

VOLKSWAGEN VALOR



*Interlocking worlds: A 2035 envisioned concept for
Volkswagen Escapism Mobility*

Graduate Student

Alain Snoodijk

Supervisory Team

W.F. Kets
E.D. van Grondelle

Delft, July 2019

Delft University of Technology
Faculty of Industrial Design Engineering
Msc. Intergrated Product Design

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▼ **Disclaimer**

This master thesis is written in context of the master Integrated Product Design at the faculty of Industrial Design Engineering at the Delft University of Technology in The Netherlands.

July 2019

Graduate Student

Alain Snoodijk

Supervisory Team

Chair	E.D. van Grondelle (Elmer)
Mentor	W.F. Kets (Wouter)
Mentor Volkswagen AG	S. Wallburg (Stefan)
Mentor Volkswagen AG	A. Altmann (Alexej)

Client

Volkswagen AG
Berliner Ring 2
38440 Wolfsburg
Germany



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PREFACE



- ▼ In front of you lies my master thesis, which I wrote in context of my graduation project for the master Integrated Product Design at the faculty of Industrial Design Engineering at Delft University of Technology.

In February 2018 I was called by Nisan Kucam, a car designer from Volkswagen, with the news that he got my portfolio through Wouter and wanted to offer me an internship at Volkswagen. Nisan had a place in the exterior department, which was my favorite direction. Personally, this was a dream that came through. During this internship, I gained a lot of experience on several levels. First of all, I learned how it is to live and work in Germany. Also, I learned what the daily job of a car designer means and how the designer fits in the company structure of Volkswagen. I experienced from first hand how competitive the industry is and what it means to win and loose projects. The toughest part of being a car designer is in my opinion the fact that you have to recharge yourself right after the project you have been working on for a few months is canceled.

The internship was a fantastic experience and showed me that this was the industry that I want to work in. My hard work and motivation paid off with the opportunity to do a thesis internship after the normal internship. Finally, I could start the last project of my studies.

Although I was proud of the personal project that I did during my internship, I wanted to show that I could reach a higher level with the thesis. During the internship, I noticed the difference between the academic world of the university and the professional styling studio of Volkswagen. Both parties value different things and I set myself the goal to manage both demands as best as possible.

The thesis had a shorter time frame than the internship and my team-leader asked me to join in an official project too. If you have the chance to do this, you have to take it. However, this leaves you even less time for the thesis, and time is the most valuable thing during this project.

In the industry, a project is not only judged by the outcome but also the amount of work in the form of a model or animation. My goal was to achieve a new level of communication, and because of budget reasons, I could not do this. The biggest lesson of for me was to stay motivated after this kind of disappointment.

Volkswagen was a fantastic experience that formed me into a professional car designer, ready to start working in the industry and for that, I will be forever grateful!

ACKNOWLEDGEMENTS



Alexej

Thank you for everything during the past 1,5 year. You showed me around, helped me with everything I asked and most of all, learned me what it takes to be a car designer. You mentored me with all your energy and lifted both my project and myself to the next level.

Wouter

Thank you for the nice coaching during the project. You were always a realistic and understanding coach that gives truly valuable insights. Also, you opened up the first door to Volkswagen by contacting Nisan for me and this is the reason that I was able to go to Volkswagen in the first place.

Elmer

Thank you for your support, guidance and coaching, not only during the thesis but during the complete study. You challenged me in every project that I did and made me eager to improve all the time. You also showed me how to handle criticism and be prepared in presentations.

Stefan

Thank you for the support and trust that you have put in me. You took me into the team without knowing my competences and took quite a gamble. In the end, you motivated me to become better after every meeting.

Simon and Nisan

Thank you for offering me the first internship. Both of you showed a huge amount of trust in me with my different profile. You are both inspiring me with the energy and passion that you share for finding new students and new thinkers. Furthermore, you gave me a warm feeling and made my time in Volkswagen real fun and a challenge.

Cheryl-Lynn

Thank you for supporting me through my adventure. You were always there for me, when I was stressed or bored in Wolfsburg. I can always rely on you and your support gives me the strength to achieve my mission.

René and Lucienne

Thank you for always being interested in what I do. You supported me during the complete study and made it possible for me to take every chance that I got.



EXECUTIVE SUMMARY



- ▼ This thesis is the documentation of a design proposal for a 2035 envisioned concept for Volkswagen Escapism mobility that responds to a rapidly changing mobility demand. The rapidly growing population is changing the urban landscape and how we move around in our cities. Technological developments are giving us more control over smart systems and create new interactions with our surroundings. In regulated urban systems, the desire for freedom that is deeply rooted in our human character is becoming increasingly more difficult to satisfy.

Problem

In 2015, the automotive industry witnessed the hard consequences of the Dieseltgate. Nowadays, Volkswagen still suffers from the scandal, as it influences the brand image negatively. Although the brand is building a fully electric identity, Americans still relate to the Dieseltgate when they talk about Volkswagen. The people's opinion of Volkswagen used to be shaped by the iconic models of the past but is now overruled by negativity. In order to enlarge the American market share, Volkswagen should design an eye-catching mobility concept in order to re-establish the brand image.

Vision

The American Volkswagen driver is someone who irrationally chose to drive a Volkswagen in search for emotional connections with the product. These people will feel uncomfortable in the future which will be shaped through the strive for efficiency. They feel more related to the other side of the future, one that focuses on escaping the daily life and experience memorable moments. In order to re-attract the American Volkswagen driver, the portfolio should offer a product that bridges both worlds, a product that is pushing them to take the risk while feeling trusted going out of their comfort zone.

Design

The design proposal, named Volkswagen Valor, was developed in corporation with Volkswagen's design studio in Wolfsburg. It is a 3-person vehicle that offers two configurations. Each configuration is tailored perfectly to the desired interaction, both in the future world of efficiency as in the world of escaping. Valor provides the smooth transition between both worlds and offers several features that give the passengers a memorable experience.

Valor is a fresh looking concept with a silhouette that will become iconic in the future. The design language is showing the risk-taking character while breathing the confidence of trustworthiness, embodied by a future interpretation of Volkswagen's American design language.

Evaluation

Valor was evaluated by professional car designers working in the Wolfsburg studio. The proposal was reviewed as provoking and interesting. The goal of creating something fresh and unique in order to become iconic in the future, responded perfectly to the evaluation of the proposal. It was evaluated that the vehicle responds logically to the problem and fits well in the envisioned future.

GLOSSARY AND ABBREVIATIONS



▼ **3D-modellers**

Someone that works with digital or physical car models

ABS-backpack

Backpack that carry inflatable systems that protect you against avalanches

Autonomous driving Level 4

Cars that can drive fully by themselves without any action from humans needed

Baby Boomers

Generation born between 1946-1955

Bones

Soft rounding in surfaces, like a bone under the skin

Concept Range ID

The electric concepts of Volkswagen

Context Factor

Information that describes a part of the future vision. Context Factors can be trends, developments, states or principles

Design Brief

A summary that the designer has at the start of a project

Design DNA

Styling elements that depict the coherent line between products of the same brand

Design Freeze

The deadline were the development of the design stops

Dieselgate

Scandal in the media when Volkswagen was accused of implementing software that recognizes when the car is undergoing an emission test

Domain

A qualitative description of a group of users

Escapism

The human urge to escape the daily life

Generation X

Generation born between 1965-1980

Generation Y

Generation born between 1981-2000

Generation Z

Generation born after 2000

Gullwing Door

Doors opening upwards. Inspired by the Mercedes-Benz SL300 doors

Maturists

Generation born between 1924-1945

MEB-platform

Technical platform that all electric vehicles of Volkswagen will be based on

Mega City

City with a population over 10 million people

Mission Statement

The description of which behavioral change the product should achieve

Modular

Interchangeable or scalable

NERBS-modeling

3D-modeling tool based on mesh mathematics

Overhang

Distance in front and rear measured from the wheels

Package

Technical layout of components

Poly-modeling

3D-modeling tool based on polygon mathematics

Proportion Model

A stage of the 3D model where the designer searches for the right proportion of elements

Raison d'être

The reason why a product exists described in the Vision in Product Design method

Shut-line

Gap between two parts of a product

Sketch-modeling

Quickly trying out ideas in 3D. Can be done in Virtual Reality

Smart Systems

Systems that are connected with each other through the Internet-of-Things

“The Break”

The collection of trends and social developments that are changing the way we use and value products.

Transportation Design

Design of everything that transports people and goods

Wedge

The angle between floor and car

Wheelbase

Distance between the wheels

ViP

Vision in Product Design

IDE

Industrial Design Engineering

CEO

Chief Executive Officer

EPA

United States Environmental Protection Agency

SUV

Sports Utility Vehicle

EV

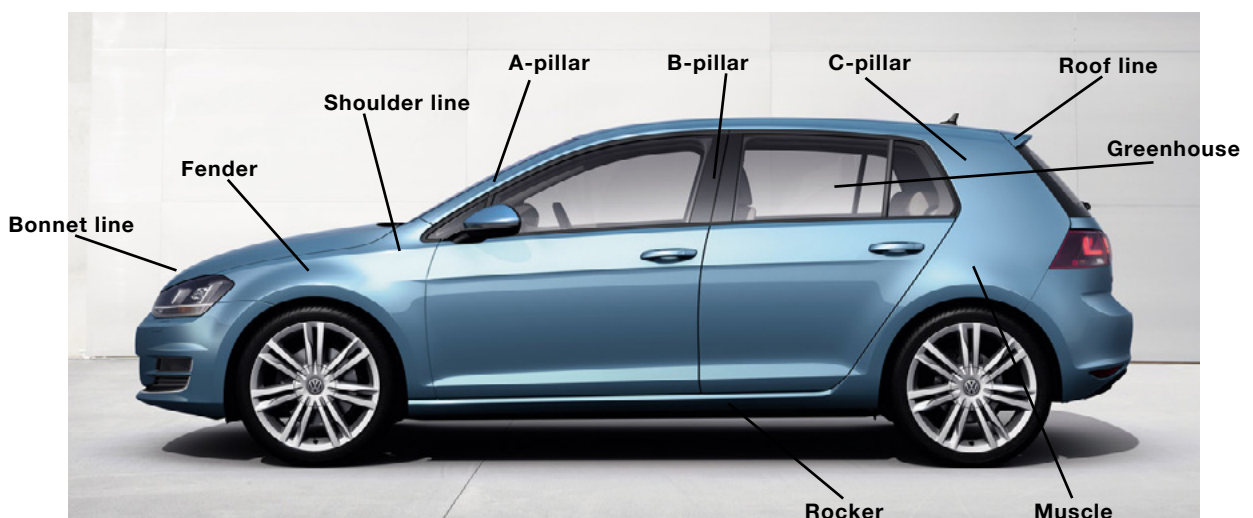
Electric Vehicle

DIY

Do-it-yourself

MPV

Multi Purpose Vehicle

Car Design Terminology

READER'S GUIDE



▼ Process

At Delft University of Technology, students learn to provide structure to their projects by using design methods. For my graduation project, I chose to use the Vision in Product Design method (from now on referred to as ViP) (Hekkert & Dijk, 2017). ViP (Hekkert & Dijk, 2017) is a method which focuses on designing through a future vision. ViP lets the designer first establish the "raison d'être" (the reason of existence) before thinking about a final designed product.

During the study, I have used ViP many times in different projects. Each project showed me the value of ViP. Because the method forces you, as the designer, to let go the idea of a product, it is easier to come up with innovative ideas. "ViP lets the designer think about the meaning of product-user relationships in order to fundamentally change the way people interact with a product." In my opinion, a transportation design project offers great possibilities to use such a method. One can create much more impact when designing something that is relevant for the future instead of solving today's problem.

ViP can be separated in two main parts of the process. The first part is about analyzing the current situation (Deconstruction). The second part is about designing a future context (Designing). During the process, the designer goes through three different levels: Product, Interaction and Context. Figure 0.1 illustrates the process of ViP in a more detailed way.

Report Structure

In order to let the reader get acquainted with ViP and show the process in good order, the report is structured according to the steps of ViP. Each chapter is indicated by a starting page, with matching illustration of the location in the ViP process according to figure 0.1. Inside the chapter, the reader can find the process illustrated by an icon in the top right corner (see symbol below).



