be underestimated.”(Rauch /ADAC, 2017)

Besides that, (European smart) cities are forming regulations and restrictions on car usage in their centers. The car is not as welcome in the city as it was the previous decades. Cities call them no longer the ‘king on the streets. The ‘livable city’, a city with a high quality of life and good services, pushes away the car as we know it from the city center. From 2030 onwards, cities such as Amsterdam, London and Paris are banning all cars with combustion engines out of their city centers and plan stricter rules for the future.

Society’s changing view on mobility and consumption is also a long-term trend or development. Quality of life is not only measured on wealth or products but the quality of it, doing something less harmful for the environment or society becomes more and more important. Fridays for future, citizen initiatives and local communities or initiatives are growing and getting more importance. Also the view on luxury, and luxury cars, is changing.

Mercedes-Benz, also needs and want to change to adapt to this changing world(view). To have a share in the city of tomorrow, the company has to combine its luxury values with sustainable groundings and different mobility concepts or views than how we know or use, to be able to still play a meaningful role in a European city center, which is desired.

Image by Unsplash

1.1 Background

Invented in 1886, the Benz ‘Patent-Motorwagen’ is the first (patented) automobile (see figure 1.1) Mercedes-Benz is the company still having its existence and groundings thanks to this vehicle. Described in the patent as ‘a vehicle powered by a gas engine.’(Daimler, n.b.), nowadays, most cars can still be described by the same explanation.

To meet the goals of the 2015 Paris Climate Agreement, car manufacturers are under pressure to change. Being responsible for 15% of the total greenhouse gas emissions (EPA 2018), the transport industry has a relatively big influence on the total amount. Therefore the European Union has set restrictions on the average CO2 emissions per car per kilometer.

For Mercedes-Benz, this means they have to create zero-emission vehicles and lower the average emissions dramatically, as they currently have a portfolio with cars in higher segments and with more polluting engines (for example Mercedes-AMG power models) than brands like Fiat or Renault for example, who mostly sell smaller cars with smaller engines having a lower (CO2) emission. Therefore the need for change, and sustainable mobility, is pushed by policy.

As the restriction count per concern, Daimler’s Smart is worldwide selling onlyelectric Fortwo and Forfour models since 2020 to compensate. Besides this, electrification will be used throughout all segments and models, like the EQ sub-brand. In this way, Mercedes-Benz wants to be able to offer ‘individual mobility services’ in the future (Mercedes-Benz, 2019).

As in 2018 Daimler was behind schedule, and its average CO2 emission per model reduced only 7% in 2018, while 40% is needed in the period 2007-2021 (Autovistagroup, 2019), the need, and change, for sustainable mobility is more important than ever, as fines will be faced otherwise.

Figure 1.1: The Benz ‘Patent-Motorwagen’

1.2 Assignment

This graduation project is a collaboration with Mercedes-Benz AG's 'Society and Mobility Pioneering' department, which does future research about (city) mobility and eco-systems.
In the past, it created future visions of existing squares with new mobility solutions. Besides this, it is responsible for research and development of future mobility systems and vehicles and enhances other departments such as design- or car conceptualisation.
As it works together with municipalities and governments too, on urban planning (e.g. Stuttgart) or 'future living' concepts (Berlin), the scope of the department is broader than Mercedes-Benz or even cars alone.

To have a share in the city of tomorrow, and be 'future sustainable', Mercedes-Benz wants to combine its luxury values with sustainable groundings and looks into different mobility concepts besides only creating and selling cars for the longer term. Mercedes-Benz still wants to provide personal mobility in the future, besides having sharing platforms such as 'ShareNow', MercedesMe or related services.

Before the project started, the assignment and direction were set together with Daimler. As Daimler sees 'sustainable luxury' as their future goal, this was set as the main topic for the project.
To tackle that, research is done about the three pillars 'mobility', 'sustainability' and 'luxury' in the future, 2040 in this case. Figure 1.2 shows this 'triangle'.

In the end, the assignment is to create 'Sustainable Luxury in 2040 City Mobility'. As Mercedes-Benz wants to focus on personal mobility, the project should focus on personal mobility, or ownership of a Mercedes-Benz.

In short; how can Mercedes-Benz be able to still provide a mobility concept in the city centre of a 2040 European city, offering 'sustainable luxury' with personally owned mobility?

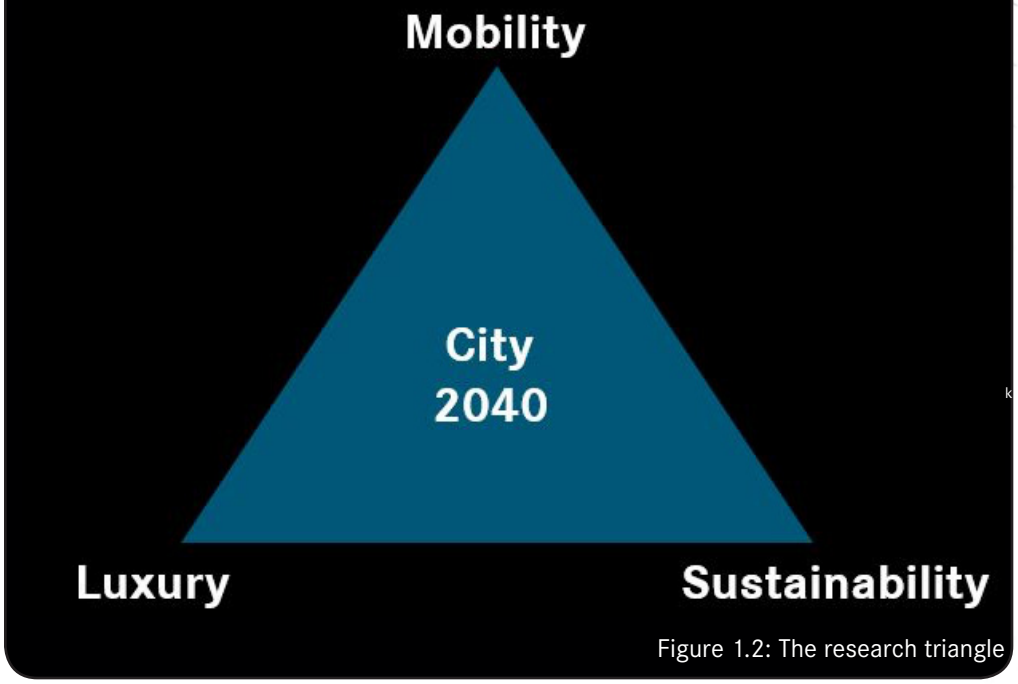


Figure 1.2: The research triangle

1.3 Approach

Literature research is done to create a better understanding of the ‘luxury’, ‘sustainability’, and ‘future mobility’ pillars of the project. Books, papers and online resources are used to create a worldview, or eco-system, about the 2040 (urban) world.

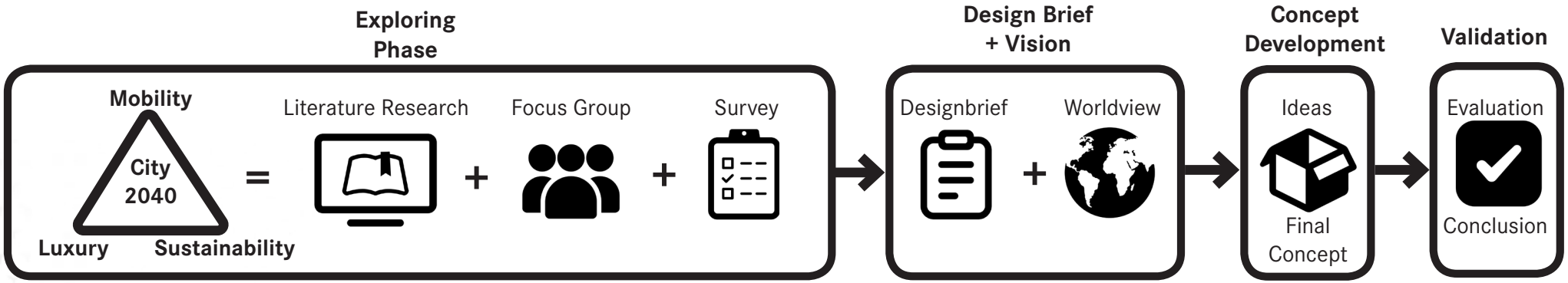
An action research session with a focus group of 18-21-year-olds is held, to get a better understanding of the ‘future generation’ and possible target group of Mercedes-Benz, to find out if and where they differ and what it means for future goals. During this session, they shared their opinion on the topics luxury, sustainability, and future mobility, and completed a survey about these topics. This survey is also spread between other 18-25-year-old people, from different nationalities, to see their view on these topics and the future of them.

The outcomes of this research are used to get a better understanding of the topics, to create an understanding of which opportunities and directions are possible and suitable for Mercedes-Benz

Throughout the project, explorative research and design is done to keep the opportunities for an end result as open and flexible as possible till the end of the process, using the knowledge obtained by the ‘Design for Interaction’ curriculum, as well the with the ‘Delft Design Guide’ as a reference.

Out of the research results, an overall worldview/situation is created, where a concept is designed for.

At last, the outcomes are validated and evaluated for future recommendations.



2. Exploring Phase

To understand the world of ‘sustainable luxury in 2040 city mobility’, research about the terms (Luxury, sustainability and (city) mobility) itself, and its relevance for Mercedes-Benz, is to be done. The future of cities and possible restrictions and changes are also reviewed to create a worldview of the 2040 city and how ‘sustainability luxury mobility’ can play a role in it.

Image by Unsplash

2.1 Luxury

The term luxury is difficult to describe clearly and tangibly. Asking the question ‘what is luxury for you?’ to different people will lead to different answers.

In the book ‘Rethinking Luxury’ M.C. Wittig eta l. explain: “Defining luxury can be difficult. Many argue that they know it when they see it”.

‘Knowing it when you see it’ suggests there is an underlying common understanding, having a personal perception of the term. To define luxury of the future, it is important to look at the history of luxury to find out whether there are underlying factors that did not change over time, to determine the term ‘luxury’ itself.

Looking at the term ‘luxury’, the 7th Oxford Advanced Learner’s Dictionary explains it as:

“The enjoyment of special and expensive things, particularly food and drinks, clothes and surroundings [...] a thing that is expensive and enjoyable but not essential [...] a pleasure or an advantage you do not often have [...]

The Oxford English Dictionary describes it as; “A state of great comfort or elegance, especially when involving great expense. An inessential, desirable item which is expensive or difficult to obtain. A pleasure obtained only rarely.”

The explanation shows it is about; enjoyment, having something extra than normal/average, exclusivity and being expensive. Something not essential yet desirable. There is also a focus on ‘enjoyment’. Suggesting it is focussing also on a feeling, or experience, rather than only a physical item.

Luxury is also seen as controversial, using or obtaining more than essentially needed (Amatulli et. al, 2017). It is about wanting to have a little more than before.

Research by Peter McNeil and Giorgio Riello (Jingdaily, n.b.) also shows differences between age and (financial) background, concerning the perception of luxury. While asking people what their luxury is, the older set replied with branded products, jewelry, fast cars or fancy clothing. Immaterial luxuries.
The younger set of participants focussed more on technology, or owning an apartment in the pricey center of a city. Others, who already owned this or could afford them, recount that their ‘true’ luxury is time’, or ‘quality time’. Those ‘luxuries’ are all ‘free’, but things or states of mind that are more difficult to achieve; becoming a luxury. In other words; luxury and ownership are not the same. Luxury is a feeling, not only related to owning or products itself necessarily.

The focus group research showed the same. Participants explained they have a different view on luxury than their parents. Experiences and being able to do what you want; freedom and access, were named as important luxury factors. On the topic of luxury, participants perceive it as ‘something extra’, ‘appreciating something’ and ‘special’, As one participant even mentioned luxury as ‘the last thing you buy after you have your needs in daily life’.

This together shows that luxury is perceived as something hard to obtain, not necessarily costly in terms of money, but costly in the sense of time or difficult to achieve, something extraordinary, more than ‘normal’. This can be experienced with products, but also as an experience itself, like ‘quality-time’, freedom ,or a ‘special’ feeling.

Building block

Image by Unsplash

Perception of Luxury

As the term luxury is not explained with the same words or meaning by every single person, it is a perception attributing common perceptions or values.

This is also explained by the ‘conceptual model of customer’s luxury perception’ by K.P Wiedmann in 2007. (see figure 1.3) This model shows four latent luxury value dimensions, namely financial, functional, individual and social. Where the financial and functional value aspects refer more to the product itself (in terms of price, quality, usability or durability for example), the individual and social value refer more to the psychological/personal values, such as hedonistic and self-identity value (Sheth, Bruce, Newman, Gross, 1991) or being recognized within their own social groups.

Therefore, in these explanations, an apparent contradiction between luxury on a product/owning level and sustainability can be seen, where consciousness and efficient use of resources and materials are playing an important role.

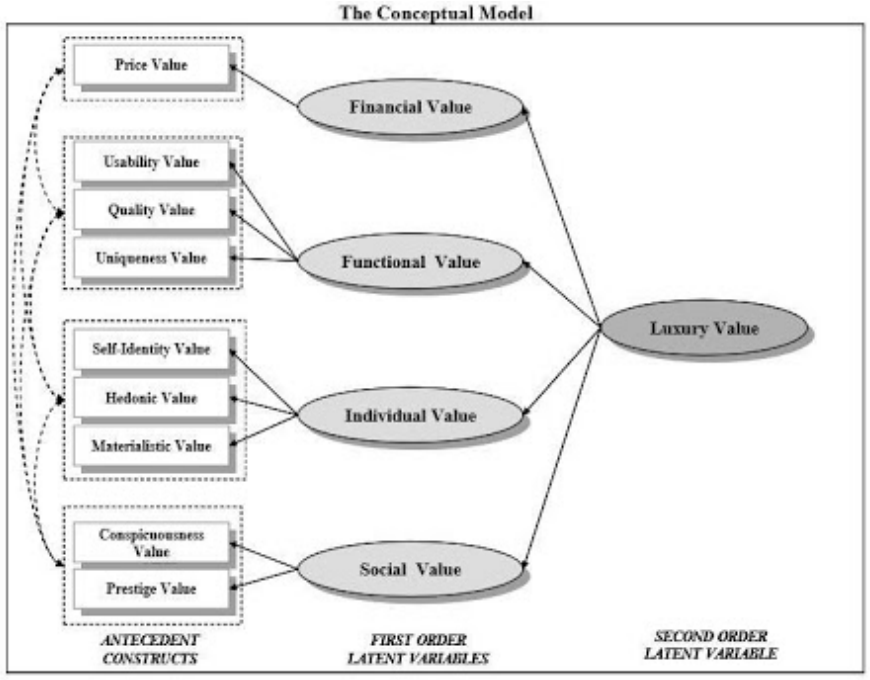


Figure 1.3: The conceptual model of customer’s luxury

Luxury as a Need

Explained in the previous paragraph, striving for or wanting to obtain luxury is connected to the need for self-esteem, self recognition and being recognized by your own groups. In other words, the ‘social value’ as described in the conceptual model of customer’s luxury perception. These qualities are part of the psychological or esteem needs levels of Maslov’s theory of needs (see figure 1.4). (Maslov, 1943)

As luxury is previously described as ‘extraordinary’ or ‘not necessarily needed’, the urge for luxury does not come from basic needs, such as the basic needs to ‘survive’ like food, water or sleep, but from a higher level, from the top level of psychological needs to the self-fulfillment needs. Therefore it is more a ‘want’ than a basic need or requirement.

As described before, the psychological needs and self-fulfillment needs (top levels) are related to luxury. Prestige, the feeling of accomplishment and achieving the ‘most’/full potential out of it are linked to thar feeling. When these qualities are not obtained, the desire and therefore the urge to strive for it is becoming bigger. As these qualities differ per person, the underlying reasons or goals can also differ, but the need of luxury, or achieving ‘something extraordinary’ is universal.

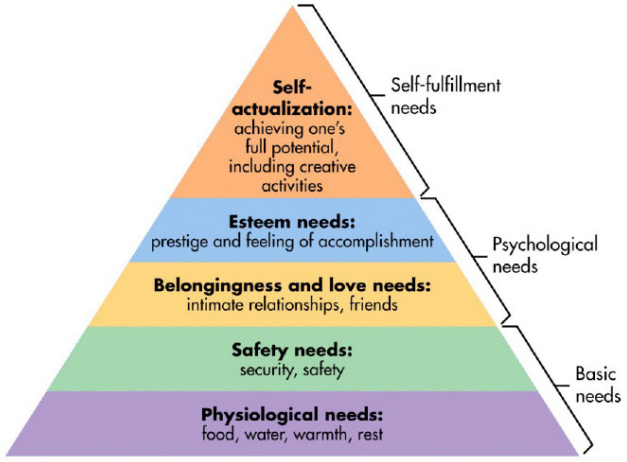


Figure 1.4: Maslov’s pyramid of ‘theory of needs’

People with different backgrounds, or different social groups, have different needs and therefore different perceptions of luxury. ‘Something extra’ does not mean the same to all of them; the same as luxury does not.

This means that creating a luxury experience, it should offer the user a desirable feeling. It should be something that enables its user to feel privileged experiencing extra benefits, more than standard.

Building block

Luxury over Time

Besides personal perceptions of luxury, the perception of luxury is also time-related. In terms of mobility, in the early 1900s, a car was only available for wealthy and rich citizens, while nowadays, in Western countries almost everyone can own or drive a car. Taking it into a more extreme perspective, now, in Europe, luxury is more than 'not being killed' or becoming more than 40-years old, or having a proper meal itself, which has been the case hundreds of years ago.

As society, technology, and culture change over time. The same counts for judgements or perceptions. As the perception of luxury also changed over time, it is important to see luxury and the perception of it in the social context. Luxury is contingent; 'it depends on what society assumes to be 'beyond' the expected.'(Jingdaily, n.b.)

In 1900, moving with a motorized vehicle, being driven by a driver, was only reserved for prosperous people. With the introduction of the assembly line and standardised vehicles, instead of bespoke, individualized vehicles, a 'one size fits all' approach, like the Ford Model T, a car for mass. Luxury cars, such as a Mercedes-Benz, had a different approach and not for the mass, having more choices (Not: 'it is available in all colors, as long as it is black'), bespoke choices, being bigger and having more comfort as 'extra's'.

Rarity, or exclusivity, is also seen as luxury. 17th Century paintings were in their times only accessible by Royals, people who experienced high prosperity or nobility. Nowadays, ancient paintings have even bigger value, as the painter can not make more Therefore, obtaining something that is not directly accessible or able to (re)produce can also be seen as a sign of luxury. No billionaire can travel back 150 years to obtain its own self-portrait from Vincent van Gogh. Luxury isn't the same as obtaining or buying everything. It is about obtaining something special, rather than just obtaining something expensive. It does not have to be related to money in a direct way.

As the change over time of luxury, but also societal factors and backgrounds are shown in the change of perception of luxury, it is clear that Mercedes-Benz luxury will be different in the future too.

Building block

Image by Unsplash

Luxury in Fashion

Luxury as we know it is having its groundings in the 20th century. Caused by the industrial revolution, urbanization and the corresponding growing customer base it brought, manufactured products, and also cars became available for the mass market. Mass-production made it possible to acquire former handmade luxury products, such as horse carriages, saddles, or other products were becoming available for 'everyone'. (Wittig et al., 2016)

An example of this changing view can be seen at 'Hermes'. Centuries ago, a handmade horse saddle was seen as an example of luxury. In the 20th century, Hermes changed its focus and started producing luxury handbags. It used its knowledge of producing leather goods into something that suited the 'modern' culture, where a leather handbag was a more important sign of luxury than a horse saddle. The so-called 'Kelly bag' (named after famous owner Grace kelly, see figure 1.5) is an example of this. Nowadays, these bags are still very expensive and hard to obtain. Together with its high quality, the bag has still all qualities to be seen as a 'luxury item'. (Baghunter, n.b.)

Fashion is the industry where trends are most easily are shown and adopted. Having a 'new collection' every season, the lifecycle of products is way shorter than for example in the automotive industry (where the lifecycle of a product can be up to 10 years). Besides this, the example of Hermes, having a bag that is sold for decades or longer, also shows the luxury industry is evolving slower than the 'mass' market, where seasonal or innovational changes are adapted faster. The fashion industry is not only a 'leader' in trend and luxury perspectives, it is also used as an inspiration for Mercedes-Benz (interior) design, expressing luxury (see figure 1.6).

Building block

Figure 1.5: Grace Kelly and the 'Kelly Bag'

Figure 1.6: Fashion inspiration with the seats of the 2016 E-Class

Sustainability in Luxury

Talking about ‘sustainable luxury’, the topic also found its way in fashion already. Examples are big fashion brands like Gucci, who adds a ‘green carpet passport’ to its leather bags to show the origin and ‘chain’ of its leather, showing it did not involve deforestation for example.
As sustainability is a ‘hot’ topic, and everyone wants to show how sustainable, or eco-friendly, they are, ‘greenwashing’ is a dangerous field. Claiming that something is sustainable while it is not as much as advertised or claimed can cause damage to the brand or product’s image. (Bussines News Daily, 2020) Especially in the luxury market, this can lead to big consequences for a company. Gucci’s ‘green carpet passport’ is therefore an example of how to deal with this, to give customers an insight into the heritage or origin of their product and therefore create trust and transparency.

The apparent contradiction between ‘sustainability’ and ‘luxury’ is also explained in the following example:

“On the surface, the values associated with luxury and those promoted as sustainable are widely seen as antithetical (Beckham and Voyer 2014; Strong 1997). Luxury is associated with excess, hedonism, superficiality, and ostentation, while sustainability evokes altruism, sobriety, restraint, and morality (Carrier and Luetchford 2012; Widloecher 2010)”

From a negative perspective; a sustainable product can even be seen as luxurious as it is more expensive than the ‘regular’ option, as sustainable luxury then becomes ‘sustainability only available for wealthy people’. This should be avoided.

