

MIND

EXCLUSIVITY THROUGH CONDUCT

A vision for Mercedes-Benz ownership in 2035

Master Thesis
Harm Cnossen
Mai 2018



“per aspera ad astra”

I would like to dedicate this master thesis to you, dad. I am sure that you as civil engineer would have loved the subject of mobility for my thesis. You always encouraged me to be creative, undoubtedly the reason I started to study industrial design engineering. You will be missed during my graduation ceremony, but I do not doubt that you will be looking over my shoulder, as always...

Love, Harm

Exclusivity through conduct

A vision for Mercedes-Benz ownership in 2035

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Mercedes-Benz

DAIMLER

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PREFACE

My fascination for mobility design.

My attention was initially pulled towards automotive design for the involved artistry. I was fascinated by the amazing drawings and sculptures. During the minor Automotive Design I learned the challenges involved in car design. In the years that followed my interest shifted towards the role of the automobile within the context of mobility and its influence on human behaviour.

Automotive design is undergoing a massively fascinating paradigm shift. Electrification radically changes the way we experience our cars and generates interesting challenges for infrastructure and energy storage. The connected car enables the implementation of shared mobility platforms, which commodify mobility and reduce environmental impact on one hand, but reduce physical car production on the other. Autonomous driving returns valuable time that was otherwise spent driving, but safety and legislation are large obstacles to be taken.

During my graduation I designed a vision that inspires the expression of premium through behaviour rather than possession. It proves that exclusivity does not have to depend on material qualities. It was the first time that I engaged in such a visionary project on my own. The project posed some serious challenges and I went through some serious mental valleys. However, in the end I always find myself driven by these challenges. I am very happy to have had the opportunity to learn so much about conceptual design, emotional design, strategic design and personal development. Because ultimately, a graduation project is meant to be learned from.

ACKNOWLEDGEMENTS

The collaborative effort of a personal design project.

First, I would like to thank my supervisory team. Elmer, thank you for teaching me that automotive design is so much more than just dropping a big V8 between four wheels. I have to be honest when I say that I sometimes are a bit scared of your no-nonsense judgement of my projects. But exactly this fear has driven me to keep considering my process, eventually leading to better results. Thank you for scaring me, but foremost inspiring me as a mobility designer.

Jeroen, thank you for your unlimited energy throughout the project. Your experience outside the mobility context provided the necessary fresh trains of thought. Your advice about brand driven design kept my project on track and formed lessons that I will carry with me for the rest of my professional career (whatever that might be).

Jan, I want to say "domō arigatō" for guiding me through the big machine that is Daimler R&D. Next to our conversations at the plant, experiencing you in your home environment reminded me that luxury is about the immaterial little things. A sharp contrast to the corporate culture that kept inspiring me throughout my project. And I want to thank you for giving me the opportunity and freedom to work on this conceptual problem.

I would also like to thank Anton, Sascha and Dinesh for helping me out with the VR demo. And a huge thanks to Nikita and Manuel. Thank you guys for the good conversations, sharp comments but mostly all the fun at work.

I owe a huge thanks to the Galatea group as well. Lucas, thank you for the long conversations over the phone, that did not only provide input for the project, but the necessary support during my emotional rollercoaster. Nadieh, thank you for always saying the things that I do not want to hear, but deep down inside know to be the right choices. And of course for pulling me out of my project now and then to refresh my mind with a cold beer. Sal, thank you for your always inspiring philosophical view on... well the world. I would like to thank Paula for reminding me to stand my ground and Wendela for her no-nonsense Amsterdam attitude. And Sam, thank you for artistic influence and more than welcome distractions.

For me, moving to a strange city to work on a project with high uncertainty requires a stable home. In Stuttgart, I found this in my WG at the Olga 59. I want to thank Torge, Vanessa, Vivi, Bella, Pasi, Denis and Tuncay for the fun evenings and weekends. You guys took me in and provided me with a home to look forward to.

Finally, I want to thank my family. My mom for her relentless care taking and allowing me to go my own way. Roel and Willemijn for the sporty challenges and the emotional support. Knowing that you will always be there for me provides the solid foundation from which I can confidently engage in new uncertain adventures.

EXECUTIVE SUMMARY

Proposing a concept that expresses premium as an immaterial quality.

This master thesis was executed for Mercedes-Benz; a subsidiary of Daimler AG. Its goal was to design a holistic interior concept for level 4 premium autonomous driving, aimed at:

“Purpose-driven people, expressing confidence in their success, who reluctantly accept novelty framed by tradition.”

These people will lose their traditional means expressing authenticity and identity. They will no longer be able to achieve confirmation through a hierarchy based interaction with their cars. Additionally, expressing premium shifts from material possession to immaterial behaviour. Therefore, the following mission was stated:

“I want people to be able to express exclusivity through conduct, whilst being assured of their personal significance.”

In order to preserve current interaction qualities in a new context, the following analogy for the product-user relationship was described.

“Like walking your German Shepherd Dog through the woods”

During synthesis, an interaction gap was discovered. Current interior concepts aimed at level 4 autonomous driving mainly focussed on technical solutions. Situations were approached as if the customer and car were already cooperating successfully. However, in order to achieve a successful cooperation, both parties first have to trust one another.

MIND introduces the artificial intelligence of the car immediately after ordering. During the time it takes to produce the car, referred to as “Transcendence”, the customer teaches MIND his preferences and character traits by allowing it to follow and observe him. MIND proves itself step by step with the assistance of augmented reality. This gradually generates a meaningful relationship between product and user and lowers the emotional threshold to accept future mobility. Feedback on progress made by MIND is communicated by the development of a unique pattern, visible on a physical manifestation of MIND.

- Premium by means of exclusivity is achieved through the developed character of MIND, which is unique and personal to every customer.
- Exclusivity through conduct is achieved by including the customer. Providing effort and being rewarded with something truly personal creates a meaningful experience.
- MIND obtains assurance by proving its capability in a safe environment, generating confidence.
- The customer is furthermore assured by the transparency of data traffic and storage.
- Personal significance is confirmed through the reactivity of the pattern

- MIND is beneficial to the development process at Mercedes-Benz by providing real-time, actual data instead.
- It provides Mercedes-Benz as brand with the opportunity to manifest itself as a mobility provider without the necessity of a physical car.

MIND as a concept provides a train of thought about expressing premium through behaviour rather than possession. It can serve as inspiration for smaller-scoped design briefs. It can provide the bridge between user wants and technical developments. Finally, MIND can be applied beyond ownership in shared mobility and public transport systems. Moreover, it can be applied beyond the context of mobility, positioning Mercedes-Benz as life companion rather than mobility agent.

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I. INTRODUCTION

This graduation project was executed for Mercedes-Benz, a subsidiary of Daimler AG. Before describing the steps towards the final solution, this chapter provides back ground information about the brand Mercedes-Benz. Furthermore, a description of the design assignment as well as a approach proposition are given.

1.1 ABOUT MERCEDES-BENZ

A profile on one of the oldest car manufacturers in Europe.

The brand Mercedes-Benz originates from 1926. It is part of Daimler AG, founded in 1980 by Gottlieb Daimler and Wilhelm Maybach. Nowadays, Daimler has grown to a multinational car manufacturer. Its subsidiary brands include personal transport vehicles, public transport vehicles, commercial transport vehicles and shared mobility platforms. Daimler is one of the leading companies in providing premium cars and commercial vehicles. As a leading automaker, they want to play a key role in shaping the mobility of the future (Daimler, 2018c).

Mission

Mercedes-Benz strives to provide their customers with the best quality driving experience possible (Halliday, 2010). They thank their leading position in the premium mobility market to their heritage-driven brand experience (Parcon, 2014). Customers reminded of the company as pioneer of the automotive industry and their precision engineering are willing to pay premium wagers for the Mercedes-Benz product (Adam, 2016).

Guidelines

Describing the brand identity of Mercedes-Benz in one word is "leading" (Guidelines and Brand Communication, 2010), with the following three guiding principles:

Perfection.

In order to be better than competing premium brands, Mercedes-Benz emphasises perfection. This can be seen in the the company's focus on safety, comfort and quality (figure 1).

Responsibility.

Being a leader means looking ahead and taking responsibility. Mercedes-Benz does this by emphasising technical innovativeness (figure 2).

Fascination.

The automobile as an object has always been fascinating. Mercedes-Benz's focus on sportiness, style and aesthetic trends show that, after many years, they continue to fascinate its customers (figure 3).



Figure 1. Mercedes-Benz expresses perfection through the attention to detail in interior design. Still from the 2018 S-Class commercial "we never rest on our laurels".



Figure 2. Mercedes-Benz advertises with their emphasis on safety. Still from the 2018 S-Class commercial "we never rest on our laurels".

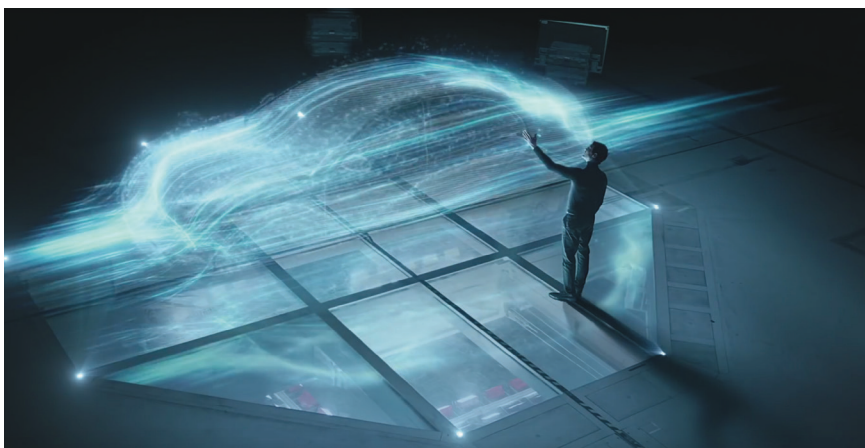


Figure 3. Fascination evoked in advertisement. Still from the 2018 S-Class commercial "we never rest on our laurels".



Figure 4. Mercedes-Benz design philosophy communicated through the F015 concept car. Image by: carseneuk.com

Design Philosophy

The Mercedes-Benz current design philosophy is based on the concept of sensual purity (figure 4). This is carried out with the bipolar terms "Hot and Cool". The former represents emotion and is expressed through aesthetic qualities. The latter represents the rationale, expressed through reduction and technic (Wagener, 2018).

C.A.S.E.

Future mobility will be based on electrification and autonomy. Therefore, Daimler has developed a corporate strategy of which Mercedes-Benz will be a part: C.A.S.E. It stands for Connected, Autonomous, Shared and Electric (Stecher, 2018). Consequently, Mercedes-Benz as a brand and product will become part of a larger mobility ecosystem.



Corporate culture

The Mercedes-Benz Research and Development headquarters is located in Sindelfingen, Germany. Its corporate culture is a product of the environment. Sindelfingen is part of the German Bundesland Baden Württemberg, which in turn is part of the region referred to as Swabia. The Swabian culture is characterised by tradition (John, 2016) and the importance of following rules. Its Lutheran history emphasised modesty, valued hard work and renounced frivolous spending (SWR, 2017).

Swabian culture is omnipresent at Mercedes-Benz. This has resulted in a hierarchal and pillared company culture. Bureaucratic systems and rules make the company react slow to changes in the industry and radical innovation is often shut down because of financial arguments. Traditionally, the company has been able to achieve and sustain its leading position though engineering and improving upon the archetypical design.

This has lead to many individual successes that have transformed Swabia into the wealthiest region in Germany. A self sustaining process in which the people continuously reinforced each others belief in their achievements has lead to an inflexible mindset and a general ego.

key take-aways

- Corporate culture at Mercedes-Benz as a result of Swabian culture causes a reluctancy towards change.

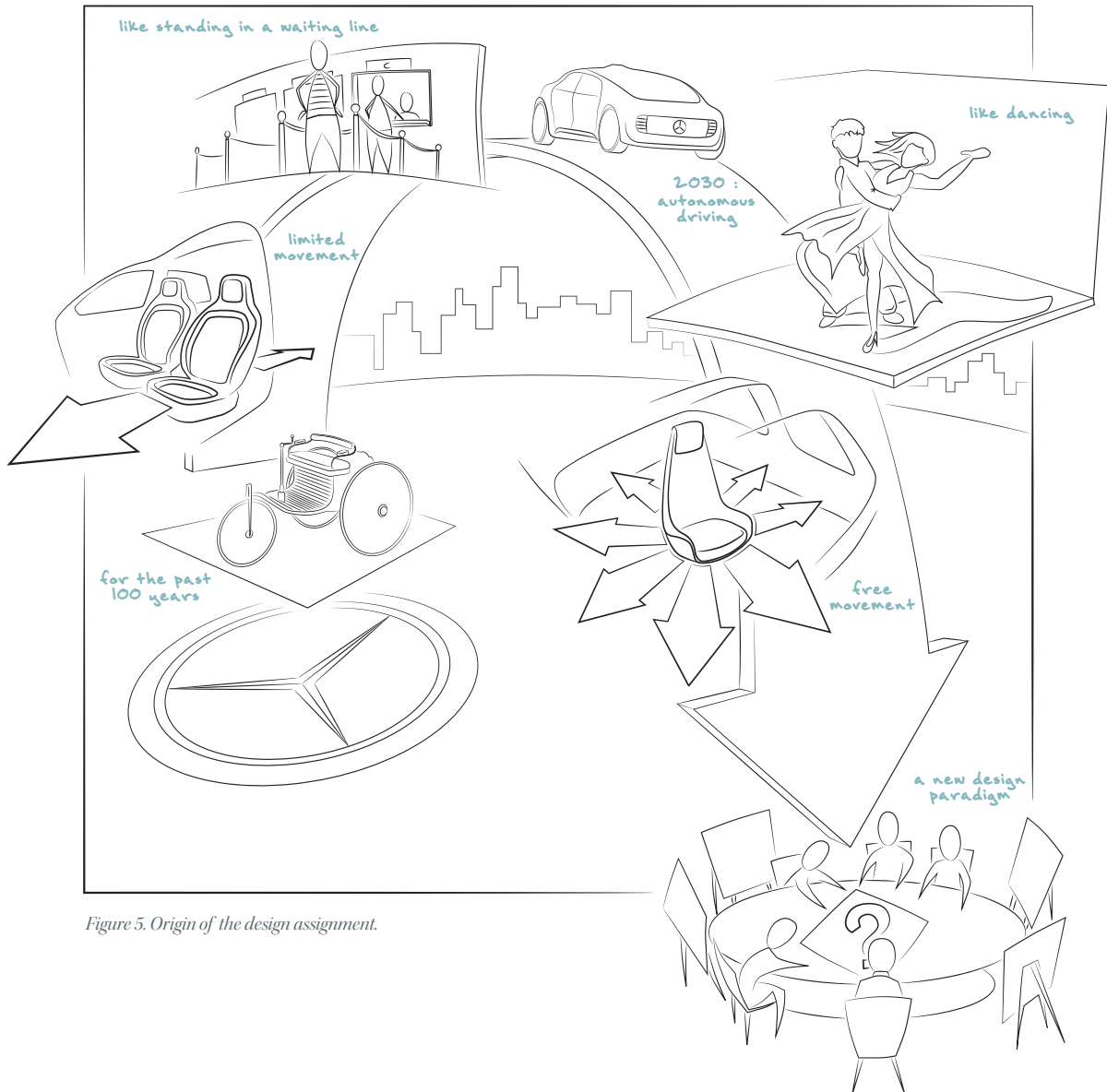


Figure 5. Origin of the design assignment.

1.2 ASSIGNMENT

A new interior concept in a new era of mobility.

This graduation project is executed for Mercedes-Benz; a brand in the portfolio of Daimler AG. Mercedes-Benz has been leading in providing premium automobiles for the past century. Its current brand experience is for the majority based on the company's heritage. Customers are reminded of the company as automotive pioneer and its precision engineering, willing to pay premium rate for its cars (Adam, 2016). In order to maintain its leading role, Mercedes-Benz posed the following challenge:

“To design a holistic, premium interior concept for level 4 Mercedes-Benz autonomous driving, considering a dynamic design paradigm.”

Holistic

A holistic interior concept extends the subject beyond merely the embodiment of the product. A complete journey from point A to point B is considered. From a suitable interaction design, interior parts can be designed and embodied.

Level 4

Level 4 autonomous driving describes a state in which the majority of the driving is done autonomously. However, there are still parts of the route that demand manual driving. Level 4 therefore introduces multiple moments of transition of control.

Mercedes-Benz

The concept to be designed has to comply with the Mercedes-Benz brand values, as well as the culture of its customers and company.

Dynamic design paradigm

“Classic” manual driving demanded a fixed interior arrangement. The transition introduced by level 4 autonomous driving imposes a paradigm in which a car interior is constantly moving.

1.3 DESIGN APPROACH

How to design for a future context that differs significantly from the current.

VIP

The Vision In Product design method as developed by P.P.M. Hekkert and M.B. van Dijk is appropriate when radical innovation is demanded, meaning that a design is a revolution rather than an evolution of the current product. VIP is based on the idea that every design solution is a reflection of, or is reflected in the interaction with people. And interaction and product subsequently reflect the context (Hekkert & van Dijk, 2011).

Design for Emotion

Complementing VIP is the Design for Emotion approach as proposed by P.M.A. Desmet. This mindset states that people consider products that enable them to have meaningful experiences have a significant chance of being cherished (Desmet, 2016). This mindset deepens the VIP process at the interaction level.

Additional methods

In addition to the VIP and DfE method, some additional analysis was done in order to get a better understanding of the subjects of algorithms, autonomous driving, millennials and the Swabian culture. This analysis was then used to feed the current context description used in the VIP method to consider the current product and its current reason of being.