ViP icon

Indicating the position of the reader regarding the ViP process. The black box indicates the product-, interaction- or context-level in both current and future situation

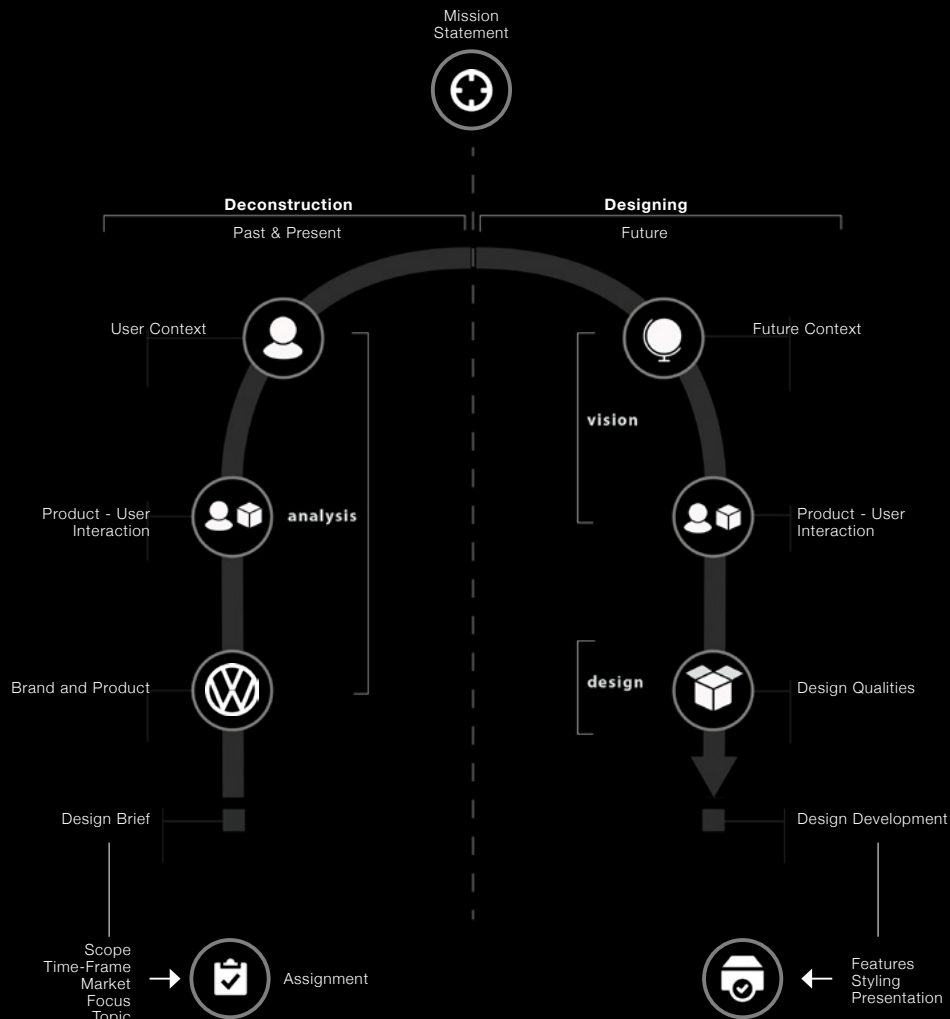


Figure 0.1 // ViP Process illustrated

Design Brief

The start of the project, with the assignment and scope explained.

Brand & Product

First level of ViP, the product of the current situation. In this case, the brand Volkswagen and its current products.

User interaction

The second level of ViP, the way people interact with Volkswagen and its current products.

Context Analysis

The last level of the current situation, the current context of the product and interaction.

Future Context

The first step of translating the analysis into the future. This level starts with only thinking about a future context, the vision.

User interaction

Second level of the future, coming up with a user interaction that fits the future context.

Design Qualities

Last step of ViP, the future translated in graspable design qualities. This is the starting point of thinking about the actual final product.

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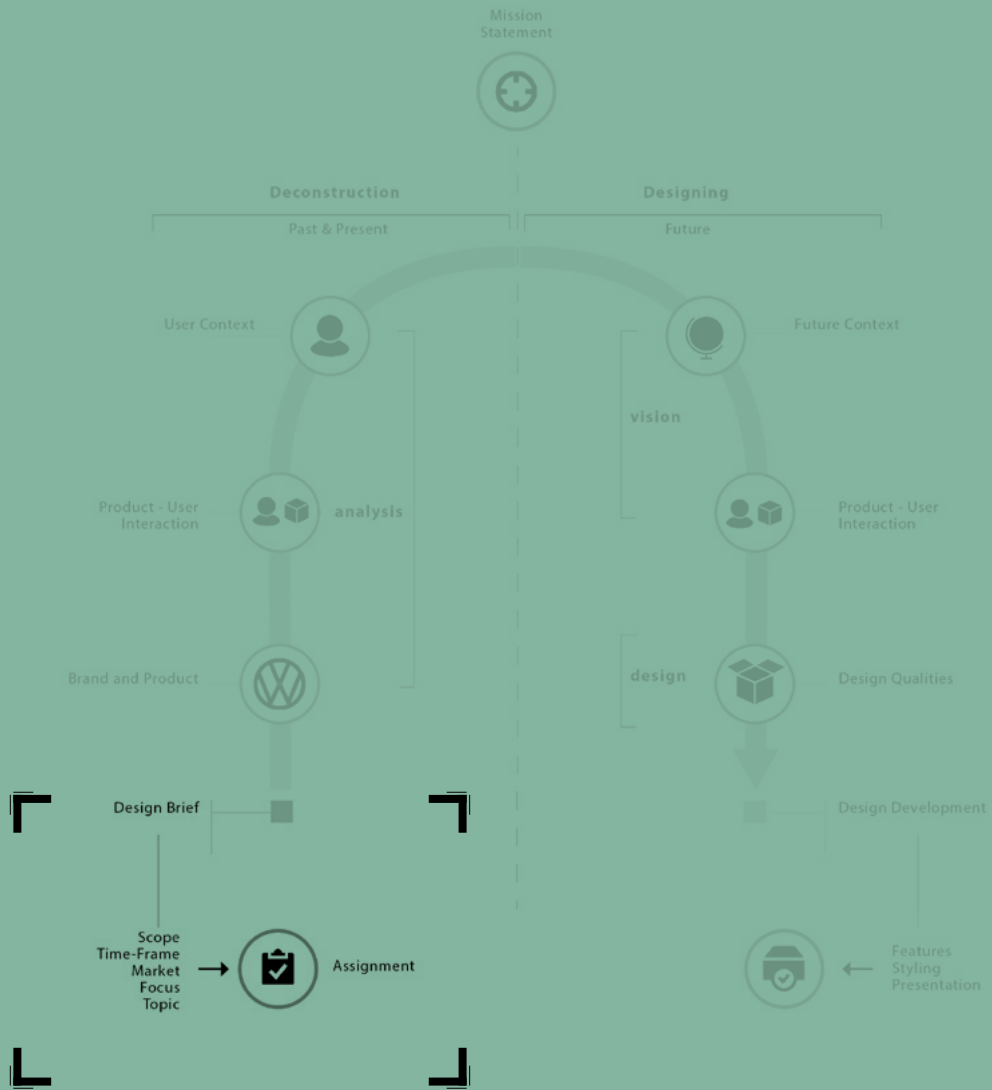
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PART A // THE PROJECT



Part A is the first part of the report and explains the formulation of the assignment before the start of the project.

0 DESIGN BRIEF

The stakeholders of this project are Delft University of Technology and Volkswagen AG. Before the project started, the Design Brief was created in cooperation with all stakeholders. This paragraph introduces these stakeholders, shows the direction of the project and concludes with the assignment that was presented at the kick-off.

▼ 0.1 Volkswagen

The primary stakeholder of the project is Volkswagen AG. Volkswagen AG is a German car manufacturer with their headquarters located in Wolfsburg, Germany (figure 0.2). The project will be done while located in the Exterior Design (EDE-3) team, as part of the Volkswagen Wolfsburg studio.

Volkswagen is responsible for providing the project, workspace and financial means. Furthermore, as the client, Volkswagen will mainly guide the project on a content and management level. For Volkswagen, the goal of the project is to inspire the professional designers and scout for possible future colleagues.

0.2 TU Delft

The TU Delft, faculty of Industrial Design Engineering (IDE), is the educational institute for whom the graduation project is executed. The graduation project is the concluding part of the master track Integrated Product Design.

TU Delft is represented by the supervisory team, W.F. Kets and E.D. van Grondelle. Both members of the supervisory team will take the critical role towards the academic execution and design process. The project will be concluded with a final assessment of the supervisory team during the graduation presentation.



Volkswagen





Figure 0.2 // Volkswagen's factory headquarters in Wolfsburg

▼ 0.3 Scope

In order to create a feasible project, the scope is narrowed down at the start of the project, in particular regarding the market, time-frame, focus and topic. The scope will be used to form the assignment at the end of the Design Brief.

0.4 Market

Approaching an automotive project is largely influenced by the targeted market. The way people buy, use and appreciate cars is different in every market. In corporation with the client, it was decided to design a concept for the American Market. This was based on two main reasons:

- The American market is currently a 'hot' topic. Herbert Diess (CEO of Volkswagen Group), showed a great potential for the brand in the American Market. Therefore, Volkswagen opened an American production plant and introduced several new models for the market (Vijayenthiran, 2019).

- It shows great design skills if the designer is able to analyze a specific market and adapt the brand values on this market. The daily job of a car designer is to know what to do when designing for the Northern Chinese Market compared to the American Market.

0.5 Time-frame

The decision for the time-frame of 2035 was based on three factors.

- The automotive industry is developing technologies (like autonomous driving for example) that will radically change the way we move from A to B. The speed that these technologies are being developed on, shows us that we can make actual implementation plans around 2035. However, some technologies are already visible in prototypes and researches. It will take quite some time to get to the production series and socially accepted by the society.

- Designing is about exploring what is feasible tomorrow instead of solving the problems of today (Hekkert & Dijk, 2017). Every designer has their own opinion regarding how to approach a project. My vision is that we should pick a time-frame as far in the future as possible, in order to provoke as much future interest as possible.

- When designing based on a future vision, one should take into account that developments and trends have to be relevant and believable. For example, the time-frame of 2050 could give an innovative outcome, but it will not be relevant in the current automotive industry.

**“I THINK VOLKSWAGEN HAS
A BIG POTENTIAL IN THE
UNITED STATES. EVERYONE
KNOWS VOLKSWAGEN BECAUSE
THEY HAVE THEIR HISTORY
WITH VOLKSWAGEN.”**

**HERBERT DIESS -
CEO OF VOLKSWAGEN GROUP**



Figure 0.3 // Commercial for Volkswagen America

▼ 0.6 Focus

During the project, I will be part of the Exterior Design department. The exterior will be designed and presented in a professional way. However, I believe that exterior design is intertwined with the interior design. Therefore, in order to create a complete mobility concept, the interior will be designed on a conceptual level.

0.7 Topic

The world population is growing and becoming more focused on the urban areas (Kollodge, 2014). If our cities are getting increasingly connected to the network, then so are we. This illustrates how connected cities can steer from their original purpose into entirely new territories, which is not always something their inhabitants will feel entirely comfortable about. (Wakefield, 2017) As the urban landscape is changing, so is the way we move around the city. Future technological developments are changing the automotive industry radically. Automation of vehicles is emerging and the electrification of drive-trains is increasing. (Kuhnert, Stürmer & Koster, 2018) There is no question that in the rapidly developed urban areas, automated mobility will be the standard, however there are more scenario's that form the shifting mobility demand. (Knupfer, Pokotilo & Woetzel, 2018) Humanity desires to keep its freedom (Vinten, 2017) but freedom becomes more restricted in the regulated urban systems. Volkswagen is interested in a mobility scenario where the freedom is provided by leisure experiences as a counter movement of the standardized autonomous mobility.

0.8 Assignment

The eventual initial assignment is formulated as follows: "Design an eye-catching mobility concept for the U.S. market in order to re-establish the brand image of Volkswagen."

Eye-Catching

The first task of a car designer is to create aesthetically good looking objects. We call this the styling of vehicles. The task given by the client is to design an eye-catching concept.

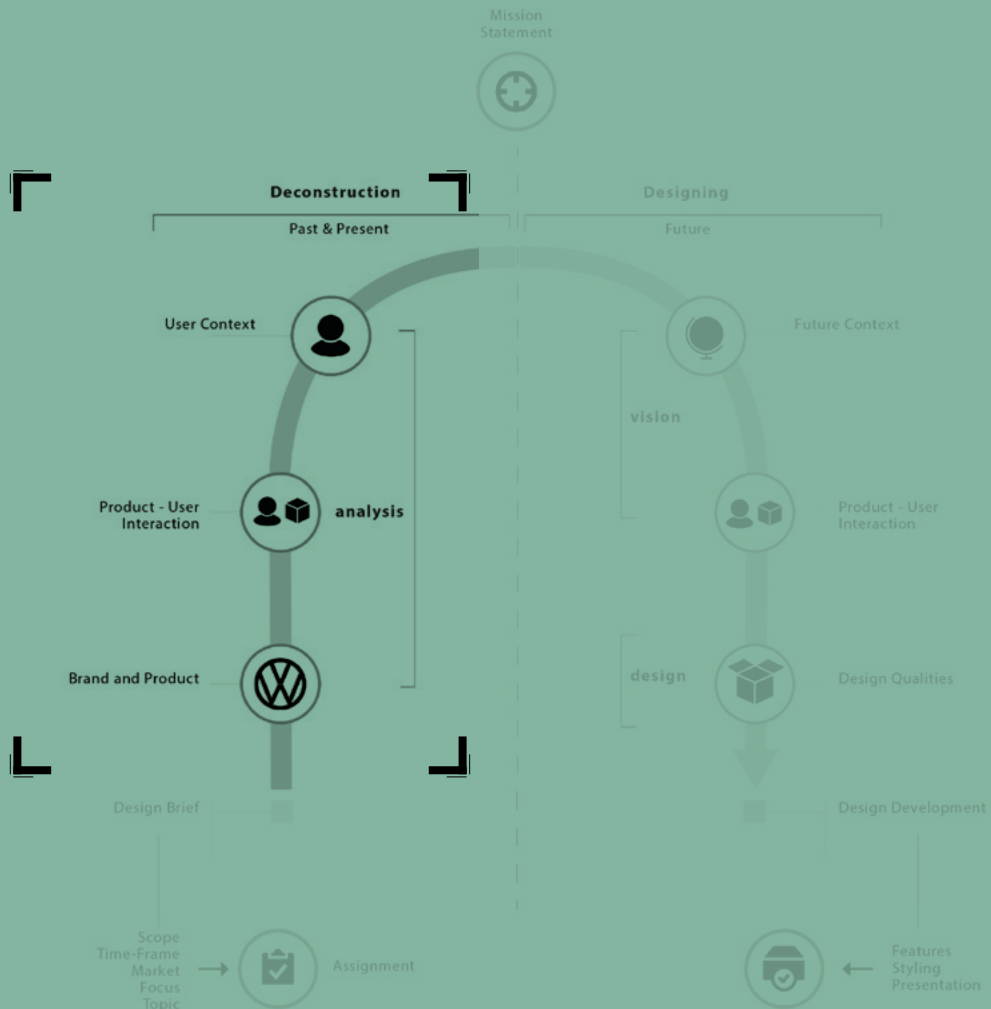
Mobility Concept

This element of the assignment is a personal requirement. In order to distinguish myself as a designer and create the most interest in the project, I want to design more than only an object. In paragraph 0.7 Topic was discussed that the automotive industry is changing, and this requires a new design approach. As a TU Delft student, I learned to think more globally and see logical patterns. Therefore, I want to design a mobility concept that provides a more in depth solution for mobility of tomorrow.