Building block

Sustainability and luxury are not as easily combined as making the existing a bit more sustainable only. (Nu.nl, 2020)

“If we want to create a product that’s sustainable – in all aspects – there is a good chance that the performance may suffer and that the product will no longer be identified as a real luxury. And a brand that is not perceived as luxury does not provide consumers with what we call “Added Luxury Value,” such as social status, enhanced attractiveness, ultimate experiences, and an unforgettable treat. When these effects are missing, the willingness to pay such high prices decreases and people walk away.”
(Jingdaily, 2017)

From another perspecitive, sustainable luxury is also associated with durability. As a product has a higher quality, and therefore a longer life cycle than ‘normal’, the user will experience luxury by having the safety of a long-lasting ‘relation’ with the product. An example within the Mercedes-Benz portfolio is the G-class. As a car itself, a heavy, box-shaped all-terrain vehicle with big engines it is not an example of a very sustainable car. Looking further, internal research shows that the time people own a G-class is longer than the other models from the brand. In that way, it is sustainable in another way, as the time of ownership, and in the end the life-cycle, is longer than other models.

Mercedes-Benz described sustainable luxury as an important focus for the brand’s future. ‘Ambition 2039’ shows how they want to achieve ‘modern sustainable luxury’, and being CO2 neutral by that year. In the article ‘can luxury be sustainable’ these ‘sustainable luxury’ goals and explanation are described. (Daimler / Sattler, 2020) The given examples are about pollution, change towards durable or sustainable materials.

This explanation of ‘sustainable luxury’ is not different from what is done now, with more sustainable materials or more conscious production and processes. This brings opportunities for this project to bring ‘sustainable luxury’ also on a different, non-product, or non-material level as future sustainable luxury.

Building block

Luxury in Experiences

Being transparent about a product, showing how and where it is made and under which circumstances can help towards a ‘sustainable luxury’ understanding. Social media and the access to almost all information in seconds, makes the importance of a ‘clean’ product story more and more important, as ‘greenwashing’ is found and judged in an easier way.
As craftmanship was and still is one of the starting points of luxury, nowadays ‘Made in China’ is something that is not associated with luxury. (Jingdaily, 2017)

Whereat times of globalization the luxury of getting products from far away was something special, the current view on consumption and sustainability gives higher value to locally produced products or products produced with higher standards. This also corresponds with the changing view of the younger generations on consumption, environment, society, and luxury.

Experiences such as a fancy hotel, visiting special places or cities, a dinner at a restaurant, or seeing wonders of the world are perceived as luxury, as feelings of exclusivity, freedom, or comfort are experienced and associated with luxury.

Hotel luxury will be taken as inspiration. Having a service (reception) always with you, providing personalized options and tailored solutions.

For Mercedes-Benz, this means that perceiving luxury goes further than their products only.

In “Sensual purity - Gordon Wagener on Design”, Wagener explains the experience of modern Mercedes-Benz luxury as: “[It] gives people what they value most of all today: time, space and the flexibility to lead their daily lives in a calm and efficient manner”

Building block

Image by Luxury Lifestyle Awards

Conclusion Luxury

The challenge in ‘Sustainable luxury’ lies in the apparent contradiction between ‘luxury’ and ‘sustainability’,

To avoid material excess and non-sustainable luxury, the solution should be found in experiences, experiencing luxury as feeling special, privileged.

Here hotel luxury will be taken as inspiration. Having a service (reception) always with you, providing personalized options and tailored solutions.

For Mercedes-Benz, luxury already goes further than their products/vehicles only.

In “Sensual purity - Gordon Wagener on Design”, Wagener explains the experience of modern Mercedes-Benz luxury as: “[It] gives people what they value most of all today: time, space and the flexibility to lead their daily lives in a calm and efficient manner”

For the design direction, this means that luxury should come from the service or product itself, and not in material excess, to make it sustainable. A fundamental change approach is the most effective, as feelings of ‘freedom’ or ‘access’ and the feeling of ‘quality time’ will have a bigger impact, and therefore being ‘sustainable luxury’.

2.2 Sustainability

As sustainability is already an inescapable topic, it is clear that it is more than just a trend.

Nowadays young people strike for actions to provide solutions for climate change. Fridays for Future, organized by now 16-year old Gretha Thunberg are organized worldwide. But is this really a strike for a carbon-neutral, or ‘sustainable’ future, or is it more about being afraid of losing the resources that those people are afraid to lose, anxiety to have fewer resources or even luxury than their parents?

As younger people always tend to be more idealistic compared to older people, it is hard to see the real influence of younger people and their change on societal change of views on sustainability.

Even though, that there is a need for change, and therefore more sustainable products, does not need a lot of explanation. ‘Green’ and sustainability is an important topic. The 2015 Paris agreement has set strict rules for countries where its restrictions are experienced by most people. Maximum speeds on highways are lowered companies are focussing on their ‘green side’ more and more. Labels showing how sustainable a product is rather rule than the exception.

As explained in Chapter 2.1, sustainability is sometimes used as a marketing tool to ‘greenwash’ an existing product. As transparency and the story behind the product becomes more and more important, a sustainable approach on the topic shows the need for a new paradigm of luxury, where sustainability comes ‘through it veins’ and is part of the whole concept or product, instead of an ‘extra’.

Building block

Image by Unsplash

Focus Group - Mercedes-Benz & Younger Generation

As it is impossible to divide a target group from a whole generation, the influence of younger people will definitely play a role in a different '2040 environment', even though it has to be taken into account that Mercedes-Benz has a specific target group and not a complete generation can be seen as 'future target group'.
Even though, it has to be said that this generation seems to be more involved in societal issues and its consequences in the long term.

Besides the changes the automotive industry is currently facing, in the luxury segment buyers still will be more conservative and Mercedes-Benz still will have their biggest importance in selling cars..

Young people now look more to the future than ever. With (expected) threats such as climate change, inequality, and unpredictable world politics, the need to work in a way that the world is still livable and pleasant in the upcoming decades. There seems to be a focus more on the bigger, main issues, than smaller unimportant causes. This shows there is a bigger understanding of a 'need for change' than ever (Trouw, 2019)

Contrary, the target group and current characters of Mercedes-Benz drivers, being more conservative and having the preference for safety, security, and status, will still be present with future customers as well, whereas these contradictions have to be taken into account for future Mercedes-Benz models and 'sustainable luxury', to both aim at the relatively conservative background while taking into account the more progressive and future/society driven future target group or society

Building block

According to research done by 'Spiegel Institut', The Mercedes driver has three typical characteristics: he is much more serious than all the other drivers, older, and has the reputation of a pretty bourgeois. Therefore a Mercedes is driven by a settled self-employed, who is rather arrogant and conservative, unathletic, and rather fat. (Spiegel Institut, 2019)

When asked about their character, Mercedes drivers would describe themselves as organized, analytical and reckon they're good company. That said, they can sometimes be arrogant, impatient and intolerant. Despite this, they're happy with their standard of living and can cope with change. (CarShop, 2020)

As owning a Mercedes-Benz contains a part of showing status, the brand has a high rated value, showed by the 2019 'Best Global Brands' ranking of Interbrands consultancy. It was ranked at the overall 8th place, being the highest-ranked automotive brand. (Daimler, 2019)

In advertising and other marketing expressions, the brand is keen to show its status in an even arrogant way, the slogan 'the best or nothing' and its 'star' references are the most obvious examples. (see figure 2.1 till 2.3)

Using this 'best or nothing' approach also gives ground for a role as 'leader' in sustainable luxury, which would suit the brands' current approach of pride and confidence in mobility and luxury vehicles.

Building block

Figure 2.1 and 2.3: Examples of Mercedes-Benz advertisements

Mercedes-Benz drivers do also see themselves as belonging to a special ‘milieu’, having higher values and preferences, which relates to the premium market the brand is operating and targeting at. They feel privileged and want to express that with their car.

In the 2019 Mobility Future Global Report, research agency Kantar explains there will still be car-centric Mobility segments, who still will be using their personal car in 2030+ urban environments.

The so-called ‘Status driver’ is related to the Mercedes-Benz driver characteristics. This group is emotionally tied to their car and sees the ownership and usage of a vehicle as a status and a goal to achieve in life. In Germany, this group is relatively big, with an above global share. This means, for this project, that status has to be involved in the design of ‘sustainable luxury’, to make it Mercedes-Benz specific, and therefore using it as a building block of the solution.

Building block

Behavioral Change

As the need for change, towards a sustainable future to coop with climate change is clear, just awareness and information is not enough to change people's behavior. Nudging techniques are an effective way or inspiring people by showing them the benefits are ways to trigger behavioral change (Re.Think, 2018).

Changing towards a more sustainable lifestyle mostly does require behavioral change, as it is about changing habits or deeds. Awareness of actions and its effect shows the common benefits of changing behavior, but to increase engagement and motivation, gamification, quantified-self and social networking are important factors to change behavior (Hassan et al., 2018)

This means that getting (positive) feedback, in informational, social, and affective ways is an important trigger for behavioral change. Social benefits such as networking and having social interactions create user perceived benefits and therefore continued use intentions. (Hassan et al., 2018).

For Mercedes-Benz, to provide sustainable luxury, this means there should be user-perceived benefits when changing behavior. The environmental benefits itself are not enough to create continued-use intentions. a 'personal luxury', reward, or social (networking) benefits should be added, to create a sustainable luxury behavioral change.

Building block

Image by Unsplash

Conclusion Sustainability

sustainability will play an even bigger role in the future. Contrary, the target group and current characters of Mercedes-Benz drivers, being more conservative and having the preference for safety, security, and status, will still be present with future customers, whereas these contradictions have to be taken into account for future Mercedes-Benz models and ‘sustainable luxury’, to both aim at the relatively conservative background while taking into account the more progressive and future/society driven future target group.

This also gives ground for a role as ‘leader’ in sustainable luxury, which would suit the brands’ current approach of pride and confidence in mobility and luxury vehicles.

The so-called ‘Status driver’ is related to the Mercedes-Benz driver characteristics. This group is emotionally tied to their car and sees the ownership and usage of a vehicle as a status and a goal to achieve in life.

To make this sustainable, behavior needs to be changed not only by showing general benefits, but also by creating user-perceived personal benefits.

This means, for this project, that status has to be involved in the design of ‘sustainable luxury’, to make it Mercedes-Benz specific, combining it with sustainability factors such as awareness and behavioral change.

2.3 Mobility

As mentioned before, upcoming decades, mobility will probably change more than it did since the invention of the automobile itself in the last hundred years. Markus Schafer, a member of Daimler AG Board of management, underlines this point:

“Digitization, electrification and new mobility concepts are fundamentally transforming the automotive sector”

Mercedes-Benz has set its goal to be carbon neutral by 2039, including full electrification of its model range.

“We’ve sharpened our brand positioning for Mercedes-Benz: Sustainable modern luxury – that’s our way forward. For future vehicle architectures this means: electric first. “Ambition 2039” was our first step.” (Kalenius, 2020)

During the focus group session, from the mobility point of view, participants described a new car and its scent, next to having a clean vehicle or product, both from the in- and outside, as ‘luxury in mobility’. Comparing it to the luxury of having a clean hotel room

Building block

Luxury Design Fact:
In the design of the Formula One cars, Mercedes-Benz expresses luxury through the (around a thousand) stars on the back of the 2019 and 2020 cars. The chrome appearance and refinement of the stars are a representation of the brand’s luxury design vision. This image shows the 2020 W11, which is the first non-silver Silver Arrow of the team.

Image by Mercedes-Benz

Mercedes-Benz Landscape

The S-Class is Mercedes-Benz is Mercedes-Benz's core model or image builder. It is known for being the benchmark in new technology over decades, as it is equipped with the latest technology in safety, luxury or driver comfort. In 2019, British magazine 'Whatcar described it as follows: "Since 1972, when the badge first adorned its boot lid, the Mercedes-Benz S Class has been the default limousine of choice for Very Important People. And not just in terms of space and luxury but also for cutting-edge technology."(WhatCar, 2018)

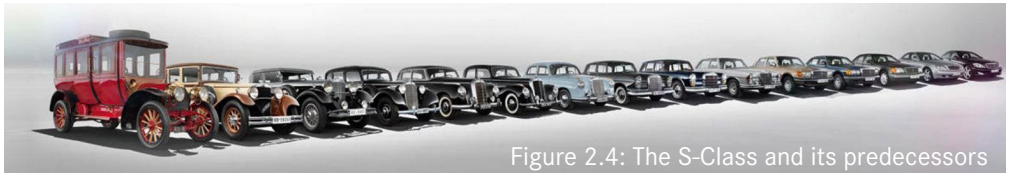


Figure 2.4: The S-Class and its predecessors

As the digital era changed the development time of new products, to distinguish as a 'premium' or 'luxury' company, obtaining strategic advantage from technology is no longer unique. Adding 'luxury' then comes back to adding premium or expensive materials, such as high-end materials or soft as an addition, which makes the difference between 'volume brands' and 'premium/luxury brands' smaller than ever.

Mercedes-Benz' 'MBUX' (see figure 2.5) is an example of how the brand tries to distinguish itself from competitors with an extensive service/software platform in and around the car, which Mercedes-Benz markets as a 'personal assistant' in the car, which also reacts to 'Hey Mercedes' commandos. (MyGermanAuto, 2019)

The S-Class, described as a benchmark of luxury, has such a 'luxury' name and expectation, that part of its luxury is found in its heritage. As Mercedes-Benz' S-Class evolved through time, still focusing on the same values, every new S-Class will be anticipated as the next step in luxury and technology. This is a strong value that shows Mercedes-Benz's strength in the 'hardware' part of luxury mobility, being a forerunner.

Figure 2.5: The MBUX system, with voice-control functions

The car is part of a bigger ecosystem, needs to be connectable to our smartphones, will have 5G/V2X (vehicle-to-everything) connectivity for autonomous driving and communication.

This means a car is not only the 'hardware' product it has been for decades or even centuries, but now is becoming a part of the big IoT and digital eco-system. Mercedes-Benz' CEO Ola Kallenius also underlines this change.

See appendix 'confidential information' for more detailed information.

Future Change - Competition

Whereas Mercedes-Benz was mainly competing with the other brands considered the 'German three', Audi and BMW, the automotive landscape has changed nowadays and 'new' carmakers such as Tesla or Lexus are competitors. In the future, tech brands such as Google, Apple, or Sony are developing autonomous cars or technologies, which is also an implication of the changing automotive industry. The rising importance of technology and the 'tech-industry' can also be seen at the CES (Consumer Electronics Show) which is yearly held in Las Vegas. For a few years, carmakers are showing their vision on the future of technology and mobility. In 2020, electronic developer Sony even showed a concept car, the Vision-S shows what they are capable of. (Autovisie, 2020) (see figure 2.7)

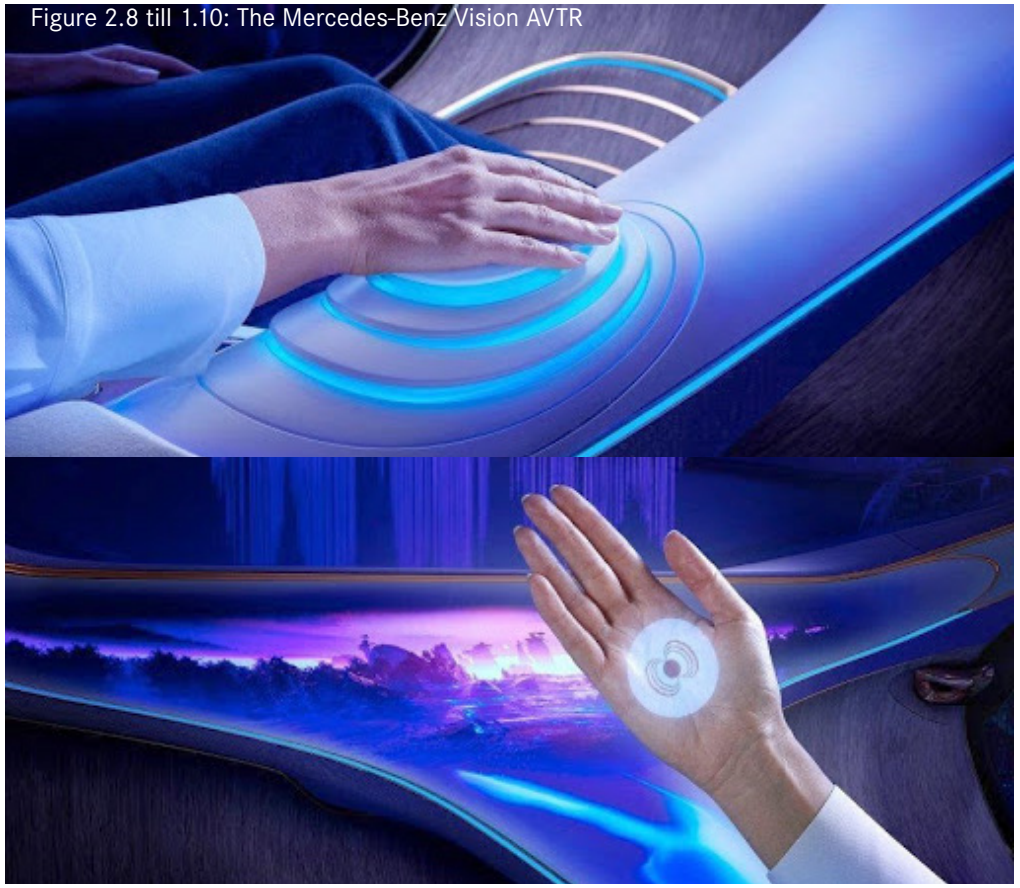
Figure 2.7: Interior of the Sony Vision S

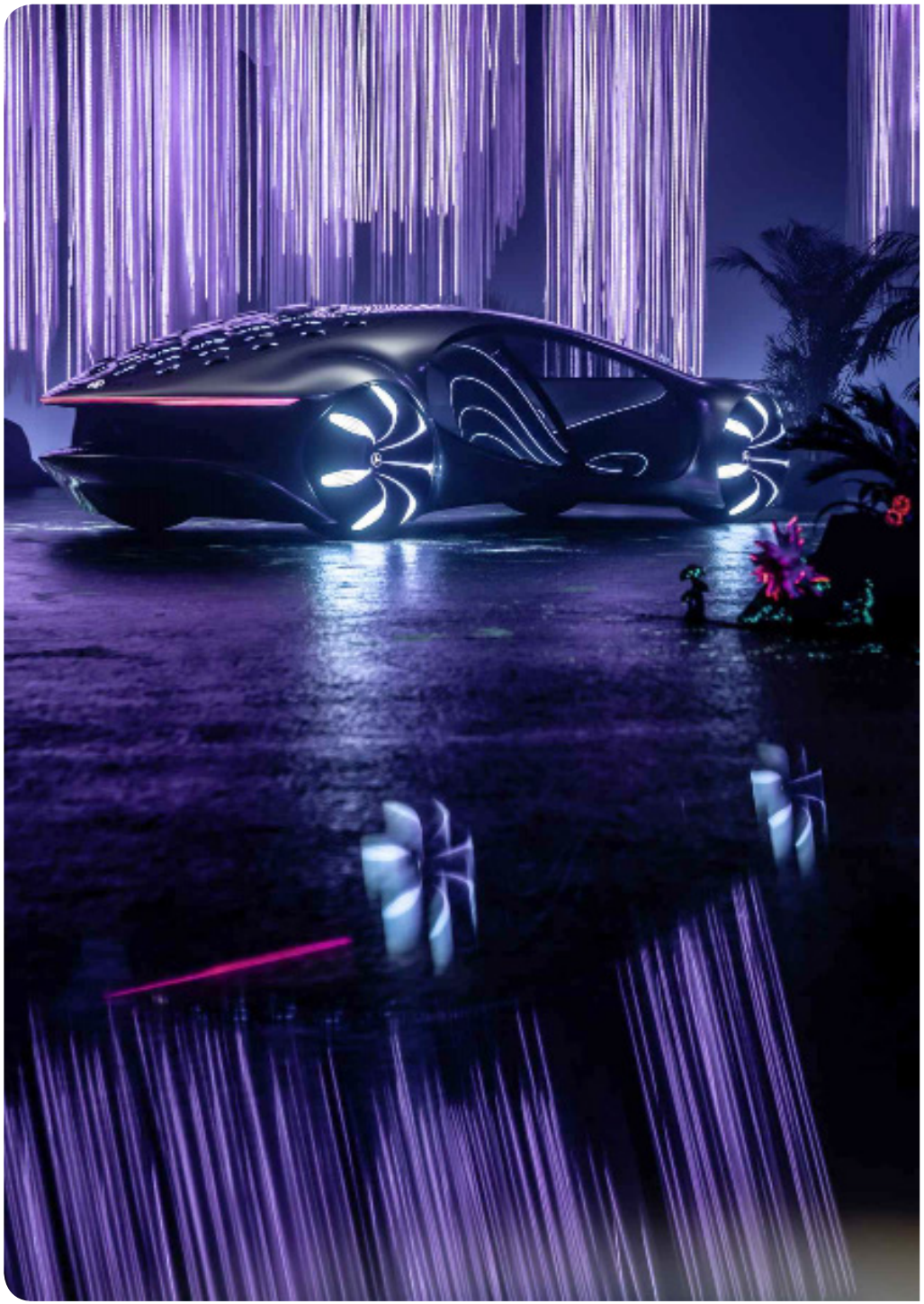
The fact that software and service companies such as Google, Sony, and Apple, who work on (autonomous) cars and software as well, are aiming for a market share in the automotive industry, underlines the importance of 'software' and services for Mercedes-Benz. Only producing 'hardware', cars, is not enough anymore.

Building block

That the car and its usage are changing comes through in several other concepts too. Mercedes -Benz itself also showed a concept vehicle at the CES 2020. The 'Vision AVTR' is a vehicle inspired and developed together around the 'Avatar' Blockbuster movie. The concept car is meant to create a link between (future) nature and humans in multiple ways. By putting a hand on the centre console, it recognizes the drivers by its breathing and changes the interior atmosphere according to it. (Daimler, 2020) Figures 2.8 till 2.10 show the Vision AVTR.

Figure 2.8 till 1.10: The Mercedes-Benz Vision AVTR





Mercedes-Benz explains the vehicle as:
“When the boundaries between vehicle and living beings are lifted, Mercedes-Benz combines luxury and sustainability and works to make the vehicles as resource-saving as possible. With the VISION AVTR, the brand is now showing how a vehicle can blend harmoniously into its environment and communicate with it. In the ecosystem of the future, the ultimate luxury is the fusion of human and nature with the help of technology. The VISION AVTR is thus an example of sustainable luxury in the field of design.”(Daimler, 2020)

Besides the car and the eco-systems itself, the need for mobility is changing as well. MaaS systems and sharing services are competing with car ownership, and therefore with car manufacturers as well. Therefore, ‘car ownership’ should be seen as broader than just only owning and using the car. It should be part of a person’s complete mobility needs.