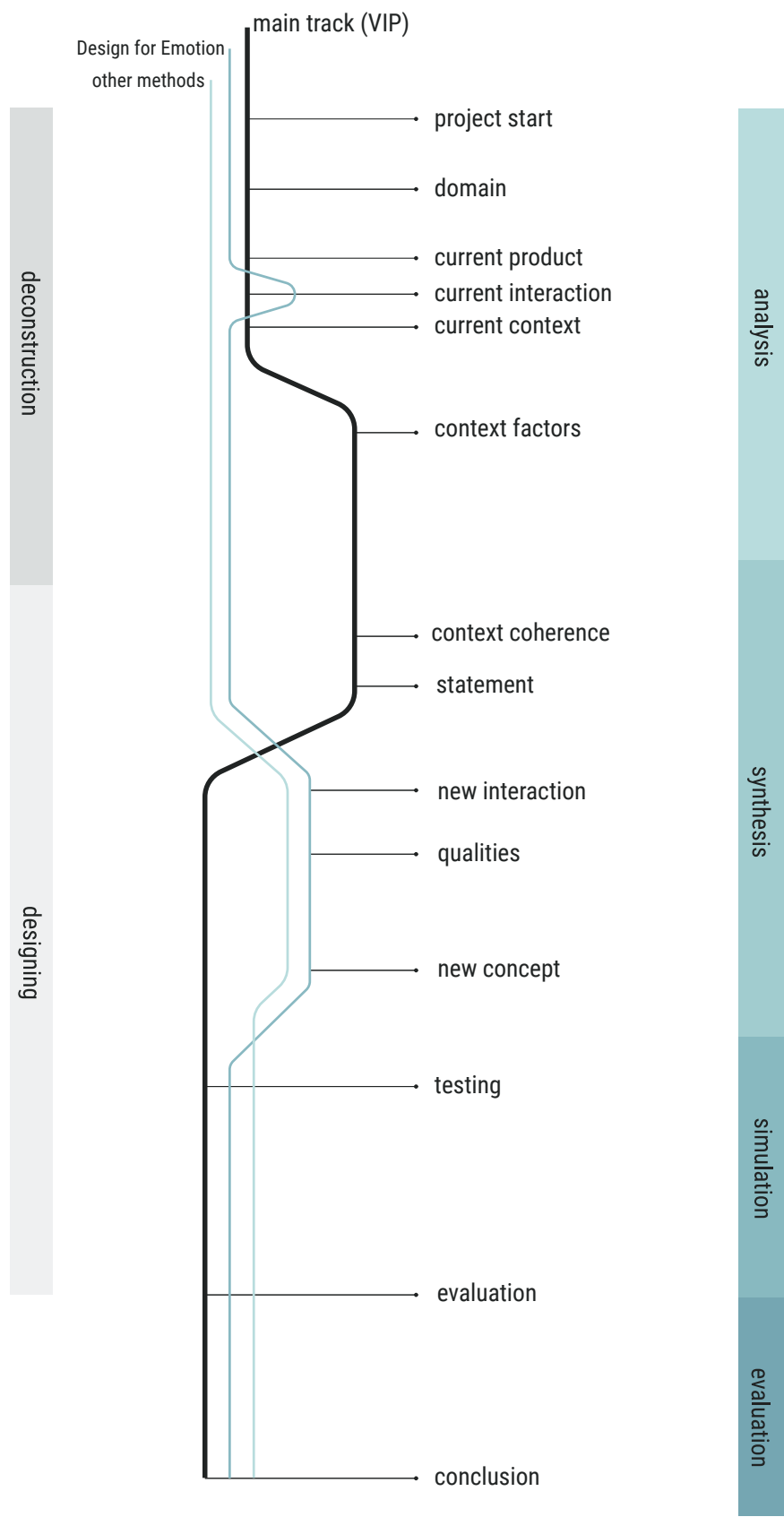
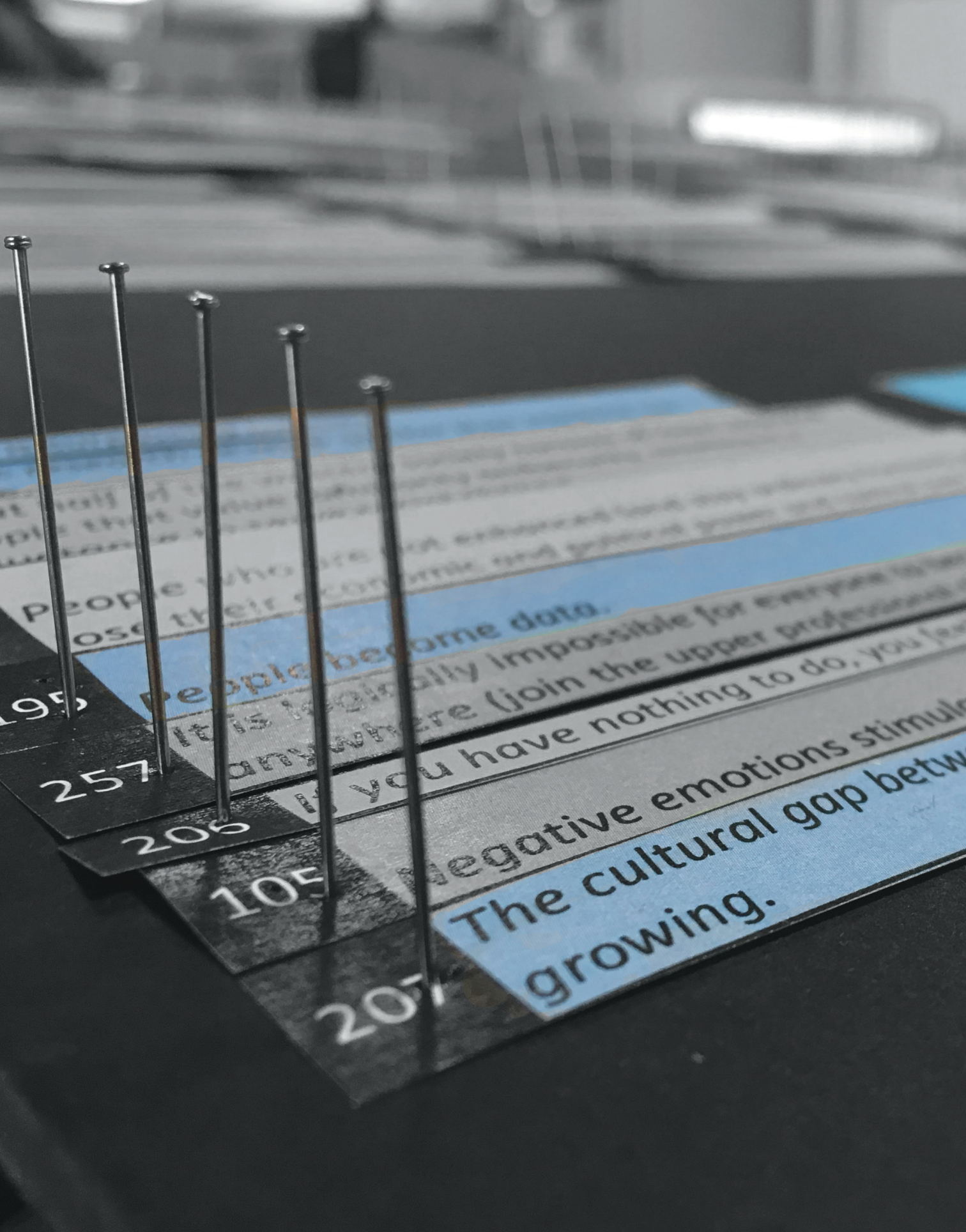


Figure 6. Design approach.



People who are not interested in data are not interested in data.

People become data.

It is logically impossible for everyone to be everywhere (join the upper professional class).

If you have nothing to do, you feel negative emotions stimulated.

The cultural gap between growing.

2 VISION IN DESIGN (VIP)

Vision in Design, or vip VIP is a context driven design method. It first deconstructs the current situation. This is done on the physical level, followed by the interaction level. Finally, the product and its interaction are interpreted as a result of their current design context.

What follows is the description of a future context and the “why” of the product within that context. After that, the interaction as crucial link between the product and the context is designed. Consequently, the product that is designed is appropriate for the future it is part of.

2.1 DOMAIN

Describing the future Mercedes-Benz driver.

The VIP process starts with the establishment of the domain. The domain describes the user in a qualitative manner and is used as a lens through which the various stages of the process can be considered. The domain for this project is:

“Purpose-driven people, expressing confidence in their success, who reluctantly accept novelty framed by tradition.”

Purpose-driven people

Millennials are the future customers for Mercedes-Benz. Growing up in an era of abundance and constant growth, they can afford themselves to ask “why”. As a result of this, purpose and personal development are valued highly.

Expressing confidence

Germany enjoys a rich culture marked by individual success. Mercedes-Benz is often driven by high-ranked employees and executives. These people, proud of their achievements, want to show the world how well they perform and how successful they are.

Novelty framed by tradition.

Order and diligence is valued highly in German and especially Swabian culture. The tradition of complying with the rules of tradition has brought great prosperity to the people of Germany. It has furthermore resulted in a general reluctance to accept radical change.

2.2 PRODUCT DECONSTRUCTION

Physical properties of the current product.

During the deconstruction phase, the current reason of being for the product within its context is identified by considering static qualities, interaction and its context. The brand identity of Mercedes-Benz is reflected in its products by means of physical qualities.

Components

A current Mercedes-Benz interior arrangement is a result of the overall package design of the car (figure 7). It consists of the dashboard and steering wheel, followed by the driver-, and passenger seats and mid-console in turn followed by a second row of seats. As a result of this, the space within the car is divided in two areas, separated by the front seats. Introduction of autonomous driving has the potential to change the arrangement of components, which is based on the necessity for manual driving.

Figure 7. Contemporary layout of interior components.

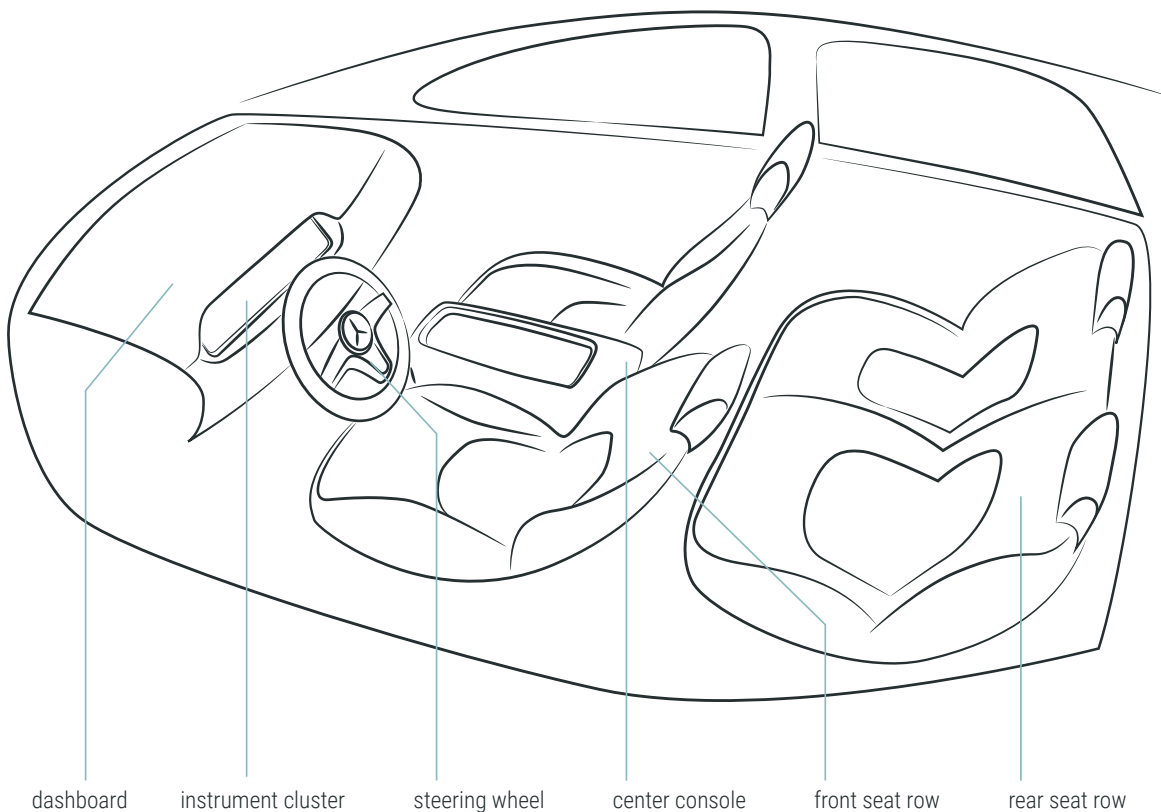




Figure 8. Interior of a 1989 S-Class.
Focus on driver and engineering.
Image by: partsopen.com



Figure 9. Interior of a 2011 S-Class.
Focus shift towards material use.
Image by: Daimler AG.



Figure 10. The interior of the current S-Class displays digital technology as well as traditional components, resulting in a confusing image. Image by: Daimler AG.

Expressing premium

The concept of premium has developed during the lifetime of the automobile. At the beginning, premium was about engineering and performance. This resulted in a driver or performance oriented positioning of the main components (figure 8). As the automobile improved by means of engineering, the focus of expressing premium shifted towards using high-quality materials for upholstery and trim. The use of leather and brushed steel is associated with craftsmanship and precision engineering, referring to the Mercedes-Benz heritage (figure 9). Screen technology improvements allowed for implementation of screens for digital information display. This resulted in an overall reduction of physical elements.

Mercedes-Benz additionally expresses premium through comfort. Comfort refers to a state of ease and satisfaction of bodily wants, with freedom from pain and anxiety (dictionary.com, 2017). Physical comfort is achieved by material choices and applied ergonomics in the seats. Considering the present interior design, it seems that the designers have not been able to make the appropriate concessions. As a result, the interior expresses an abundance of different images (figure 10).

key take-aways

- Mercedes-Benz currently expresses premium through material qualities that represent craftsmanship and precision engineering, referring to the brands successful history.

2.3 INTERACTION DECONSTRUCTION

Defenition of the current user-product relationship.

The real meaning of a product is generated with the interaction between the user and that product. An interaction describes the dynamic qualities during product usage. The user-product relationship describes how the user and the product behave relative to each other. The current relationship is described as:

“Confirming Hierarchy”

The driver considers himself being ranked above the car and the car confirms this (figure 11).

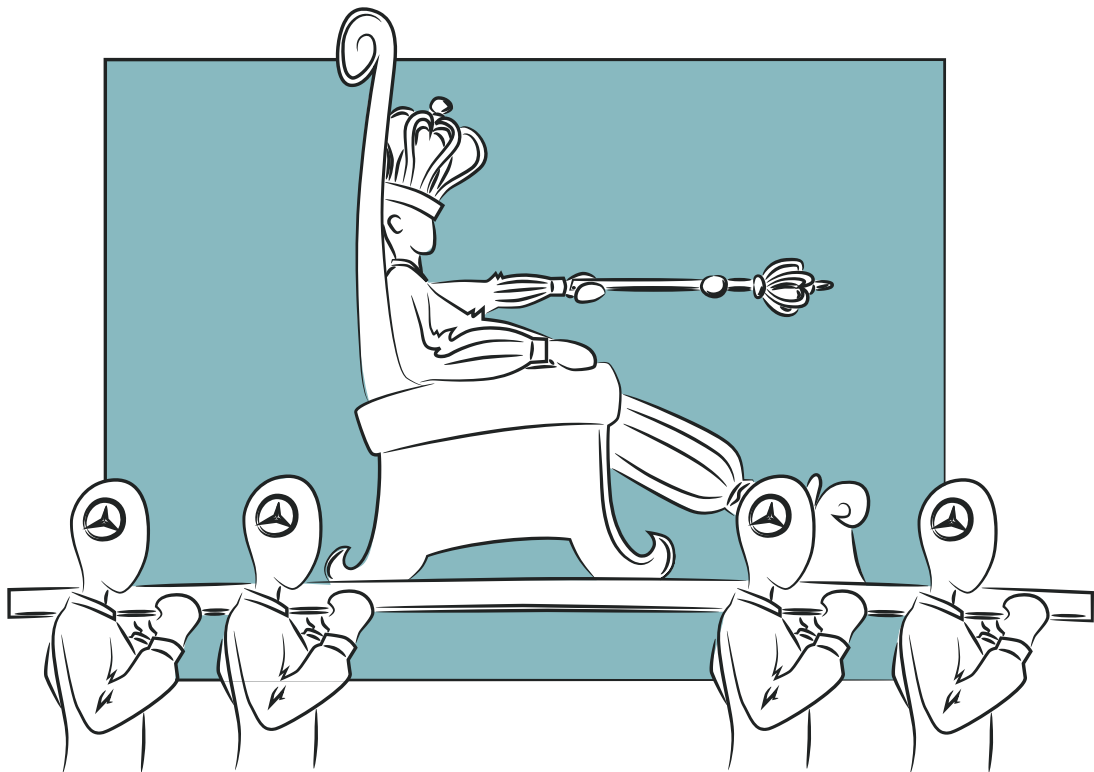


Figure 11. Analogy for the current product-user relationship.

Constant confirmation

Mercedes-Benz is generally driven by people high career ranks. As working hard is valued, these people are proud of their individual success and expressing it allows confirmation from the outside world. Mercedes-Benz as a brand provides the means of expressing achievements, as its products refer to the successful heritage of the company. The interior, executed in high-end materials confirms the success of the driver to himself and his occupants.

Mental comfort

Mental comfort results from assurance, as the car protects its occupants from impact and noise. The comfort of feeling safe is supplemented by the static qualities of the interior, such as lighting and material use. A side-effect however is that feeling safe is often expressed in driving behaviour. Mercedes-Benz drivers that feel protected by the bubble that is their car tend to drive with little regard for fellow road users.