Re-establish The Brand Image

Lastly, the assignment leads to re-establish the brand image. Re-establishing indicates a movement back to its original position. This is derived from the first research towards the Brand and its history. It was concluded that the heritage products, like the Volkswagen Beetle, shaped the brand image in the U.S. The last few years, Volkswagen lost track of this image. Therefore, a new icon, should re-establish this image. The paragraphs 2.3 Brand identity and 2.4 Brand image will elaborate further on this aspect.

DESIGN AN **EYE-CATCHING MOBILITY CONCEPT**
FOR THE **US MARKET** IN ORDER TO **RE-ESTABLISH**
THE BRAND IMAGE OF VOLKSWAGEN.



PART B // ANALYSIS



Part B presents the first step of the ViP process, the analysis of the current situation, also called the “Deconstruction”. This chapter starts from the initial assignment with a research towards Volkswagen and their product portfolio. The chapter follows the steps from ViP and shows understanding of the existing product-user interaction of Volkswagen in America. The chapter ends with the description of the current context according to ViP: Volkswagen’s world in America.

1 THE COMPANY

//////

About Volkswagen AG

▼ 1.1 History

The history of the Volkswagen brand began with the car that most people know, the Käfer, in 1934. The Käfer was designed to bring mobility to the German people under the guidance of Ferdinand Porsche (Volkswagen Newsroom, 2016). In 1938 the company officially started with the name Volkswagenwerk GmbH and opened the main plant in Wolfsburg, Germany. After WWII, Volkswagen was directed by the British government and they instructed Volkswagen to build a saloon in 1945. With the Type 1 model (Käfer), and the Type 2 model (Transporter) added in 1950, Volkswagen became a symbol of Germany's economic revival, in particular as a result of the strong export orientation. Innovative and flexible manufacturing systems made an appearance in the 1970s and led to the birth of a new generation of Volkswagens with the Passat, Scirocco, Golf and Polo models. These successful models gave the company the opportunity to grow even further, with currently 26 models in their line-up. In 2015, Volkswagen was confronted with the Dieselgate, which was the biggest emission scandal ever in the automotive industry. Currently, the brand is recovering from the scandal and trying to become the largest carmaker in the world (Volkswagen Newsroom, 2016). Some of the iconic moments in Volkswagen's history are shown in figure 1.1.

1.2 Volkswagen Group

The difference between Volkswagen AG and Volkswagen Group is often misunderstood. Volkswagen AG is the actual brand and part of the covering Volkswagen Group. The Group consists of 12 brands, including other car manufacturers such as Audi and Lamborghini, but also motorcycle and truck brands like Ducati and DAF.

The Volkswagen brand is one of the worlds most successful carmakers. The Group's core brand maintains facilities in 14 countries, where it produces vehicles for customers based in over 150 nations. In 2017, the Volkswagen brand delivered 6.23 million vehicles (Volkswagenag.com, 2019).

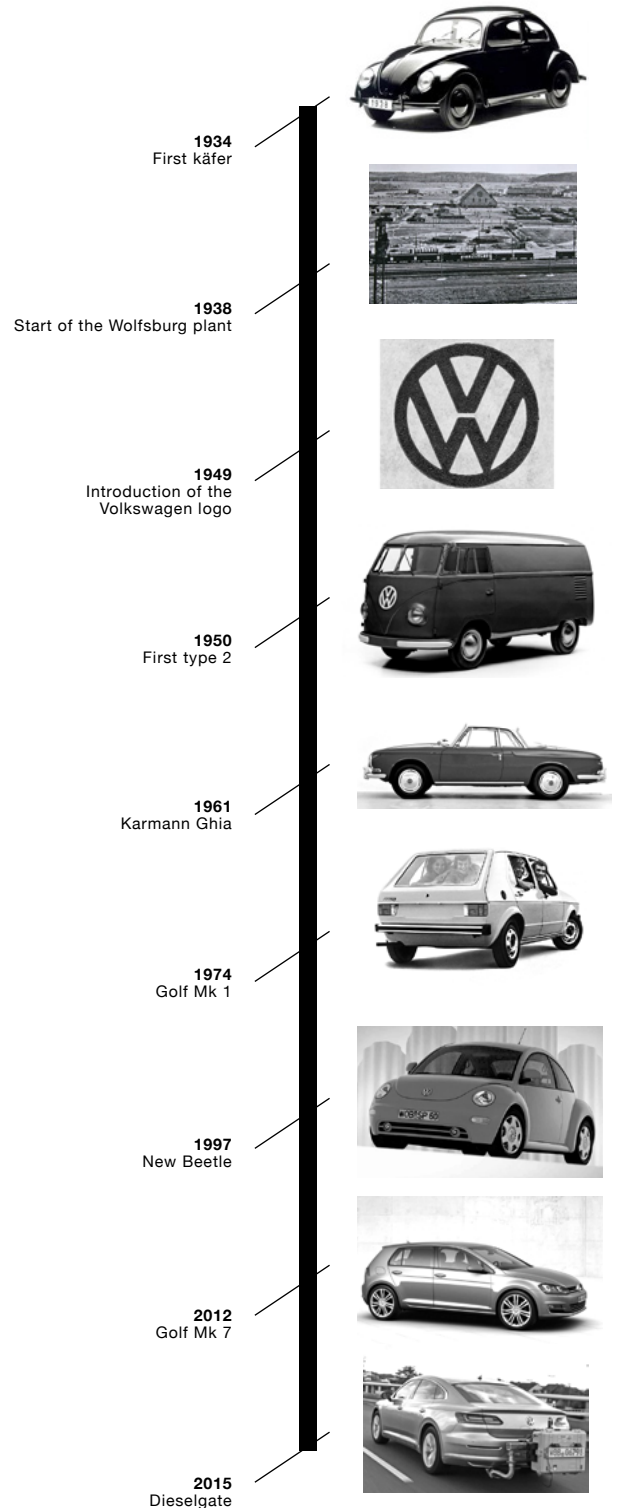


Figure 1.1 // Iconic moments in the history of Volkswagen



Figure 1.2 // The start of the Wolfsburg plant in 1938

2 THE BRAND

In order to understand the design of a car, it is essential to understand the brand first. Every brand is different and has its own values. This paragraph explains the meaning of the Volkswagen brand and how this is translated in their strategy.

▼ 2.1 Brand Values

The core value of Volkswagen is visible in the name of the company. The name Volkswagen is derived from “volks-wagen”, which literally means “peoples car” or as the company refers to it in their current slogan: “car for people”. As mentioned in paragraph 1.1, the first Volkswagen project was intended to be a car that was affordable for common people. Over the years, Volkswagen brought several models to the market that focused on being functional and played an important role in the daily life of its owner (Salim, 2017).

Over the years, Volkswagen established itself as the people-centered German car maker. Volkswagen is not like the other brands only focusing on performance, luxury or comfort. The brand has found a role as people’s car by offering large variety of models at accessible pricing. In this way, the company is able to sell as much cars as they do.

2.2 Dieselgate

In 2015, United States Environmental Protection Agency (EPA) issued a notice of violation of the Clean Air Act to the Volkswagen Group. The agency had found that Volkswagen had intentionally programmed diesel engines to activate their emissions controls only during laboratory emission tests. The scandal costed Volkswagen a \$2.8 billion fine for ‘Cheating on government emission tests’ and the CEO, Martin Winterkorn resigned. However the Dieselgate is still in the news sometimes, Volkswagen’s new CEO, Herbert Diess is guiding the company into a new direction, focusing on a more transparent company culture (Ndr.de, 2018).

Although the Dieselgate reached public over 4 years ago, the company still suffers from its consequences. Besides the additional fines and organizational restructuring costs, they were also forced to rapidly invest in new electric technologies.

2.3 Brand Identity

Volkswagen’s brand identity is largely influenced by the consequences of the Dieselgate. In order to show the new direction of the company, the brand strategy is focusing on e-mobility and sustainable future solutions such as charging stations (Schmitt, 2016). Since 2015, the company reacted on the Dieselgate with the concept range ID, which is about fully electric mobility. Also, Herbert Diess states that in ten years, Volkswagen is aiming to have sold 20 million electric vehicles (Schmitt, 2016).

The second difference in strategy since the Dieselgate is the ‘Car for People’ slogan. Besides the introduction of emotional products that refer to the heritage of the brand, such as the ID Buzz and ID Buggy, is Volkswagen also trying to update it’s current identity into a more funky and fresh looking company, fitting to the people of today (Salim, 2017). A good example is the current ID 3 marketing campaign of figure 2.2. In their communication, Volkswagen is more referring to the user instead of only on the car itself.

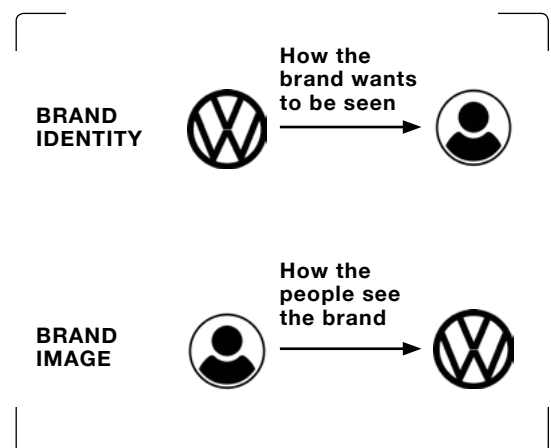


Figure 2.1 // Illustration of brand image and brand identity



Figure 2.2 // The new Volkswagen ID3 marketing campaign



Figure 2.3 // Parody on Volkswagen's slogan "Das Auto" just after the Dieselgate

▼ 2.4 Future Plans

Currently, 17 models are available at the Volkswagen dealerships. The product portfolio is varying in order to answer to every consumer's wants. Looking at the last introductions of the brand, the start of the new strategy is already implemented. In the last two years, 3 SUV's have been released and in 2020, the brand is aiming to have 19 SUV's available worldwide.

Besides the mass introduction of SUV's, the whole range will be shifting towards electrification. In 2025, Volkswagen aims to sell 1 million electric vehicles (referred as EV) per year. With the introduction of the new electric platform MEB, the complete Volkswagen Group will take up about 30% of the sold vehicles in 2025.

2.5 Brand Image

The Dieselgate also shaped the public opinion towards the brand. Shortly after the scandal went public, the favorable opinion towards the brand went down from 70% to 20% (Globe-one.com, 2015). However, the majority of people still trust the company as a product manufacturer (Löhr, 2015). As the list of brands struggling with emission tests is growing, the negative view towards Volkswagen is weakening. Also, the increase of negativity around the brand did not affect the global sales, as 2017 was another record-breaking year (Bomey, 2015). The overall brand image of Volkswagen is a solid car in all its aspects. The image of German car manufactures in general is qualitative, so is Volkswagen's.

The design of Volkswagen is perceived as simple and robust, sometimes even boring (Wittenberg, 2017). Even in the pricing is Volkswagen seen as an average of other brands, usually more expensive than non-German brands but still cheaper than the big 3: Audi, BMW and Mercedes-Benz (carsalebase.com, 2017).

2.6 European vs American Image

The general brand image of Volkswagen is determined by the Dieselgate. However, the fundamental image of Volkswagen is different when we compare Europe versus America. In Europe, Volkswagen is about rationality (Snyder, 2015). As explained in paragraph 2.4, Volkswagen is seen as accessible and average because of its driving characteristics, design, quality and pricing. However, when we look at the American market, Volkswagen is not perceived as an average brand. Firstly, owning a Volkswagen is more expensive since the cars have to be imported. Furthermore, the price of Asian and American cars in the same segment is significantly lower (Mays, 2018).

The public opinion towards Volkswagen is also more history driven in America. Like Herbert Diess states: "People know Volkswagen because of their history with Volkswagen" (Vellequette, 2018). So where we see a rational motivation for driving a Volkswagen in Europe, the motivation in America is not rational at all. Customers drive a Volkswagen because it is a Volkswagen and not because of the value for money.



**BY 2025, VOLKSWAGEN
WANTS TO “SELL ONE
MILLION ELECTRIC VEHICLES
PER YEAR, AND BECOME THE
WORLDWIDE MARKET LEADER
IN ELECTRO-MOBILITY,”**

**HERBERT DIESS -
CEO OF VOLKSWAGEN GROUP**



Figure 2.4 // Volkswagen ID concept line-up

3 THE PRODUCT

Now that the meaning and values of the brand Volkswagen have been explored, it is essential to dive into the products themselves, the cars. This paragraph shows an analysis of the products 'heart and soul' and the more concrete design aspects.

▼ 3.1 Yesterday

Functionality is deeply rooted in the core of Volkswagen. The first Volkswagen's were based on a simple list of requirements and nothing more. The Käfer had to offer space for a 4-person family (Salim, 2017). Next up were even more functional cars designed for the German army such as the Kübelwagen. After the war, Volkswagen continued this functionality with the introduction of the T2 Bus.