Sustainability in Luxury Mobility

In current production cars ‘sustainable luxury’ reaches from the reuse of plastics and ‘vegan-leather’ options, mostly in electric vehicles. For example, the Mercedes-Benz’ EQC, which offers PET -ased fabrics (Artico, see figure 2.11) as a sustainable option, but still not as standard (Mercedes-Benz, 2019) It is rather an exception than the rule.

As the car industry is not known for its fast innovation or transitions, stricter climate goals/restrictions are still getting postponed by the lobby/politicians (Euractiv, 2016),

Land Rover’s creative director underlines this, as the following quote can be seen as an understanding of the need for change and an admit for a lag behind as well:
“Fifty years ago a leather couch was the height of luxury, now in the best hotels and homes you’d never see that. It’s a similar process with cars. Going forward, sustainable design is providing the framework for change.”(Bloomberg, 2019)

When looking at the fashion industry, renowned brands such as Gucci or Burberry stepped away from using fur in their fashion products already years ago, where the automotive industry is marketing sustainable luxury since some recent years. (Wittig, M.C., et al., 2016)

Despite the changed vision on luxury and sustainability; the perception of ‘sustainable luxury’ doesn’t seem to be that much different from luxury as we know it in current Mercedes-Benz models. It is mostly selling the same, or an evolution of it, in a more sustainable way. As we all are aware, and also car manufacturers, of the fact that mobility has to become smarter and more sustainable in multiple ways, it seems ‘sustainable luxury’ is still behind or at least not part of the ‘automotive revolution’ we are approaching right now.

It is still limited between the ‘automotive boundaries’ or old way of thinking about luxury, society, and mobility, on ‘hardware’ instead of experience.

Building block

Figure 2.11: Articial ‘Artico’ leather in the Mercedes-Benz EQS

Conclusion Mobility

Mobility and the automotive industry are having one of the biggest revolutions since the invention of the automobile. Needs are changing, ownership and energy consumption are seen from a different perspective, and the future of carmakers is unpredictable and troublesome.

The experience of driving a Mercedes-Benz should come from more than just the driving experience. The emotion and experience should express and transfer the ‘Mercedes-Benz feeling’.

The leading role, or ‘King of the road’, is part of Mercedes-Benz’s heritage and therefore brings a lot of opportunities for a future direction of feeling that should be evoked.

As Mercedes-Benz is a mainly a ‘hardware’ producer with its cars, a fundamental new sustainable service would bring a lot of opportunities for Mercedes-Benz, to both keep up with the digital competitors and era’s, such as bringing the Mercedes-Benz feeling broader than just connected to the (one) owned personal vehicle.

This should be taken into account, looking at the city perspective as well.

2.4 Future City

Talking about ‘the’ European city when taking mobility into account is almost impossible. Cities with an ancient and ‘narrow’ city center, such as Amsterdam or Rome do have a completely different layout than more ‘open’ cities such as Paris or Stuttgart for example. Besides that, municipality regulations, culture, and historical layouts influence city mobility a lot.

A common factor is that cities are changing to improve the quality of life for people. The car is no longer the ‘king’ on the streets, according to them, the street space is given back to citizens more and more. Examples of this are Barcelona Superblocks and Place des Remparts in Sion (CH). Therefore, ‘the European city’ of the future is often described as ‘smart’ or ‘livable city’. This means the city is not only smart in terms of using and enabling technology, but also in the way of coping with its citizens, traffic, housing ,and business, in a smart way:

Building block

“It is about using technology and data purposefully to make better decisions and deliver a better quality of life.” (McKinsey, 2018)

To create an understanding of the future mobility of smart cities, three cities are taken into account for this study; Amsterdam, Rotterdam,and Stuttgart. As Amsterdam and Rotterdam are known for their progressive approach on city mobility (Rotterdam won the Urbanism Award ‘Best European city’ in 2015, praised for its ‘urban design’) (The Academy of Urbanism, 2015)
and Amsterdam is ranked high on Mercer’s ‘livable cities’ ranking (Mercer, 2018) and are both considered smart cities.

Stuttgart is Daimler/Mercedes-Benz’s home city and known for its ‘car-friendly’ approach where cars can enter almost every street in the city center. It is one of the most polluted cities in Germany, and therefore needs to take action to reduce the pollution of particular matters and CO2.
Besides its geography, placed in the valley surrounded by mountains, its car friendly approach also plays a part in its pollution problem. In February, the administrative court pushed Stuttgart to take measures, as driving bans would be inevitable otherwise. (Politico, 2019)

To get a better understanding of the future plans and visions of cities, their mobility plans for 2030 and further are taken into account.

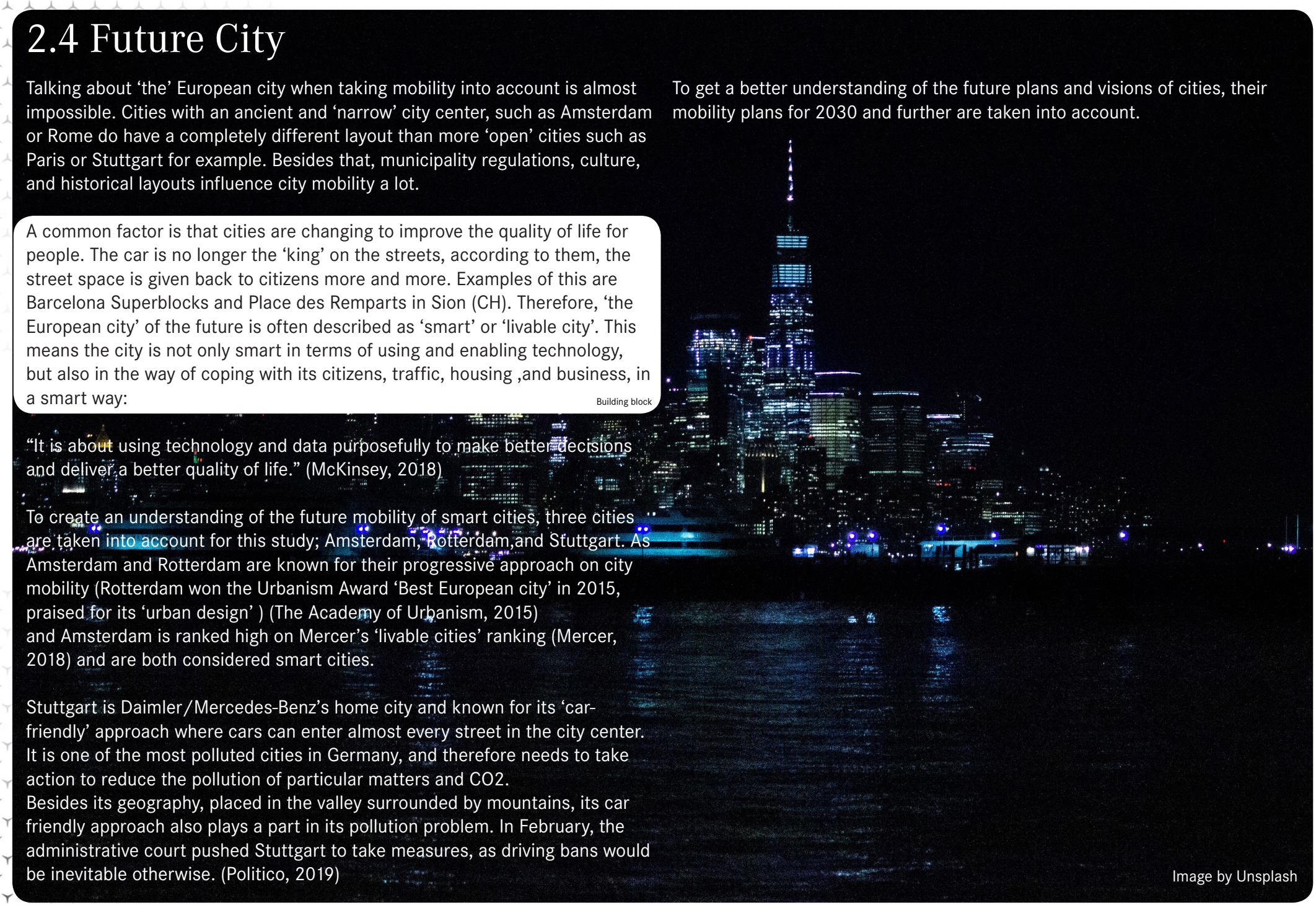


Image by Unsplash

Rotterdam

Rotterdam presents its ‘Rotterdam Mobilitietsaanpak’ (Rotterdam Mobility approach)on January 22nd, 2020. This contains the ‘urban traffic plan’ which was created in 2017. (Rotterdam, 2017)

Its ‘Stedelijk Verkeersplan’/urban traffic plan explains the cities plans for 2016-2030 mobility plans and policies.

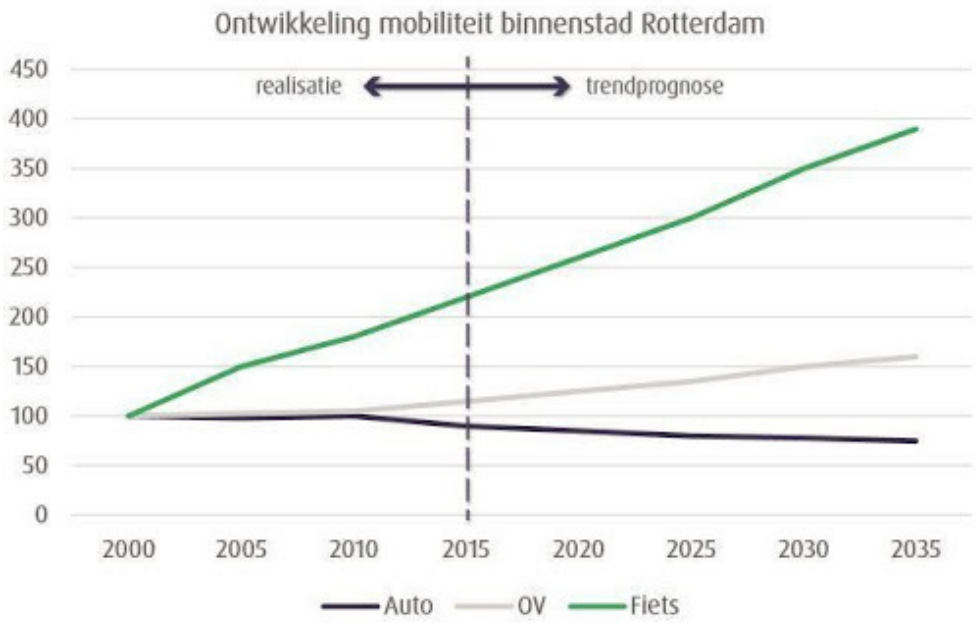
The mobility policy plans of the city contain the following relevant insights or goals:
- Fewer car kilometers in the city ring: the bicycle is dominant.
- A coherent regional and urban network: roads and public transport in balance.
- Attractive and lively (inner)city: the city lounge enhanced.
- Reinforce new modes of transport: transport over water and Last Mile.
- Healthy live environment: improving quality and Zero Emission.
- Smart mobility: technological innovation and IT.

The city also sees a changing climate for the car together with the city’s infrastructure and usage; “The role of the car in the city is changing, cars become cleaner, more silent, safer and the nuisance that people experience will, therefore, decrease in the upcoming years. The car has to share more of its public place with other modes of mobility, but at the same time we can allow the modern car to more places than are currently possible.”

Building block

Rotterdam also aims to decrease the shorter car rides, between 3 and 5 kilometers. The amount of bicycle traffic should grow and the heart of the city should be a ‘city lounge’. Boulevards should have 20 to 30% less car traffic in 2030, compared to now.

The development and predictions of mobility in the city’s city center are shown on the right, in figure 2.12 and 2.13.



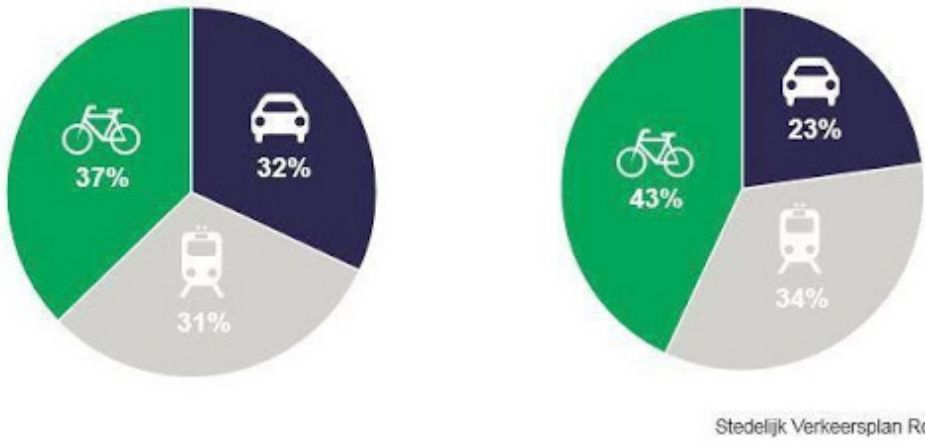


Figure 2.12 and 2.13: The mobility development in Rotterdam

Amsterdam

Amsterdam has the same aim as Rotterdam (Amsterdam, 2018) in bringing the total amount of cars down in the future.

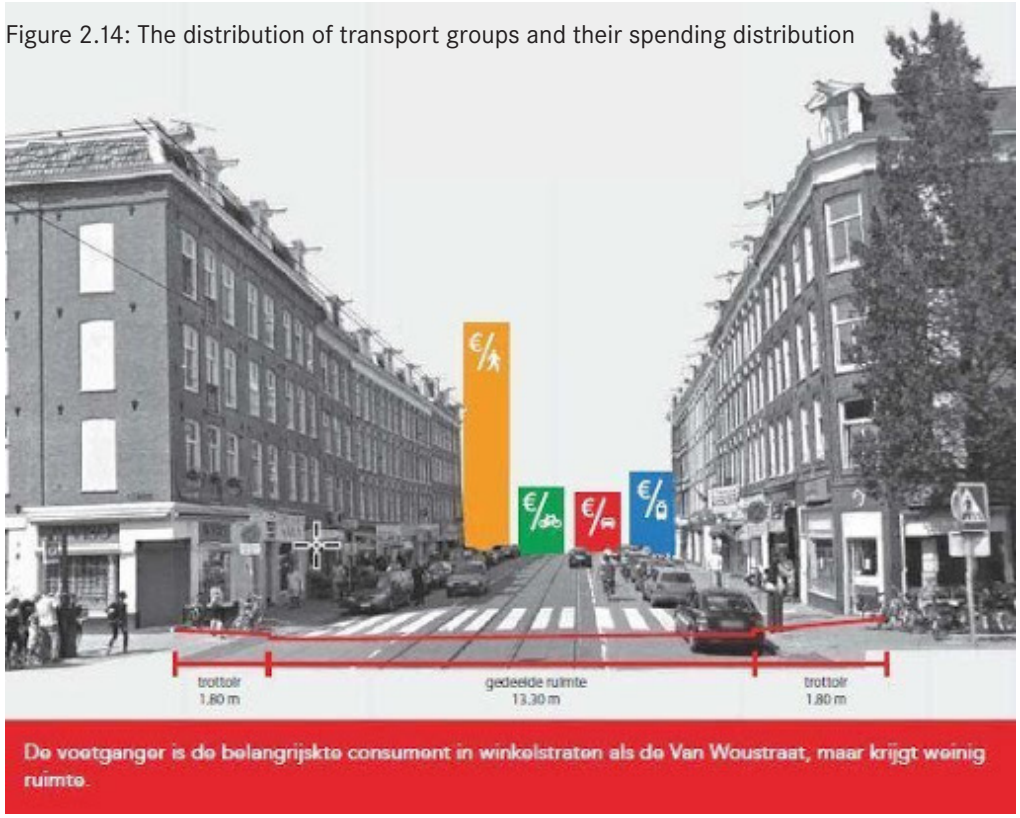
For car traffic the aim is; who has to be there can get there, “who doesn’t need to be there ‘through traffic’ drives another route”. In this way, there should be more space for citizens and local traffic. Sharing roads will be a challenge, and therefore the municipality understands that choices need to be made. An example is having less personal parking spots in the city center.

The city is also betting on new technologies and solutions, as it wants to create a healthy environment for citizens by having more cleaner vehicles in the city center. The municipality supports new initiatives and makes relevant data open for third parties. In their eyes, this will lead to new traffic concepts and transport services such as sharing electric cars, traffic over water and traffic management via smartphones for example.

In the end, the main focus for Amsterdam in the future lies in ‘the priority of enabling enough, and attractive, spaces in the city center for pedestrians, bicycles and small, clean vehicles. Train, metro, and regional busses will enable fast and comfortable transport bringing people from regional areas into the city center’.

Building block

Figure 2.14: The distribution of transport groups and their spending distribution



The city also wants more ‘fairly’ distributed spaces.Figure 2.14 shows an example of the importance of the transport groups and the space they have in the Van Woustraat, as what is wanted to change in the future.

Stuttgart

known as the Automotive capital of Germany, or even Europe, Stuttgart and cars have a big bound. As Germany is already known for its car culture, Stuttgart can even be seen as the biggest one as their pollution is highest compared to other cities. (New York Times, 2018)

In ADAC's 'study of mobility', it underlines the importance of the car in the life of German people:

"With roughly 75% still covered by car, this mode will remain the most favoured transport option. After all, mobility patterns are shaped by the convenience of being able to travel independently. Individual mobility is such an essential element of prosperity that many would hate to abandon it. In 2040, cars will still be the form of transport guaranteeing flexibility in time and location. (ADAC, 2017)

Looking at Stuttgart's traffic (see figure 2.15), in the last decade the number of cars in the city center even raised, as can be seen on the right, shows contradicting numbers compared with the 'smart cities' such as Amsterdam and Rotterdam.

The city aims to have 20% less (combustion propulsed) traffic in its city centre, as explained in its 'Aktionsplan: nachhaltig mobil Stuttgart' from 2017.

The aim is to reduce the car traffic for short distances and encourage the use of public transport or walking/biking options for the future.

Building block

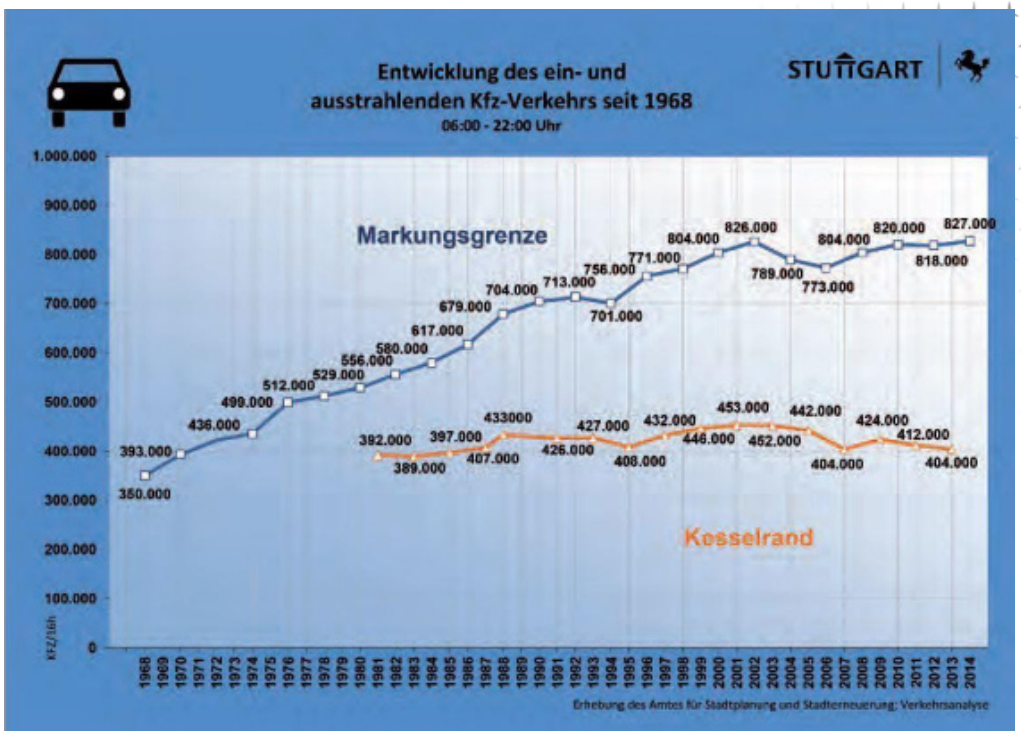


Figure 2.15: Stuttgart's city traffic, where the 'markungsgrenze' or Ring, is increasing the last years.

City Trends

Looking at the bigger picture, smart cities do have similarities or universal trends.
The examples of Rotterdam and Amsterdam already show that cities have visions on future mobility, but are not the executors or inventors of new mobility concepts and therefore need partners or collaborations. To help, the city can provide important (traffic) data with third parties.

As the problem of pollution and bad air quality is getting bigger and bigger, the importance of finding solutions or reducing pollution is as well. As an example; people in Amsterdam are living years shorter than people in rural areas in the Netherlands. (EenVandaag, 2019). Cities want to provide more healthy climates, being a 'healthy city' by making the city more green.

Smart cities are also open in new technologies such as autonomous driving, and starting pilots in specific areas, or encouraging Mobility as a Service (MaaS), for example with Car2Go/ShareNow platforms. This comes together with Data-driven design, as the effectiveness and efficiency of the urban environment can be optimized with mobility data.

This opens opportunities for Mercedes-Benz, as cities are looking for partners to collaborate to achieve their goals. In this way, Mercedes-Benz can be sure its brand is still part of the future city.
As sustainable (non-polluting) vehicles and services can be provided bigger city access than nowadays, this brings chances for Mercedes-Benz to bring passengers and owners to deep in the city center, also in the future.

Building block

Autonomous Mobility

It still remains unclear how autonomous vehicles, or cars in specific, will have a place in future city traffic. The chance that it will be part of the existing mobility modes is questioned by many.

The chance that it will be able to interact, connect, or communicate in a timespan of just a few decades is small. Therefore too many challenges and 'problems' have to be solved first. How does it react when a cyclist takes priority when it doesn't have the right to it? How will it 'push' through a busy city? All these questions need new solutions and technologies that are still not existing. Therefore the chance we will drive completely autonomous (level 5, see figure 2.16) in the city of 2040 is small.