Hierarchal

Mercedes-Benz drivers use their cars as a mean to express their personal success. In this hierarchal relationship, the car is the lackey who heralds the arrival of the king. When a Mercedes-Benz passes, bystanders' interest is peaked by its exterior design after which the attention is focussed on who is able to afford such an automobile. Interior design and material use support the driver, however never surpassing his leading role.

The following pages depict the current interaction by means of a comic. The words associated with the current interaction are mentioned in each step of the interaction.

key take-aways

- The Mercedes-Benz customer uses his car as a physical object to express individual success to the outside world, whilst receiving constant confirmation from the interior.

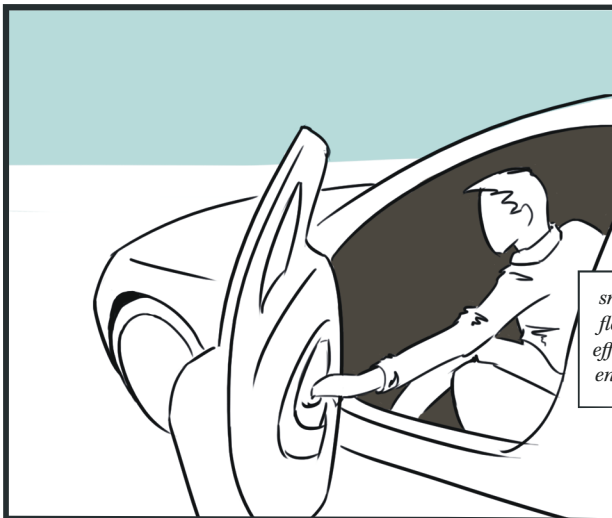
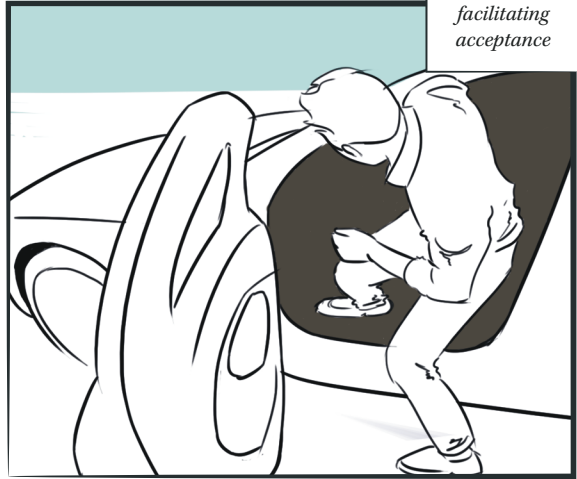
*expectationing
welcoming
broadening
active*

OPENING

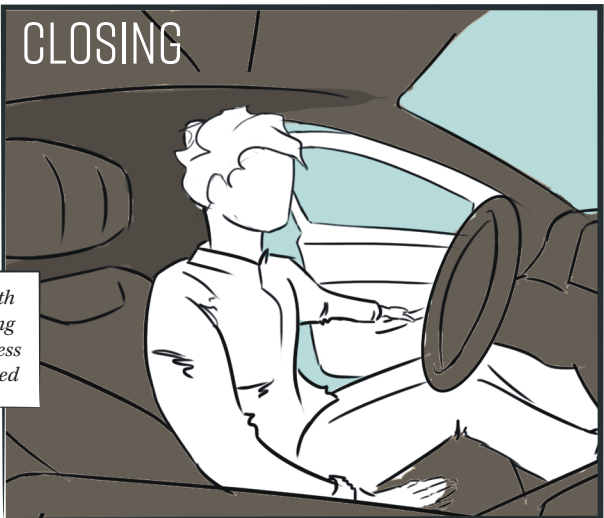


GETTING IN

*harmonizing
facilitating
acceptance*



*smooth
flowing
effortless
engaged*

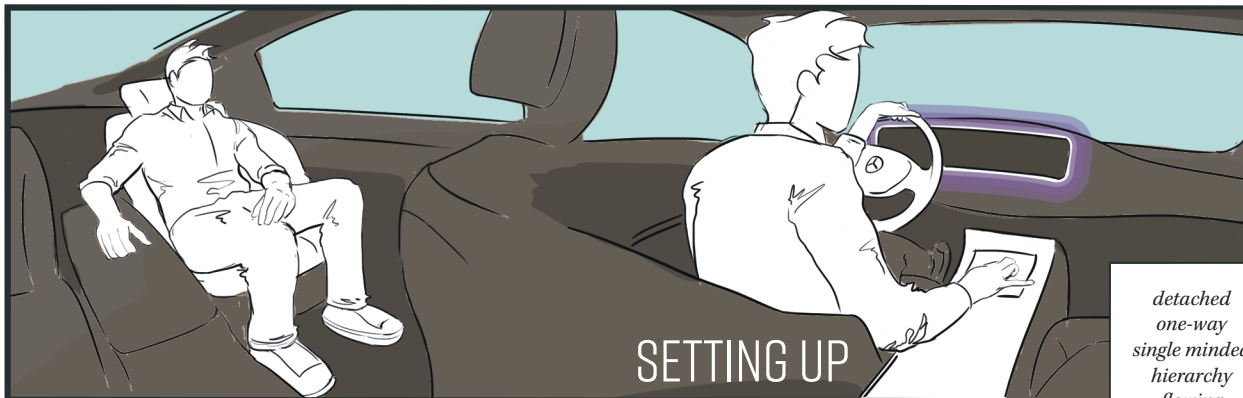


CLOSING

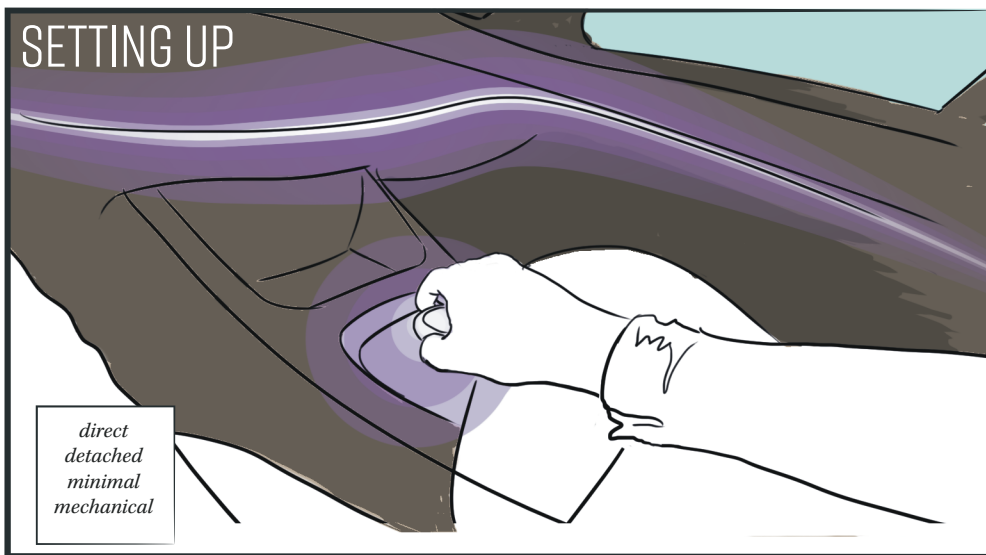


SITTING

*harmonious
acceptance
passive
island-like
harmony
distant
individual*

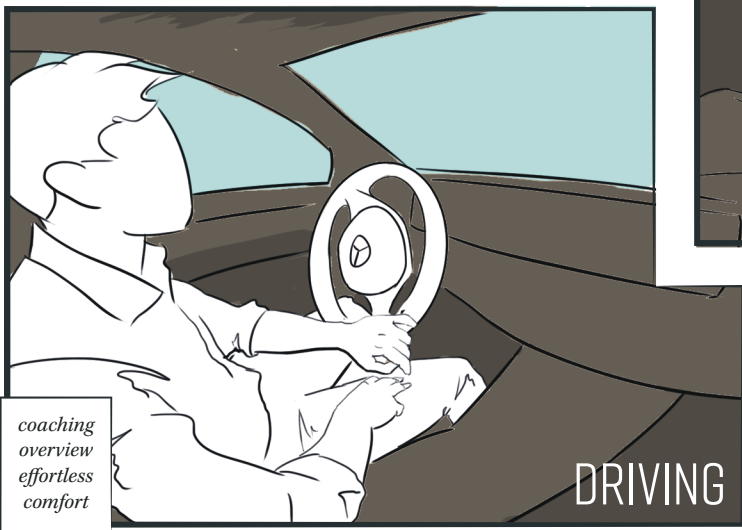


*detached
one-way
single minded
hierarchy
flowing*



*direct
detached
minimal
mechanical*

GETTING OUT



*coaching
overview
effortless
comfort*



*compliance
guidance
smooth
empowering*



CLOSING

2.4 CONTEXT DECONSTRUCTION

How product and brand have progressed within the context of mobility.

A product's static and dynamic qualities are a result of the environment in which the product is developed. Mercedes-Benz is regarded as an industry leader (Winston, 2017). However, its development as a brand is forced by developments in the mobility industry.

Legislative pressure

Present-day city infrastructure has become congested with cars, valuable real estate occupied by parking space and the overall air- and living quality has been decreased. This has caused local and nation-wide government to redirect infrastructure and alter legislation with the goal of banning polluting cars from city centres (Garfield, 2018). The resulting interest in electric vehicles (EV's) laid the foundation for the entry and success of Tesla Inc. into the premium market. Furthermore, it forced the OEM's to initiate an EV program (Musk, 2017). Mercedes-Benz has reacted by developing the EQ program: a fully electric platform in every segment (figure 12).

key take-aways
- Legislative pressure has forced Mercedes-Benz to develop an Electric Vehicle platform.

Figure 12. The EQ brand is Daimler's vision on electric mobility. The EQA is one of the first models to be presented. Image by: paultan.org





Figure 13. The F015 concept car interior acts as a large screen through which the customer can interact with the car and its environment. Image by: acurazine.com

The digital revolution

The introduction of the internet has heralded the digital age (Kaku, 2011). As a result, all physical products are being connected to each other, forming the Internet of Things. This is being applied to architecture and infrastructure, developing smart cities (Hubert, 2017). Further development of smart city digital infrastructure and advanced driver assistance systems (ADAS) allows for the development and deployment of autonomous driving (Zetsche, 2017).

The digital revolution also changes the way people interact with their cars. As advanced algorithms and AI develop, enabling people to control their cars by voice commands and gestures instead of physical knobs and switches (figure 13). Mercedes-Benz implements the digital revolution with its AI assistance program, called MBUX (Wagener, 2017). Mercedes Me connects the customer to their car via their smart phone.

key take-aways

- The digital revolution has improved connectivity between cars and infrastructure, paving the way for the implementation of autonomous driving.

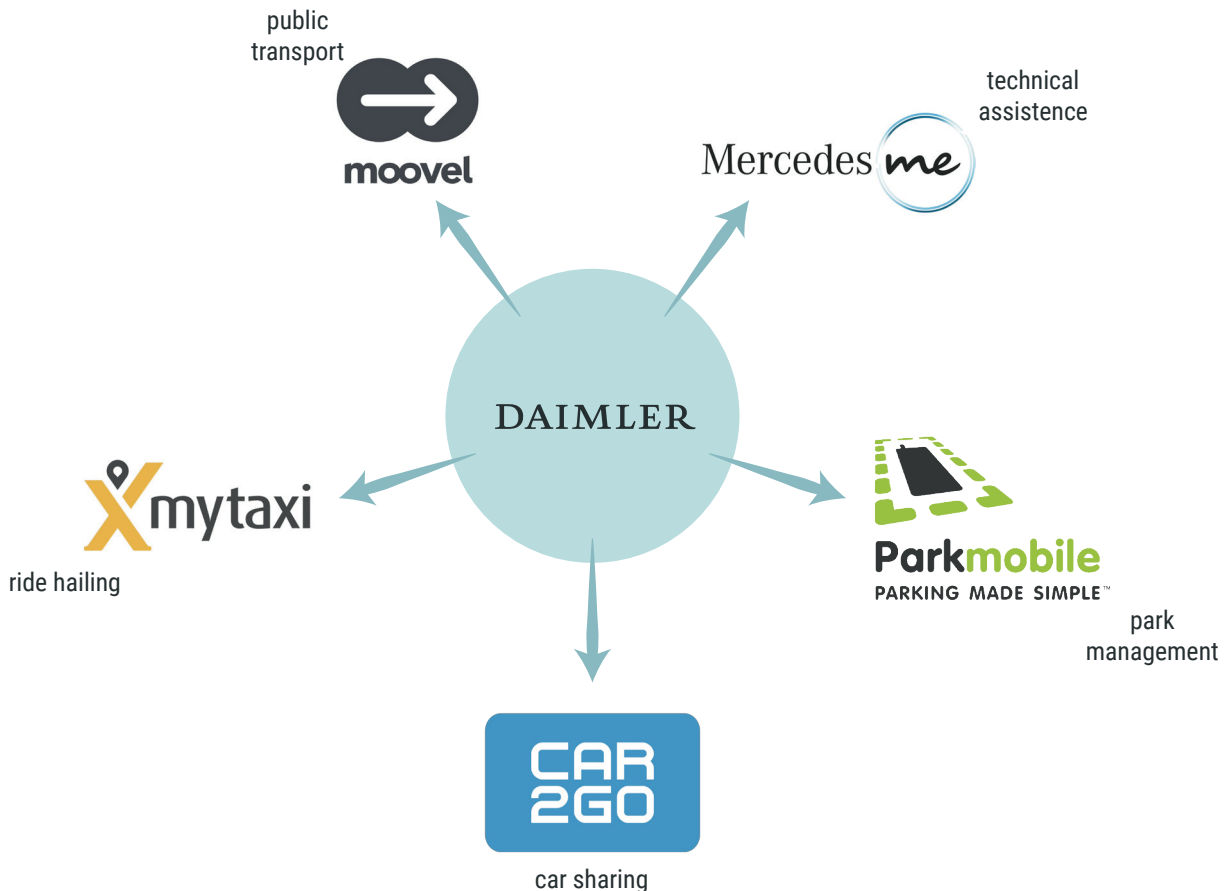
Mobility providers

Until the digital revolution, the main product of car companies was the physical car. Improved connectivity allowed for the introduction of shared mobility platforms. (van den Elshout, 2018). As shared mobility will cause a reduction in car demand (Grosse-Ophof et al. 2017), car companies are forced to adjust their business models. Instead of manufacturers, brands are becoming mobility providers. The CASE strategy proposed by Daimler includes the introduction of mobility services. MyTaxi for ride hailing, Car2Go for ride sharing and Moovel for public transport solutions (Daimler, 2018).

key take-aways
- The introduction of shared mobility platforms causes Mercedes-Benz to change from a car manufacturer to a mobility provider.

Daimler recently announced a cooperation with BMW. The companies work out a joint realisation of infrastructure for smart mobility. Furthermore, the individual mobility services of both brands are merging. As a result, both companies are strengthened as mobility providers (Zetsche, 2018).

Figure 14. Daimler uses its sub brands to manifest itself as mobility provider.



2.5 CONCLUSION

How is the Mercedes-Benz brand currently experienced?

Mercedes-Benz currently expresses premium through material qualities that represent craftsmanship and precision engineering, referring to the brands successful history.

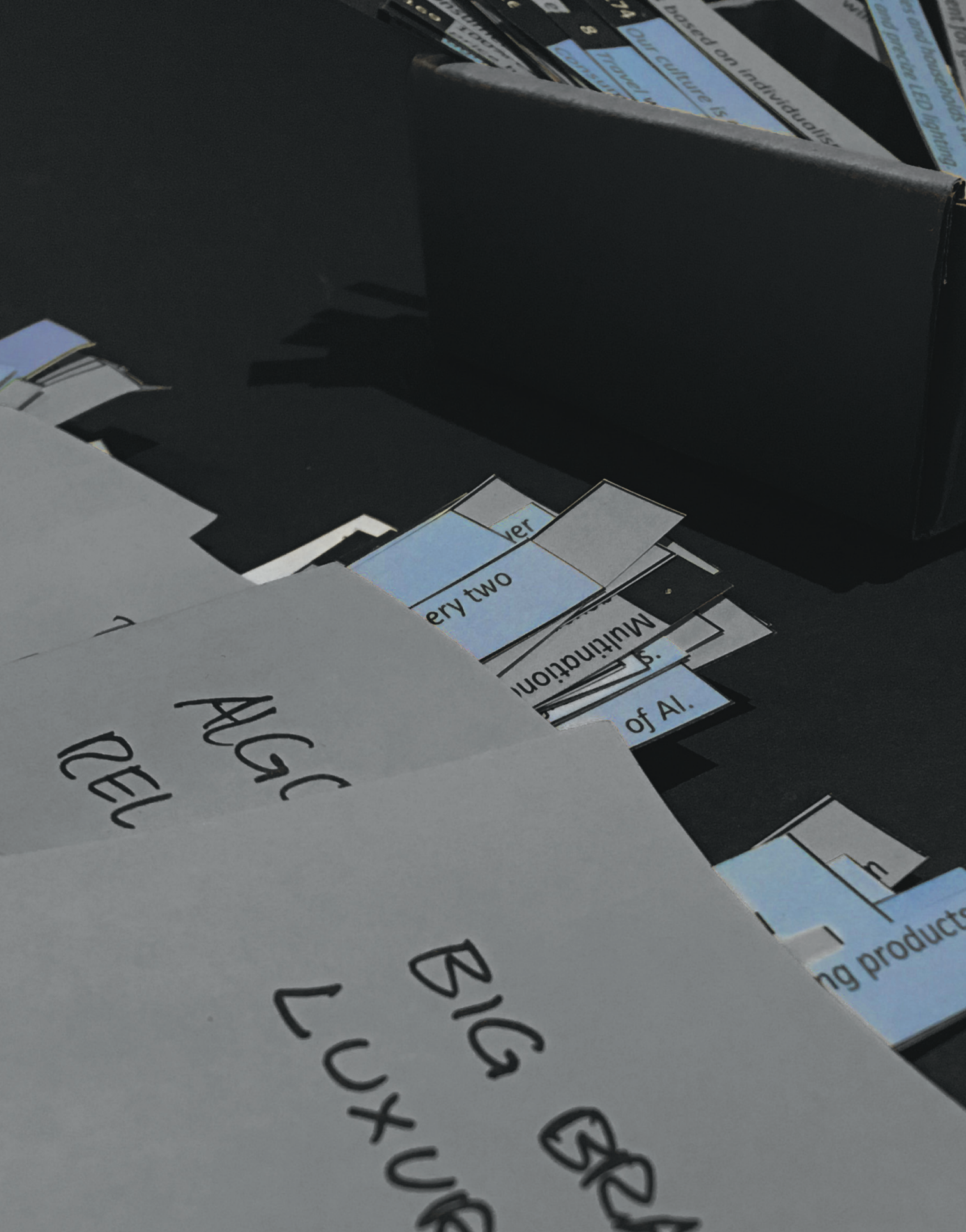
The Mercedes-Benz customer uses his car as a physical object to express individual success to the outside world, whilst receiving constant confirmation from the interior.