In the 70's, Volkswagen introduced family cars like the Golf, Passat and Polo designed by Giorgetto Giugiaro's Italdesign. These cars are famous for their simplicity and practicality (Rehmann, 2019). Throughout the years, the brand expanded the product-rang, covering more and more segments. These still breathed the same ideology.

These cars were designed and engineered as simple and functional cars and became popular to customize. When looking closer at the Käfer, one can see that none of the cars are the same.

In the early 2000's, Volkswagen found a new ideology that was based on accessibility and functionality, the different mobility segments. They introduced the Sharan, which was a new segment on its own, nowadays seen as the MPV (Multi-purpose vehicle). Besides these MPV's, they found a new market at the other spectrum, the Volkswagen Up!. The Up! is one of the first steps towards the small city cars that fill our street nowadays.



Figure 3.1 // Development of Volkswagen's portfolio
Top to bottom: T2 (1950), Kübelwagen (1979),
Sharan (1994) and Up! concept (2007)



3.2 Today

The current models of Volkswagen no longer distinguish themselves anymore by their functionality, more because the other brands became more functional. Although they offer lots of practical, models such as the Touran or Golf Plus, Volkswagen is now focusing on bringing products to the market that the client can feel related to.

For example, the customization culture of the Käfer is now visible in the T-Roc and T-Cross. These cars are offering a huge variety of colours and trims, also available on request.

Furthermore, they are expanding the legacy of famous heritage models like the GTI. At the moment, Volkswagen is offering the GTE, GTI, GTI Performance, R-line and R models.

3.3 Tomorrow

As stated in paragraph 2.5, Volkswagen is planning a big shift towards electric mobility. There are two ways to approach this shift in terms of the product. Some brands choose a rather conventional product look for their electric range. Tesla is a good example of this conventional product approach (Burt, n.d.). The other approach is much like BMW is presenting with the i-Series. The cars are build up from scratch and evoke something totally different than the cars we knew at the time.

Looking at the concept cars of the ID-range, Volkswagen is approaching their electric range more like BMW, completely new. However, the designs still breathe the simplistic design language of Volkswagen. Off course it is difficult to say something about products that do not exist yet. However, in the way Volkswagen is presenting the ID-range and the way the concepts look, it is visible that Volkswagen will follow the line of emotional products that they are currently doing (Volkswagen UK, 2017).



Figure 3.2 // A part of Volkswagen's current line-up and the future concepts. Top to bottom: Tiguan (2016), T-cross (2018), Golf TCR (2019), ID cross (2017), ID Vizzion (2018)

▼ 3.4 Styling Analysis

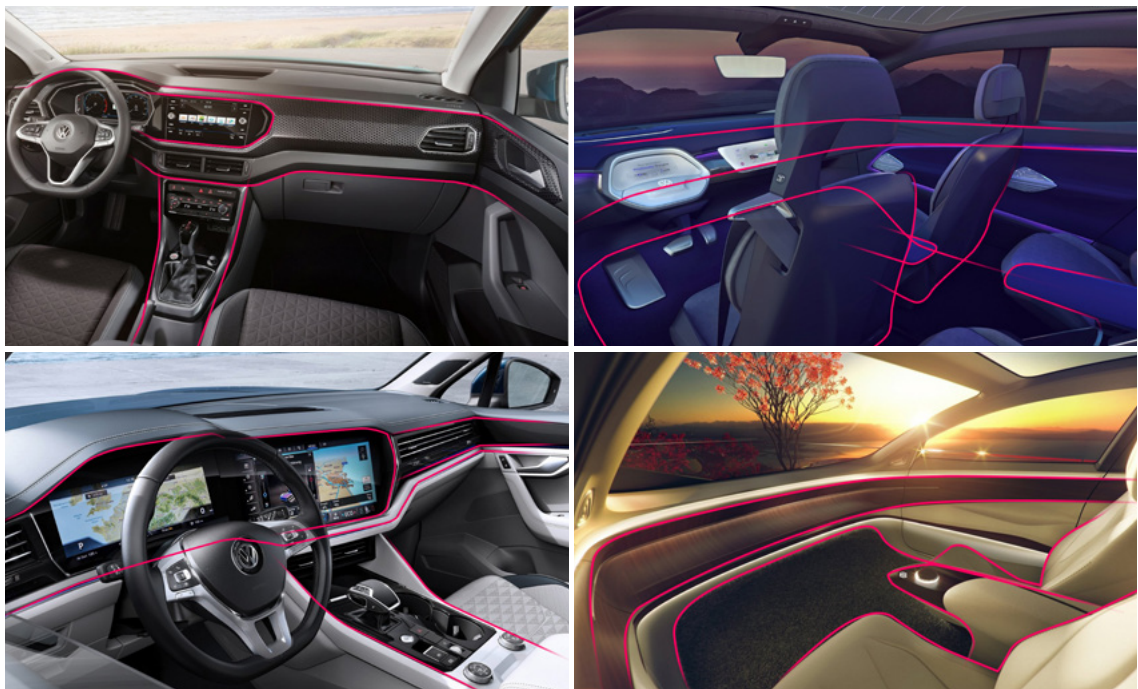
The following paragraph shows a more detailed research on the styling aspects and what creates the simple design language that is typical for Volkswagen.

Figure 3.3 // Exterior styling analysis



- ❶ An element that is visible in every Volkswagen is the so called “Wrap-around line”. This is a line that is connected around the whole car, often positioned at the bottom.
- ❷ Volkswagen makes use of continuous and strong shoulder lines in order to emphasize the muscles of the car. Although the design of the shoulder-line differs in every car, the idea behind it remains the same. In the electric concept cars, Volkswagen is using a more organic shaped line work.
- ❸ The roof line of the current models shows a dynamic direction to ensure a more aerodynamically shaped car. The roof line of the concept cars is pushed more forward in order to create more space inside the vehicle.
- ❹ The Greenhouse of the car is tapering at the rear in order to accentuate the rear fender.
- ❺ The electric range shows a lower bonnet, but higher front fenders due to the suspension height in the package.

Figure 3.4 // Interior styling analysis



- ⑥ The interior is, as the exterior, connected by one line that runs around the complete interior.
- ⑦ Both instrument cluster and media display are visually combined by one design element.
- ⑧ In the current production cars, the mid-console is connected to the dashboard in a T-shape.
- ⑨ In the concept cars, that make use of (semi) autonomous driving, the dashboard, mid-console and seats are clear separate design elements. These separate elements, combined with a bigger looking floor-space, emphasize the spacious feeling of the interior and resemble to the interior design of a house.

4 INTERACTION

After understanding the products of the Volkswagen portfolio, ViP guides the designer one level upwards to the Product-User interaction. How are people in America interacting with their Volkswagen and what does the car mean to them?

▼ 4.1 American Consumerism

American consumerism shows fundamental differences from how we interact with products in Europe. For example, Americans have a more direct taste for consumption and advertisement. The marketing approach of American brands is much more superficial and emotional than in Europe. Furthermore, the average lifespan of products in America is shorter than in Europe and Americans usually compare products more on features than on the meaning of a brand (de Prez, 2018).

This explains why Volkswagen has a significant smaller part of the market in America. The product is not as affordable as in Europe and even less well-equipped as most American cars (Vellequette, 2018). This indicates that the reason to buy a Volkswagen, is usually not rational. Compared to Europe, Volkswagen is selling a 4 time bigger share of Beetles, the most irrational product of the portfolio, in America. The way people interact with these products can be described as versatile and personal.

4.2 Versatile

The original Beetle is a descendant of the Käfer from the 60's, which was about functionality. Paragraph 3.2 introduced the fact that Volkswagen is still focusing on this functionality. For the irrational products, the functionality sits in the use of the car. The interaction with the Beetle for example is very versatile, providing the functionality of an everyday car with good driving characteristics, possible to use as a (small) family car. On the other hand, some available modifications make the car a good weekend car, cruiser and light off-roader as well.

4.3 Personal

Paragraph 3.2 also mentioned the customization of the current Volkswagen models. This is something that was already happening with the older products such as the Käfer and T6. The new versions of these cars are designed with a funky and retro character, which evokes emotions for people who owned the older cars. Figure 4.2 illustrates very well how people make their Volkswagen an extension of themselves and have a truly personal interaction with the product.



Figure 4.1 // American consumerism: comparing products based on features

“AMERICANS OWN A CAR JUST UNDER 2 YEARS IN AVERAGE, THAN IT’S TIME TO SELL IT AND GET THE NEW ONE”



Figure 4.2 // The different possibilities of Beetle

5

CONTEXT

The last step of understanding the current situation is analyzing the context of the brand and the product. What makes mobility in America different and what describes the world of Volkswagen in America?

▼ 5.1 The Country

Before taking a deeper dive into the world of Volkswagen in America, it is good to analyse mobility in general. Like mentioned in paragraph 4.1, there is a big difference between Europe and America.

5.2 Environmental Differences

The core of the differences in cars sits in the difference in environment. America is many times larger than Europe. The country is much more spread than Europe, resulting in the fact that people have to cover bigger distances in order to get from A to B (Tradingeconomics.com, 2019). Furthermore, variety in environments is more extreme in America.



Figure 5.1 // Outback in America: Death Valley

5.3 Infrastructure

Although America has a larger spread of habitability, they also have a more “Mega-cities”. These cities have all different infrastructure networks and transportation means. When looking at the infrastructure between these cities, there is another big difference with Europe. Because America is discovered later in time than Europe, the infrastructure is more organized with roads going straight from one city to the other.

5.4 Car Culture

All these differences are visible in the car culture. The European car culture can be described as “Driver Control”. The cars are small, well engineered and functional. The American culture can be described as “Convenient Control”. The cars are focused on comfort, size and luxury. As explained in paragraph 5.3, the roads are usually straight. Therefore, American cars are not designed for corners and handle usually less good as European cars. Lastly, where European cars are about rational choices, Americans see cars since the beginning as art (Kaiserfield, 2017). This is clearly visible in the different taste of styling.



Figure 5.2 & 5.3 // European vs. American car culture: 1960 Volkswagen EA 97 and 1960 Chevy Impala



Figure 5.4 // The iconic Beetle that everyone remembers

▼ 5.5 Icons

As mentioned in the previous paragraphs, the world of Volkswagen in America is shaped by the heritage models like Beetle and T6. The first intention of these models is to hint to their predecessors. These models are still widely popular and can be seen as true icons for the brand. The connection to the brand is based on memories.



Figure 5.5 // Cars like Beetle give the user a feeling of freedom

5.6 Rebelliousness

These cars are showing a different character than most cars. They are designed to be iconic and therefore stand out from current automotive design trends. However, one should realize that most styling features are purely cosmetic. For example, the Beetle Dune shows a strong off-road character in its styling. The higher ground clearance, dark plastic arches and protective bumpers mimic the idea that this car is actually able to bring you anywhere. However, under the body, the car is just as similar as a “normal” Golf Mk7. Thinking that Beetle should be able to go off road is however truly missing the purpose of the car. The car is designed to give people the feeling that they could do it, although they never will. That is why the car is available as a convertible. Nobody is going for extreme off-road conditions in a convertible car. It is about the experience that the customer could go rogue, with the freedom of a true rebel.

5.7 Emotion

Lastly, the American world of Volkswagen is about emotion. The products are used as an extension of the users lifestyle and character. Every product is different and fits to its owner. The fact that the products are customizable to every desire, is in the same line of ideology as the older iconic cars that the customers remember from when they were young. For them, Volkswagen is about reviving the memories with a modern product that fulfills their desire to be different.

“PEOPLE LOOK FOR PERSONALISED PRODUCTS AND ARE ATTRACTED TO PRODUCTS THAT EXPRESS THEIR LIFESTYLE”



Figure 5.6 // Volkswagen's American World captured perfectly

▼ **5.8 The Pattern**

In order to grasp the Volkswagen drivers in America, the context of the brand and product have been investigated. From the previous paragraphs it was concluded that there is a repetitive pattern in the user's buying behavior (West Midland Family Centre, 2016). The time line in figure 5.8 shows clearly that average clients of a model, can be related in time to the previous model.

For example, At the time of the first Bulli bus, the Maturist generation were the average customers. Maturists were the parents of the Baby Boomer generation. When the Baby Boomer generation was old enough to buy cars, they became the average client of the next generation T2 Bulli. So, it can be concluded that the success of these models is related to the emotional connection of the users with the

product.

However, the generation that is targeted in the future (Generation Z), has a different mindset towards products and brands (Pruett, 2018). The time line indicates change in the automotive industry, business models and product use with "The Break". It can be questioned if this product-positioning will remain successful in the future.