Most likely there will be autonomous vehicles, but the self -driven car or personally owned vehicle will most likely stay and have a place in the 2040 city, which suits Mercedes-Benz's wish and vision to still provide personal mobility and personal driven vehicles in the future.

Building block

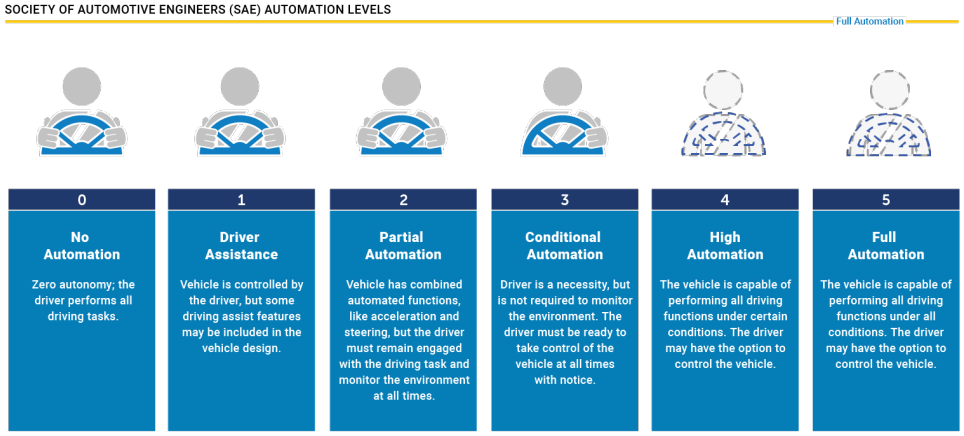


Figure 2.16: The levels of Autonomous Driving

Free-Floating Carsharing

Car2Go and DriveNow, who are now operating together as ‘ShareNow’, were one of the first companies offering ‘Free floating car sharing’, or MaaS, on a big scale in Europe, the United States and China since 2010. The advantages of these services for its users are the flexibility of being able to park it at most parking lots within the city, without having to pay. As ‘free-floating carsharing’ has been seen as an important change in (city) mobility, predictions showed it would become a bigger market, where personal vehicle ownership would disappear. (Vulog, 1015)

However, at this moment, the trend is already on its return and not having the market share as expected. For example; the services are already operating at a steady-state level in important European cities such as Rome, Vienna, Berlin, Frankfurt, and Vienna, for a few years (Kortum et al. ,2016). Also Daimler and BMW’s ‘ShareNow’ joint venture, which was announced at the beginning of 2019, already restructured the joint venture by the end of the same year. The American activities were taken down and the number of cities in Europe where the service operates was also reduced, as it was not able to become profitable in these cities. London, Brussels, and Florence are no longer covering the service. Only the cities that “show the greatest potential for profitable growth and mobility innovation.” remained. (Verge, 2020)

Besides this, previous examples of free-floating carsharing also have shown the concept is different in practice than in theory. French/Paris service ‘Autolib’ (seen at figure 2.17) was switched off in July 2018. Even with 150.000 subscribers, it was not possible to make the service profitable. In fact, it ended with a debt of 300 million Euros. The service had 4000 electric vehicles, specially designed for the service. Reasons given for the failure of ‘Autolib’ are a declining amount of users and rentals, but also the state of the vehicles was named as reasons by users not to use it. (The Local, 2018)

Other sides, the fact that car sharing is not solving problems as people use or need personal belongings in their personal owned car.

Figure 2.17: Autolib vehicles in Paris

Marianne Reeb, futurologist at Mercedes-Benz AG explains cars are used as more than just a means of getting from point A to point B:

“Carsharing, for example, is a really great idea,” she says. “But consider for a moment how complicated it is for parents to have to install two child safety seats every time they need a car. We still don’t have a solution for such problems. This is also why city dwellers still tend to buy their own cars as soon as they establish a family, if not earlier.”
(Daimler, 2018)

Looking at it from a luxury perspective, and the perspective of a high(er) demanding Mercedes-Benz customer, besides the problems companies experience with making the service profitable, the changes that the future will only be about ‘sharing’ vehicles, as free-floating sharing services, in the city center are unlikely to happen.

Building block

City Concepts Daimler

Mercedes-Benz, or Daimler, already developed or invests in a broad spectrum of city concepts, with fluctuating success. As these directions are already 'covered' they define which directions or paths are already taken and therefore showing which opportunities are possible for this project.

One of the most famous examples of a city vehicle is the car we now know as Smart Fortwo, but started being marketed as Smart 'City Coupe'. This car came on the market in 1998, being one of the smallest available cars. Currently, the car is in its third generation and only offered as an electric vehicle. (Figure 2.18 shows the first generation and figure 2.19 the 2020 Smart EQ Fortwo).

Figure 2.18 & 2.19: The 1998 Smart City Coupe and 2020 Smart EQ Fortwo

A totally different concept, Daimler invests in, for city mobility is the so-called 'Volocopter', offering drone-like techniques on a bigger scale to transport humans in the third dimension of the city to skip traffic jams and other delaying factors on the ground.
(see figure 2.20)
(Verge, 2019)


Figure 2.20: A flying Volocopter

As a Volocopter is more inefficient than a vehicle on the ground, as it needs energy for '3D' movements, landing and takeoff and the whole city infrastructure should change to make space to let it land and other problems like licenses for users for example. have to be dealt with, air movements is not a direction that will be followed for this project.

Besides physical products, Daimler also has services such as MercedesMe, which can used as a digital version of the car key, offering an app where besides settings about the car, also it is possible to open, close, and even share your car with family members. They can use your own vehicle then by mobile phone connection, replacing the car key with a smartphone. (MercedesMe)

This means that city concepts, such as a small vehicle (Smart) or different modes of transport (Velocopter) and services are already discovered or designed by Daimler. On the other side, with ShareNow the company has a wide 'service' provider portfolio. Bringing both ownership and sharing together leads to a more coherent or connected product/service connection.

Building block

City Restrictions

As cities are changing their urban planning into a ‘livable city’ lay-out, the role of the car as ‘king of the road’ is decreasing or at least changing. Roads are being designed with more space for pedestrians, cyclists or, car-free areas for the citizens.

Besides bans for combustion engines or rush hours, cars could also be banned to the center areas of the city, to promote public transport or shared commuting options. A desire for fewer cars in the city center is on the agenda of multiple European cities. Amsterdam, Helsinki, Stuttgart, and Paris are just a few examples of cities striving this goal towards the future (FleetEurope, 2019)

Kansas’ Mobility Future mobilities Global Report 2018 also mentions that this could lead to a stigmatization or even bans for ‘single-occupancy-vehicles’. This would mean that personal vehicles occupied by a single person could be banned from selected zones or highly frequented routes.

Building block

Figure 2.21 the potential of car sharing is very high, as the usage in the European Union, and especially Germany, is nowadays very low. This creates an opportunity to improve the city traffic dramatically, as the 2019 MIT sensible city lab’s Global mobility report shows: ‘If every driver I would share at least one trip per month…’ ‘94% of trips could be shared in Vienna. Traffic level would go down by 62.4%’ (MIT sensible city lab, 2019)

For Mercedes-Benz, this means that to maintain the ‘king of the road’ approach (see Chapter 2 - Brand Driven Innovation) this brings interesting opportunities. As cities will have different restrictions ot opportunities for car access, Mercedes-Benz should take the leading role in a more sustainable way, to create a ‘role model’ function for sustainable city behavior, making the user/owner king of the road by providing options to access city areas and creating benefits for its users in the future. A new ‘sustainable luxury’.

Building block

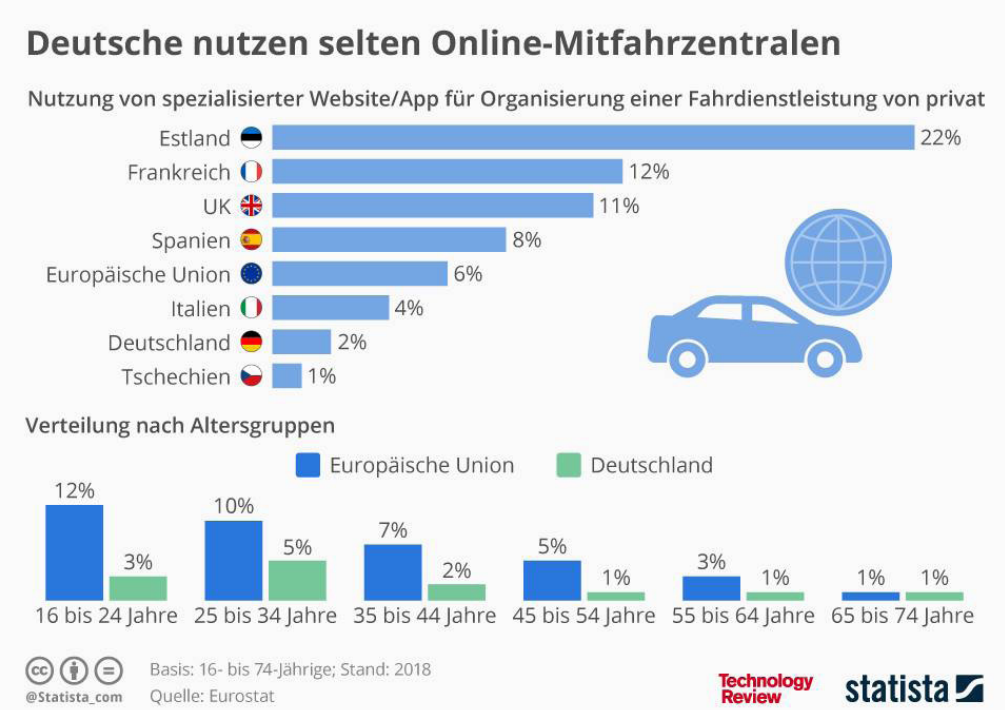


Figure 2.20: The usage of online-carpool apps sorted by country, in the European Union and especially Germany there is a big potential.

Conclusions Future City

Cities are changing their future urban planning and infrastructure and call the car no longer the ‘king’ on the streets, the street space is given back to citizens more and more.

Most likely there will be autonomous vehicles, but the self-driven car or personally owned vehicle will most likely stay and have a place in the 2040 city, which suits Mercedes-Benz wish and vision to still provide personal mobility and personal driven vehicles in the future.

This means there are opportunities for Daimler/Mercedes-Benz to take a leading role, to still be part of the future city center by both benefiting customers to keep them and their mobility in the city center and on the other hand helping the city by achieving its ‘smart city’ goals.

For Mercedes-Benz’s this also means that to maintain the ‘forerunner’ position) the approach needs to change. As cities will have different restrictions or opportunities for car access, Mercedes-Benz should take the leading role in a more sustainable way, to create a ‘role model’ function for sustainable city behavior, making the user/owner king of the road by providing options to access city areas and creating benefits for its users in the future: a new ‘sustainable luxury’ in the future city.

3. Design Brief

Combining all the ‘Building Blocks’ From the previous chapters, the outcome should be something that is sustainable from its groundings and still offers something that exceeds expectations, feels like something special and therefore most importantly gives a feeling of luxury.

To answer the research question ‘How can a luxury brand as Mercedes-Benz be able to still provide a mobility concept in the city center of a 2040 European city, offering ‘sustainable luxury’?’ The goal is:

Mercedes-Benz, and therefor the Mercedes-Benz driver, as the role model of the future city centre.

By combining both ownership and sharing services, sustainable luxury should come from benefits for users, citizens, and the city itself.

A behavioral change needs to be achieved by user-perceived benefits, giving affective, informational and/or social feedback, and therefore creating continued use intentions.

As Mercedes-Benz is strong with its ‘hardware’, its cars in various segments, the opportunity lies in combining its cars with a service that provides luxury services to its car owners, to create a ‘sustainable luxury experience’ as the goal.

Contradictions

For the design solution, there are several apparent contradictions that need to be solved or at least taken into account.

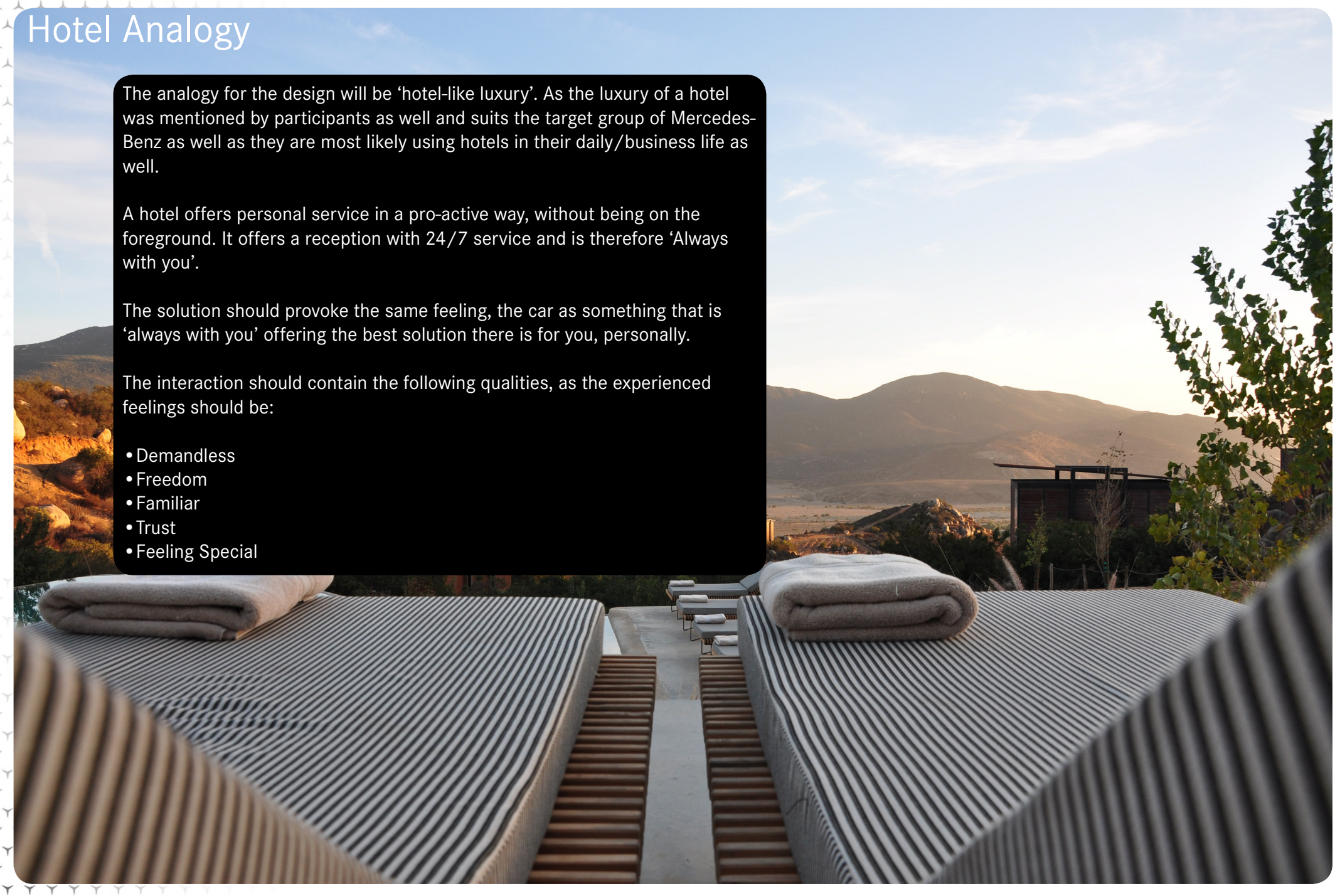
To start with, Mercedes-Benz wants to continue in ‘personal owned mobility’, as the assignment describes. Contrarily, cities want fewer cars in their city centre and promote MaaS and car-sharing services on their streets. Therefore, the collusion should combine these two, to create the ‘best of both worlds’ by offering the advantages of both and leaving out the disadvantages.

Also for luxury and sustainability itself, there is an apparent contradiction. The luxury should come from freedom and access, feeling privileged, instead of expensive materials and excess.

To achieve sustainable luxury, the solution should provoke and provide a behavioral change for its user, to have personal benefits while society/the city benefits on the other side.

This combined means that the ‘King of the city roads’ will be transformed into the ‘role model of the city’ in 2040.

Hotel Analogy



The analogy for the design will be ‘hotel-like luxury’. As the luxury of a hotel was mentioned by participants as well and suits the target group of Mercedes-Benz as well as they are most likely using hotels in their daily/business life as well.

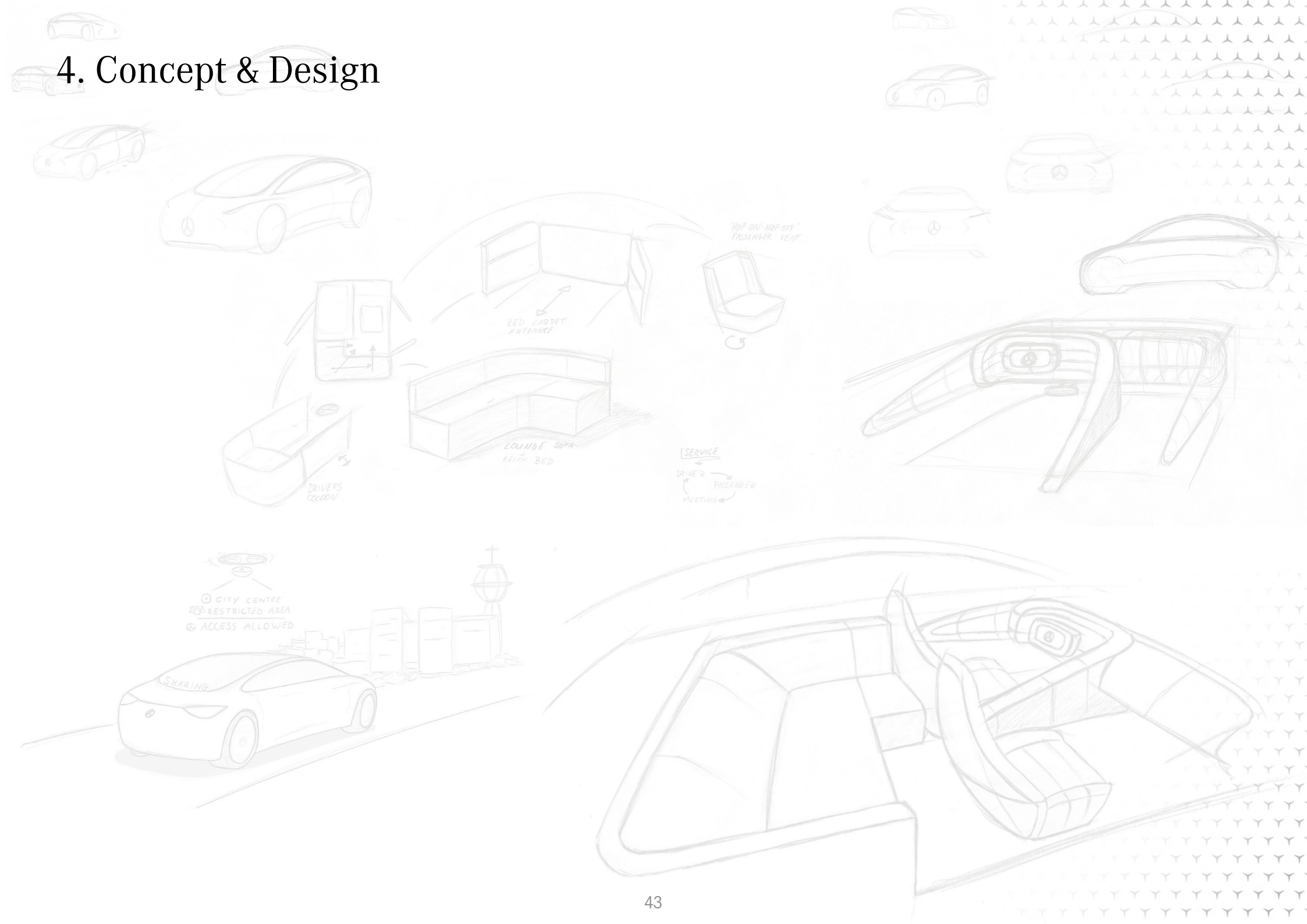
A hotel offers personal service in a pro-active way, without being on the foreground. It offers a reception with 24/7 service and is therefore ‘Always with you’.

The solution should provoke the same feeling, the car as something that is ‘always with you’ offering the best solution there is for you, personally.