Legislative pressure has forced Mercedes-Benz to develop an Electric Vehicle platform. The digital revolution has improved connectivity between cars and infrastructure, paving the way for the implementation of autonomous driving.

The introduction of shared mobility platforms causes Mercedes-Benz to change from a car manufacturer to a mobility provider.

REL ALGC

BIG Luxure



3 BUILDING A FUTURE CONTEXT

Before establishing the role a future product will play, a context first has to be created. It starts with the gathering of context factors. A context factor can be about people, technology or the planet. Some context factors describe a slowly changing phenomenon, others describe short term trends and some simply describe laws of nature. Each context factor tells a part of an elaborate future description. Using the domain as a lens, the future description is adjusted to fit the Mercedes-Benz brand (Hekkert & van Dijk).

3.1 CONTEXT CLUSTERS

After gathering context various context factors, a series of context clusters was made.

A context cluster is build up out of individual context factors. The factors used for creating the now following context clusters can be found per cluster in appendix A.

About algorithms

A brief explanation of a significant technological revolution.

An algorithm describes a number of consecutive steps to take in order to solve (mathematical) problems. A system of complex algorithms forms artificial intelligence, or AI. AI takes input from various sensors and runs it through its algorithms with a logical conclusion as outcome. When AI is applied to a product, this product is able to operate unsupervised. An intelligent product is able to operate unsupervised for a defined period to complete a task.

key factors:

- Mankind will, step by step, upgrade itself to an entire new species
- Millennials get the majority of their information from the internet.
- Algorithms will know you better than you know yourself.

Homo Algorithmicus

Mankind becomes more efficient due to AI upgraded cognitive abilities.

As our living conditions improve, our expectations rise with it. However, people are reaching the limit of their cognitive capabilities. By default, mankind is not perfect and imperfection is the base for the freedom on which people base their lives nowadays. AI aides mankind to enhance Homo Sapiens. As algorithms are developing a better understanding of a person than that person itself, mankind will use AI to make more efficient choices.



Figure 15. Homo Algorithmicus.

key factors:

- People make the wrong decisions about the most important aspects of their lives.
- We are truly happy when reality meets our expectations.
- If our living conditions improve, our expectations rise with it.

Pursuit of happiness

Mankind uses AI to reach true happiness.

Humanism and especially liberalism considers humans to be the highest authority and its happiness the ultimate goal. Nowadays, mankind starts to realise that mere material possessions do not lead to happiness. People are truly happy when reality meets their expectations. However, as our conditions improve, the novelty becomes the standard and expectations rise again. True happiness or self-actualisation is reached when engaging in meaningful activities. When algorithms supplied with neural- and hormonal based information evolve, they will be used by mankind to make the choices that provide true happiness.



Figure 16. Pursuit of Happiness.



Figure 17. Virtual Paradise Paradox.

Virtual paradise paradox

Escapes to the virtual world out of anxiety caused by a discrepancy between the virtual and the material world.

People express themselves through the digital world by shaping it according to their desired status and lifestyle. Fed by media, the digital world displays a perfect life. As the information internet expands and AI develops, augmented- and virtual reality provide a more natural and immersive interaction with the digital world. This however creates an increasing discrepancy between the digital- and material world. This discrepancy leads to anxiety that causes people to escape to the perfect digital world. This vicious circle causes people to distance themselves from their material communities, resulting in loneliness and clinical depression.

key factors:

- Augmented reality will provide a more natural and immersive interaction with the digital world.
- Media displays perfect life.
- The youth is the loneliest group of our society.



Figure 18. Big Brain Luxury.

Big Brain Luxury

Being intelligent allows you to experience true luxury.

Luxury is about the pursuit of exclusivity and differentiation. As we are heading into an era of abundance and marginal costs of products drop to zero, classic material luxury becomes democratised. Instead, people invest in immaterial values like time, experiences and quality of life. The complete cultivation of immaterial luxury requires education. Being able to invest in education and its benefits is nowadays considered a luxury. However the information internet increasingly democratises education, providing every person with an equal platform for experiencing immaterial luxury. Consequently, only people with the intelligence to process education are able to experience true luxury.

key factors:

- Luxury is the pursuit of exclusivity and differentiation.
- Education is an individual investment that pays out later
- If more sources of information are available for free, there is no need to upgrade to premium anymore.

key factors:

- The knowledge economy is by definition beneficial to the highly qualified.
- New intelligent technology is capable of adapting.
- For millennials, a job is no longer a job, it is their life as well.

Privilege of working

Having a traditional job becomes an exclusivity for the educated elite.

People are driven by having a sense of purpose. Executing craft jobs that require certain skills and experience used to provide this. In order to further increase efficiency, companies turn to rapidly improving AI, which provides increasingly intelligent robots and computers, capable of more complicated tasks. As a result, long-successful business models are destroyed and former purposeful employees replaced by automation. New jobs created by the implementation of automation require increasing levels of education from employees, who quickly reach the limit of their cognitive abilities. A new sense of purpose can be acquired from executing social, or non-profit jobs. However, the traditional sense of purpose, evoked by executing jobs that contribute to the economy become an exclusivity for the educated elite.



Figure 19. Privilege of Working.

key factors:

- People are attracted to authenticity.
- Virtual reality will provide a more immersive interaction with the digital world.
- Every day there is something that chips away at our understanding of ourselves.

Loss of Identity

Authentic elements that used to determine identity are commodified.

Identity is shaped by what you do and how you live. People express their identity using authenticity. Improvements in manufacturing techniques have made it possible to replicate any physical object that was previously considered exclusive. Improvements in digital communication and virtual reality provide a more natural interaction with the digital world, providing access to otherwise unique experiences. Instead of long-term authenticity, people express their identity through the brief and frequent expressions of authenticity social media platforms provide. However, media algorithms shape the way we perceive the world while distracting us from the moments of personal reflection we need to truly discover ourselves and our true identities.



Figure 20. Loss of Identity.

Loss of autonomy

With the acceptance of the algorithmic religion, humans have to step down as leading entities.

A religion is an all-encompassing story, believed in by a significant amount of people, that provides a sense of direction to human life. It provides legitimisation for our laws, norms and values. Humanism and especially liberalism as a religion considers humans to be the highest authority. Autonomy, the freedom of making your own choices, is considered the highest valued good. Meanwhile, the capitalist religion considers economical growth the highest valued good. It embraces artificial intelligence as a mean to increase efficiency. AI continues to become increasingly sophisticated, surpassing human intelligence and mankind's ability to decide effectively. Consequently, artificial intelligence itself becomes the all-encompassing entity, providing direction to human life. Mankind steps down as highest authority and hands over control to AI.

key factors:

- We are already making important decisions with the help of algorithms,
- Modern economy relies on constant growth to sustain itself.
- Experiencing a lack of control raises stress.



Figure 21. Loss of Autonomy.

Catch-up Anxiety

Lower educated people fear for their personal objective significance.

Ever quickening scientific research has lead to a point where technology is matching or even surpassing human capabilities. Well educated people understand and accept these developments. They are capable of adjusting and adopting the new situation to enhance the quality of live. However, the majority of western society consists of lower educated people who value familiarity and security, therefore accepting change at a slower pace if at all. As the distance with high educated people increases, lower educated people lose the sense that their lives matter objectively. The resulting anxiety to catch up drives the lower educated people closer towards familiarity evokes resentment against the educated elite.

key factors:

- People who are not enhance will lose their economic and political relevance.
- Software is surpassing humans.
- The core of populism is a concerted anti-establishment posture.



Figure 22. Catch-up Anxiety.

3.2 CLUSTERS & DOMAIN

What will these clusters mean for the future Mercedes-Benz driver?

In order to get a better understanding of the relationship between the clusters and the domain, three core aspects were chosen. Next, the clusters were tested according to these aspects. The result is shown in figure x.

Acceptance

The domain describes people that accept novelty, as long as it can be related to the tradition these people are accustomed to. "Pursuit of Happiness" as a cluster could be easy to accept because it is a rather gradual and broad. A cluster like "Loss of Autonomy" on the other hand might be hard to accept.

Feeling purposeful

People in the domain are driven by having a sense of purpose, based on traditional values. A cluster like "Privilege of Working" could on one hand threaten this feeling. On the other hand does it provide opportunities for new ways of feeling purposeful.

Displaying success

Mercedes-Benz drivers use their car to display their individual success and the confidence they have in their abilities. A cluster such as "Loss of Identity" might harm the ability to display individual success. "Virtual Paradise Paradox" on the other hand could provide a new way of success display for the Mercedes-Benz driver.

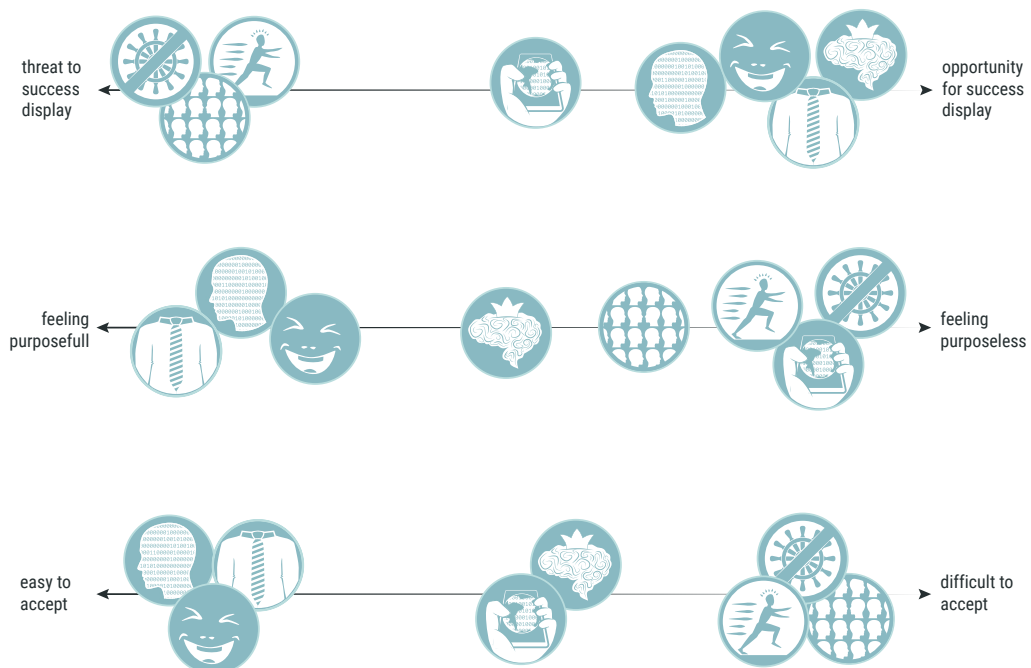


Figure 23. Context clusters linked to the domain's core qualities.

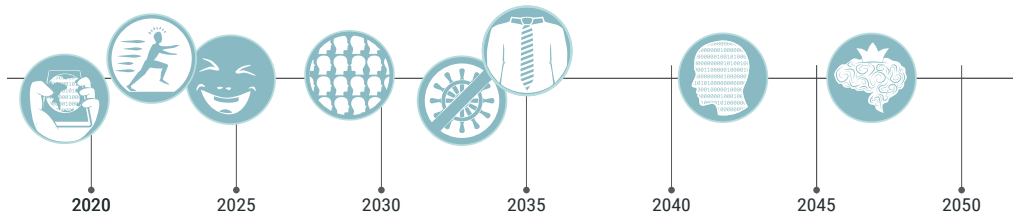


Figure 24. A timeline to indicate how the clusters will manifest themselves in society over time.

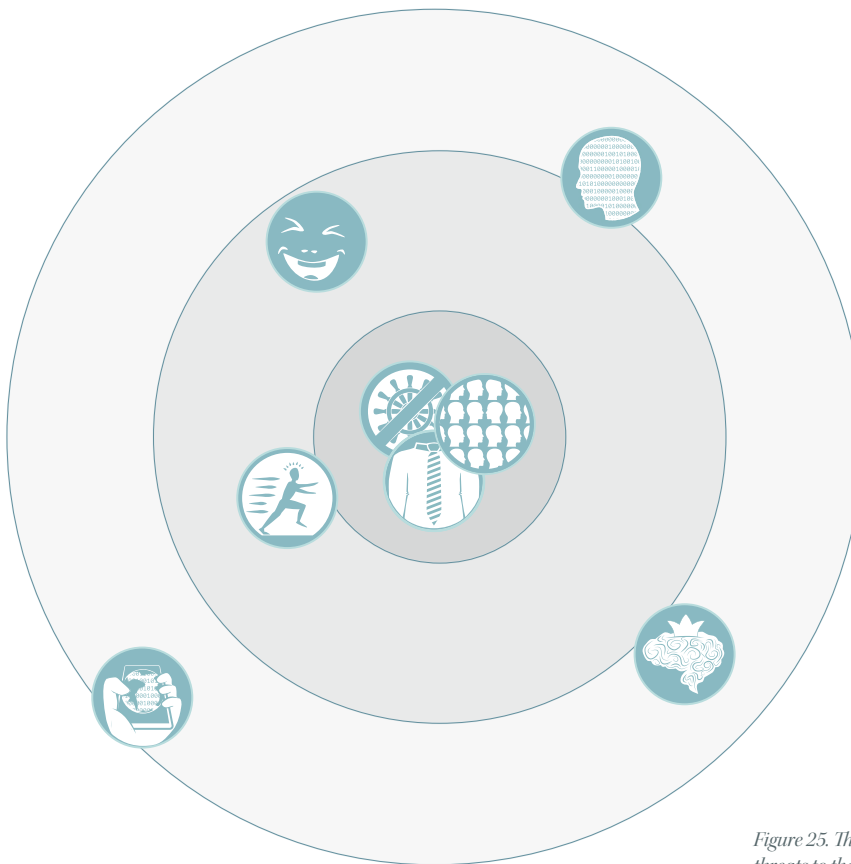


Figure 25. The clusters' relevance as threats to the domain.

Threats to the domain

After the relationship between the clusters and the domain were established, the individual clusters were arranged on a time line (figure x). Using a time line, the most pressing issues can be identified. Combining the information of both the relationships and the timeline results in the clusters that are most threatening for the domain (figure x): "Loss of Identity", "Loss of Autonomy" and "Privilege of Working". These clusters do not comply with tradition and restrict or dilute the ability to express purpose and/or success. The threatening clusters depict the future aspects towards which the domain has to be guided. This in terms provides the reason of being for the product to be designed.

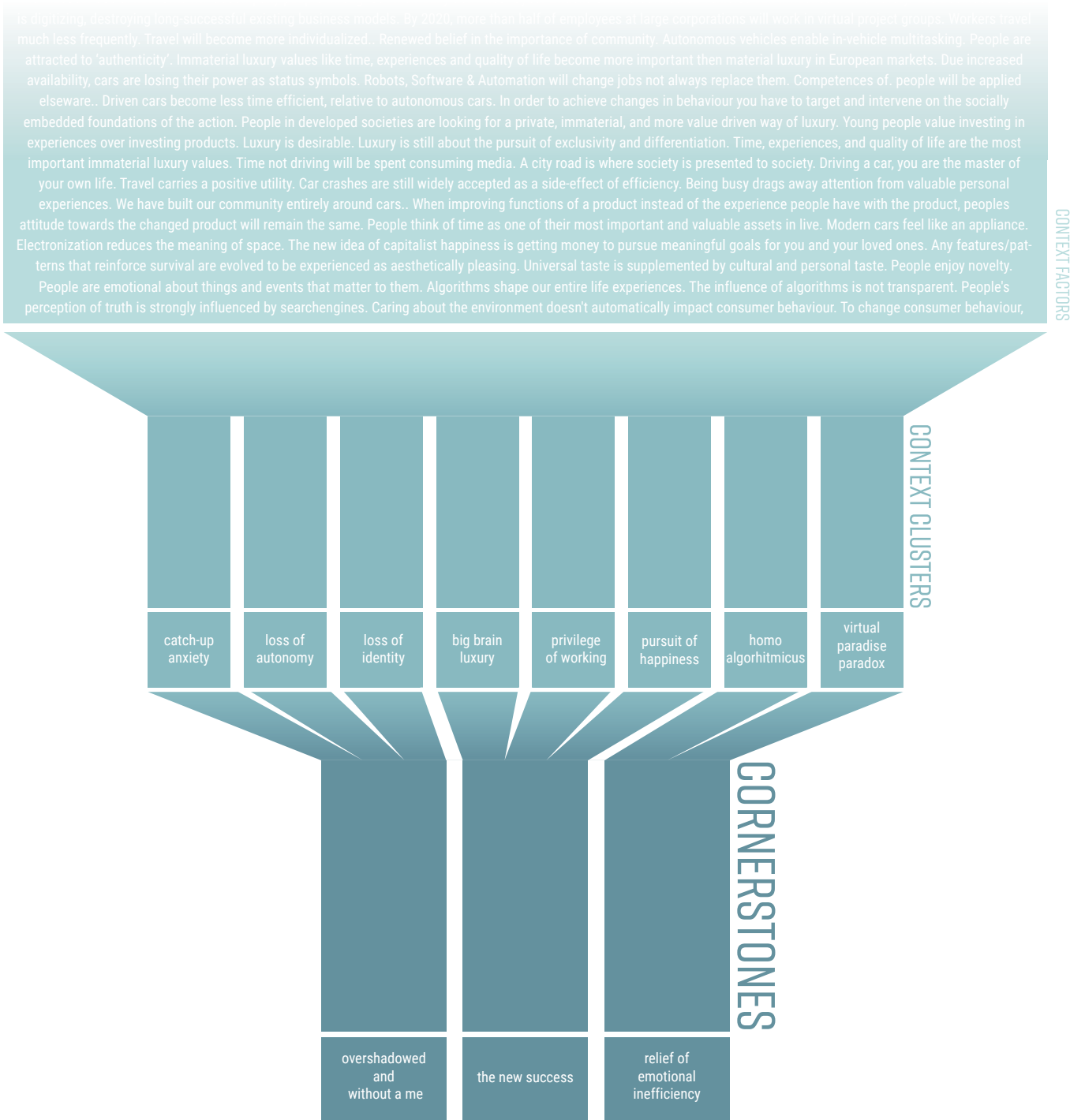


Figure 26. Synthesis of Context Cornerstones from the individual clusters and factors.