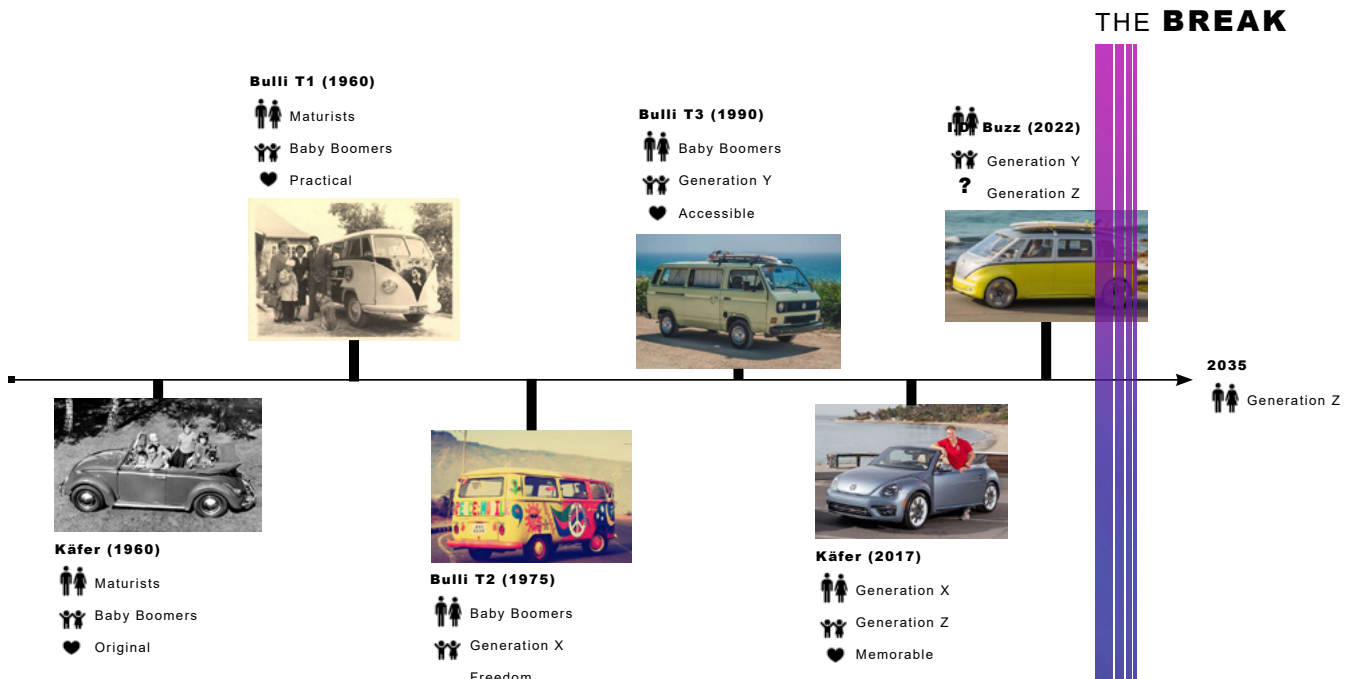


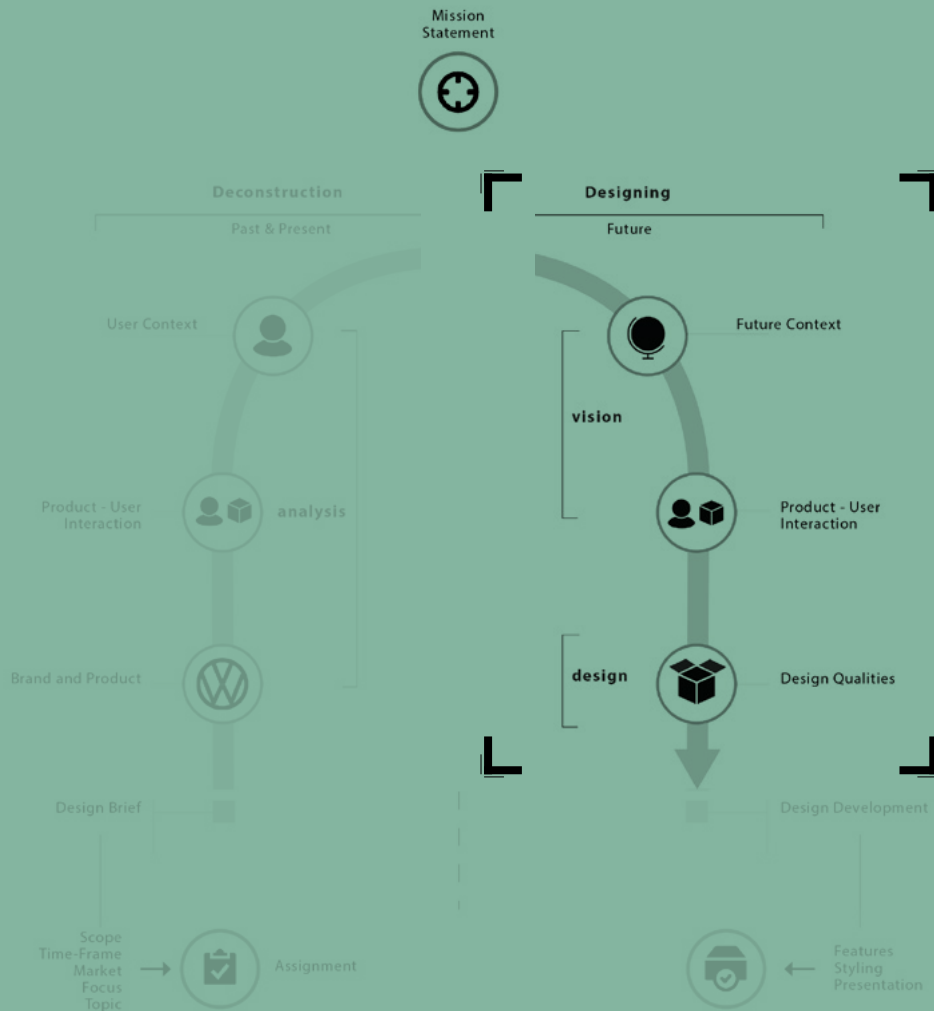
Figure 5.8 // Volkswagen's average ownership over time

THE VOLKSWAGEN DRIVER IN AMERICA

MEMORIES DRIVEN EXCENTRISTS SEARCHING FOR EMOTIONAL CONNECTIONS



Figure 5.9 // Illustrative image of the Volkswagen driver in America



PART C // VISION



Part C is the step into the future. The chapter starts with the designers view on the future world and the “Mission Statement”. After describing the “raison d’être” in the future context, the chapter takes the reader one step down the ViP process towards the desired product-user interaction. Lastly, the interaction opens the view on the intended character of the final product.

6 VISION

Now it is time to take a look into the future. What was concluded after analysing the current situation? And what is the designers vision on the future?

▼ 6.1 The Domain

The previous paragraph was concluded with the description of the Volkswagen driver in America: Memories driven excentrists looking for emotional connections.

According to ViP, this description is called the “Domain”. This “Domain” is used as the search field for the context factors that will shape the future vision.

6.2 Context factors

Building a world starts by collecting “building blocks”. These “blocks” are called context factors according to ViP. Factors can be observations, thoughts, theories, laws, considerations, beliefs or opinions. Factors can be found anywhere, as long as they are relevant to the domain. As the process asks to choose factors, it is also a part of the process where the personal values of the designer are implemented.

6.3 Cluster creation

In order to create a coherent vision out of all these different factors, ViP uses the clustering method. In this step of the process, the designer is trying to see “the bigger picture” behind the factors. Figure 6.1 shows the clustering process that was used. Each post-it is one factor. The different colors show different type of factors and different topics. As visible, there is no logic pattern in the clustering. The factors are clustered because of the possible link that was envisioned in the designers mind. In order to have a clear view on what the future will be like, the amount of factors has been clustered into two main clusters: “Efficiency” and “Escapism”.



Figure 6.1 // Picture of the clustering process

Efficiency

The clusters show a contradiction in the future. In general, the developments in societal and technological trends are showing a world which is focusing on the efficiency in our lives. We are trying to use our time as efficient as possible, work more flexible, give ourselves more superficial freedom in order to feel more efficient and happy. A perfect illustrative trend in the automotive industry is autonomous driving. Autonomous driving is developed to give us humans the opportunity to do different things while we are being transported from A to B. For example, we could work in the car or socialize with other passengers without focusing on the road. Also, the technology should delete the human error factor, so that the amount of accidents are reduced to 0. This shows a world that is aiming for the perfect efficiency.



Figure 6.2 // Illustration of the “Efficiency World”

Escapism

However, this efficient society is not something bad, there is a contradictory part. The second cluster shows the human urge to escape from this efficient society. In order to relax, stay fit, energize or refresh, we humans want to escape our daily life and have a more qualitative driven experience.

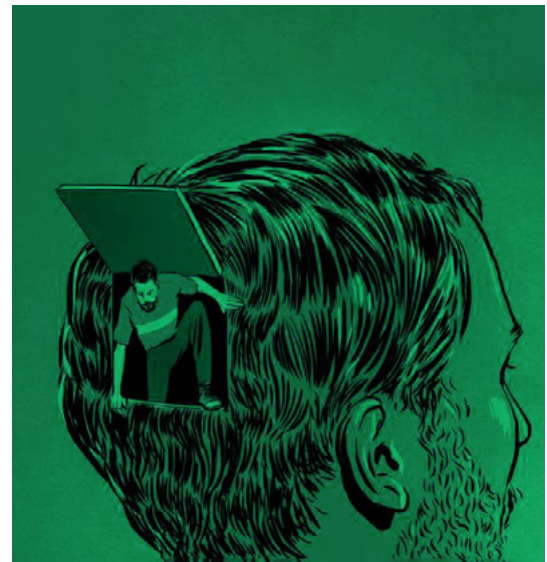


Figure 6.3 // Illustration of the “Escapism World”



Figure 6.4 // Volkswagen's Efficiency product: The Tiguan



Figure 6.5 // Volkswagen's Escapism product: The Beetle

▼ 6.4 Both Worlds

So the future shows a two sided world. One which is about getting as efficient as possible and the other one about turning your back towards this efficiency. None of both worlds is "better" than the other and we can even see both worlds in our current society.

Thinking about the current portfolio of Volkswagen with this vision in the back of the mind, it can be concluded that the brand is already offering products for both worlds. On the one hand, there is the world of Touran (see figure 6.4) which is about passenger places, cargo space, fuel consumption and segment price. All figures and specifications are there to be as good as possible, as cheap as possible, as efficient as possible.

On the other hand, we have the world of emotional products, like Beetle (see figure 6.5). These products are not about numbers and efficiency. They are sold, because they "touch" the user in an emotional way. The Beetle is not the fastest, most functional, safest or most energy efficient car. It is an icon, which gives the feeling of freedom when driving it. This is the translation of the World of Escapism in the current Volkswagen line-up.



**“IN THE DOMAIN OF MEMORIES DRIVEN
EXCENTRISTS SEARCHING FOR EMOTIONAL
CONNECTIONS, I WANT PEOPLE TO FEEL
RELATED AUTHENTIC EXPERIENCES IN AN
EFFICIENCY SOCIETY”**

- MISSION STATEMENT -

6.5 Mission Statement

The world of Escapism is the world where the Volkswagen driver of the future will feel comfortable. This world is about creating memories and living the qualitative part of life. The efficient society will feel too restricted for them. However, the vision showed that both worlds will be there and one can not live in only one of these worlds. In order to make the user feel comfortable in both worlds, there need to be a bridge that brings the feeling of Escapism to the efficient society.

The gap between both worlds opens up opportunities for Volkswagen. When they provide a product that guides the users from one world to another in a pleasant way, they can re-attract their American customers and re-establish their brand image, as stated in the initial assignment of the project. At this point in ViP, the designer defines the “Mission Statement”. What behavioral change does the eventual product need to provide?

7 INTERACTION

Following the layers of ViP, the next step is envisioning how the users needs to interact with the product in order to achieve the desired behavioral change described in the mission statement.

▼ 7.1 Interaction

The interaction is defined by a combination of the words “Liberating” and “Trusted”. In order to achieve the mission statement, it is essential that users feel comfortable in the step between the two worlds of Efficiency and Escapism. Getting out of our comfort zone requires a balance between the desire to liberate and the confidence of trust.

7.2 Analogy

This part of the ViP-process can be quite abstract. In order to make the interaction directly imaginable, an analogy was used. The analogy for the above mentioned interaction is: “like skiing off-piste with a ABS-backpack.” Off-piste skiing is something dangerous and challenging. When skiing off-piste, one feels excited about his or her unusual activity. When equipped with an ABS-backpack, the risk and danger is reduced to a minimum. You feel trusted while skiing with a truly liberated mindset.



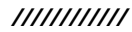
**LIBERATING
& TRUSTED.**



Figure 7.1 // Illustration of the analogy: skiing with an ABS-backpack

8

PRODUCT



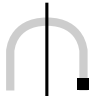
Now that the analogy describes the interaction, ViP takes the last step to the product-level. What kind of character should the product have in order to give the user the desired interaction?

▼ 8.1 Character

Next step in the ViP-process is translating this analogy into a character that can be used for the eventual product. In the case of the skiing analogy, the part that provides the interaction is the ABS-backpack. Therefore, the character of the backpack should be used as the design qualities of the final product.

The character of the ABS backpack is defined as “Trustworthy” and “Risk-Taking”. On the one hand, the product gives the user the feeling of trust because of its prior function: saving your live in an avalanche. Also, the product evokes trust by its professional design and materialization.

The second characteristic is risk-taking. Because of its professional look, bright coloring, large ABS logo and body-supportive shape, the product forces you to challenge yourself and search for the limits.



RISK-TAKING.