The interaction should contain the following qualities, as the experienced feelings should be:

- Demandless
- Freedom
- Familiar
- Trust
- Feeling Special

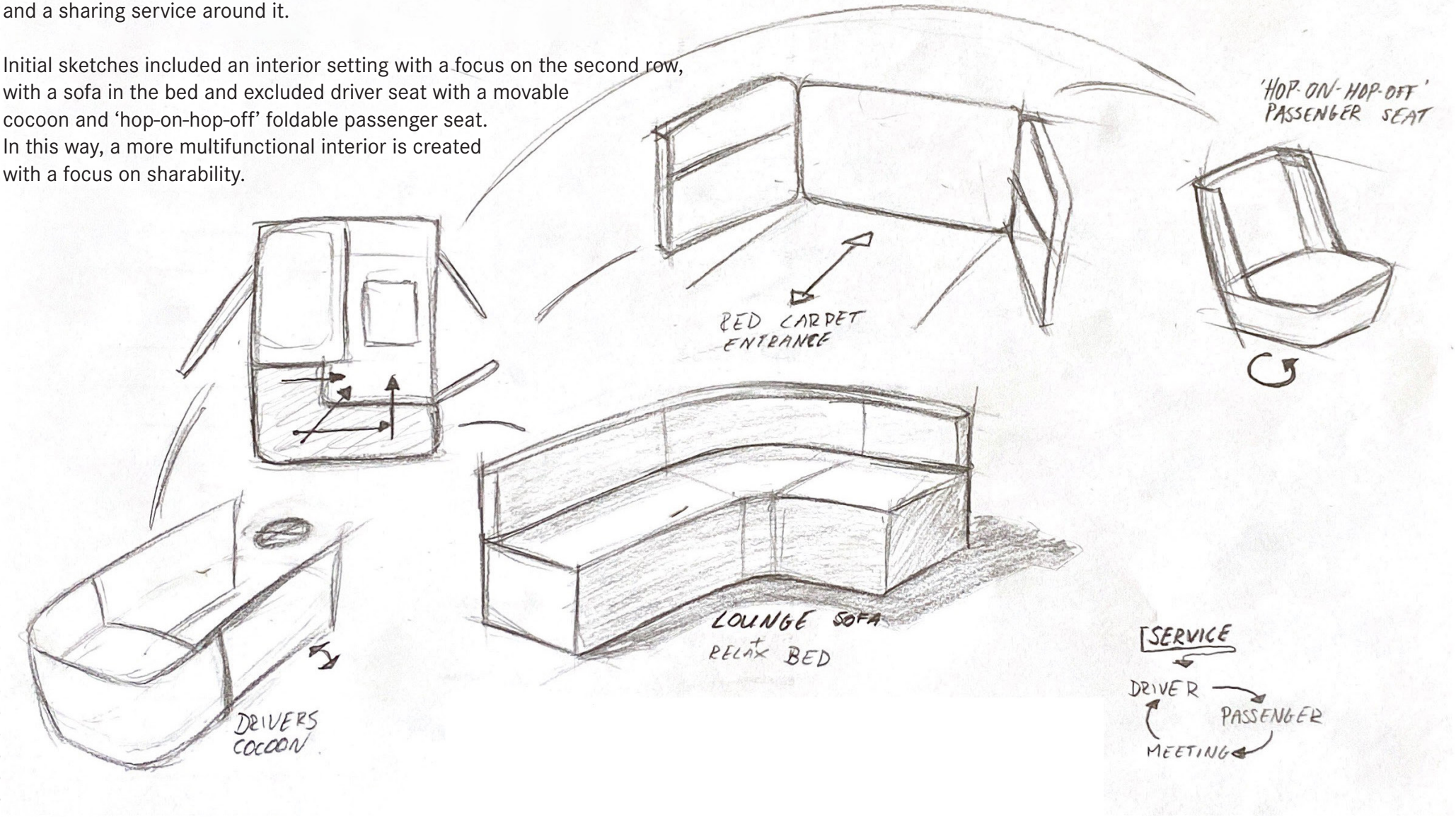
4. Concept & Design



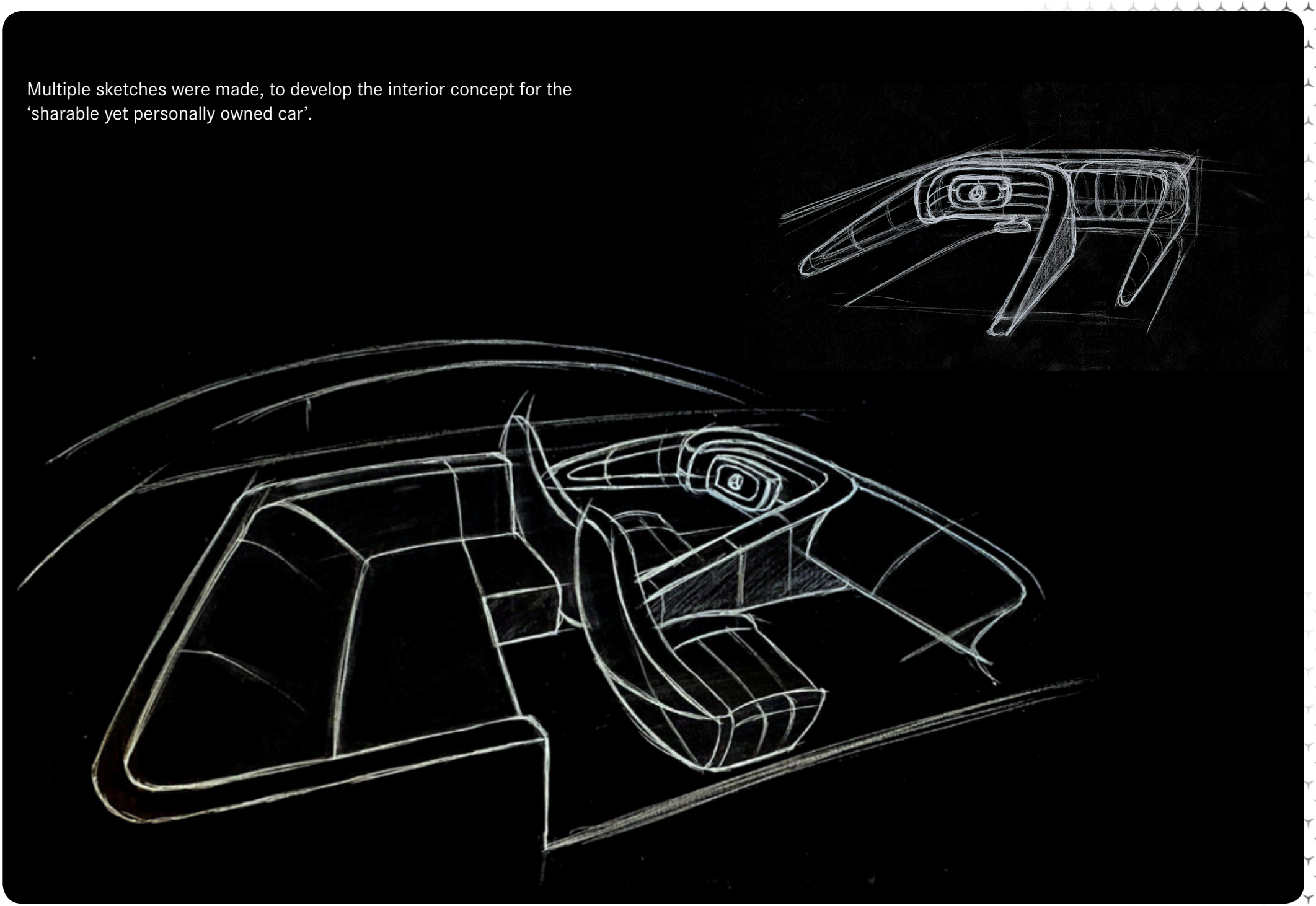
4.1 Concept Development

Based on the outcomes of the research, the first ideas and concepts for a personal yet sharable Mercedes-Benz (service), where owners can share their car with other Mercedes-Bernz drivers, were created. Sketches included ideas for a complete Mercedes-Benz vehicle, both with interior and exterior design and a sharing service around it.

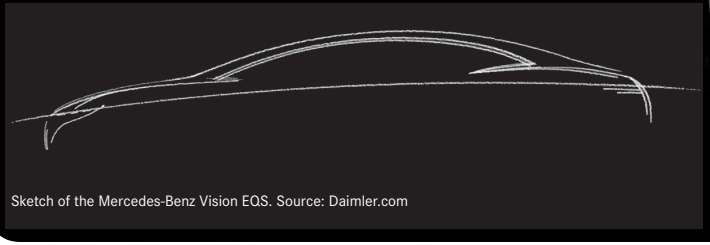
Initial sketches included an interior setting with a focus on the second row, with a sofa in the bed and excluded driver seat with a movable cocoon and ‘hop-on-hop-off’ foldable passenger seat.
In this way, a more multifunctional interior is created with a focus on sharability.



Multiple sketches were made, to develop the interior concept for the ‘sharable yet personally owned car’.



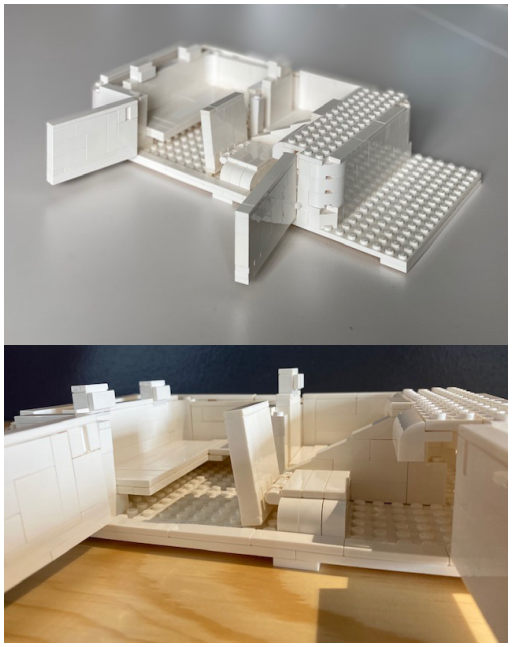
To create a full package, initial sketches for the exterior design of the vehicle were made. Inspired by the ‘one bow’ design of Mercedes-Benz ‘snew design language, introduced with the Vision EQS concept. As the vehicle is made for urban mobility, its dimensions should be as compact as possible whereas the sketches are based on a ‘two-box’ design, like a hatchback or SUV shaped car. As the entrance, and backseat, are important aspects of the concepts, the midsection is relatively high and bow-shaped.

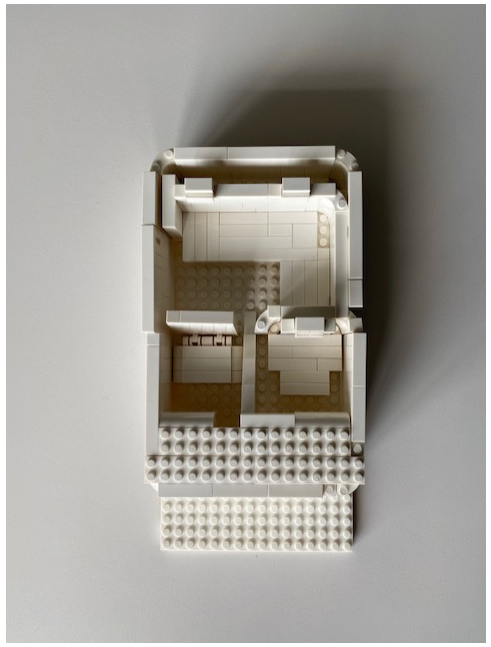


Sketch of the Mercedes-Benz Vision EQS. Source: Daimler.com

Idea Testing

After the initial sketches, the interior model was built with Lego Architecture Studio, to test dimensions with scale cut-outs of users. Initial ideas for joining persons and seat configurations were tried and created.
Interaction ideas are added later, to get an idea of the desired interactions and experiences of the idea.





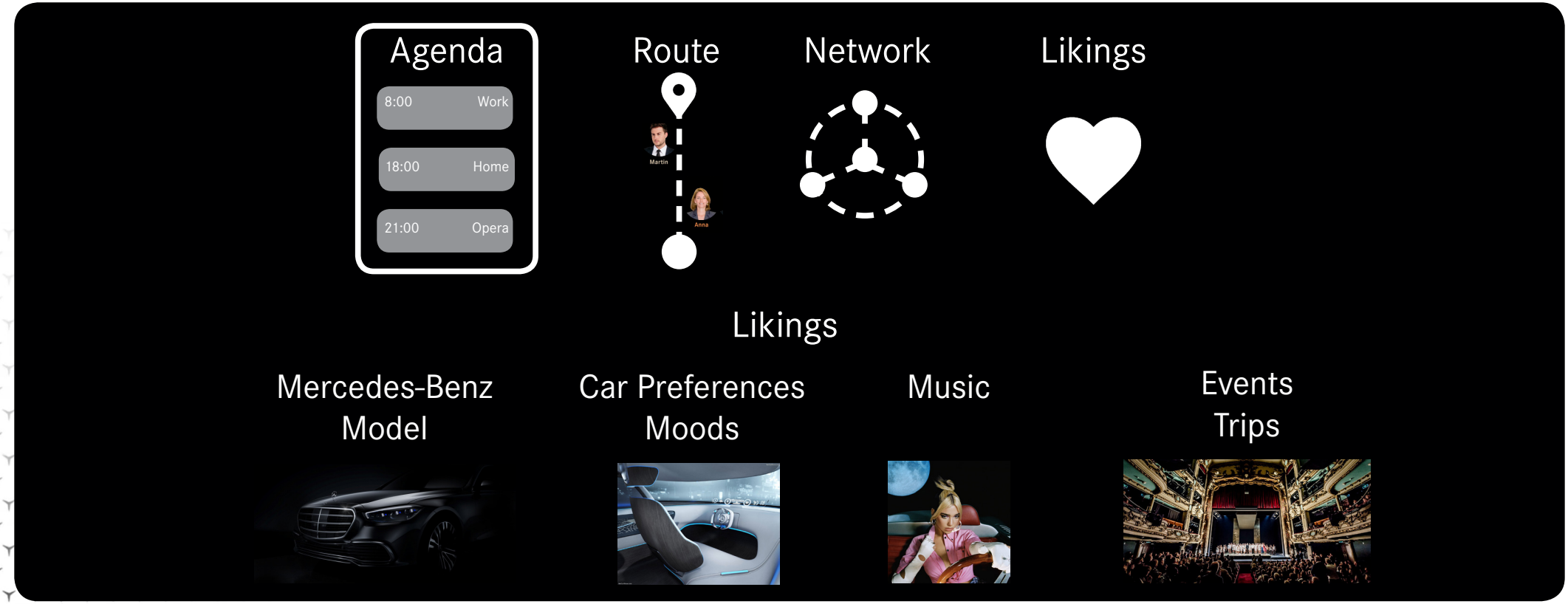
Service Development

To complete the concept, the connection between the user and car needs to be created. To be able to create the full eco-system or service, the user needs to be able to ‘communicate’ with its personal car and mobility through his or her device. An add-on in an existing application or service is most obvious in this, as it should be non-disruptive or having a low effort for its user when using it.

Therefore the mobility assistant/service will be part of its owner’s agenda, as a personal mobility assistant. Based on a person’s destination, and route, potential connections with other users will be made and able ‘sustainable luxury sharing’ by encouraging sharing a personally owned car with other Mercedes-Benz drivers

The service will try to look for people within the network to ‘match’ with. After this, the next layer of ‘matching’ will be based on so-called ‘likings’. It will suggest a person to match/drive with, were the driver can accept this person or not.

These Likings are based on the owner’s (mutual) car, preferences or moods, music taste or events, and trips gained by the information of the car’s user interface and in-car preferences



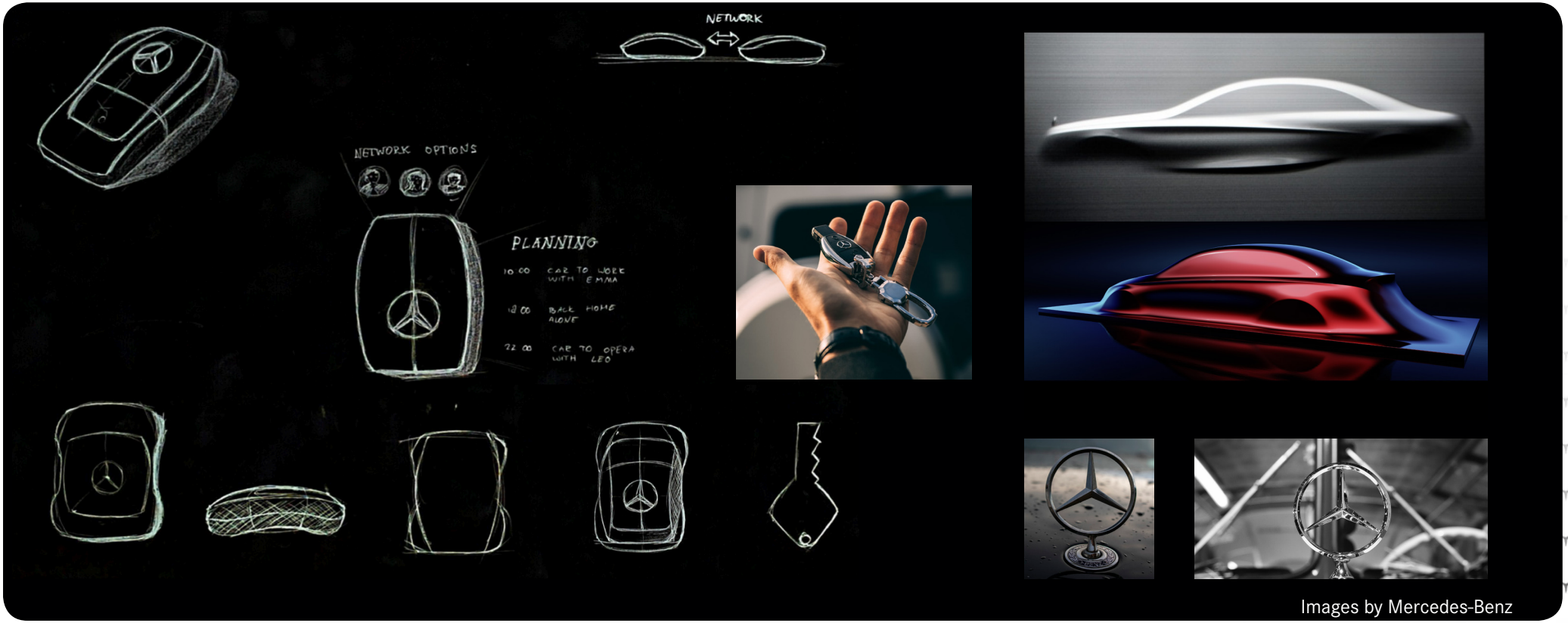
Status Object Development

As a Mercedes-Benz is more than just mobility from A to B and its owners and users are known as ‘status drivers’, the concept should respond to this. Looking to the current situation, the car key is a clear example of a ‘status object’. The car key goes way beyond its function; it is an object to be able to show and express the pride and privilege of owning a Mercedes-Benz.

To maintain this ‘luxury’ in 2040, a ‘key’ element is designed for the sharing service, to have a physical object which combines user functions with an object that shows the owner’s status.

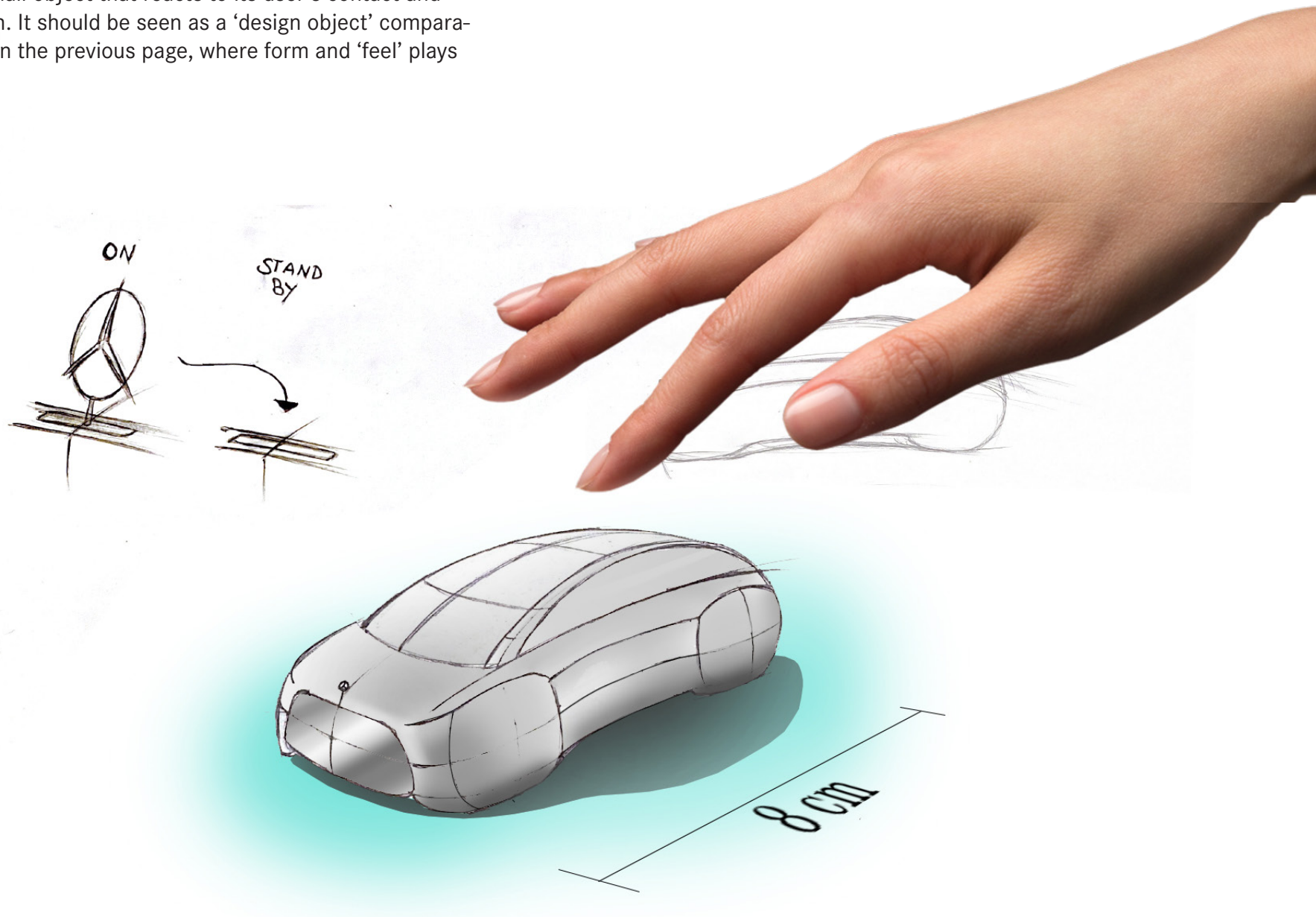
Connecting it to the sharing service, the object can become a communication tool between the user and its vehicle/mobility. An object that works next to the owner’s device (as in 2040 smartphone) as a ‘token’.

Inspiration is taken from the current car key, as well as sculptural Mercedes-Benz designs and the status of its own star; the statue like object standing on the front of the higher class Mercedes models.



Images by Mercedes-Benz

The token is designed as a small object that reacts to its user's contact and lights up when interacted with. It should be seen as a 'design object' comparable to the sculptures shown on the previous page, where form and 'feel' plays an important role.



Concept Evaluation

The complete concept/idea, from vehicle in- and exterior, service design, device application add-on, and token, where discussed with both Mercedes-Benz employees as potential users. After an explanation of the solution and its attributes/products, a talk and discussion was held to get a qualitative judgment of it. After some in-depth talks with a Mercedes-Benz designer and a re-judgment of the ideas and the design goal/outcomes, it was decided to bring the concept back to the 'core' as all different aspects (interior design, exterior design, service/application design, and token design) together would not lead to the solution of the assignment; sustainable luxury in 2040 City Mobility.