3.3 CLUSTERS TO CORNERSTONES

The individual clusters together form a coherent future story

The clusters were grouped according to a central theme. In doing so, three cornerstones appeared. Each cornerstone explains part of a future context (figure 26).

Cornerstone I

Relief of emotional inefficiency

Driven by efficiency and productivity aspirations, the world has accepted artificial intelligence as a religion, allowing it to rule day-to-day life. Advanced AI knows people better than they know themselves. Provided with the proper neurological- and hormonal data, AI provides people with the choices that lead to true happiness. It furthermore provides people with the choices that provide efficiency, so people can optimally use their time.

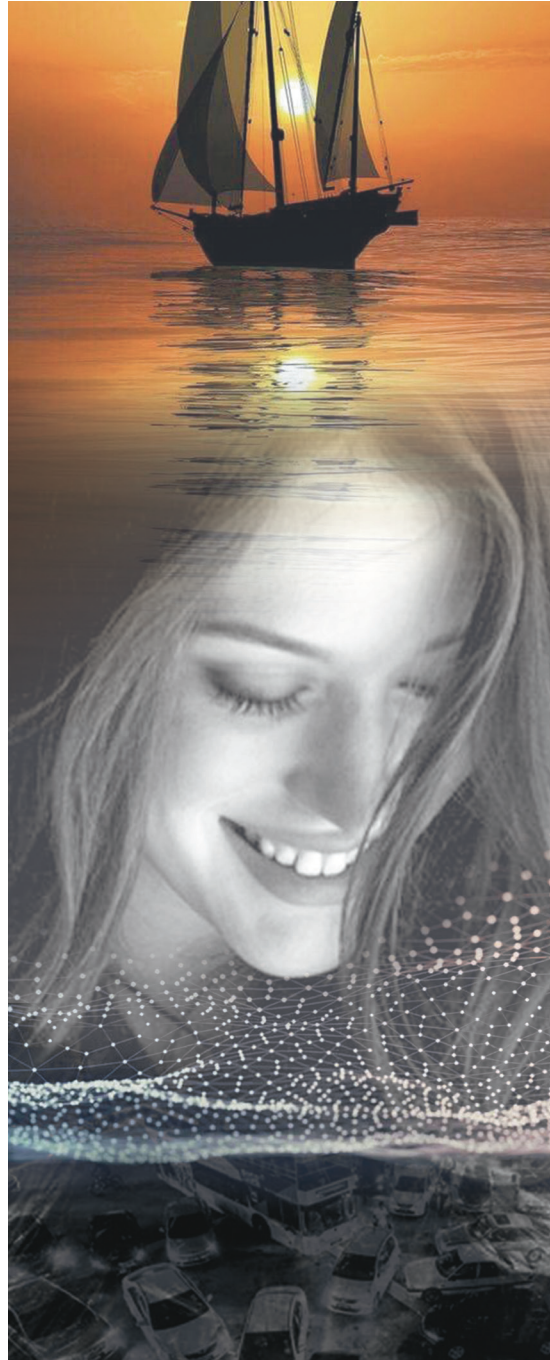
key take-aways

- AI provides us with the choices that make us biologically happy.

key clusters:

- Homo Algorithmicus
- Virtual Paradise Paradox
- (Pursuit of Happiness)

Figure 27. Relief of emotional inefficiency.





Cornerstone II

Overshadowed and without a Me

However, the acceptance of AI as leading entity firstly leads to the loss of professions that provide people with a sense of purpose. Secondly, it leads to a commodification of material and immaterial authenticity, robbing people of the means to express identity. For the Mercedes-Benz driver, this means that he is no longer able to express his successful image by means of his tradition-based car. Finally, by accepting the algorithmic religion, mankind has to step down as leading entity. AI in the form of autonomous driving means that the car no longer confirms the Mercedes-Benz driver's success towards himself, as he feels demoted to a mere passenger.

key take-aways:

- Digitization and evolving AI takes away traditional means to express identity.
- The advent of autonomous driving is perceived as loss of power.

key clusters:

- Loss of Autonomy
- Loss of identity
- Catch-up Anxiety

Figure 28. *Overshadowed and without a me.*

Figure 29. *The new success.*

key take-aways:

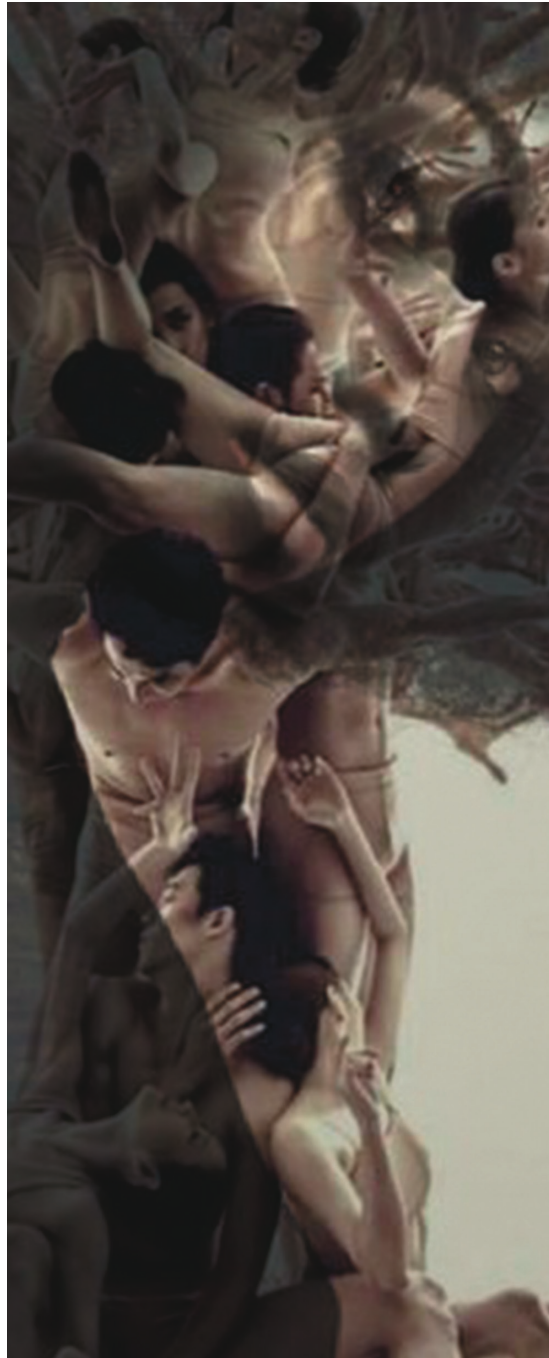
- *Instead of material possessions, premium is expressed through immaterial behaviour.*

key clusters:

- *Pursuit of Happiness*
- *Privilege of Working*
- *Big Brain Luxury*

Cornerstone III *The new success*

Premium and luxury are about authenticity and uniqueness. It to be defined by material qualities. With modern technology however, these material exclusivities are being commodified. Additionally, people are becoming aware of the limits of what the planet can endure. Finally, people are becoming aware that merely owning products does not provide pleasure. Instead, it is the engaged experience that provides exclusivity. Consequently, premium and luxury are being expressed by immaterial qualities. Implicitly, the means to express success shifts from possession to behaviour.



3.4 CONCLUSION

What implications does the future context provide to the domain.

Mercedes-Benz customers use their car as a material product to express individual success towards the outside world, whilst getting confirmation by means of hierarchy.

Although AI makes people biologically happy, it also takes away traditional means of expressing identity.

Additionally, the advent of level 4 autonomous driving is perceived as losing power expressed through hierarchy.

Finally, the meaning of premium and luxury shifts from material possession to immaterial behaviour.

3.5 MISSION

What I want to achieve for the future Mercedes-Benz driver.

Up to the description of the future world, the process has been rather objective. With the mission statement, a subjective standpoint is taken with regards to the domain in the future world. My mission for this project is stated as follows:

“I want people to be able to express exclusivity through conduct, whilst being assured of their personal significance.”

Exclusivity through conduct

Premium and luxury is still about the pursuit of exclusivity and differentiation (Adam, 2016). With the commodification of the traditional material luxury, the expression of premium shifts towards behaviour rather than possession (Enzenberger, 1996). Value is being generated through meaningful relationships and memories caused by usage instead of mere ownership (Desmet, 2016). Consequently, the product to be designed has to provide the Mercedes-Benz customer with the means to express their individual success through behaviour.

Assured of personal significance

People want to believe that their lives matter objectively (Bell, 2018). Especially millennials - the future customers of Mercedes-Benz - highly value personal development and contribution to a larger whole (Reuteman, 2015). Future mobility concepts are perceived to undermine the current interpretation of confirmation and hierarchy (Teubert, 2017). As a result of that, Mercedes-Benz customers express reluctance towards them. I therefore consider it to be key that a new interaction design remains confirming towards the customer, albeit with a different interpretation.



THE CAR IS BEING

LIGHT MOVES TO THE STEERING

STEERING WHEEL COMES TO YOU

4 SYNTHESIZING A SOLUTION

The mission states the problem I want to solve during my graduation project. The next chapter describes the steps I took towards the final concept. The desired interaction was broken down into individual interaction qualities. The resulting final concept caters to each of these qualities and fulfils the mission.

4.1 INTERACTION VISION

How I want to achieve the mission.

The interaction vision connects the product with its context. It describes the qualities the product behaviour has to aspire in order to achieve the mission.

User-Product Relationship

Level 4 autonomous driving considers a dynamic hierarchy rather than the current absolute one. In order to retain the assurance of personal significance, the product should invite the customer in the autonomous part of the journey. As a result of this, the new user-product relationship is described as:

“Accommodated Involvement”

Analogy

In order to approach the qualities that the new interaction should fulfil, an analogy is formulated. This analogy shows a successful implementation of the same mission in a different domain (Hekkert & van Dijk). The analogy is as follows (figure 30):

“Like walking your German Shepherd Dog through the forest.”

In this analogy, the car is the German Shepherd Dog. There are certain parts of the woods where the capabilities of your dog surpass you, for instance smell, hearing or running. However, certain parts also exist where your dog depends on you, for example in locations where a leech is required.

During your walk, your dog operates autonomously in principal. However, he reacts instantly to your commands, confirming your status. Dogs are known to react and adjust to the emotions of their owner (GSDC, 2018). As you are walking, your dog constantly checks for your presence, involving you in his activities. German Shepherd Dogs are known for being intelligent eager to learn (Coren, 1995). Finally, they match the confident nature expressed by the domain (AKG, 2008).

4.2 INTERACTION QUALITIES

What qualities the user-product relationship should offer to fulfill the mission.

The analogy contains the qualities that make it a suitable interaction within its own domain. These qualities are extracted and used for designing the new user-product interaction. The qualities extracted for this mission are listed below.

Exclusivity

Personal (The character of your German Shepherd Dog adjusts to yours)
Leading (Your dog operates autonomously. However, he follows you)

Conduct

Inviting (Your dog involves you in his activities)
Committing (Having a dog requires effort from your side)

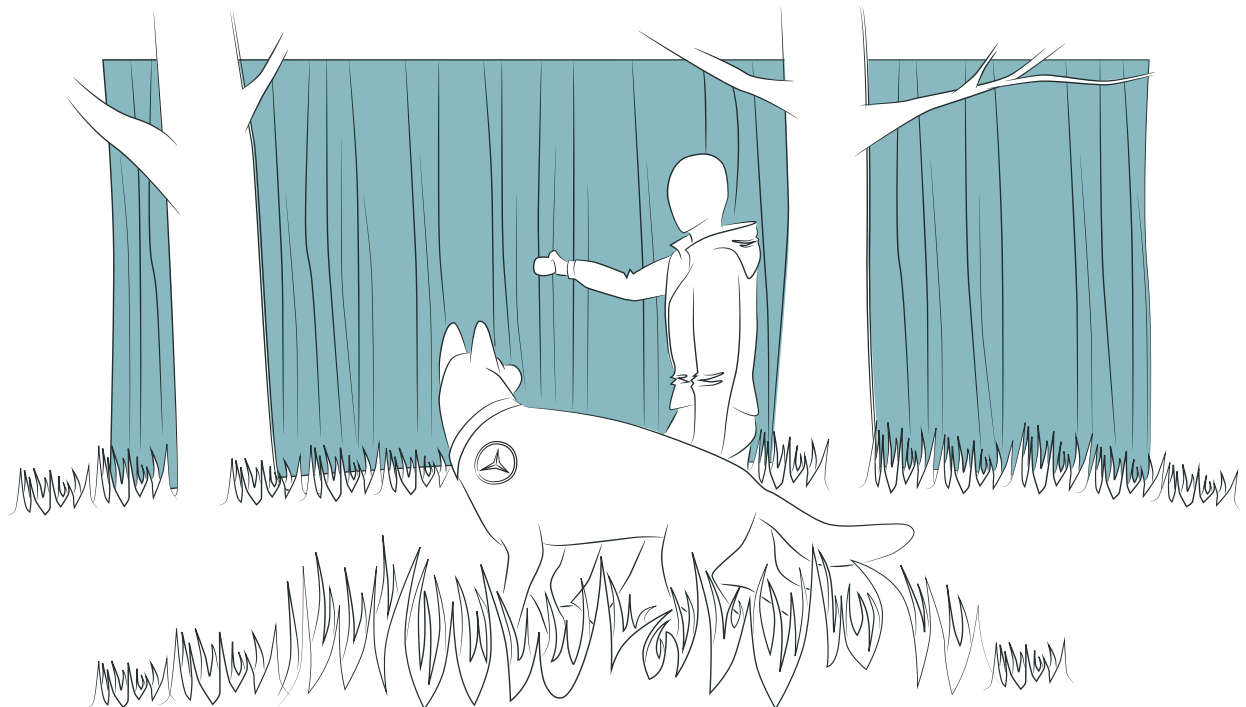
Assurance

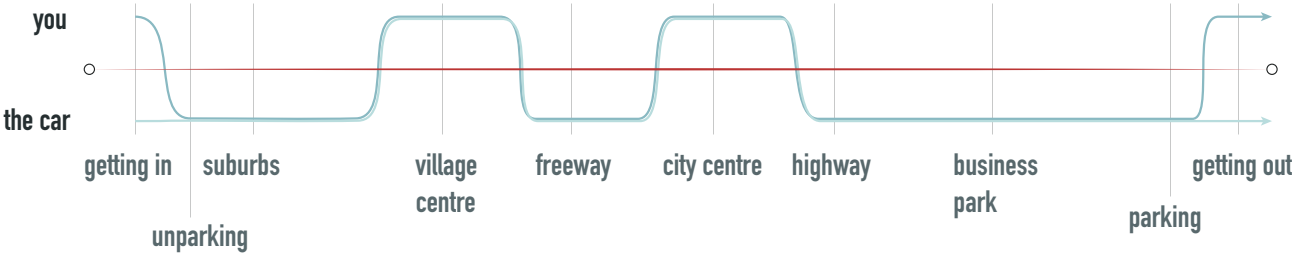
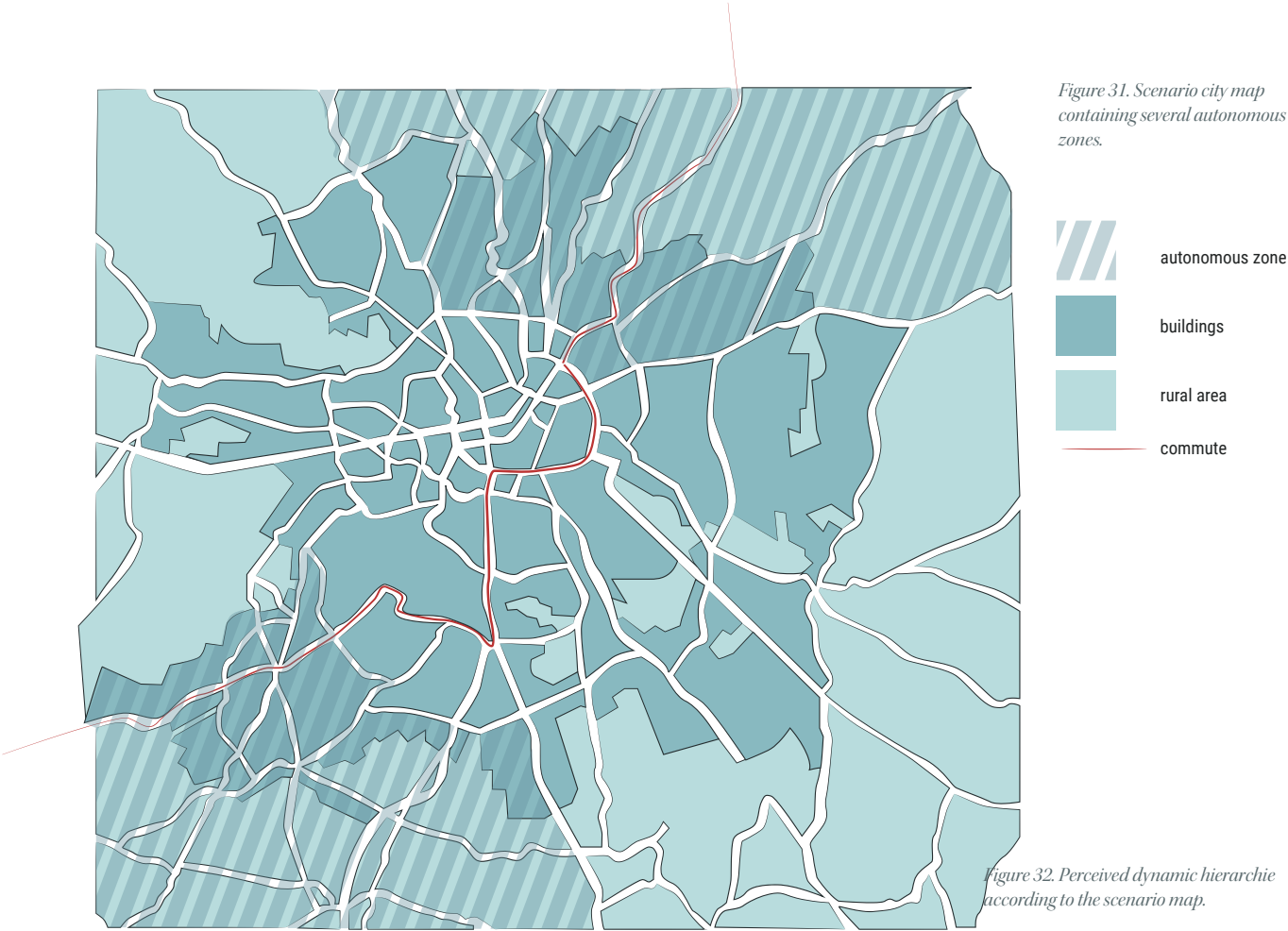
Confident (Confidence in your own skills as well as those of your dog)
Conscientious (Your dog is dependable)