TRUSTWORTHY

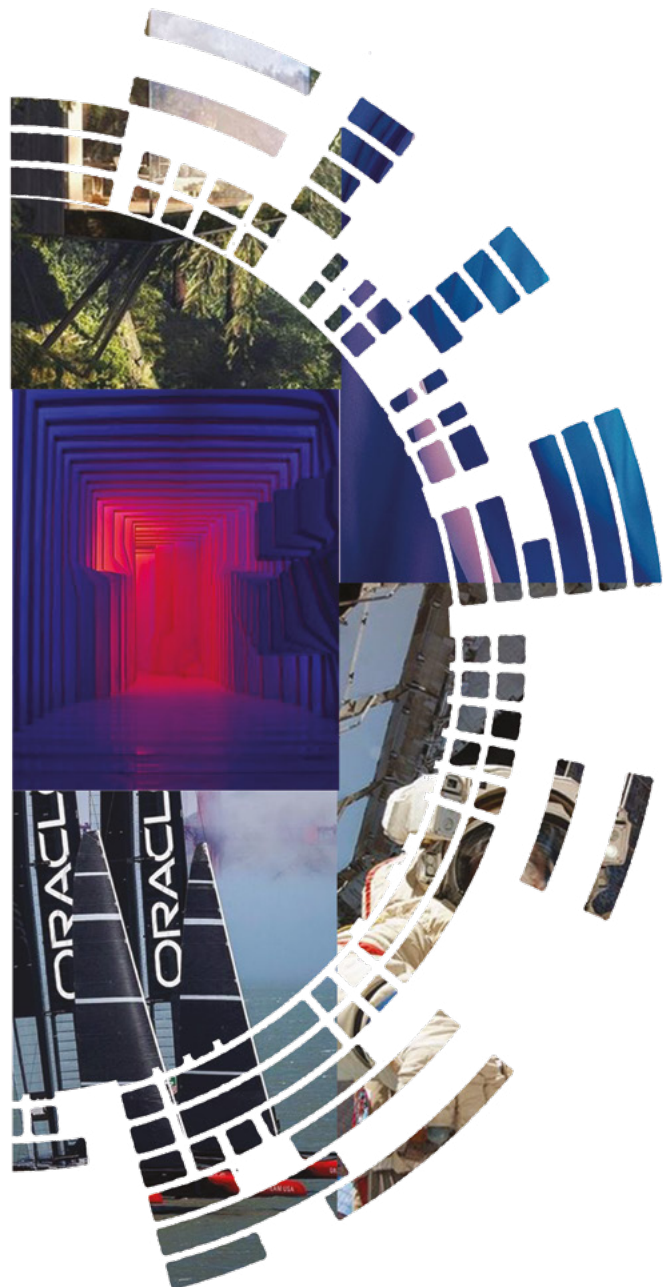
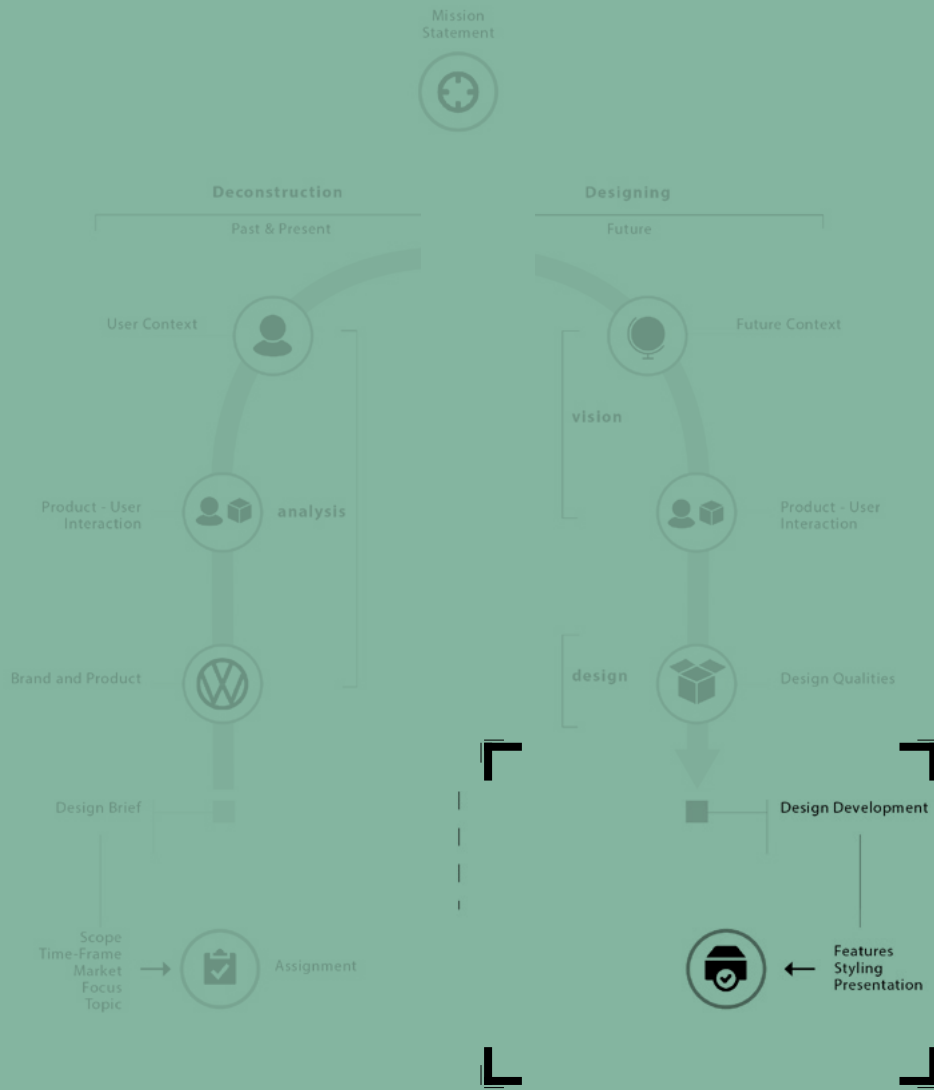


Figure 8.1 // Moodboard's of the character:
Trustworthy on the left and
Risk-Taking on the right



PART D // DESIGN



Part D shows the design process of the final product. The chapter starts with the ideation based on the, from ViP distilled, product character. After establishing the core features of the product, the chapter goes through the styling process and shows the development until the design freeze.

9 CONFIGURATION

This paragraph starts with the first ideas about the final product. What kind of product has the character defined in the previous paragraph? The design starts from the inside, defining the concept and configuration.

9.1 Package

The starting point of the vehicle is the determination of the platform and package. Currently, Volkswagen is preparing its MEB-platform (see figure 9.1) for the electric vehicle range (Volkswagen NL,2018). In order to follow the electrification company strategy, the vehicle will be electrically driven. In order to get a layout of the technical components, the MEB-platform is used as a base. However, some elements are envisioned in a next generation version, which is realistic when looking at the 2035 time-frame. Although the MEB-platform is used as a base, the package has some differences. For instance, the electric engine is located at between the rear seat.



Figure 9.1 // Volkswagen's current MEB-platform in the ID-Buggy

9.2 Interacion

After setting up the technical boundaries in the form of the package, the configuration has been designed. Although the project is exterior focused, in order to design a relevant product with a relevant interaction between passengers, the concept was designed inside-out, starting with the interior configuration. Figure 9.2 shows the quick research for positioning of the occupants and the corresponding interaction inside the vehicle.

Eventually, the configuration is reduced to the idea of having two modes, both fitting one of the characters from Paragraph 8.1 As seen in figure 9.2, the configuration is based on a three person vehicle. Research showed that a group of three is most likely to create a nice ambiance and memorable experience (Singh, 2016).

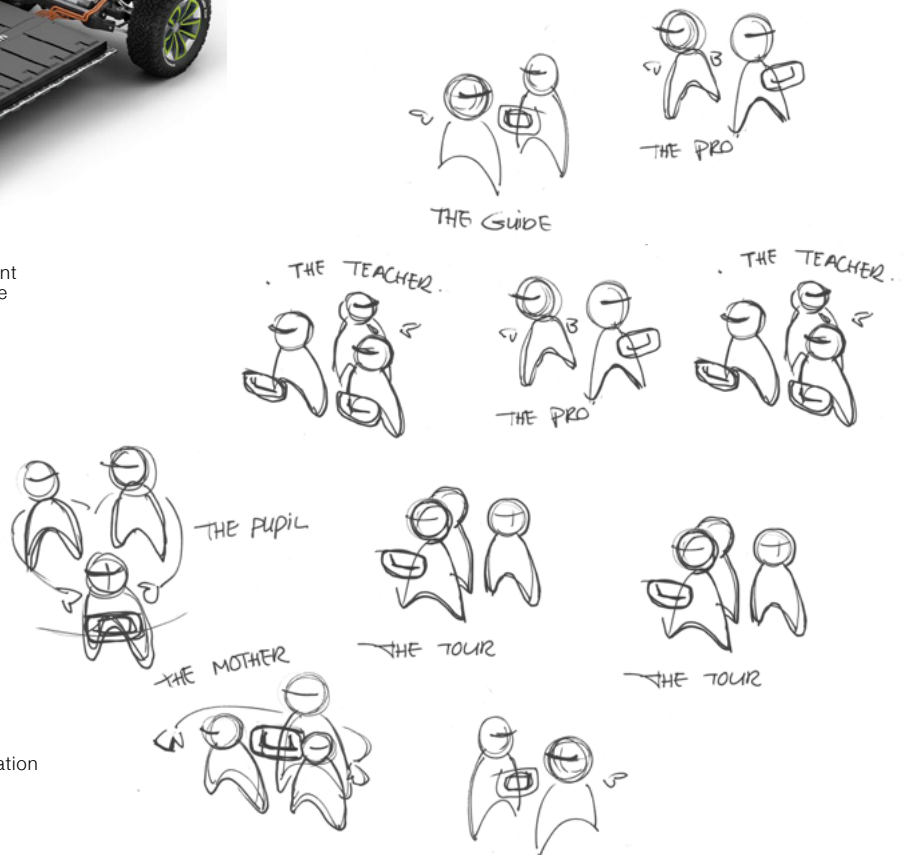


Figure 9.2 // Sketches of the interaction: quick doodles that show directly the mood inside of a configuration

EFFICIENCY.

Figure 9.3 // Configuration of Efficiency Mode

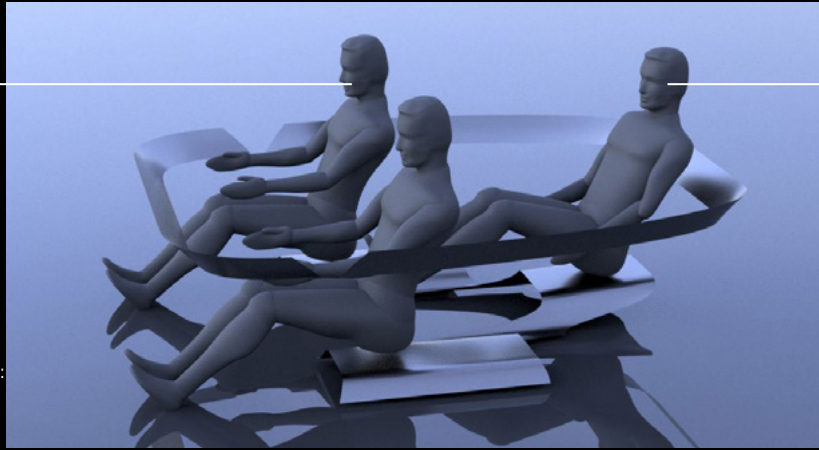


Figure 9.4 // Front interaction:
Like two kids in exploring the environment



Figure 9.5 // Rear interaction:
Relaxing while doing nothing



Figure 9.8 // Front interaction:
Experiencing full control

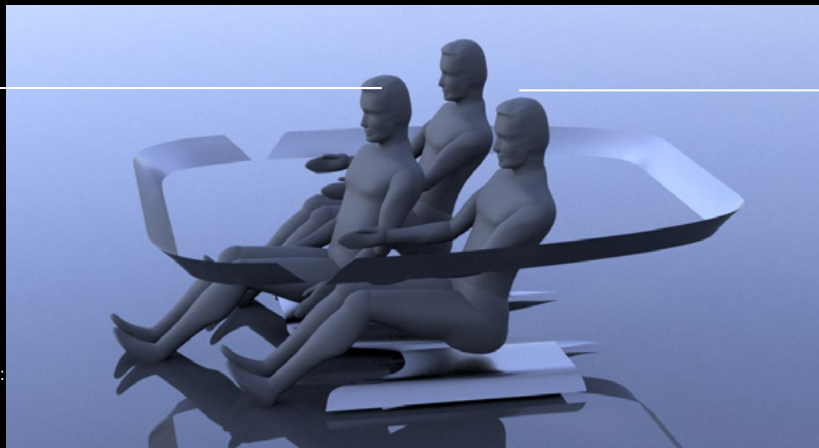


Figure 9.6 // Configuration of Escapism Mode



Figure 9.7 // Rear interaction:
Sharing interaction and supporting the driver in front

ESCAPISM.

9.3 Efficiency Mode

Figure 9.3 shows the configuration of the first mode, fitting to the 'World of Efficiency'. In this configuration, the two side passengers are exploring the surrounding and sharing their experience. The central passenger is more separated from the other two. This passenger has also more space and comfort. The feeling here is more closed and private, fitting to the idea of having different activities while traveling. In this mode, the vehicle is driving autonomous (level 4) (Harner, 2017).

9.4 Escapism Mode

Figure 9.6 shows the configuration of the second mode, fitting to the 'World of Escapism'. In this configuration, the central passenger is moved to the front. In this mode, the car is not autonomous and driven by the central passenger. The both side passengers moved slightly backwards, creating a configuration where they support the driver and share the driving experience. They have a more supportive interaction in this mode.

10 IDEATION & ITERATION

*How is the configuration of the interior influencing the exterior design?
This chapter shows the first sketches and styling process.*

▼ 10.1 Iconic

After creating the package and configuration, the next step is the start of the ideation and sketch-phase. Taking a step back and evaluating the initial assignment; "Design an eye-catching mobility concept for the US-market in order to re-establish the brand image of Volkswagen", showed the need for a better understanding of eye-catching and iconic vehicles.

It can be concluded, while analyzing the iconic cars of the past, that an icon is created by its silhouette. Figure 10.1 shows three iconic vehicles in their silhouette. If the goal was to design an icon, the silhouette should be directly recognizable. Together with the client, the goal was set to come up with a silhouette which was not seen before.