As the research shows the solution should enhance an experience and service, designing a complete vehicle around the service would be too far away from the core.

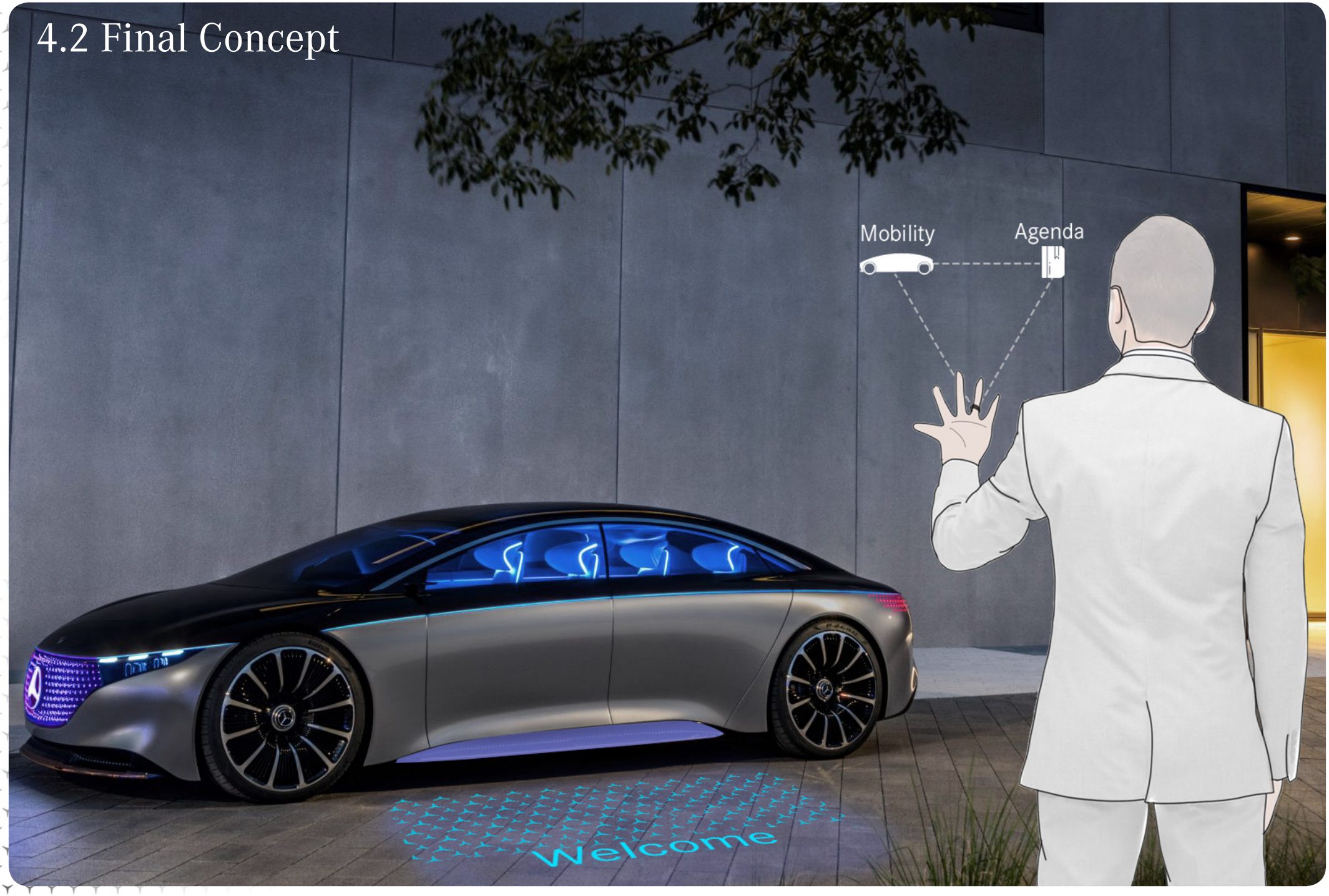
The focus should be on creating sustainable luxury with using as few resources as possible, creating maximum impact by minimal effort for its stakeholders.

As Mercedes-Benz is already working on different interior layouts for its future models, anticipating on autonomous and-or shared driving, creating a full vehicle including a complete interior design would lead to too much noise and unnecessary steps.

The token is in this situation not effortless. It leads to an extra but not necessary step for its user, as it is an extra object that need to be carried, not having a big added value. Therefore this 'status object' should be evolved further to make it suitable for the solution.

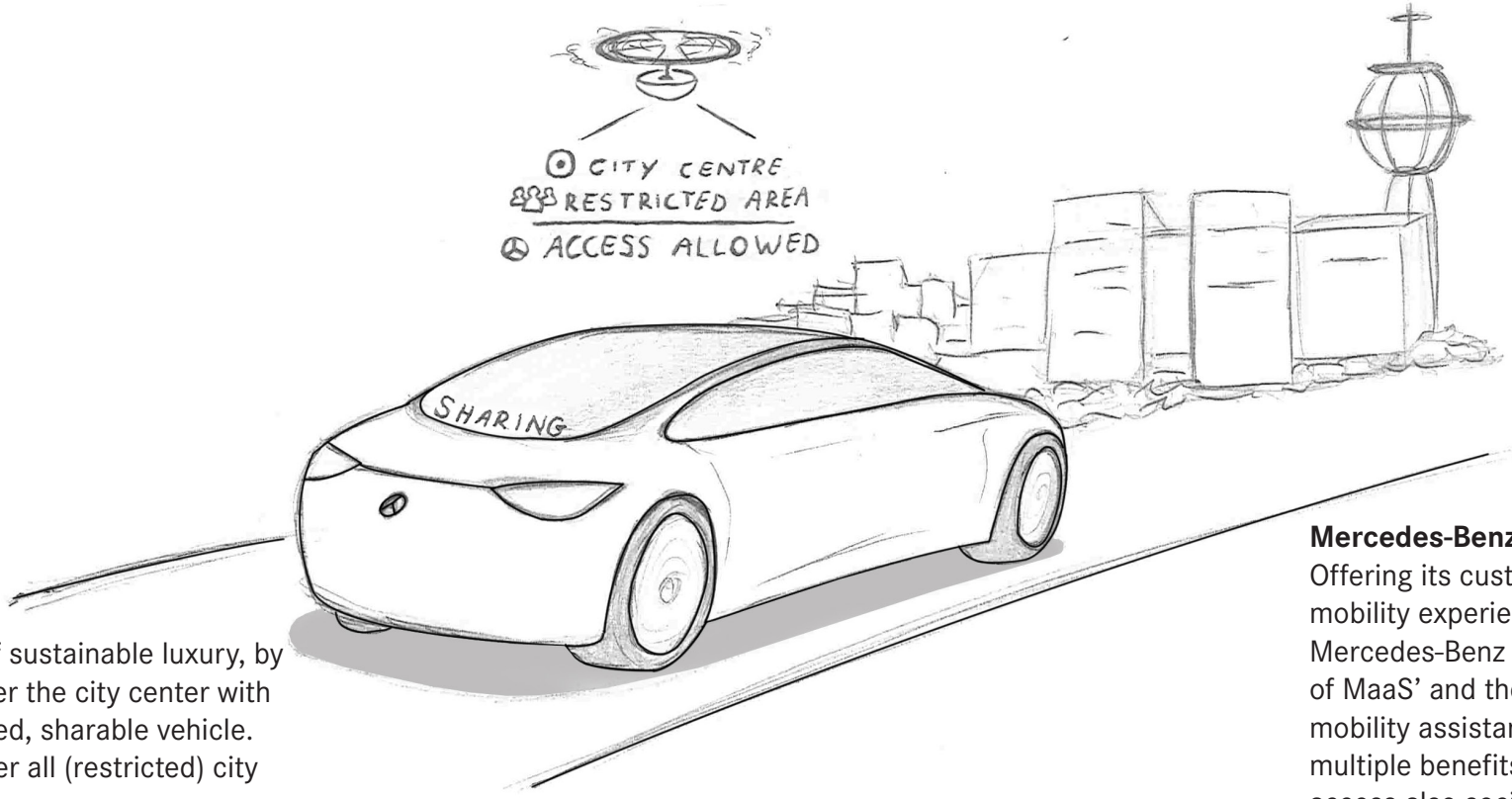
As a next step, the focus is redefined by focussing on benefits and behavioral change for Mercedes-Benz owners, by using the sharing services, giving them the status expression and giving Mercedes-Benz the innocator and 'role model of the future city' role. Together this should lead to city benefits such as more shared vehicles in city centres and. The next page shows this focus/worldview and a 'user journey' scheme is made to clarify, whereafter the concept is developed further.

4.2 Final Concept



Worldview

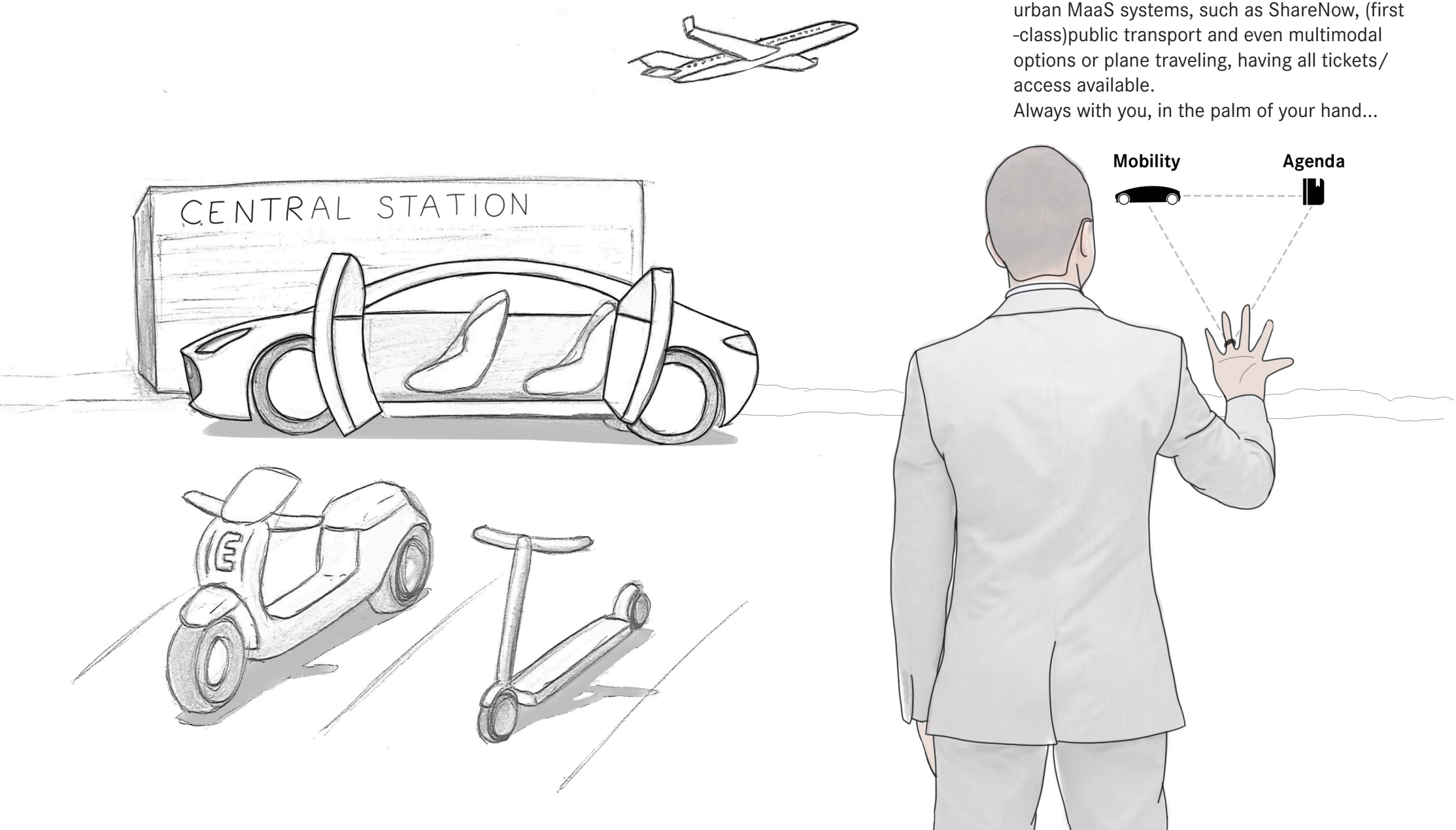
2040 Smart City
Restrictions for cars. Not being able to enter the city center in polluting, but also single-occupancy vehicles. Restrictions for non-conforming vehicles, privileges/advantages for vehicles that fulfill the conditions.



Mercedes-Benz
The role model of sustainable luxury, by being able to enter the city center with a personally owned, sharable vehicle. Being able to enter all (restricted) city areas.
Being able to extend the brand and identity beyond the car.
By covering both th ‘ownership’ and ‘sharing’ market, the potential market share also increases.

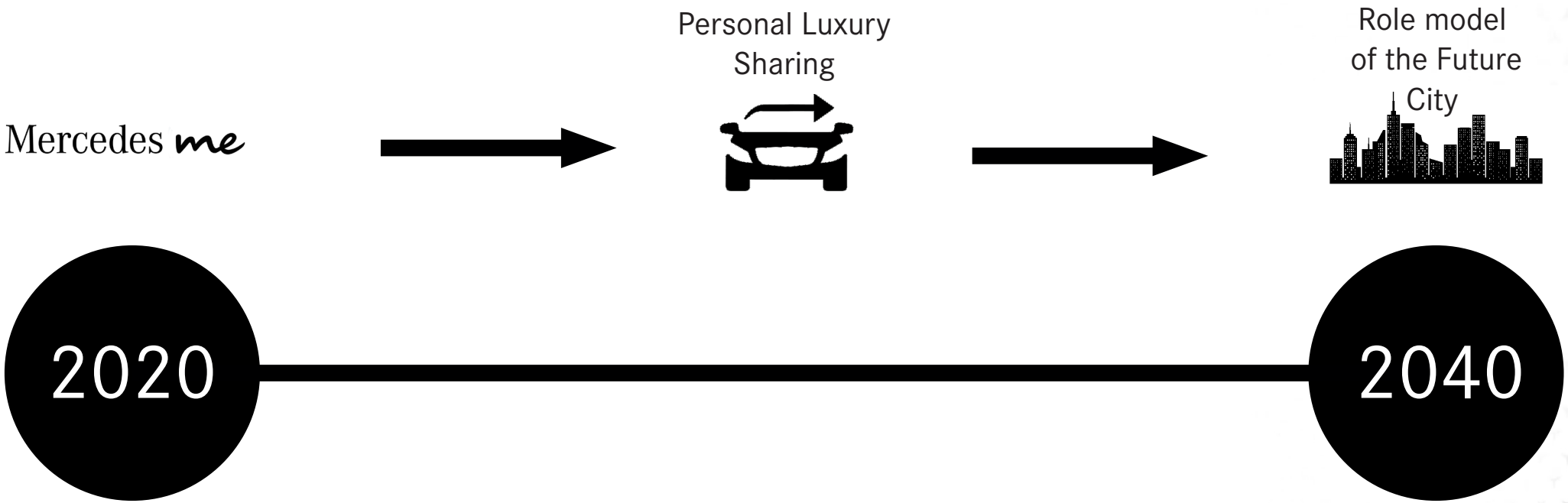
Mercedes-Benz drivers
Offering its customers a luxury mobility experience, where the Mercedes-Benz is a luxury extension of MaaS’ and the car becomes a mobility assistant and service with multiple benefits, besides city center access also social/network benefits, providing a luxury experience in different ways. Shared your car multiple times? A cleaning service will clean your car as a reward for example...

2040 Mercedes Mobility
Owning a Mercedes-Benz will give access to multiple luxury mobility options. Besides sharing and being able to make use of a shared Mercedes, the service is connected to urban MaaS systems, such as ShareNow, (first -class)public transport and even multimodal options or plane traveling, having all tickets/ access available.
Always with you, in the palm of your hand...



Timeline

As the concept is created for 2040 city mobility, therefore the goal is for Mercedes-Benz (drivers) to be role model of the future city. As the service can be used in different Mercedes-Benz models, the implementation is as a next step of ‘MercedesMe’, and therefore implementable before 2040, to enhance the innovation/role model function of Mercedes-Benz.



Best of both worlds

Besides city access and the possibility of extending your network, The personal luxury service will provide the best of both worlds, owning and sharing.

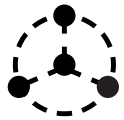
A personal car is more than something to go from A to B with, as it is one of the most expensive products owned, after a house, for example, most people do have an emotional bond with their car. It is a sign of freedom, being able to bring you wherever you want, or doing with it whatever you want. With buying one, you are able to choose the one (Mercedes-Benz) that suits you most, with your preferred options, design, or layout. As a disadvantage, it can be a ‘burden’ when looking for a parking lot and takes a lot of space when it is not used, or only used by one person.

A shared car brings advantages as the freedom of parking it wherever you want for free, having multiple ones available, and access to more city areas. On the other hand, there are also some disadvantages. As people don’t see it as ‘theirs’ you never know how the previous owner leaves it for you. As you share it with a lot of others, you never know what happened before. This also means that personal items cannot be stored or left in the car. If you have special needs, or a baby in a fixed seat, this option becomes even less interesting.

Combining both, and thus having the luxury of a personal car with your personal belongings, that you can share with others brings the best of both. Having the access and privileges the same as a shared vehicle, joining one when your personal car is not available or to extend your network with other Mercedes-Benz owners. All this in your own hands, available when you want, not used when you don’t want to. Together this makes Personal Luxury Sharing the best option for city mobility, Luxus mit gutem Gewissen.

City acces

Networkdating



Benefiting from owning and sharing
+ more

Sustainable Luxury
Mercedes-Benz Rolemodel

Scenario Scheme

The Customer Journey scheme on the previous page shows a (business)day for Jan, Anna, and Martin. In the scenario, they all start their day with planning or checking their mobility options, as having a personal mobility assistant. The interaction, written in the lower part of the white shape, should be at ease and give a feeling of relaxation and as care is taken away.

As the experience should be effortless, the service will plan the day trips when connected to the owner's device, using its agenda.

After planning the trip, in this case, Jan is going to travel alone as he prefers that today and Anna will join Martin, as they live close and Martin wants to cross the city center, the 'sharing ritual between Anna and Martin starts, where they are introduced to each-other and will be shown to the car (in Anna's case) and each other. After arriving at work, Anna and Martin add each-other to their network, as they like to travel together more often.

After work, Jan is able to share his car with Anna, as they live in the same area. They will have the same 'sharing ritual' to get to know each other. Martin will take the train home, as he prefers to take the faster option and does not need to travel to work early the next day. Because he shared his car with Anna on his way to work, he gets the benefit of a cleaned and washed car as a reward.

Scenario Scheme

Sharing Ritual

Dayplanning at home
- Mercedes-Benz Ritual -

At Ease
Relaxed
Taken out of hands

Willing to share car

Willing to join car

Wants to drive alone

Matching with Other
Mutial benefit sharing

Trust
Being Important
Curiosity
Socializing

Match between Anna and Martin

Interface shows person
Suggestion for sharing

Clarity
Taken care of
Helpfull

Martin notices Anna

Noticing joining person
Announcing person

Clarity
In control
Trust

Anna Joins Martin's Mercedes-Benz

Noticing shared car
Noticing car

Guidance
Clarity
Helpfull

Anna approaches car

Interaction shared car
Car 'opens up'

Trust
Familiarity
Welcome

In-car interaction
'Meeting' driver and passenger

Excitement
Familiarity
Welcome
Socializing
Knowledge

Network extension
Adding friends/matches

Sharing Ritual

Anna joins Jan on their way back. They are part of each others network and work at the same location. They live close by.

Communicating with own car
'Talking' to car

In Control
Privilege
Best or Nothing
Comfort

"Martin, it is faster to take the train home. First class ticket is sent and Your Mercedes will be washed and cleaned while being stored."

Mercedes-Benz

Service Details

The sharing service works as an integrated service in your device/ smartphone. Based on your day planning, a route is created where the best option is provided. The fastest if required, sharing when possible or alone if wanted.

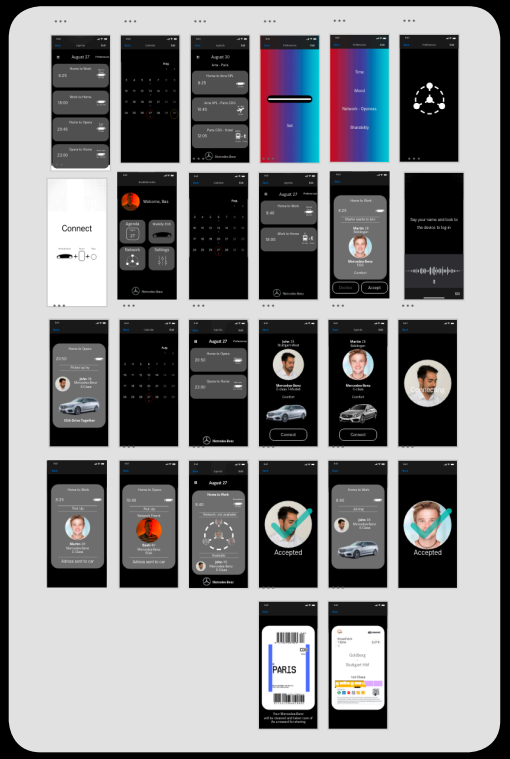
The service looks for common routes with other users and suggests a shared ride if possible. The detour for a driver should be limited to a few minutes (adjustable in the application settings) to avoid having a ‘taxi-feeling’.

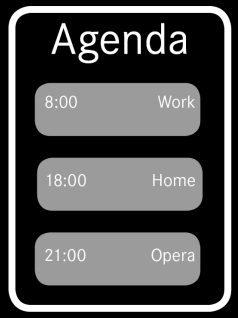
If someone is from your network, this person will have the ‘highest priority’ and showed with preference. If there are no network matches, the service will show matches based on ‘likings’, as can be seen below. The match will be based on the Mercedes-Benz model, to provide an experience as familiar as possible. The next step will be in-car preferences, such as settings (comfort-mode or sport-mode for example) and preferences such as the played music and in the end events or trips, based on the GPS/navigation of the car.