Personal significance

Reactive (Your dog responds and adjusts to your emotions and moods)
Obedient (Your dog immediately responds to your voice)

Figure 30. The desired product-user relationship.





4.3 CREATING A LANDSCAPE

An initial scenario in which to implement the desired interaction.

Cities and urban areas are being developed into smart cities. Autonomous vehicles use the infrastructure of smart cities for orientation and navigation (Hubert, 2017). The implementation of dedicated zones for autonomous driving will generate an uplift in land value and well-being for inhabitants (URA, 2017). Autonomous zones will be introduced in areas that are relatively easy to control, like highways (Ghosn, 2016. Walker, 2017). As ADAS and digitisation of streets improve, these zones will gradually expand to cover the entire city (Zetsche, 2017).

For this graduation project, a hypothetical commute was created based on the map depicted in figure 31. As the customer moves through various autonomous zones, multiple moments of mandatory autonomous driving occur. The domain expresses reluctance towards the accompanying power transfers. Subsequently, the initial solution ideation aimed at these transfer moments.

The timeline was used as a starting point for ideation (figure 32). Appendix B depicts the evolution of the timeline and the accompanying ideas.

4.4 INTERACTION GAP

The current implementation of autonomous driving does not consider emotional bonding.

All cars produced by Mercedes-Benz are made to order (Mercedes-Benz, 2017). Figure x depicts the purchasing process, which fundamentally has remained unaltered since the advent of the automobile (figure 33).

Current concepts for autonomous driving interiors proposed by Mercedes-Benz focus on technical solutions. They depict an ideal situation in which the customer fully trusts his autonomous car. Subsequently, an interaction gap was detected: emotional bonding. The resulting emotional threshold contributes to the reluctance towards future mobility expressed by the domain.

However, the time in between ordering and delivery provides an opportunity for emotional bonding, resulting in a lowered emotional threshold to overcome before engaging in level 4 autonomous driving (figure 34).

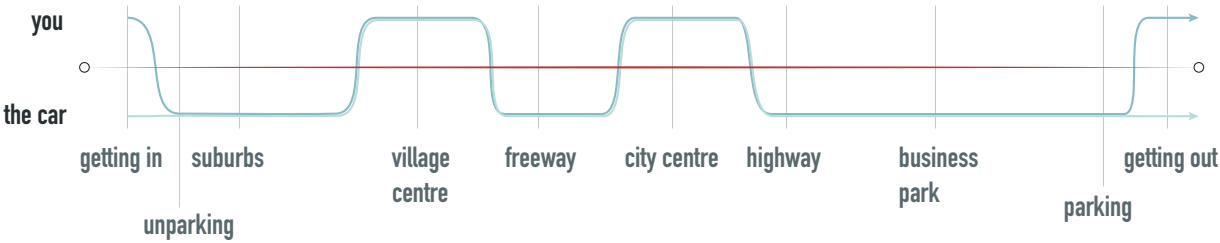


Figure 33. Current purchasing process presents an interaction gap.

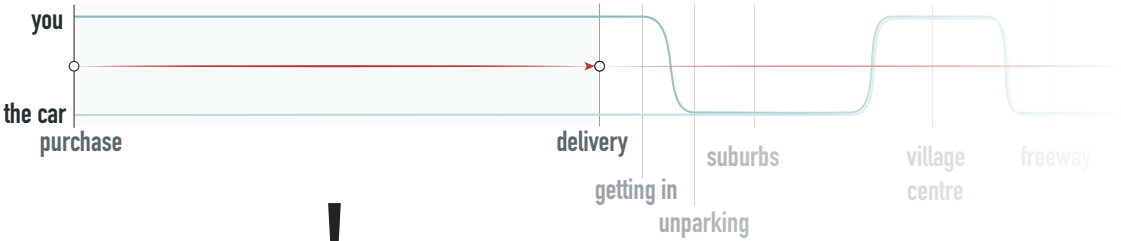
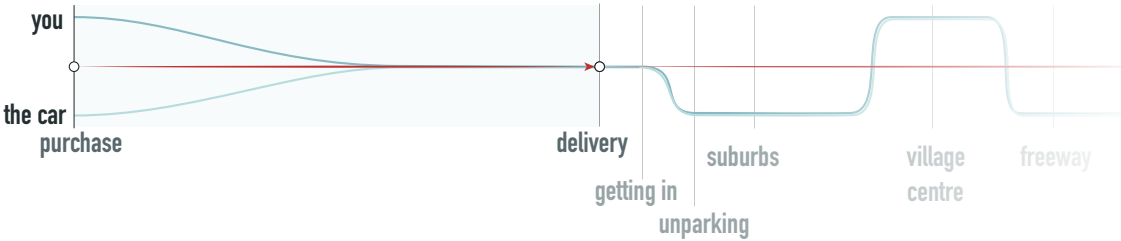


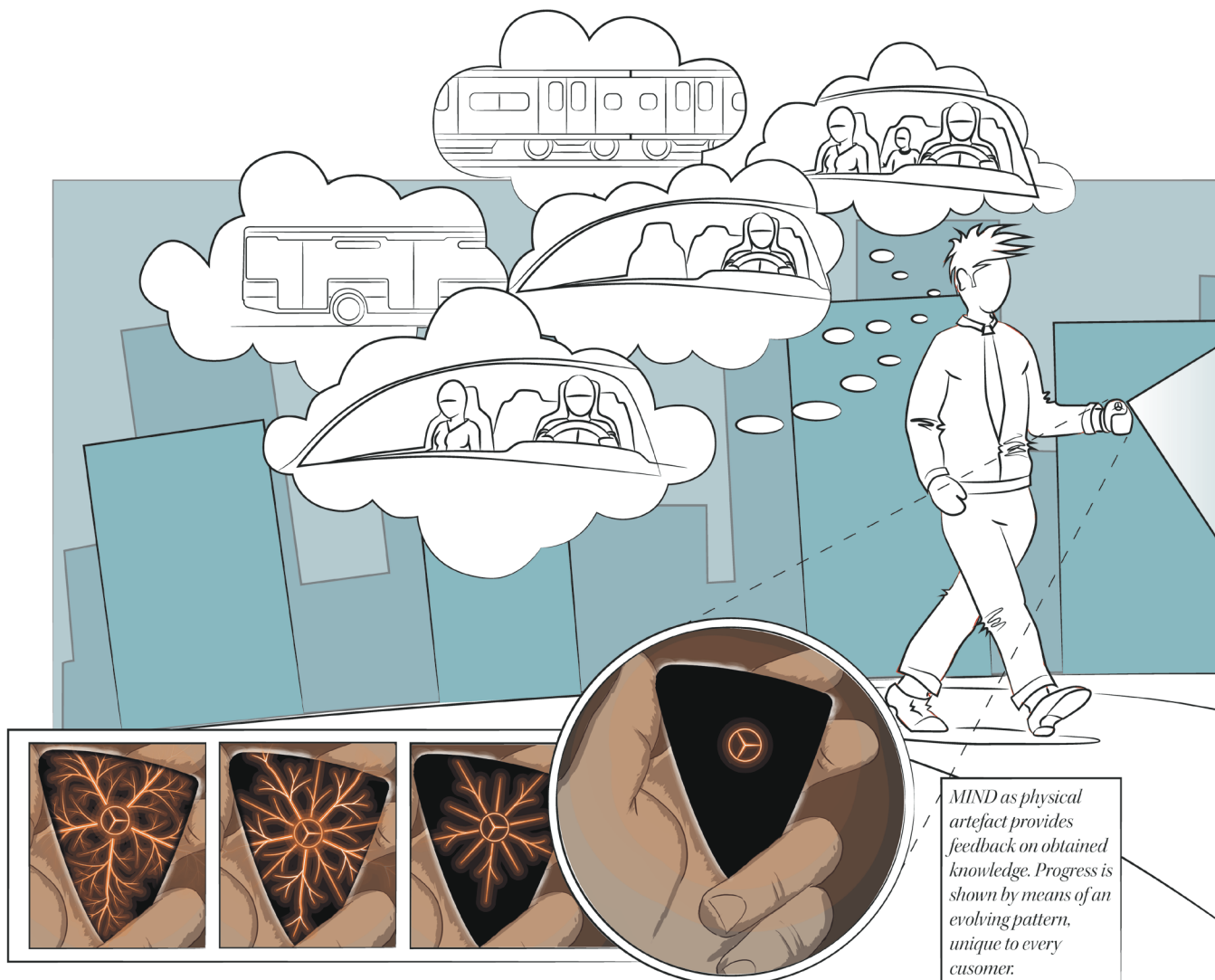
Figure 34. Proposed direction for closing the interaction gap.



4.5 MERCEDES-BENZ MIND

Establishing a meaningful relationship by letting your car learn from you.

Mercedes-Benz MIND introduces the AI of the level 4 autonomous car to the customer, immediately after purchasing. During the time it takes to build the car, the customer teaches MIND about his personal preferences and character traits. The customer does this by allowing MIND to follow him around and observe him.



MIND proves itself by accomplishing increasingly difficult tasks based on the knowledge it has obtained. It does this by means of augmented reality in an environment preferred by the customer. By successfully proving itself repeatedly, MIND builds trust between itself and the customer. As a result of that, the emotional threshold is lowered. Moreover, an emotional bond is generated between customer and brand.

A physical touchpoint provides feedback on progress by means of an evolving pattern. This pattern is based on what MIND has learned from the customer and therefor unique for each individual. The pattern is repeated in the interior of the car. Consequently, the customer is being reminded of his influence while teaching MIND.

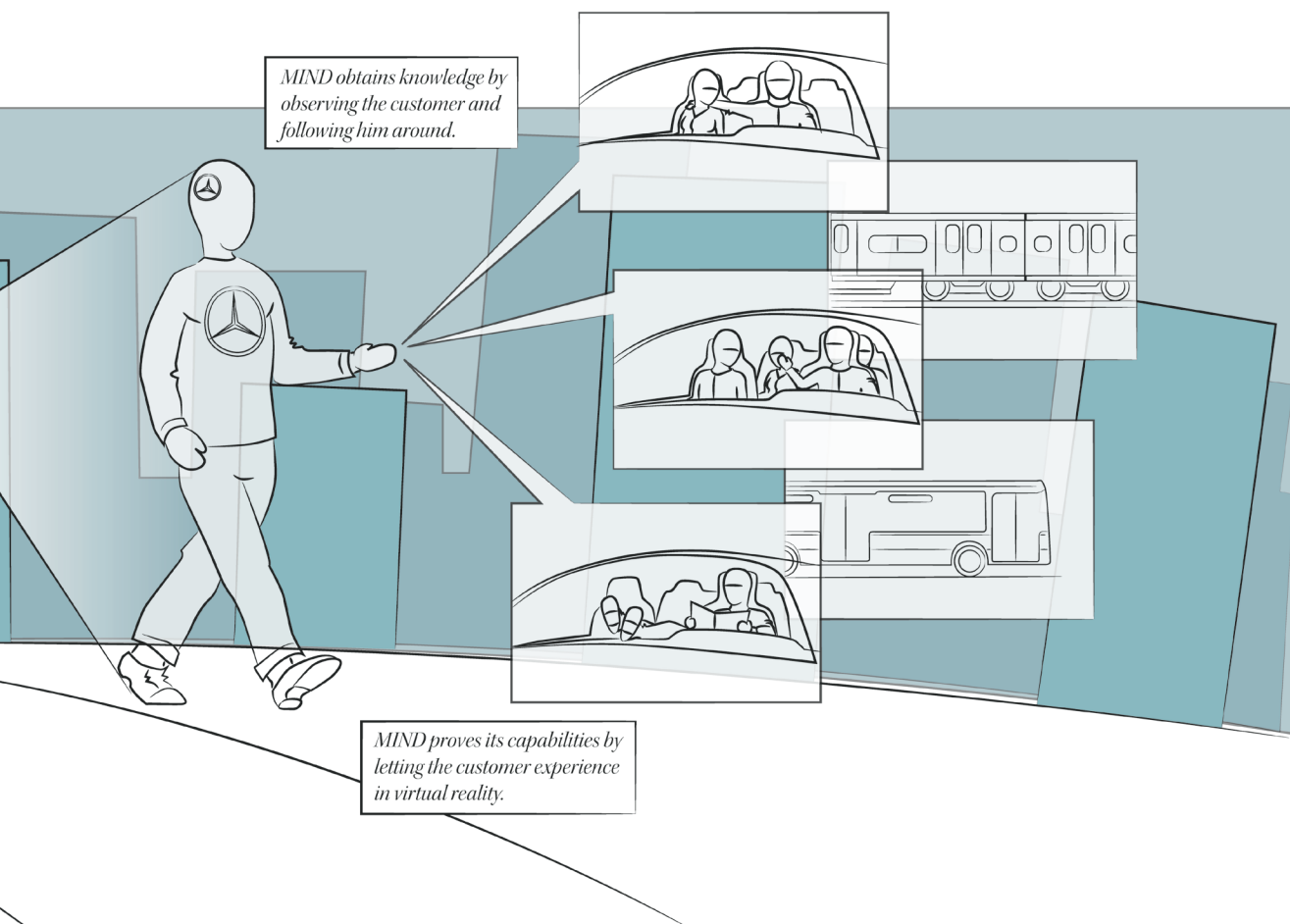


Figure 35. MIND concept core.

4.6 TRANSCENDENCE

What MIND observes and how it generates trust.

The customer allows MIND to learn from him and prove itself trustworthy. This takes place between purchase and delivery. This learning period is named transcendence, referring to the process in which one exceeds his usual limits (Merriam Webster, 2018). The customer allows MIND to transcend.

Collecting knowledge

MIND collects its knowledge in three layers; basic, routine and behavioural (figure 36). Basic knowledge includes generic data, like gender, age and interests. This is collected using social media profiles. Routine knowledge consists of data about the average day spent, obtained from work schedules and agendas. Behavioural knowledge describes how one reacts to various situations. This is derived from biological data like heart rate, transpiration and hormonal levels obtained from personal smart devices.

Stages of proof

During transcendence, MIND uses augmented reality to invite the customer into its world. Augmented reality allows MIND to proof its capabilities within a safe environment preferred by the customer. MIND earns its trust by proving itself in increasingly difficult situations (figure 37). Difficulty is increased in small steps, resulting in a gradually lowered emotional threshold.

MIND first proves itself with generic tasks, like playing music or suggesting interesting events. Propositions are based on obtained basic knowledge. Subsequently, MIND proves itself in moderate tasks, like recommending time efficient routes or alternative modes of transport. Suggestions are based on obtained routine knowledge. Finally MIND proves its autonomous driving capabilities in various situations and with varying occupant count. Its driving behaviour is built on obtained behavioural knowledge (figure 38).

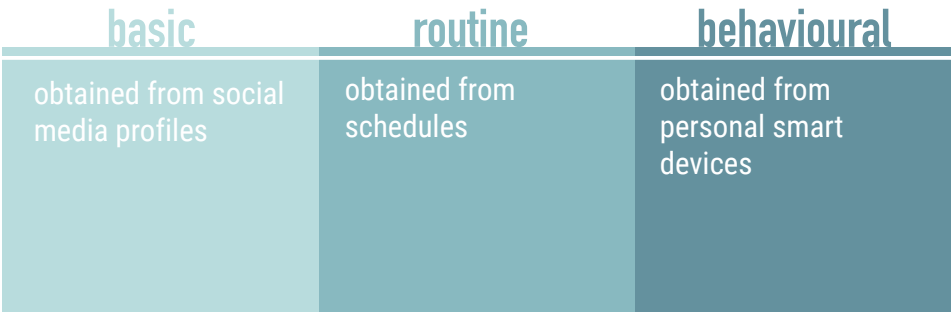


Figure 36. Levels of obtained knowledge.