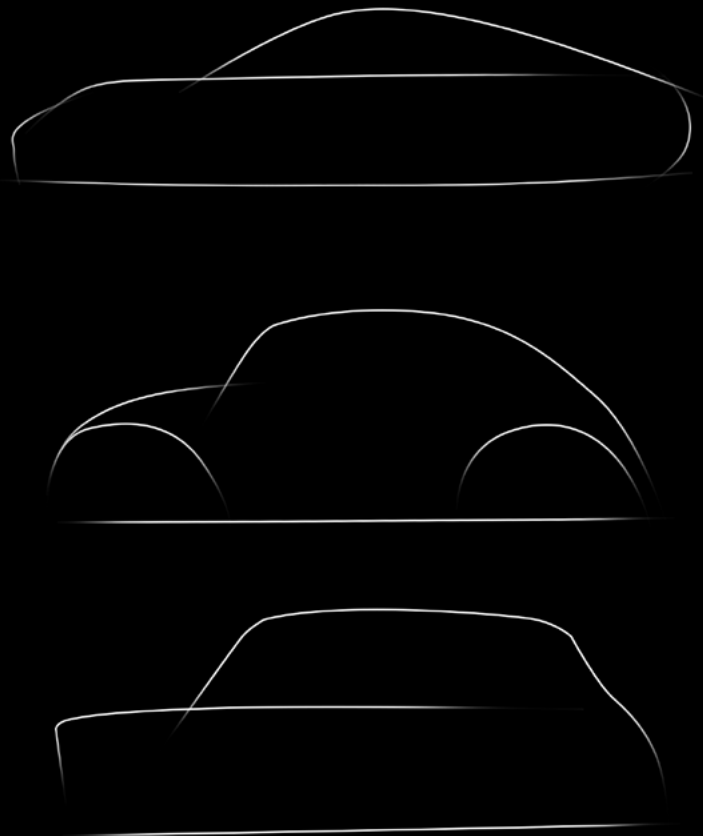


Figure 10.1 // Illustration of iconic silhouettes: 911, Beetle and Mini

10.2 Silhouette

From this knowledge, side view doodles were used to create different and directly recognizable, creative silhouettes. A selection of the silhouettes that reflect the decision making are shown in figure 10.2.

Parallel to these sketches, another idea regarding the silhouette was developed. In the paragraph 4.1, it was concluded that US-customers have a more superficial relation towards products and behave more emotional towards Volkswagen. Therefore, the idea to combine the silhouette of the best sold car in the US, the pickup, with a new silhouette of an electric platform influenced the sketching phase.

The result of this creative process is a direction of the silhouette that shows a shorter wheelbase, front located cabin and short overhang.

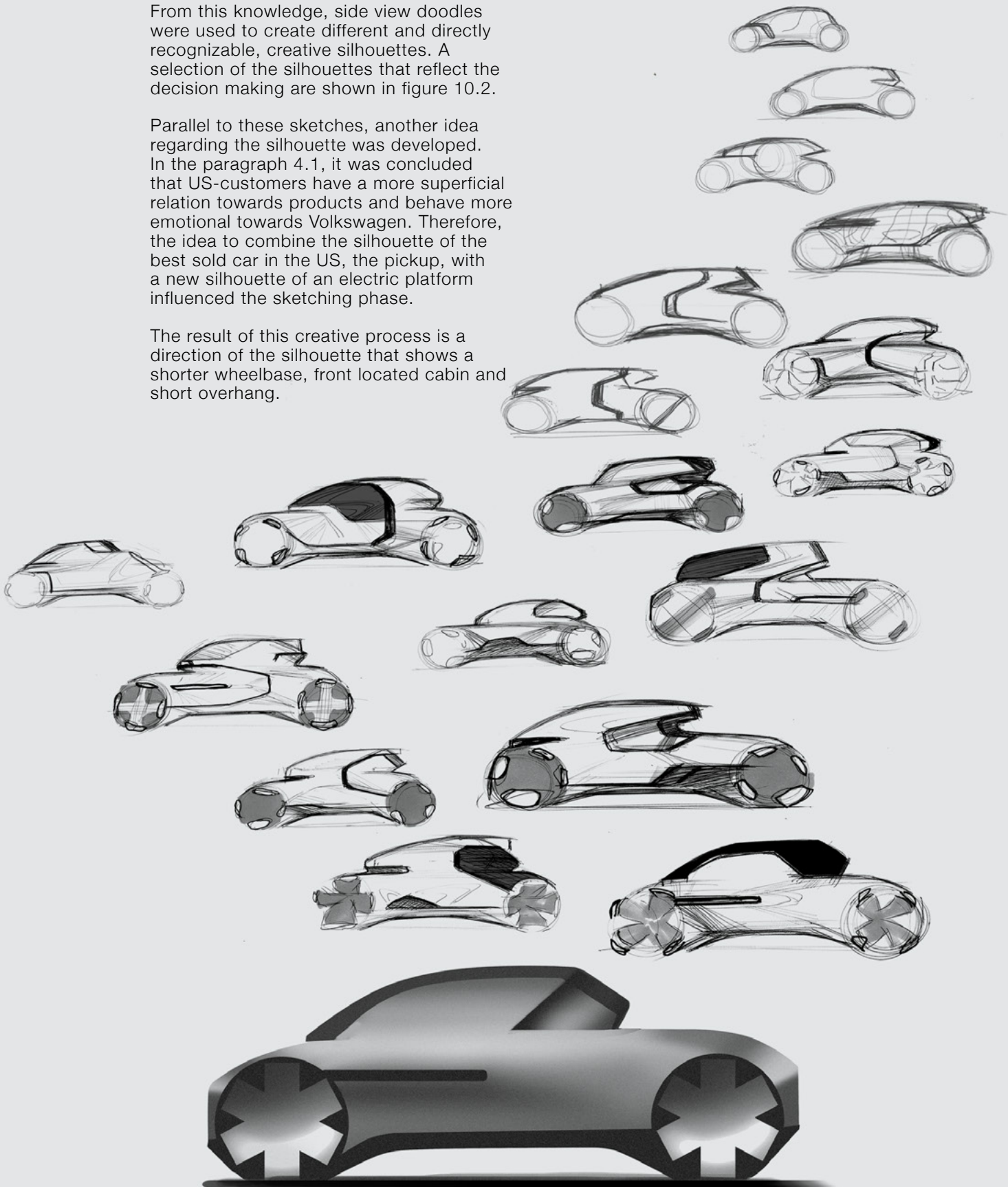


Figure 10.2 // Silhouette research in side view

▼ 10.3 Proportions

Figure 10.3 shows the key sketch for the silhouette of the car. This key sketch has been developed further in the proportion model. This phase shows also the first development of design themes. The design themes are based on the character defined in Paragraph 8.1. Another factor was taking into account at this point, the Volkswagen Design language. However the car should evoke a self defined character, the main

design language should fit to the brand and its design language. Volkswagen defines its design language for the US market with the Tanoak concept of figure 10.4. This inspiration is not directly affecting the styling, but more in terms of theme and details. The goal was to create a more advanced vision of the future possibilities of the Tanoak concept.

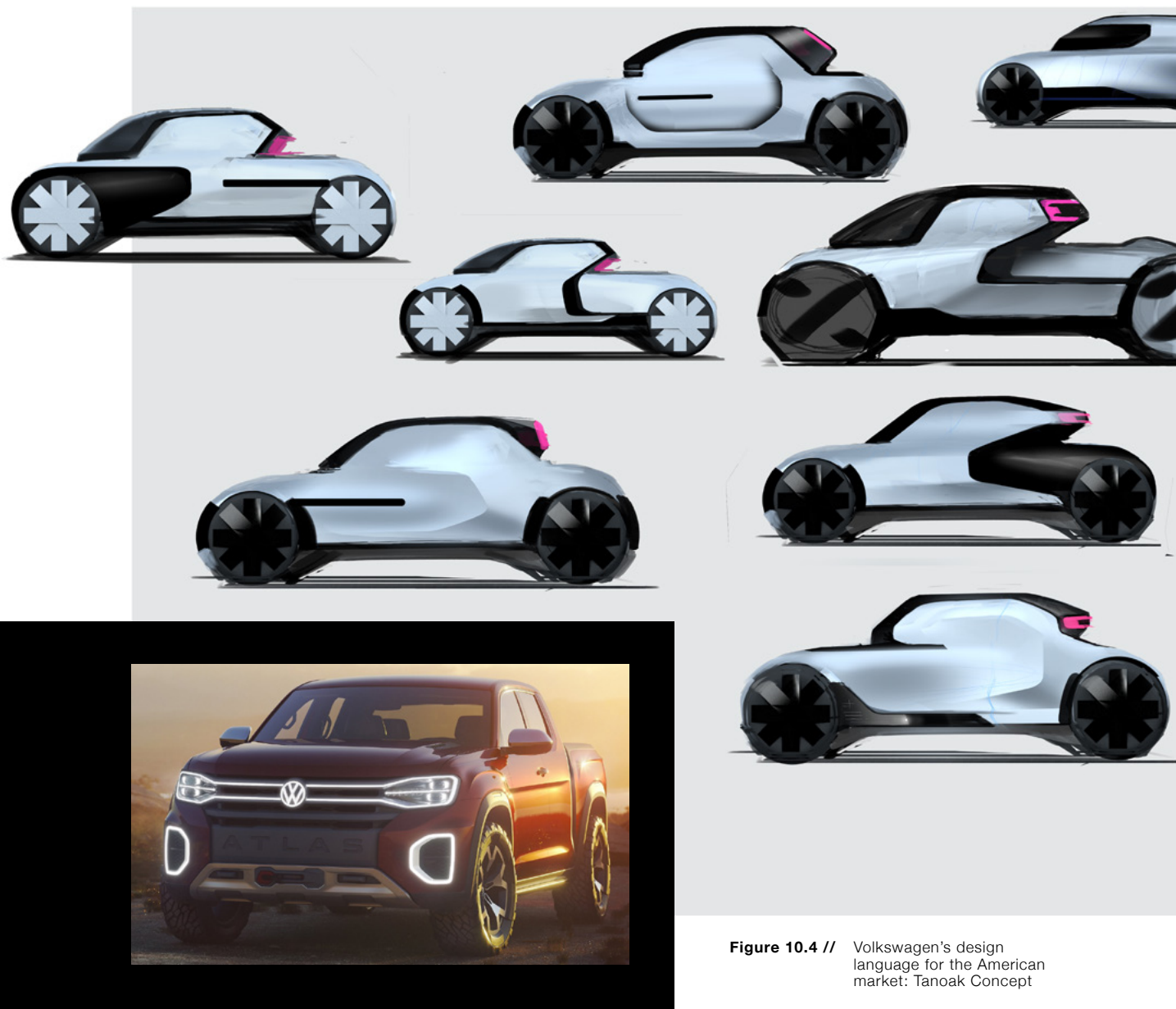


Figure 10.4 // Volkswagen's design language for the American market: Tanoak Concept

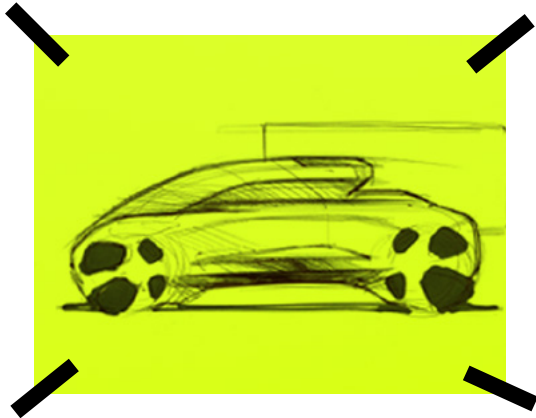
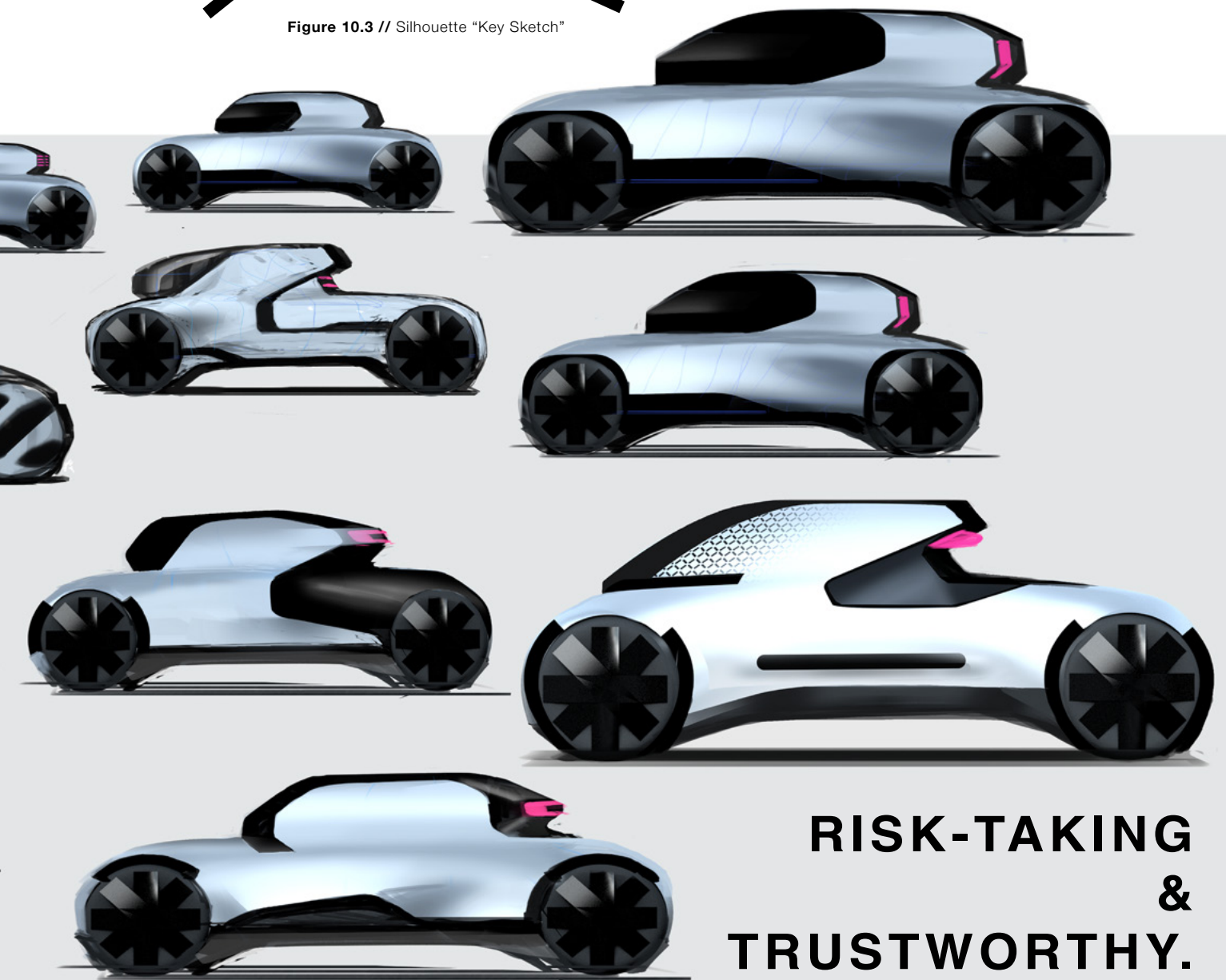