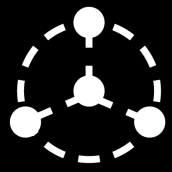
As the service/system is connected to the car, device, and ring, it ‘saves’ the preferred settings in your personal car, making it possible to make the shared experience as familiar as possible.

As the service is different than dating, the matches will be shown by the system and the user can give feedback afterward with the ring or in the car’s interface. In case of a ‘no’ match, the person will not show up as a potential drive sharer anymore, to keep the system ‘trustworTHy’.

Screens are designed, to create the concept’s application for the final showcase video.







Mercedes-Benz Model

(In-)Car Preferences

Music

Events Trips

Match - Ice breakers

The match is primarily based on the agenda/route that has to be taken. The purpose is to only pick up people on the routes itself or a minimum detour of a few minutes maximum.

As the kind of Mercedes-Benz model says a lot about a person's character and also background, 'out of network' match is based on someone's car and (profession) background.

Based on the common likes, or willingness to share, an 'ice-breaker' is shown in the mid-armrest of the car interior. Here a short question or dilemma is projected, to have a conversation starter and therefore a social start of the drive/meet up.

This conversation starter corresponds with the topics of the likings, and are car, city, or preference related, and is more general or more personal based on the person's mood and openness.

City:
What is your favorite hotspot?
Where to get the best *kind of* food/product?
What is your favorite 'Geheimtipp'?
Where to shop for local products/ingredients?
What's the best place to go in *season/weather based*?
Why do you live in *city/village*?
Where to meet the nicest people?

Car:
Why did you buy this Mercedes-Benz?
What is your favorite feature?
What do you like most about your car?
What makes your car different than others?
Why do you drive Mercedes-Benz?
What will be your next car?
Tell something special about this car

Preferences:
What is your favorite music?
Dilemma: Which song to play? Nr. 1 or Nr. 2? (based on common music taste)
Which concert did you visit last?
Which artist should I listen to?
What did you think about *event* (based on past visits)
What is your favorite designer?
Which series/movie is a must-see?

General:
Why do you work as *profession*?
What will be your next holiday destination?
Which fun fact you would like to share?

As the person is always in charge of what he or she shares, through settings the topics (not) to talk about can be chosen, or personal suggestions can be added.

Ring

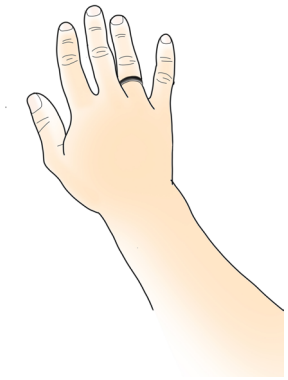
To enhance the ‘status’ feeling of owning a Mercedes-Benz, The token is replaced by a ring. This will make the usage of the service as convenient and easy as possible, The token is replaced by a ring. Inspired by fashion, an important inspiration for luxury as well as Mercedes-Benz and the possibility of customization, making it more personal.

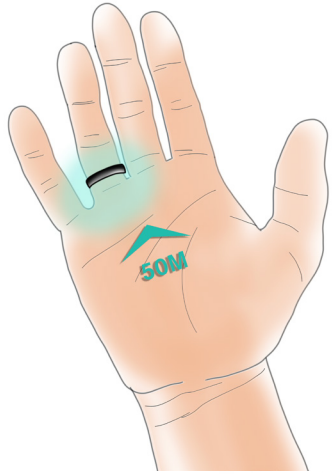
The ring makes the experience more natural, as no additional device or object has to be grabbed to interact with. The ring should contain sensors to measure its users ‘mood’, therefore having an added value as adevice. It communicates its state with colored light in a simple way, expressing the corresponding color. These moods or expressions can be easily overruled by turning the ring. After a shared drive it can also be used to confirm or deny a network match; by turning to the left, for ‘no’, and turning it to the right.

As the ring is an extension of the car ownership and a special Mercedes-Benz object, the ring is designed with subtle stars on it, inspired by the design of Mercedes’ Formula One livery and usage of it on the Vision EQS, Vision Simplex and other products, where the stars represent the luxury statement of refinement.

As well as a Mercedes-Benz car, the ring is available in different colors, the design is a suitable example, but can be created in any form or style; for the owners to express his or her personal style.

The ring will also be able to project information on the user’s hand. For navigation or mobility notifications.





Car Interventions

To give the ‘guest’ a welcoming yet familiar feeling, the car projects a carpet on the side, comparable to a red-carpet feeling. Here the name of the guest and a message (welcome, enjoy the ‘event’, for example) are projected next to the a star pattern.

In the car, the driver sees its approaching guest pointed out by a virtual reality arrow and name tag, which works together with the multimedia screen in the car. on this page it can be seen how this will look, added on the Vision EQS interior.
The ‘ice-breaker’ will be shown on the armrest, as shown in the Vision EQs interior.

MBUX Integration

In September 2020, Mercedes-Benz will introduce the new S-Class, containing the newest version of the MBUX multimedia system. In August 2019, Mercedes Benz released information about the new and improved MBUX system, containing an AR head-up display for navigation and info, extended mood settings, that can be set from home, and has biometric sensors to identify its driver. (Mercedes-Benz Media, 2020)

This corresponds with the ‘personal luxury sharing’ experience, where moods and preferences should be detected and ‘recognized’ by the car.
The person recognization of this concept is an extended version of the ‘3D driver display’ that shows AR information in the upcoming MBUX system.
Figures 5.1 and 5.2 show the S-Class and its MBUX and its ‘mood’ interior.

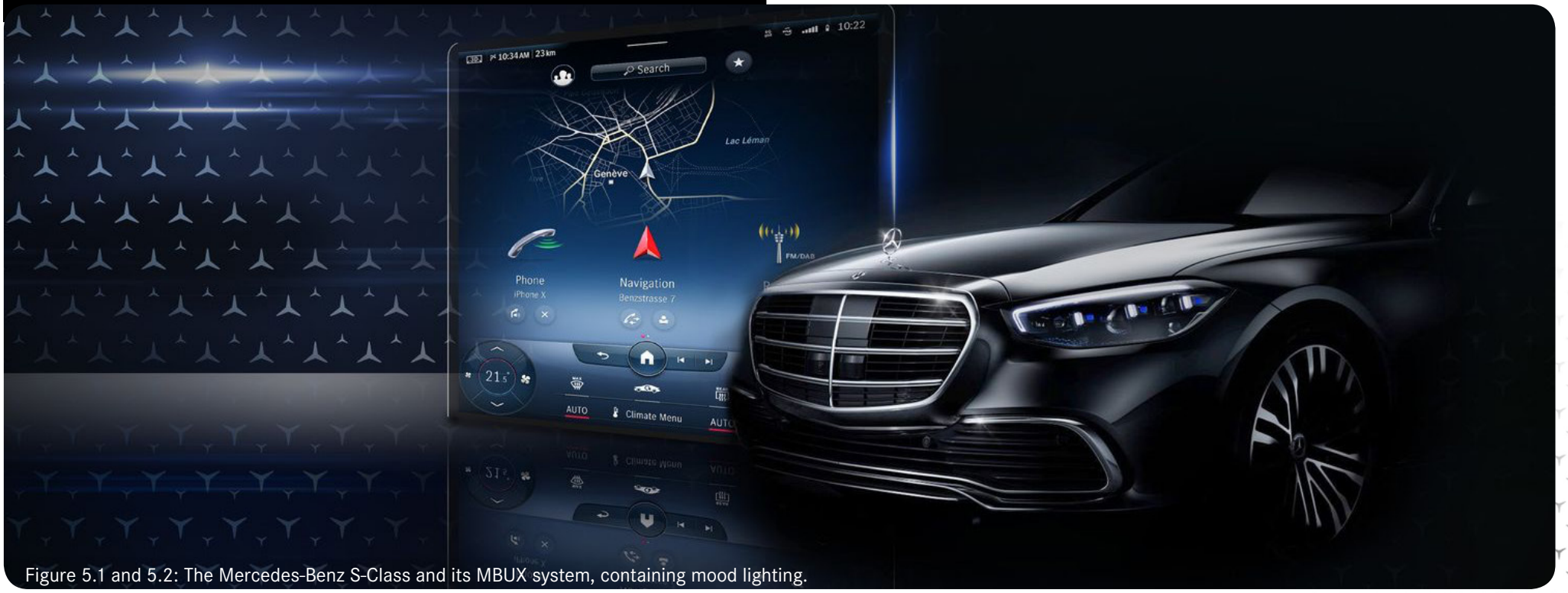
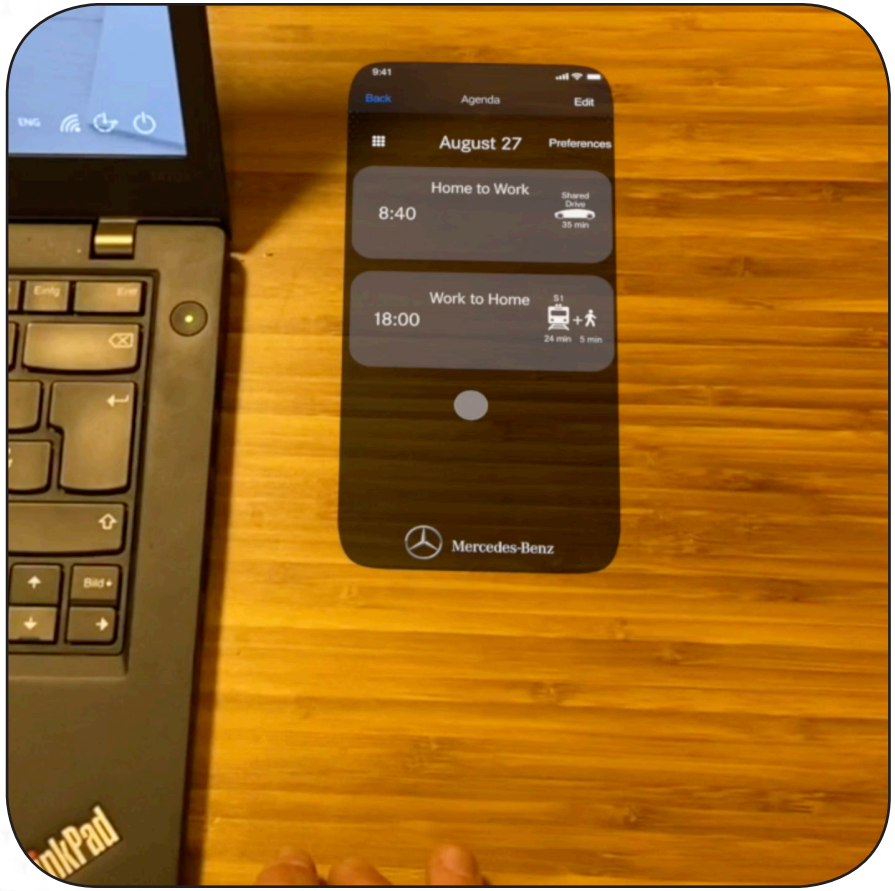


Figure 5.1 and 5.2: The Mercedes-Benz S-Class and its MBUX system, containing mood lighting.

4.3 Storyboard

To show the final concept, a video is made. The storyboard contains images from this video.
‘Personal Luxury sharing’ works as a mobility planner/agenda. Trips and mobility are planned and suggestions for shared drives are given.

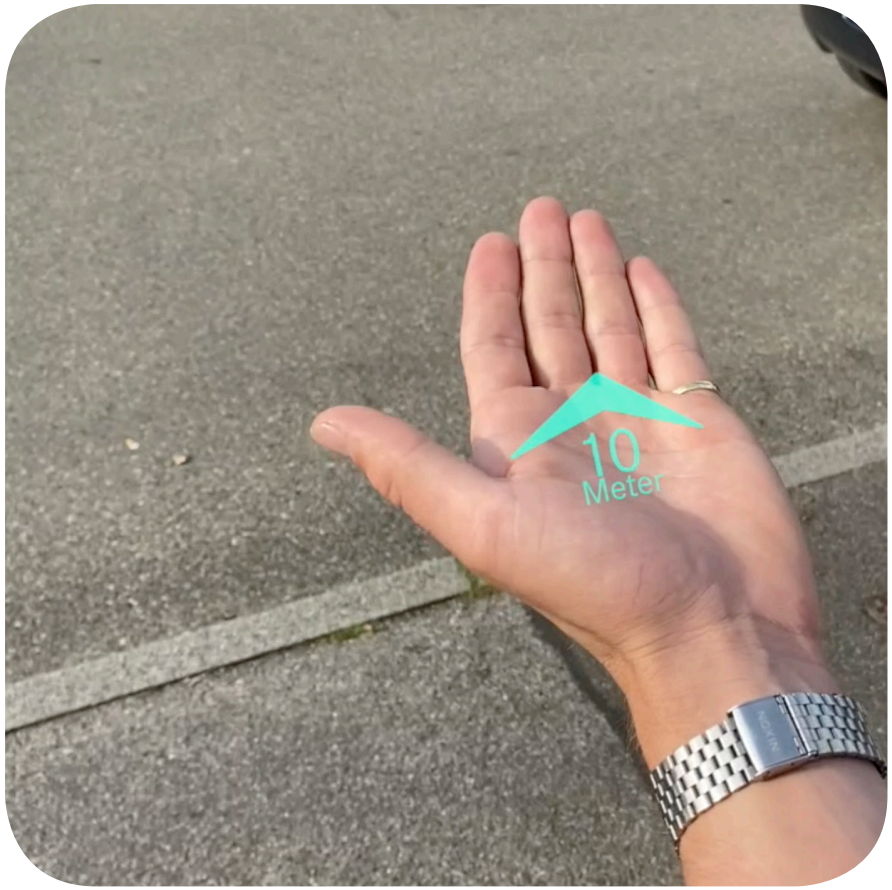
The service will show who is available, within or out of your personal network, formed by the matches made with previous drives.



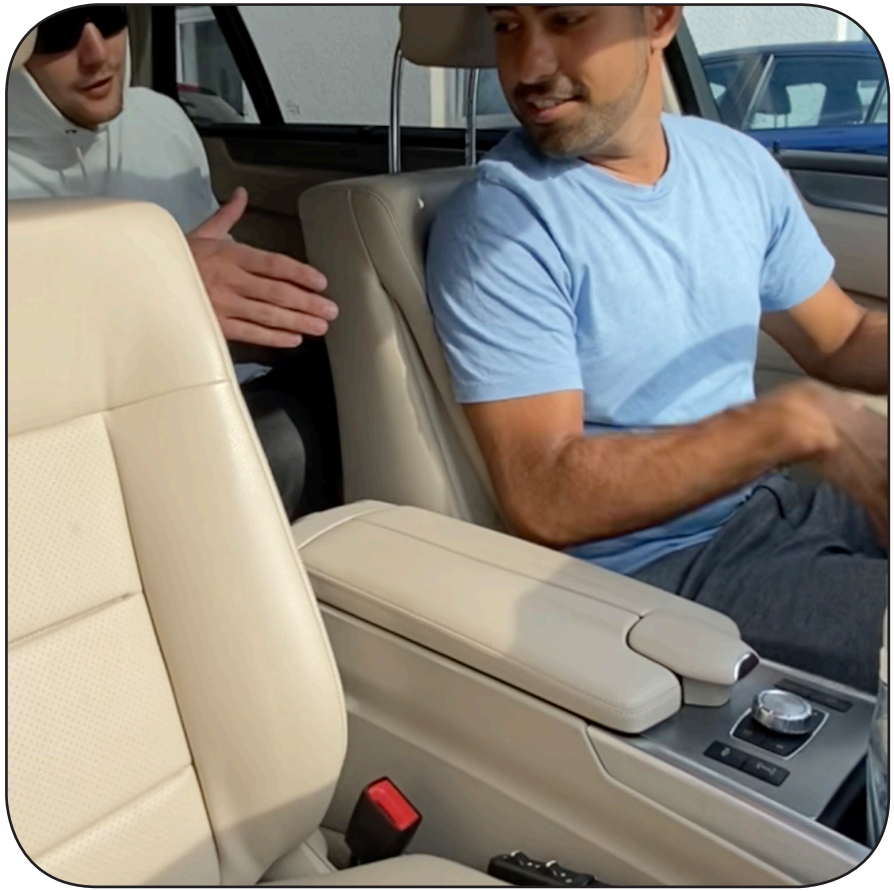
The service plans the full day, taking into account personal preferences and emotions, using the ring to detect the user's mood. As the car settings are also used to 'match', in this case, the 'comfort' settings are what matches John and Martin.

Once the shared drive is accepted by both users, the driver’s navigation system is set towards the other user.

The ring navigates the user towards the car, with projected directions and instructions on the hand. The assigned car has a welcoming ‘carpet’ shows which car to approach.



For the driver, an arrow and name tag are seen through the windshield, indicating the person’s position



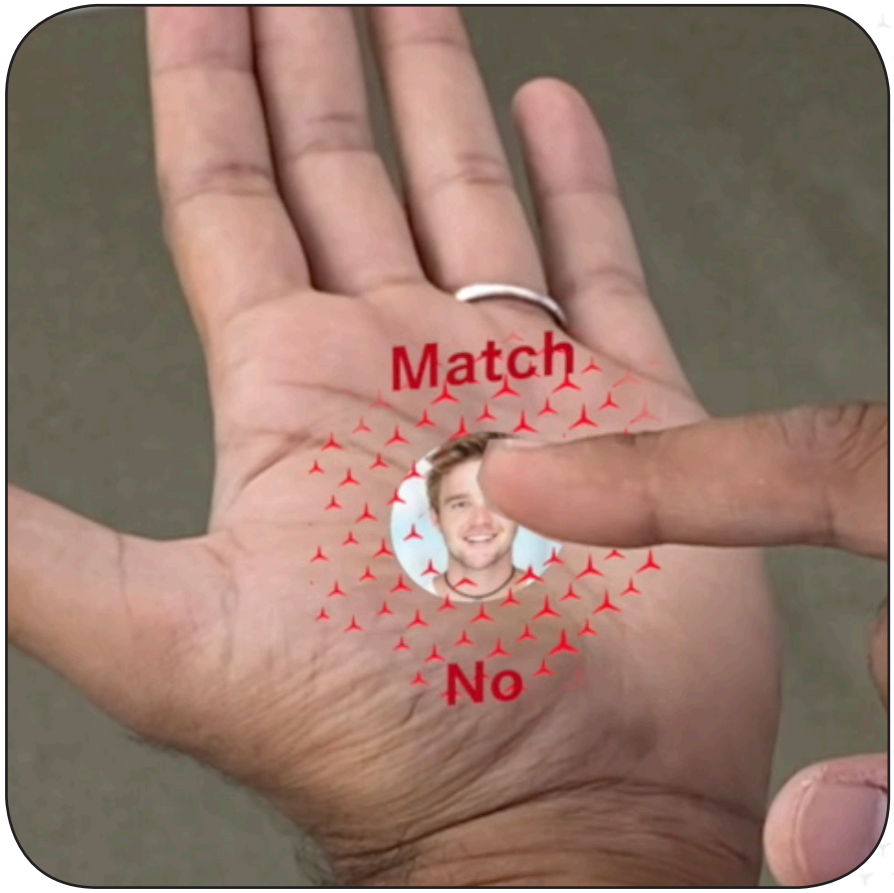
Once in the car, the ‘ice-breaker’ is shown, to have a conversation starter for the two ‘matched’ users. The topic of the ice-breaker is based on the openness and mood of the users, combined with their personal ‘likings’.
In this case, the question is related to the city.

As both users have to be at almost the same destination in the city, the service allows them to have city access by traveling together

After the drive, when the users said goodbye, they can confirm or deny the match on their hand, projected by the ring.

Scrolling the ring to the left or right will change the ‘yes’ or ‘no’ as a way to decide to match or not. Once confirmed (by pressing the hand), the outcome is saved and will influence future suggestions.

In this way, the ‘match outcome’ is personal and not shown to the other person. If, as in the examples below, one person answers ‘yes’ and the other ‘no’, it will not be known by the other. For future drives, this person will not be shown as a suggestion anymore.



Besides trips, the service also saves tickets and plans ‘extra’ luxury service, by planning a cleaning or ‘care’ service when its owner is not using the car.

5. Validation

The video where usage and routines of the personal luxury sharing service are shown is used to validate the concept, by showing it to participants.

Daimler employees and students are asked to validate the concept and to give feedback on all aspects.

The concept received positive feedback, one participant mentioned the idea is unique and well-executed, a second participant mentioned it is a new idea, that she admires.

The concept ‘passed’ the validation test, only small remarks were made. As the video starts with showing the ‘persona’ and their information, two participants noticed that the ‘profession’ of the persons were missing and that they would like to know this information to get a better understanding of who they might share their car with. This corresponds with the feedback from a third participant, who mentioned that she would like to know more information about the joining person, for safety aspects. A feedback option in the application/device where users can give feedback and ‘blacklist’ people is a valuable addition to make the system safer. As the service only works with owners of Mercedes-Benz cars, that threshold is already set in the first place.

As the benefits come from being able to enter city centers, social networking, and the extended mobility possibilities, these benefits should be marketed clearly and experienced all by the users, as one participant mentioned ‘opening’ your car for strangers doesn’t sound as luxury in the first place. After explaining the benefits, she acknoledged it as a luxury service.

Therefore, to prevent the service from being a ‘taxi-service’, the possibility of using the shared option and joining others is only possible after accepting a share in your own car first.

This means the user benefits should be clear and perceived by the user from the beginning, to ensure repeated-use and therefore the experience of sustainable luxury.

COVID-19 Circumstances

As the project started in November 2019, the current ‘Corona-crisis’ was not addressed or even predicted. Therefore the project and its decisions are based on the world without a Coronavirus.

Looking from the current perspective, having a world where traveling and meeting are seen through different eyes than a year ago, the personal luxury sharing does meet the need for less crowded traveling, compared to public transport. As people tend to use their cars more, there is a high potential for this service. As the service works with a ‘network’, a possibility to only accept people who are in your ‘bubble’, and therefore making the risk of getting infected as low as possible, would be a relevant ‘COVID addition’.

Looking at the project itself; as the Corona crisis had a big influence on society, work, traveling, and communication; (physical) contact to do user testing was not possible throughout 2020 and all communication had to be online or through the phone.