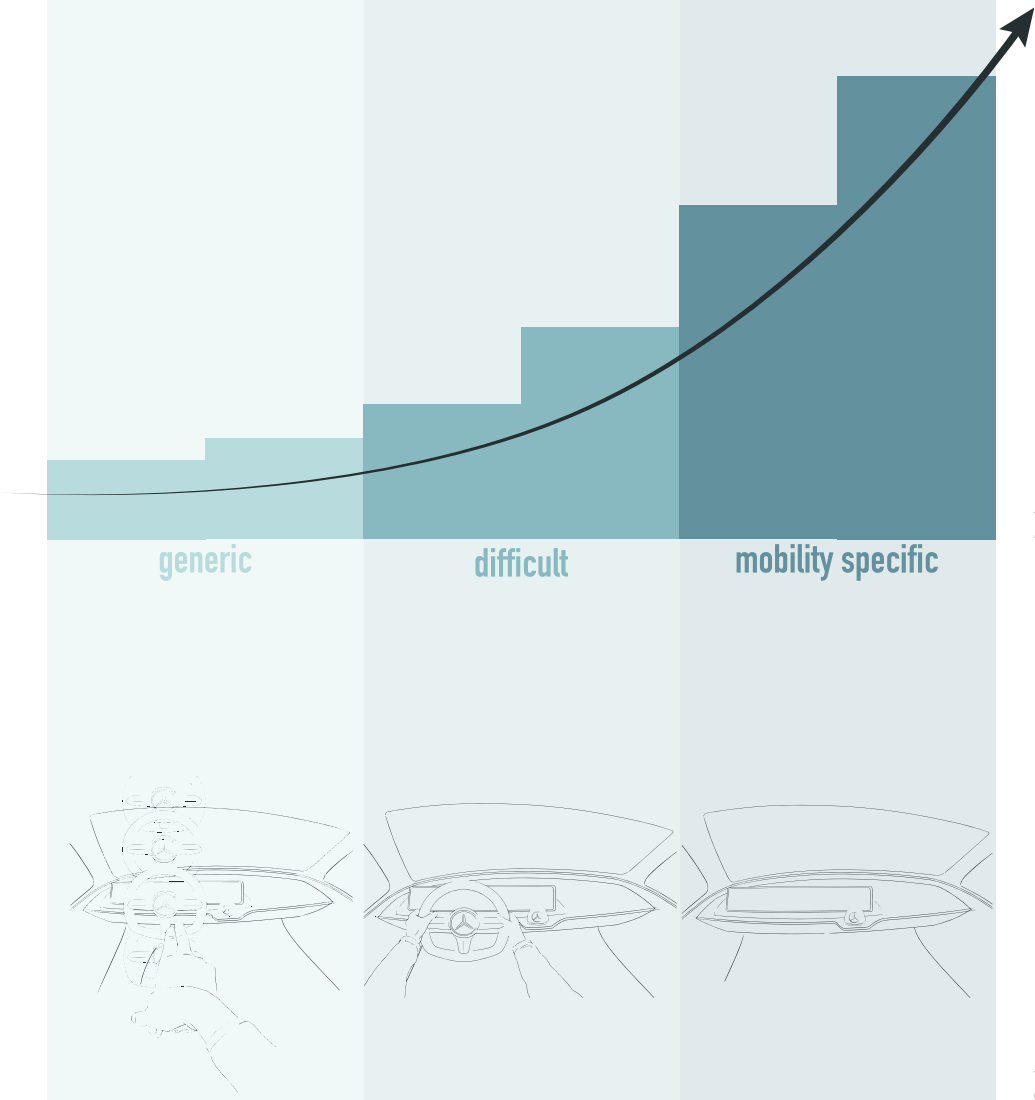


Figure 37. Increasing difficulty of tasks performed by MIND.

Figure 38. Assisting the customer according to obtained knowledge.



Figure 39. MIND communicates progress by means of an evolving pattern on the physical artefact.

4.7 MIND AS A PHYSICAL ARTEFACT

Including tangibility to communicate progress and provide transparency.

Teaching MIND about your ways and traits is an intangible exclusivity in the form of a meaningful experience. As tangibility helps to recall experiences (Desmet & Sääksjävi, 2016), MIND contains a physical artefact. The artefact is to be carried around by the customer, allowing MIND to observe.

Progress

MIND provides the customer with progress feedback by means of a pattern. The pattern is unique to every individual and shaped according to preferences and character traits observed during transcendence. Every time MIND has proven itself successfully, the pattern evolves and becomes more intricate. Every time the customer holds MIND, he is able to observe its learning curve. Consequently, MIND provides the customer with confirmation.

Safety

Mercedes-Benz as a company emphasises safety (Guidelines and Brand Communication, 2010). People are suspicious towards AI due to its lack of transparency and vulnerability to hackers (König & Neumayr, 2017). Information obtained by MIND is stored in its artefact. Connection with other smart objects is communicated by extending the pattern to that object (figure 40).

Before the customer engages in his journey, he inserts MIND into the dashboard of his car. The pattern flows from MIND into the interior, indicating that data from the customer is being shared with the car. Before leaving the car, the pattern flows back into MIND, indicating that customer data is safely stored once more (figure 41).



Figure 40. MIND communicates connection to other personal devices by expanding its pattern.

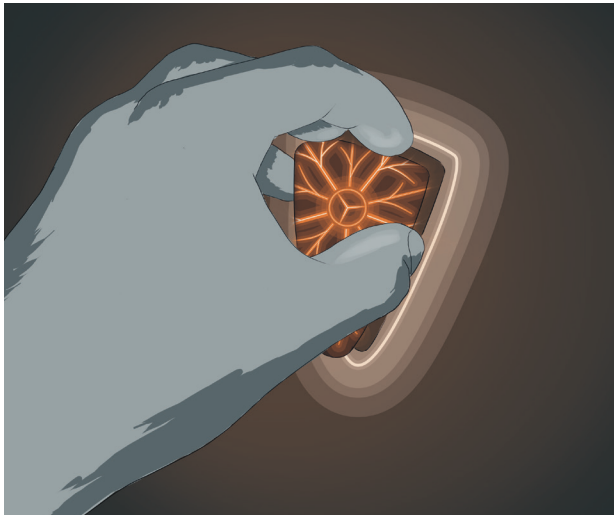
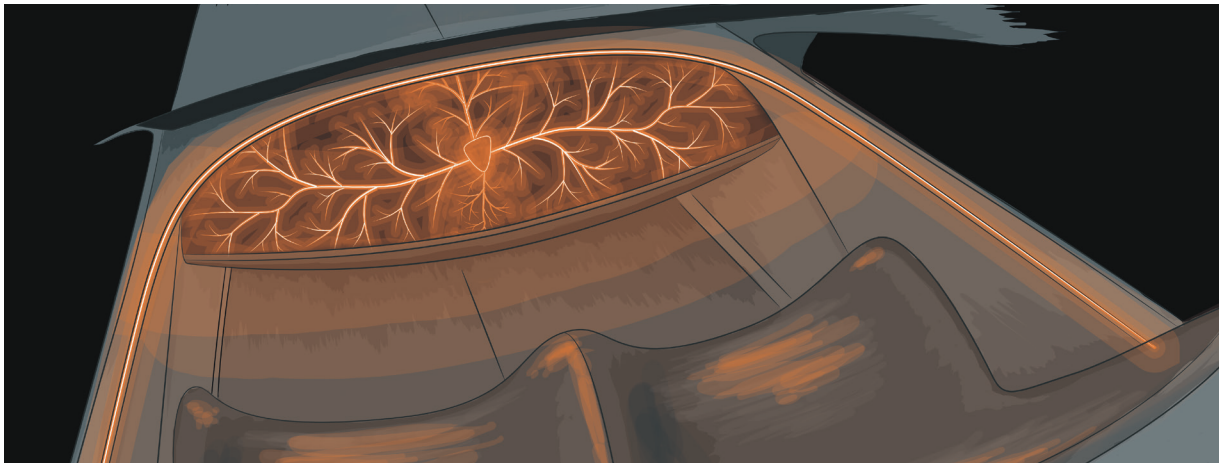
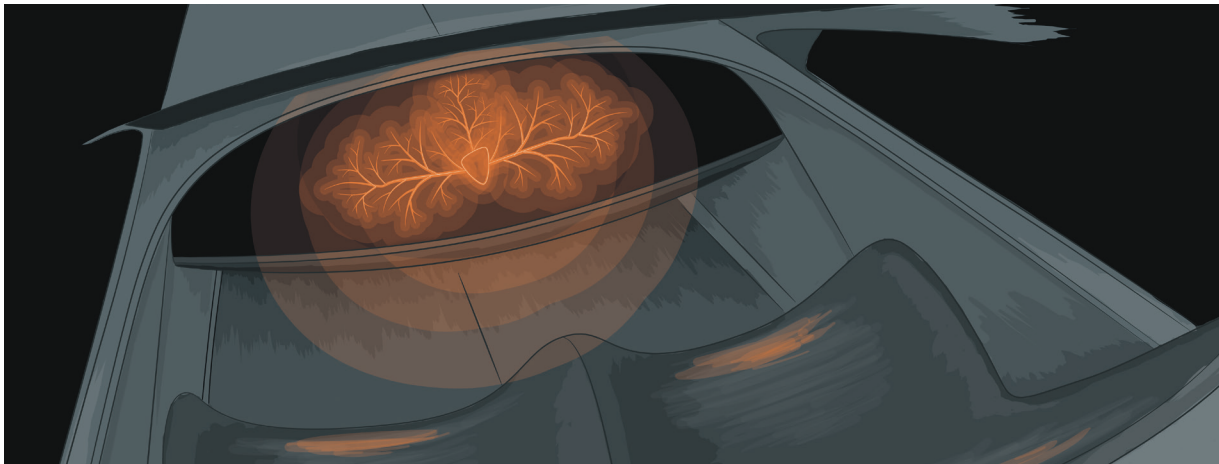


Figure 41. After inserting MIND in the dashboard, the pattern spreads over the interior. The customer has enriched the car with his knowledge.



4.8 BENEFITS

Value generation for customer and company.

Customer

MIND provides the customer with the establishment of a meaningful relationship by engagement as a mean to express success through behaviour instead of possession. The pattern provides feedback to the effort made by the customer, confirming his individual significance. Furthermore, the built-up trust provides care-free delegating. This is an alternative way to perceive power and control. Finally, the customer is rewarded for his effort with tailor-made mobility.

Development at Mercedes-Benz

Data gathered during transcendence can be implemented in the development process at Mercedes-Benz. Instead of fictive personas and scenarios, MIND provides real-time actual data. As a result of that, the development process can be made more efficient and customers needs.

Brand

MIND creates an emotional bond between AI and customer. In doing so, the relationship between the customer and the brand is established by the AI rather than the car. Therefore, Mercedes-Benz as a brand becomes less dependent on the car as a carrier for brand identity. Moreover, MIND enables Mercedes-Benz as a brand to establish itself as mobility provider rather than car manufacturer (figure 42).

On the following pages, figure x depicts how the individual aspects of MIND are linked to the different interaction qualities described in chapter 4.2.

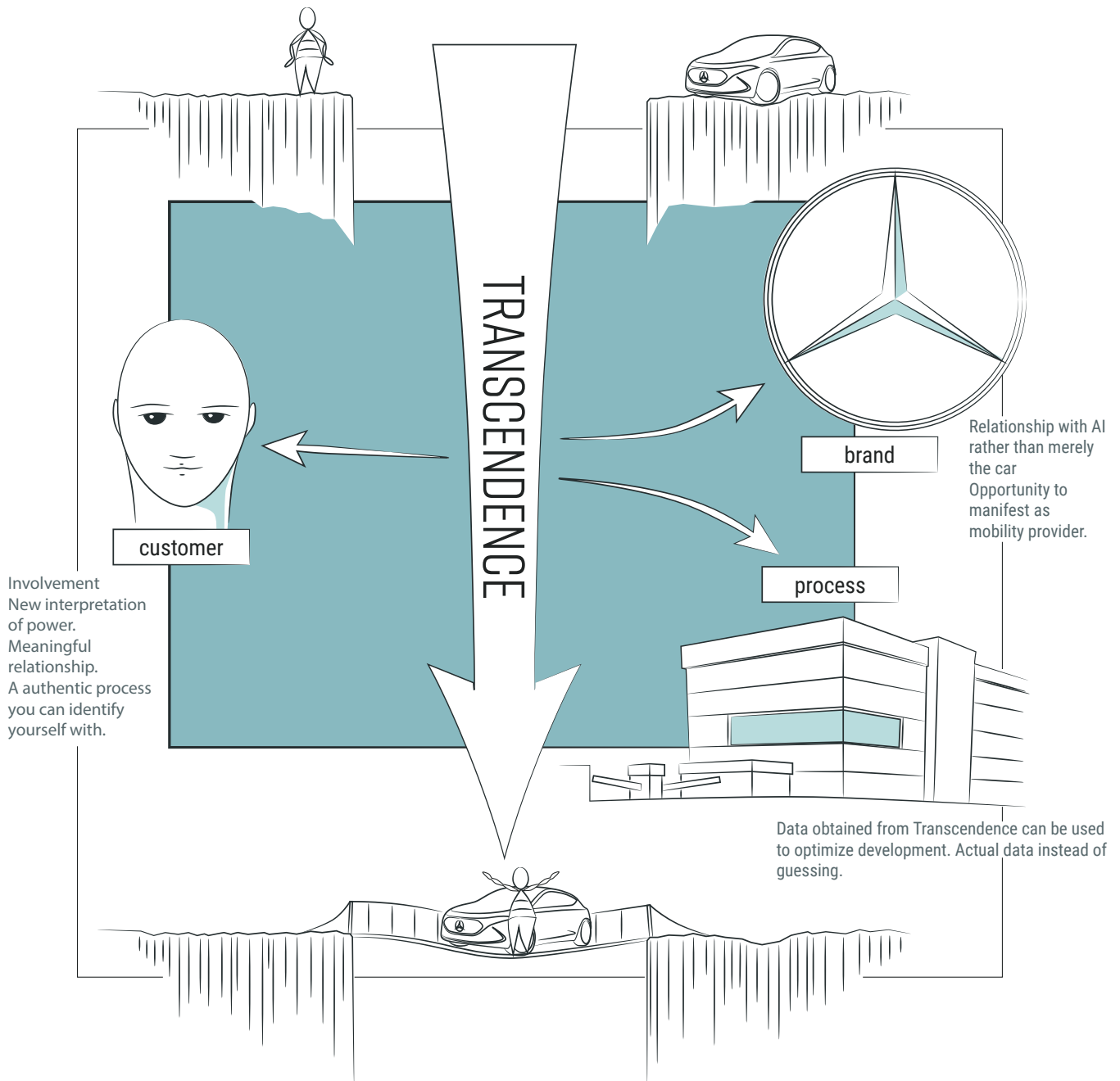
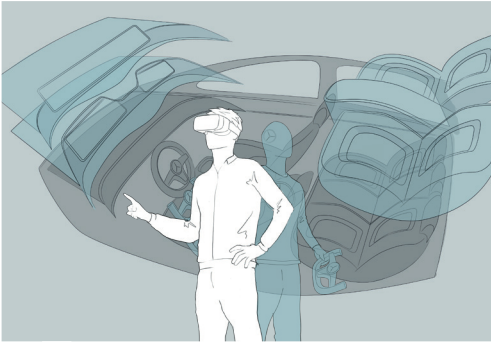


Figure 42. Value generation.



Leading
You show and MIND follows.



Committing
You have to give permission for MIND to follow.



Personal
The evolving pattern unique per customer.



Inviting
MIND invites you into its augmented world.

EXCLUSIVITY

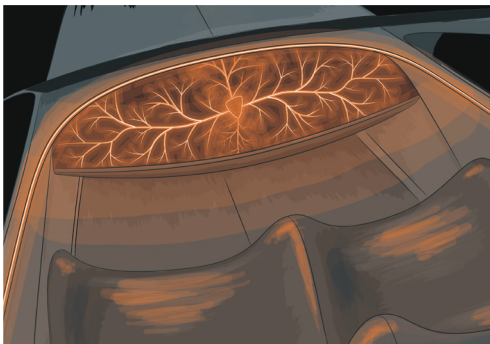
CONDUCT



Conscientious
MIND proves its capabilities.



Obedient
You tell MIND what to observe and what not.



Confident
Your knowledge and behaviour are loaded into the car. Furthermore, you take it with you when you exit the vehicle, maintaining control over your data



Reactive
The pattern evolves every time MIND has learned something new.

ASSURANCE

PERSONAL
SIGNIFICANCE



5 DEMONSTRATING MIND

Current technology has not yet reached the capabilities necessary to completely implement MIND. However, using multiple prototypes, various parts of the MIND concept can be experienced. Based on currently available technology, the prototypes provide a hint of MIND.

The first demonstration is by means of a comic. The comic portrays the interaction between MIND and the customer during Transcendence. It supports the conceptual story of MIND during presentations and demonstrations.

5.1 CUSTOMER JOURNEY

A comic to imagine Transcendence.

WEEK 1

You order your Mercedes-Benz online.



The next day, you receive a package. It is MIND.



MIND lights up. It is ready to learn from you.



MIND follows you around. You allow it to observe your character traits, lifestyle and driving behaviour.

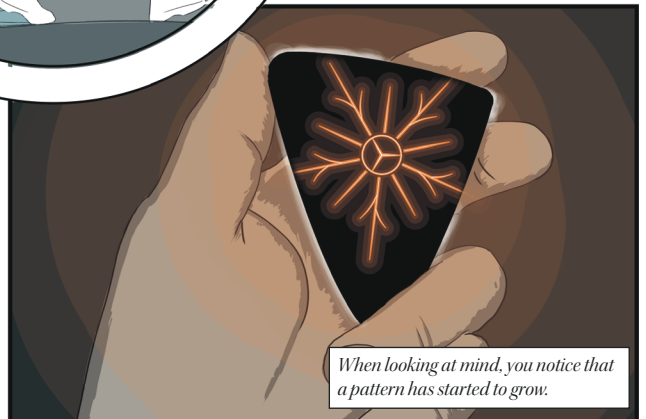


nice!

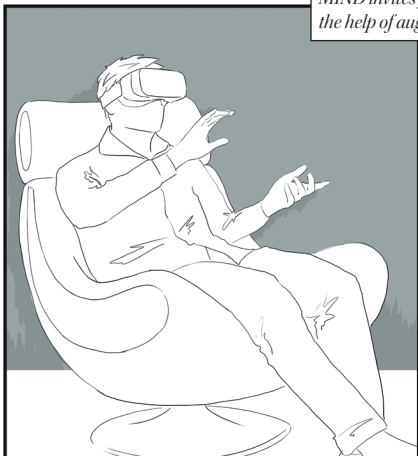
MIND starts to provide small suggestions, proving its learned lessons.



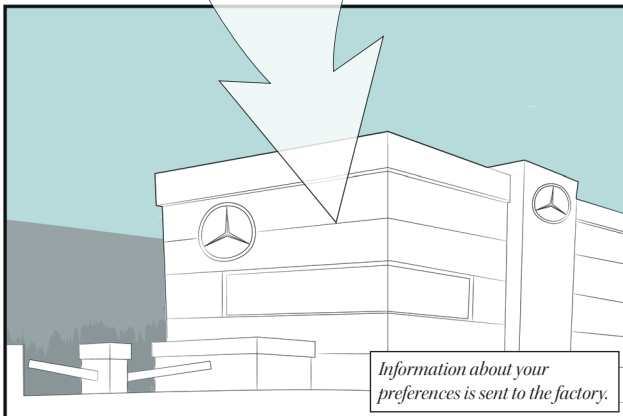
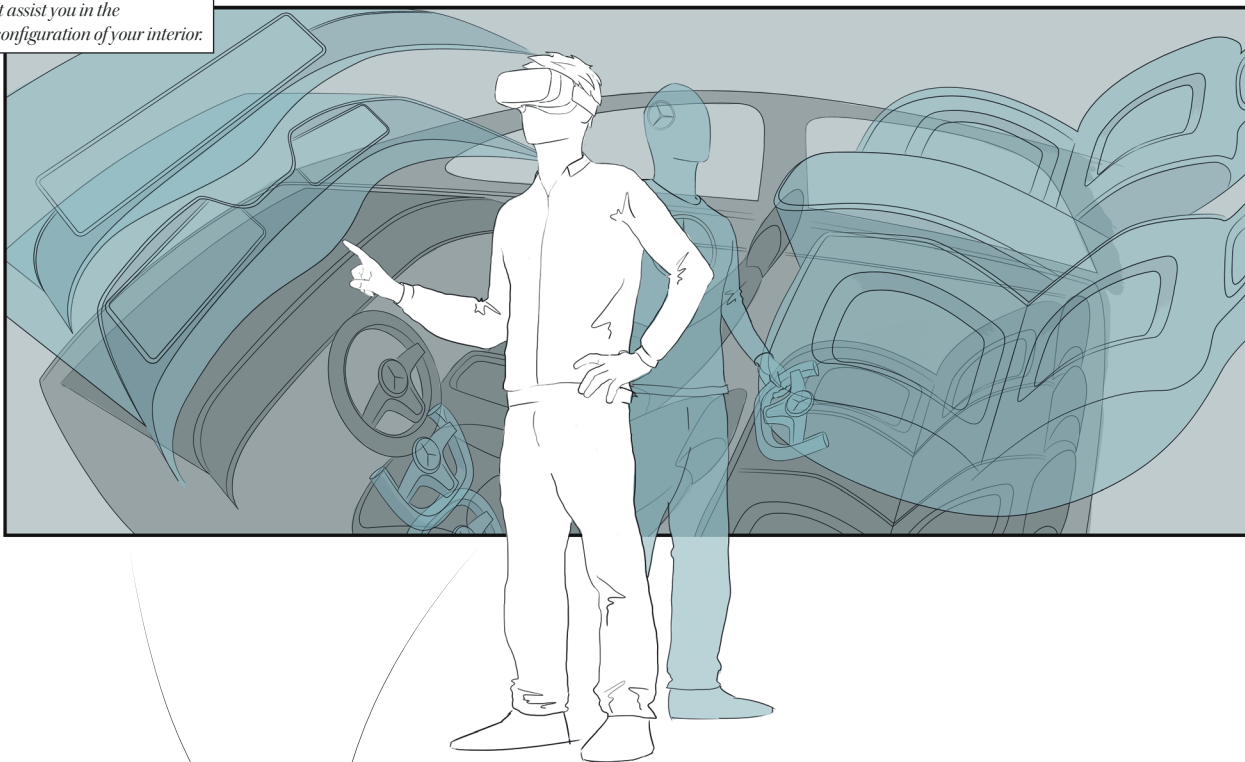
When looking at mind, you notice that a pattern has started to grow.



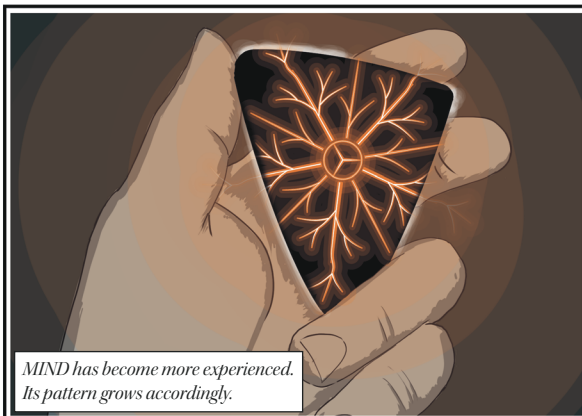
MIND invites you to its world with the help of augmented reality.



It assist you in the configuration of your interior.



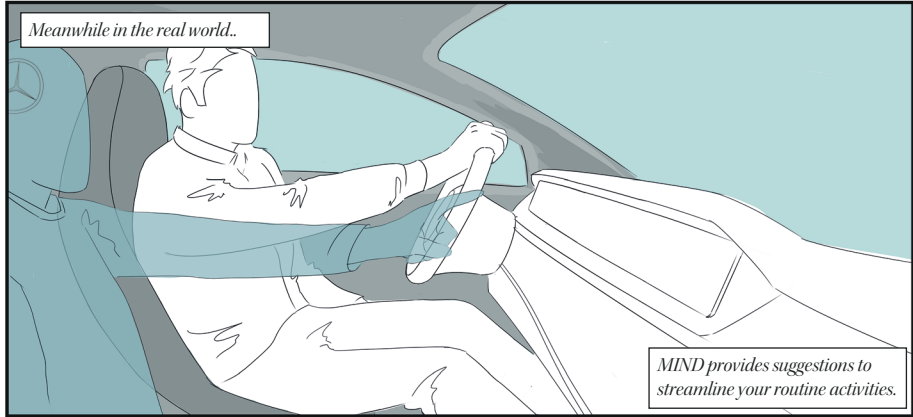
Information about your preferences is sent to the factory.



MIND has become more experienced. Its pattern grows accordingly.

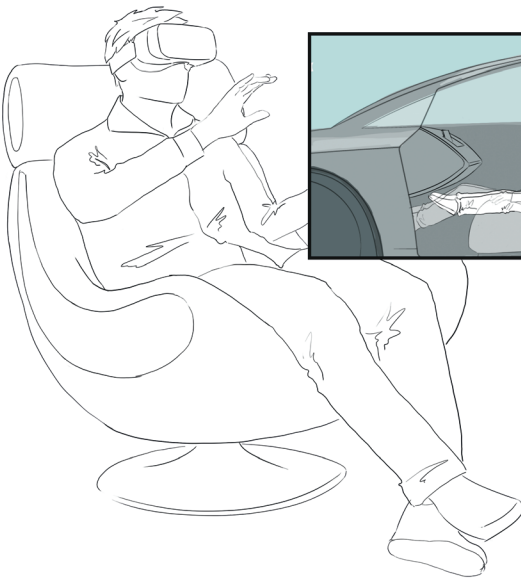
WEEK 3

Meanwhile in the real world...

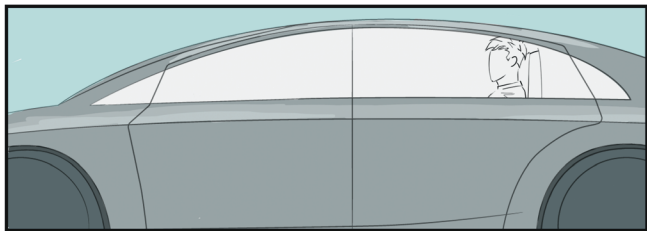


MIND provides suggestions to streamline your routine activities.

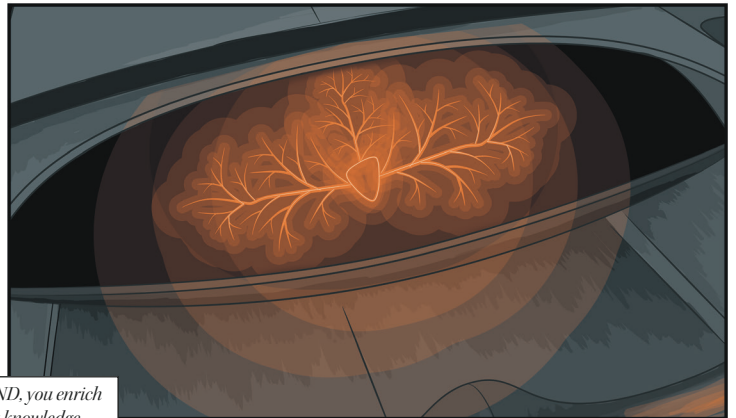
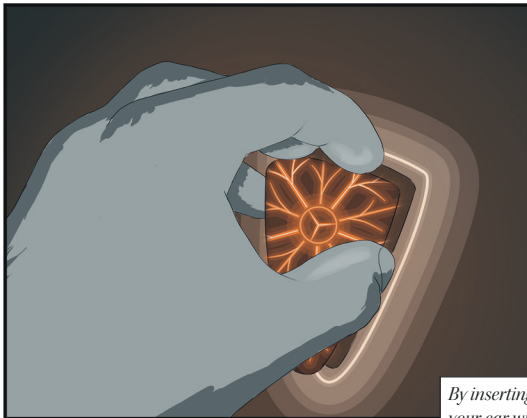
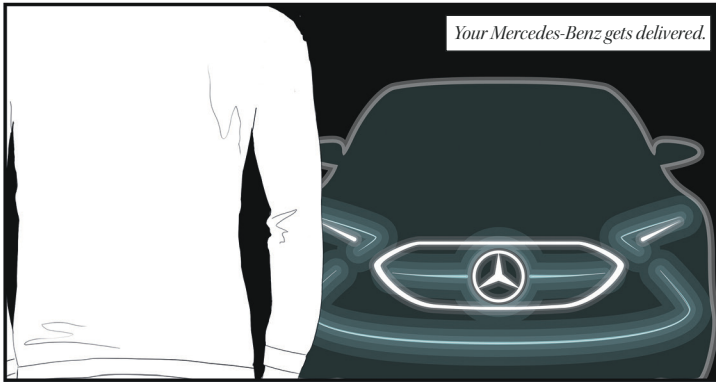
In the virtual world...



MIND proves its autonomous driving capabilities. You experience autonomous driving within the safety of your living room.



MIND has learned from you. You notice that its pattern has evolved even more.



By inserting MIND, you enrich your car with its knowledge about you. The pattern spreads throughout the interior.



READY FOR AN ADVENTURE TOGETHER

5.2 MIND AS ARTEFACT

A physical element to support the MIND story.

MIND is foremost a conceptual design. Most of its application depends on further development of technology. However, it was considered helpful to create a physical representation of what MIND as an artefact could look like. The goal of this representation is to provide support when presenting the conceptual story.

First, a CAD model was created. It features an even surface on the outside and a pattern on the inside. After 3D printing the model, RGB LEDs were added to its internal structure. The LEDs can be controlled via an Arduino microprocessor. The light shines through the exterior, revealing the pattern on the outside. The illusion of a growing pattern was created by sequentially switching on more lights.



Figure 43. A physical prototype of MIND as a demonstration tool for the evolving pattern.



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6 CONCLUSION

Now that MIND has been created and demonstrated, its capabilities are reviewed against the mission and the original assignment. A conclusion is made based on the findings of this review. The discussion covers the knowledge generated by the vision. Areas that need further exploration will also be concerned. Finally I sketch my vision of the possibilities MIND has to offer beyond mobility. These will result in recommendations for Mercedes-Benz as a company.

6.1 CONCLUSION

Comparing the designed product to the original assignment.

The assignment for this project was as follows:

“To design a holistic, premium interior concept for level 4 Mercedes-Benz autonomous driving, considering a dynamic design paradigm.”

An analysis of the current situation concluded that Mercedes-Benz currently expresses premium through material qualities. Customers use their Mercedes-Benz to express individual success towards the outside world, whilst being confirmed by the hierarchical interaction with the car.

In the future, traditional material luxury items are being commodified, reducing their capability to express identity. Furthermore, the acceptance of AI as leading entity is perceived as loss of power. Finally, expressing premium is shifting from possession towards behaviour. This led to the following mission.

“I want people to be able to express exclusivity through conduct, whilst being assured of their personal significance.”

MIND is a vision for Mercedes-Benz ownership in 2035 and the outcome of this project. It considers mobility as a whole rather than the automobile as a product. After ordering his Mercedes-Benz, the artificial intelligence of the car in the form of a physical artefact is delivered to the customer. During Transcendence, the time it takes to build the car, the customer teaches MIND about his preferences and character traits. He does this by letting MIND follow him around and observe him.

MIND proves itself with the assistance of augmented reality. The complexity of its tasks and proofs increase gradually. This effectively lowers the emotional threshold and creates a bond of trust between MIND and the customer. Feedback on learned lessons is provided by means of a pattern, unique to every customer. When MIND progresses, the pattern evolves, communicating progress and acknowledging the influence of the customer.

Premium by means of exclusivity is achieved through the developed character of MIND, which is unique and personal to every customer. Exclusivity through conduct is achieved by including the customer. Providing effort and being rewarded with something truly personal creates a meaningful experience. MIND obtains assurance by proofing its capability in a safe environment, generating confidence. The customer is furthermore assured by the transparency of data traffic and storage. Personal significance is confirmed through the reactivity of the pattern.

MIND is beneficial to the development process at Mercedes-Benz by providing real-time, actual data instead. Finally, MIND provides Mercedes-Benz as brand with the opportunity to manifest itself as a mobility provider without the necessity of a physical car.

6.2 DISCUSSION

Generated knowledge and areas that need further exploration.

MIND as a vision

MIND is a vision for future car ownership. It proposes a train of thought towards expressing premium and luxury through behaviour instead of possession. It is an inspiration for creating value based on providing meaningful experiences.

User wants and technical applications

Mercedes-Benz as technology driven company has developed many technical solutions for level 4 autonomous driving. It remains a challenge to predict which interior component layout best fits the customers. MIND connects customer wishes and technical applications. However, this might imply a change in fabrication and planning processes. Finally, MIND could arrange its interior components based on momentary observations, providing the suitable interior for every situation.

Beyond ownership

The core idea of MIND is to create an emotional bond with the AI. As a result, the car as physical object becomes less important for communicating brand values. As a result of that, MIND is suitable for shared mobility platforms and public transport systems as well.

Beyond mobility

MIND as a vision for this thesis focusses on providing truly tailor-made mobility. However, the information obtained from observing the customer can be utilised by other AI as well. Connecting or integrating MIND in the home-, leisure-, and work environment could provide a truly tailor-made day for customers. Mercedes-Benz as brand could then portray itself as a life companion rather than merely a mobility agent.

Further Exploration

The mission stated "exclusivity through conduct", meaning that one expresses premium through behaviour instead of possession. MIND as a concept creates a meaningful experience for the customer personally. However, the domain states that the Mercedes-Benz driver uses the brand to express his individual success towards the outside world. What remains for further exploration is how to design the interaction to be associated with contribution to a larger whole as a mean to express individual success.

6.3 RECOMMENDATIONS

Future steps for Mercedes-Benz and MIND.

Mercedes-Benz

The transfer from car manufacturer to mobility provider is a complex process, especially for a big company like Daimler. Mobility as such is a wicked problem. Its solutions are often as complicated as the problem itself. The gap between consumers and technical solutions can be bridged by design thinking.

Car design has a vast amount of experience with materials and form studies, whereas digital design and UX design revolve around graphical design, processing information and usability. Experiencing a brand as mobility provider instead of just a car manufacturer requires the customer to be engaged with both car- and digital design. This means that digital experiences need to be translated to physical actions as well. If Mercedes-Benz wants to remain leading in the future, different departments with different experience have to work together to create a holistic experience.

This implies that Mercedes-Benz has to change its corporate structure. Break down the barriers of the pillarified departments and work interdisciplinary according to themes instead of functions. This will provide the company with the agility it needs to tackle the wicked problems mobility design offers.

MIND

MIND as a concept can not be applied directly. It is a train of thought. However, the core idea of "letting your car learn from you" can be applied to the various stages of the customer journey. In this case, MIND forms the base for smaller scoped design briefs.

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