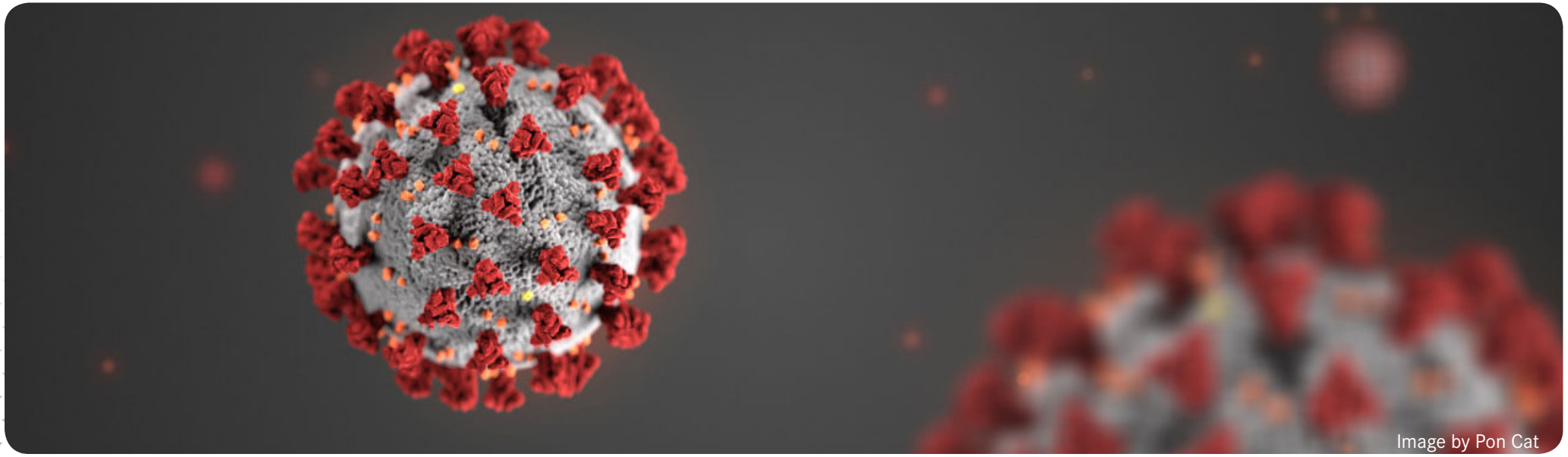


Image by Pon Cat

Discussion

As the project assignment was formulated as ‘How to define sustainable luxury in 2040 (personal) city mobility’, the research direction and limitations were very broad. This meant a lot of research was done, and a lot of information was gathered to draw conclusions. This has caused some delay and little confusion throughout the research phase.
Therefore it took more time to define a clear design brief and concept direction, which lead to concepts that were too broad. After thorough evaluations and validations with stakeholders and mentors, fortunately, the goal was set and the direction and therefor vision and outcomes became more clear and to the point.

Secondly, the focus on ‘Generation Z’, as desired by Mercedes-Benz, led to a confliction as researching about a generation is not the same as defining a target group. Seeing a future Mercedes-Benz driver as ‘Generation Z’ is too generalizing and therefore not specific enough to focus on. When the focus was set towards ‘future Mercedes-Benz owners’, taking into account the changing ideals and therefore changing the ‘luxury’ of the future, it helped towards further outcomes and steps.

As COVID-19 happened in the middle of the project, multiple changes and adjustments had to be made. Validation with (Daimler) experts, user testing, and communication, in general, was harder or even impossible (as Kurzarbeit stopped a big part of Daimler’s R&D departments for example). This has led to limitations in the possibilities of validation, and therefor a limitation in the number of experts that helped to develop the concept and outcomes.

As it is hard to say how the circumstances will change the upcoming period, concerning COVID-19’s influence and which changes will stay permanent or not, it is not necessarily saying changes/differences should be made, it made the process more interesting and more educational in general.

Overall, everything is done to make the best out of it in a challenging environment and world. Personally, doing it during this period taught me more than I ever expected when I started.

Conclusion - Personal Luxury Sharing

A service and eco-system where the ownership of an own car is combined with a sharing service to invite people from your network, or where it is possible to 'match' new people to create a network is created. This leads to the 'best of both worlds' of both owning and sharing and therefore be the solution of how to bring sustainable luxury in the city center of 2040 for Mercedes-Benz.

A 2040 Mercedes-Benz customer will still own a personal car/vehicle, but will also make use of existing MaaS options and make use of the Mercedes-Benz customer network. This means that Mercedes-Benz owners share their car with other Mercedes-Benz owners, to ensure access to city areas which are not available for non-sharing vehicles. In this way, a two-sided advantage is created for the Mercedes-Benz customer. With their own vehicle, they have access to restricted city areas, they can extend their network with people who mutually use the service, but are also able to make use of other's cars. This means the service will be a full 'MaaS' integrated system, with 5G connection and C2X communication, where also (first class) train trips can be advised if it offers the user a faster trip, or possibility to work in the mean time if preferred. It also means that during (business)trips abroad or in other cities, Mercedes-Benz drivers can make use of the service and have the familiarity of a Mercedes-Benz as a travel option.

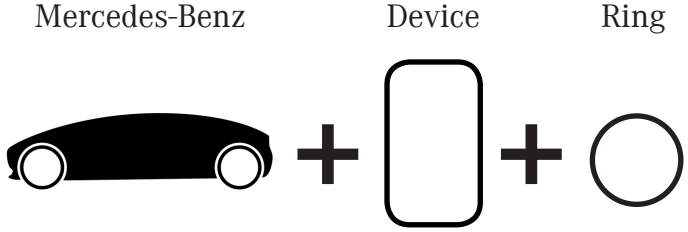
In the end, this would mean that a 'sustainable luxury' sharing service would lead to less traffic in the city, while Mercedes-Benz owners still can make use of their own vehicles. A platform that enables its users to invite others, or join other cars.

As owning a Mercedes-Benz also contains the pride of owning it, it becomes a personal assistant, connected to your agenda and personal preferences related to your car that you have always with you in this way.
It has smartphone/device connectivity and works with a 'ring' to enable small communication and network options, always in your hand.

As Mercedes-Benz now uses MercedesMe, where your car can be shared, or given, to others, this service is the next step to become 'role model' towards the 2040 city centre', by offering a luxury experience that goes beyond expectations.

As 'sustainability' will be a more 'worn out' word in in 2040 than it already is now, the name 'Personal Luxury Sharing' will be the name of the concept.

Providing 'Luxus mit gutem Gewissen'



Together with the device/application and ring, Mercedes-Benz provides 'sustainable luxury in 2040 city mobility'

Benefits for Stakeholders

City
As cities are aiming for new urban planning and lay-outs, where ‘car only’ areas are getting less prioritized, restrictions for cars and vehicles become stricter and public transport/MaaS is being promoted and encouraged, the Personal Luxury Sharing fits in this scenario, where car usage will be more efficient and connected to other services.

Mercedes-Benz owner
With the stricter access restrictions, on single-occupied-vehicles or personally owned vehicles, Personal Luxury Sharing provides the owner the best of both worlds, owning and sharing. Having a personal Mercedes-Benz, and all its qualities, as well as extended services such as multiple mobility options or access to other ‘familiar’ Mercedes-Benz cars. Next to this, the freedom of having multiple options to travel focused on personal needs and preferences. Owning a Mercedes-Benz is owning something bigger, a complete Mercedes-Benz mobility service. The possibility of extending your network, with other Mercedes-Benz drivers, also has a positive social effect for users.
The ring is a present object, that shows the ‘sustainable luxury’ status to others, having a usefull object that expresses these desired values

Mercedes-Benz
For Mercedes-Benz itself, Personal Luxury Sharing brings them the image of innovator and forerunner into the future by providing a luxury service, beneficial for both its owners, cities and environment. Besides this, by offering a complete mobility system, the Mercedes-brand can be used for all modes of transport and connections, wherefore customers are always within the Mercedes-Benz eco-system when they travel.
As owning a Mercedes-Benz will give access to sharing services as well, the potential target group will also come from customers both interested in sharing or owning, leading to a bigger potential sales market.

Experience Evaluation

To validate the concept, the desired experienced emotions/feelings are assessed:

• Demandless
As the service is meant to take things ‘out of hands’, the mobility planner does everything automatically as much as possible, based on personal preferences or previous experiences.

• Freedom
With Personal Luxury Sharing, the user is having the freedom to enter all restricted city area’s with its personally owned car. Freedom when using other modes of transport, ability to share or who to share with by him- or herself. There is always the freedom to choose the desired option.

• Familiar
As the service is for and with Mercedes-Benz cars only, and a ‘match’, where the profile and details about the other person are shown; the experience of joining a shared car is familiar. Mercedes-Benz drivers know the Mercedes-Benz environment and will be able to experience this even when not using their own car.

• Trust
The usage of ‘personal luxury sharing’ is for Mercedes-Benz owners only, and therefore already within a ‘trustworthy’ environment. As users’ professional details are shown before matching, and matched people can be rejected or judged, this ensures the trust.

• Feeling Special
As the usage provides city access privileges, access to multiple mobility options and enables a car owner to ‘show off’ their car to others. Rewards, such as getting your car cleaned after using the service, help to make the user feel special.

Future Recommendations

As the project is done in collaboration with Mercedes-Benz'' Society and Mobility Pioneering' department, which works on visions and scenarios for possible futures, this project should be seen in the same context.

The provided concept and research is no end-product, that can be produced or implemented within a few years, but a vision and solution for a specific future city scenario. Inspiration for possible design concepts or eco-systems.

As developing a car or mobility service is a complex process where numerous experts and designers from a wide range of departmens come together, it is needless to say that this project is no final product.

As the concept is developed for a future world, it cannot be said the future environment, society and mobility spectrum will be exactly as pictured. Looking at 2020, it is easy to give an example of how the world can change in a short period of time, unexpectedly.

From the company perspective, it has to be said that Daimler should invest in more than 'personal mobility' vehicles mainly; not to miss the boat when circumstances and mobility changes in the future. Only individual solutions will not be enough to coop with all future mobility aspects. Therefore it is a recommendation for Daimler to look into the direction of sharing personal vehicles. In this way, a link can be created with their strong 'hardware' products and providing services to express the 'Mercedes-Benz' values in all mobility aspects.

If this project is an inspiration for Mercedes-Benz to see mobility from this perspective, seeing car ownership from a broader perspective, this project fills its purpose.

Personal Reflection - Final words

When the project started, my personal goals were put in design brief, the kick-off of the graduation project.

I wanted to put the knowledge I gained during my Design for Interactions master courses, and especially the knowledge obtained with ‘strategic automotive’ in practice.

‘Working together with a professional company to prepare my career and the next steps in the best possible way’ was one of my biggest personal goals. Now, at the end of this period, finishing my graduation report, this sounds as an understatement.

The experience, knowledge and opportunities I got last year are priceless. I could not wish for a better way to end my studies and prepare myself for a professional career.

I would like to thank Marianne Reeb for all the opportunities last year. Society and Mobility Pioneering felt as my second home base. A perfect environment to develop myself and experience the car industry and its research and development from the insight. Besides this, I would like to thank you for your support in all ways. Throughout the project but also during my personal hard times, which I unfortunately experienced last year. You and the work environment where the best I could wish for during this period. Thank you!

Tim, thank you for believing in me, in helping me create this project. Without you, I would not have been able to do this!

Tom, thank you for supporting me in a professional way through the times of Kurzarbeit, lockdowns and unconnected contracts through the process. Your feedback and professionalism helped me through hard times and I could not have done it without your support.

Elmer, thank you for being my supervisor, mentor, chair and rock in the burning throughout this project. Without you I would not have had this opportunity with this amazing project. Thank you for all your support, direct feedback and calls. No words can express how much I appreciate this.

Suzanne, even though we have never met in real life, I am very happy I have met you as my mentor. being part of the Seamless personal Mobility lab, with its weekly meetings had a big role in helping me through a tough lockdown period. Your critique and support were always on point and helping me in the right direction, forward.

There is not enough space to thank everyone who helped me through this project. Mom, Dad, Wouter, Oma, Vincent, Merijn, Michele, Family, friends and colleagues, would like to thank you all for your help and support throughout this process. how big or small your part might be, you are all pieces of a puzzle, my graduation project.

I am very happy and feel gratefull for everything that happened throughout this process. Unfortunately, there is one missing piece in my puzzle. A piece that will be remembered forever but unfortunately wont come back.

Eveline, this report is dedicated to you. Thank you for everything. Without you I would no be the person I am today, and I will carry you with me forever. Eveline, I did my best I and made best out of it!

Appendix Content

The appendix is a seperated report, containing confidential- and more in depth explainations of the research and groundings of this report.

Content:

Design Brief
Confidential information
Focusgroup: Consent form and transcript
Survey
Design Details

References

Amsterdam (2018), Amsterdam aantrekkelijk bereikbaar

Autovisie (2020), Sony bevestigt: we worden geen autofabrikant: de Vision S komt niet. Retrieved from: https://www.autovisie.nl/nieuws/sony-bevestigt-we-worden-geen-autofabrikant-de-vision-s-komt-niet/

Autovistagroup (2019), Daimler reveals higher than expected CO2 levels due to WLTP. Retrieved from: https://autovistagroup.com/news-and-insights/daimler-reveals-higher-expected-co2-levels-due-wltp

Baghunter (n.b.) The exclusivity of Hermes Birkins and Kellys. Retrieved from: https://baghunter.com/blogs/news/exclusivity-of-hermes-birkin-and-kelly-bags

Beckham, D and Voyer, G. (2014) Can Sustainability Be Luxurious? a Mixed-Method Investigation of Implicit and Explicit Attitudes Towards Sustainable Luxury Consumption. Retrieved from: https://www.acrwebsite.org/volumes/1017922/volumes/v42/NA-42

Bloomberg (2019), The seats in your next luxury car may be made from soybeans and eucalyptus. Retrieved from: https://www.bloomberg.com/news/articles/2019-04-29/audi-land-rover-add-sustainable-options-for-interiors

Business News Daily (2017), Greenwashing. Retrieved from: https://www.businessnewsdaily.com/10946-greenwashing.html

Car2Go (n.d.). Retrieved from https://www.car2go.com/DE/en/stuttgart/where/parking/

Carier, J.G. and Leutchford, P.G. (2012), Ethical consumption: Social value and economic practice

Carshop (2020), What makes Mercedes-Benz drivers unique? Retrieved from: https://www.carshop.co.uk/latest-news/merc-drivers/

Daimler (2019), “Best Global Brands 2019” – the brand value of the Mercedes star continues to increase: Mercedes-Benz is once again the world’s most valuable luxury car brand. Retrieved from: https://media.daimler.com/marsMediaSite/en/instance/ko/Best-Global-Brands-2019–the-brand-value-of-the-Mercedes-star-continues-to-increase-Mercedes-Benz-is-once-again-the-worlds-most-valuable-luxury-car-brand.xhtml?oid=44699088

Daimler (2019), Why city lights and headlights still match. Retrieved from: https://www.daimler.com/magazine/sustainability/sustainability-mobility-city-future.html

Daimler (2020), Vision AVTR. Retrieved from https://www.mercedes-benz.com/en/vehicles/passenger-cars/mercedes-benz-concept-cars/vision-avtr/

Daimler (n.b.), Corporate History. Retrieved from https://www.mercedes-benz.com/en/classic/history/corporate-history/
Daimler / Sattler, S. (2019) Can luxury be sustainable? Retrieved from: https://www.daimler.com/magazine/sustainability/mercedes-environmental-protection-luxury-sustainable.html

Delft Design Guide (2013)

EenVandaag (2019), Luchtvervuiling kost je in Amsterdam echt een jaar van je leven. Retrieved from: https://eenvandaag.avrotros.nl/item/luchtvervuiling-kost-je-in-amsterdam-echt-een-jaar-van-je-leven/

Engadget (2019), Mercedes-Benz A-class A220 review. retrieved from https://www.engadget.com/2019/05/10/2019-mercedes-benz-a-class-a220-review/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAALZS6WTwmc6-gxoTlCTsFTZ8quRy3Azf0_4Xm4nymMtgRRIoYXpXTQvq1PN9QvprV8RkIaTGAYqEBr9ZEhN9D9AheoAxBZZ60eoNV4fLQnf3fgoDqGV7ObakAI2MkgNE7uoiodVm372stVCVV1mLZcFtqEJOR

EPA (2018), Global Greenhous Gas Emissions Data. retrieved from: https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

EU (2019), Europe accelerates the transition to clean mobility: Co-legislators agree on strong rules for the modernisation of the mobility sector. Retrieved from: https://ec.europa.eu/clima/news/europe-accelerates-transition-clean-mobility-co-legislators-agree-strong-rules-modernisation_en

Euractiv (2016), Postponing vote on controversial car emissions is political chicanery. Retrieved from http://pr.euractiv.com/pr/postponing-vote-controversial-car-emissions-political-chicanery-136257

Fleet Europe (2018),City driving bans, a Europe-wide trend. Retrieved from: https://www.fleeteurope.com/en/new-energies/europe/features/city-driving-bans-europe-wide-trend?a=THA13&t%5B0%5D=LEZ&t%5B1%5D=&curl=1

Hassan, L., Dias, A., Hamari, J., (2018) How motivational feedback increases user’s benefits and continued use: A T study on gamification, quantified-self and social networking.

Jingdaily (2017.) Sustainable Luxury. Retrieved 31-01-2020 from https://jingdaily.com/sustainable-luxury/

Jingdaily (n.b.) Why made in China doesn't work for Luxury brands) Retrieved 31-01-2020 from https://jingdaily.com/why-made-for-china-doesnt-work-for-luxury-brands/

Kalenius, O. (2020), Ambition 2039. Retrieved from: https://www.daimler.com/investors/reports-news/financial-news/20190513-ambition-2039.html

Kantar (2019), Mobility Futures Global report 2019

Kortum, K., Schonduwe, S., Stolte, B., Bock, B.(2016), Free-floating Carsharing: City Specific Growth Rates and Success Factors

Maslov (1943), A Theory of Human Motivation

McKinsey (2018), Smart cities: Digital solutions for a more livable future. Retrieved from: https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/smart-cities-digital-solutions-for-a-more-livable-future#

Mercedes-Benz (2019), EQ - Electric Intelligence by Mercedes-Benz. Retrieved from: https://www.mercedes-benz.co.in/passengercars/mercedes-benz-cars/e-mobility/electric-intelligence/Gallery.module.html

Mercedes-Benz (2019), Serienaustattung EQC. Retrieved from: https://www.mercedes-benz.de/passengercars/mercedes-benz-cars/models/eqc/design.pi.html/mercedes-benz-cars/models/eqc/design/line-details/interior

MercedesMe, retrieved from https://www.mercedes-benz.de/passengercars/mercedes-benz-cars/mercedes-me/mercedes-me-connect.html

Mercedes-Benz Media (2020), At home on the road, luxurious and digital. Retrieved from: https://media.mercedes-benz.com/article/993abf1b-2d20-41db-b10c-56288b39554c

Mercer (2018), Quality of Living survey 2018. Retrieved from; https://www.mercer.com/newsroom/2018-quality-of-living-survey.html

MIT Sensible City Lab (2019), Global Mobility Report 2019

My German Auto (2019) Mercedes MBUX tech revolution. Retrieved from https://mygermanauto.com/mercedes-mbux-auto-tech-revolution/

New York Times (2018), In Germany's Car Capital, the Unthinkable: The Right to Ban Cars. Retrieved from: https://www.nytimes.com/2018/02/27/world/europe/diesel-driving-ban-germany-stuttgart.html

Nu.nl (2020), Duurzaam. Retrieved from: https://www.nu.nl/duurzaam

Politico (2019), Stuttgart's car clash. Retrieved from: https://www.politico.eu/article/stuttgart-car-clash-driving-ban-air-pollution-clean-mobility/

Rauch, C / ADAC ZukunftsInstitut (2017), The Evolution of Mobility, Germany. Retrieved from https://www.adac.de/-/media/pdf/dko/adac-studie-evolution-der-mobilitaet-englisch.pdf

Rotterdam (2017), Rotterdamse Mobiliteitsaanpak. Retrieved from: https://www.rotterdam.nl/wonen-leven/mobiliteitsaanpak/

Re.Think (2019) Commentary/Changing behaviour to improve sustainability. Retrieved from: https://rethink.earth/changing-behaviour-to-improve-sustainability/

Share Now, retrieved from: https://www.share-now.com/

Spiegel Institut (2019), Tell me your make of car and I tell you who you are. Retrieved from: https://www.spiegel-institut.de/en/whats-new/futurelab/typology-car-drivers

Strong, C. (1997), The role of fairtrade principles within sustainable development

The Academy of Urbanism (2015), Urbanism awards: Rotterdam takes top prize. Retrieved from: https://www.academyofurbanism.org.uk/urbanism-awards-rotterdam-takes-top-prize/

The Guardian / Laville, S. (2019) Exclusive: carmakers among key opponents of climate action. Retrieved from: https://www.theguardian.com/environment/2019/oct/10/exclusive-carmakers-opponents-climate-action-us-europe-emissions

The Local (2018), Paris: Autolib electric car scheme 'to end in days' after authorities pull the plug. Retrieved from: https://www.thelocal.fr/20180619/wheels-set-to-come-off-paris-autolib-electric-cars

The Verge (2019),Flying taxi startup Volocopter raises $55 million in round led by Volvo parent Geely. Retrieved from: https://www.theverge.com/2019/9/9/20857158/volocopter-55-million-volvo-geely-flying-taxi

The Verge (2019), Share Now, formerly Car2Go, is leaving North America. Retrieved from: https://www.theverge.com/2019/12/18/21028517/sharenow-car2go-leaving-north-america-bmw-daimler-cities-date

Trouw (2020), Studenten volgen (nu pas) het voorbeeld van scholieren: ze spijbelen voor het klimaat. Retrieved from: https://www.trouw.nl/nieuws/studenten-volgen-nu-pas-het-voorbeeld-van-de-scholieren-ze-spijbelen-voor-het-klimaat~b741a7d3/

Wagener, G. (2017) Sensual Purity - Gordon Wagener on Design

Whatcar(2020), Mercedes-Benz S-Class review. Retrieved from: https://www.whatcar.com/mercedes-benz/s-class/saloon/review/n17355

Wittig, M.C., Sommerrock, F., Beil, P. (2016), Rethinking Luxury

Vulog (2015), Free-floating car sharing: a flexible alternative to the private car?. Retrieved from: https://www.vulog.com/en/potential-market-free-floating-carsharing/

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