Figure 10.3 // Silhouette "Key Sketch"

10.4 Design Theme

The search for design themes is shown in figure 10.5. The rough sketches show a side view iteration of different body-to-cabin ratio and body-side theme. In this phase, the diverging ideas were used to explore the themes in 3D. Figure 10.6 shows the 3D sketches that search for the right balance, black graphic proportion and stance.



**RISK-TAKING
&
TRUSTWORTHY.**

Figure 10.5 // Silhouette and theme research in side view

▼ **10.5 Direction**

The direction of the design theme has been narrowed down by discussing the desired character and sketches with the client. The client shows great knowledge of the theme potential and how to make it fit to the

Volkswagen design language. Furthermore, the designers personal desire was to find themes that are new and modern in order to provoke and become iconic. Figure 10. shows the chosen concept direction.

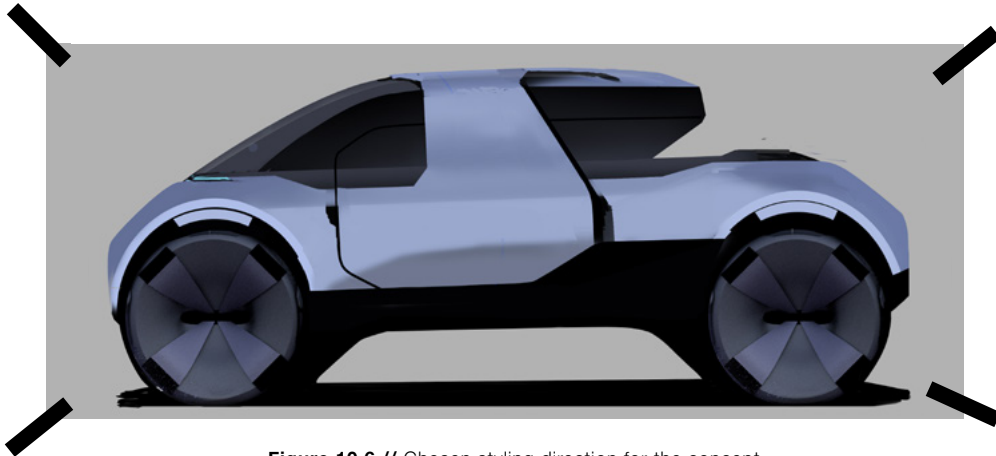


Figure 10.6 // Chosen styling direction for the concept

10.6 Styling inspiration

Figure 10.7 shows a collage that was used to inspire for both volume treatment and graphic shapes. The collage was created with the character from Paragraph 8.1, Risk-taking & Trustworthy. In addition, inspiration was found for treatment of details, shut-line and patterns.

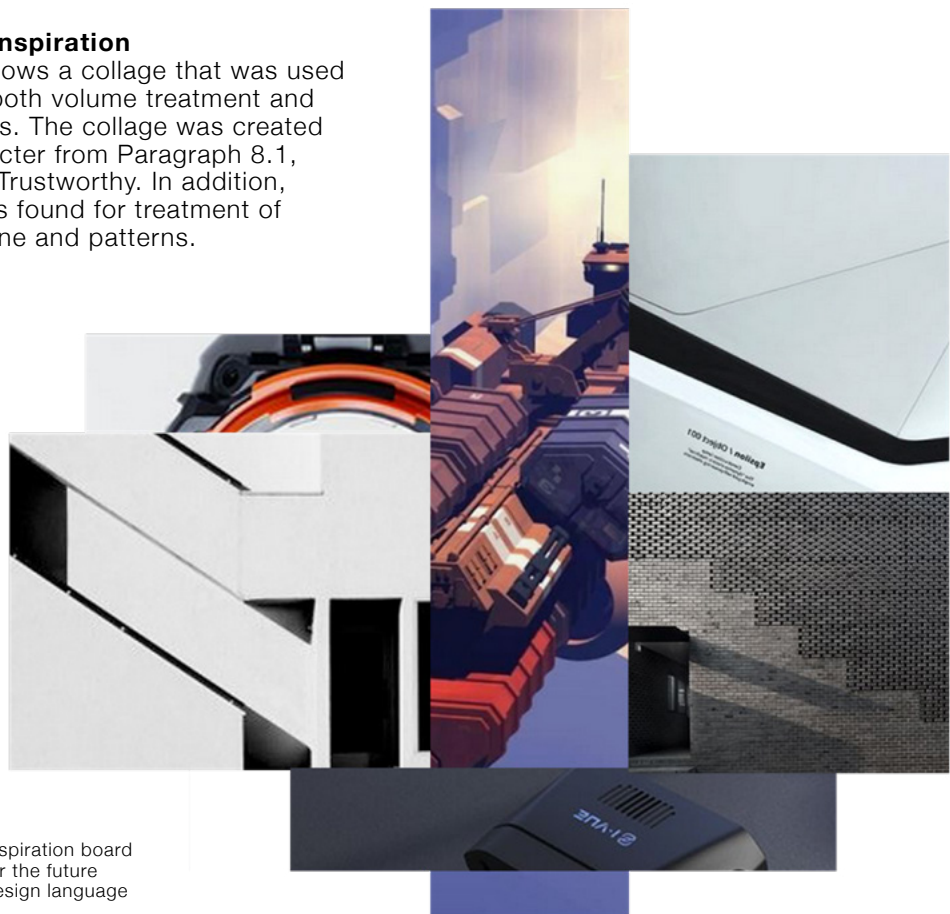


Figure 10.7 // Inspiration board for the future design language

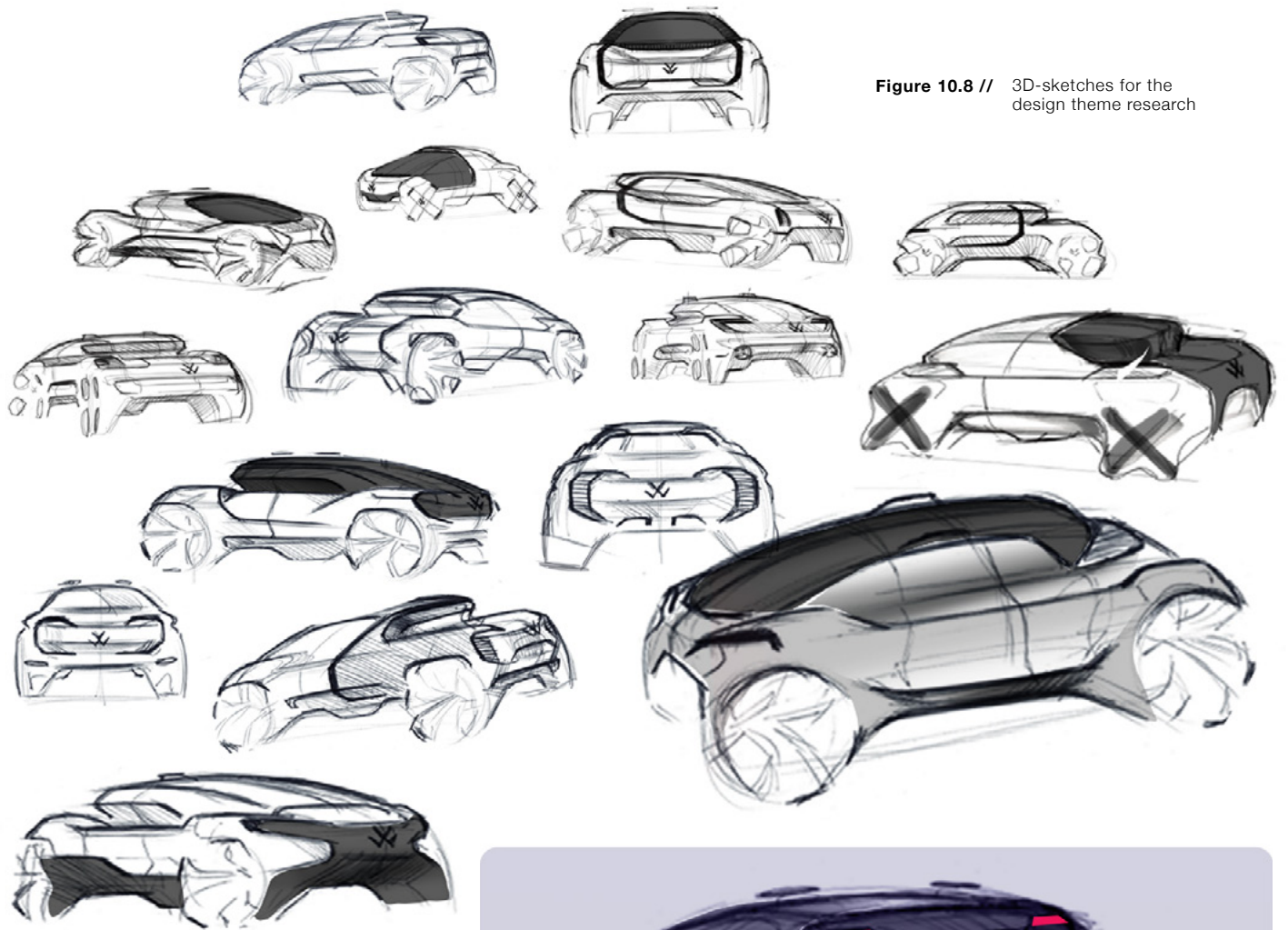


Figure 10.8 // 3D-sketches for the design theme research

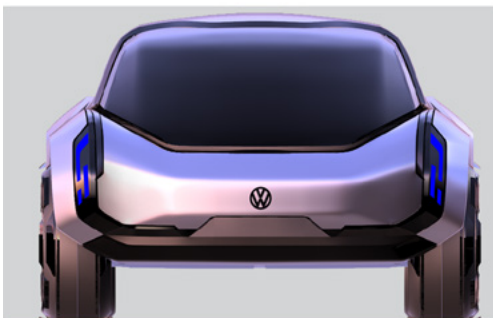


Figure 10.9 // Key sketches for front- and rear design theme

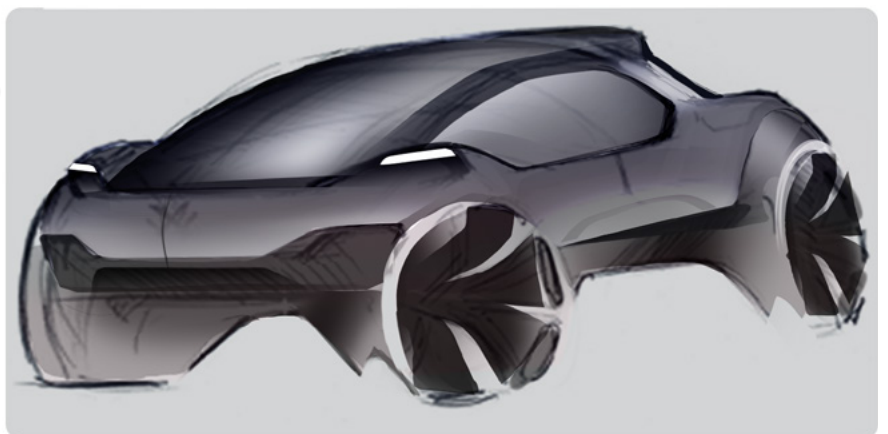


Figure 10.10 // Development sketches of stance and proportion

11 DEVELOPMENT

After the diverging ideation phase, it is time to converge the right ideas and choose a direction. This direction will be developed further by balancing the proportions and fine-tuning the design themes. This phase also started the 3D-modeling process.

▼ 11.1 Proportion model

Following the concept direction sketch, the development in 3D started. During this process, a new method has been used, called “Sketchmodelling”. This process allows the designer to quickly try out different ideas and proportions in 3D models. Figure X shows the development of this “Sketchmodelling”.

Parallel to the refinement and development in the 3D model, the graphics and themes are explored more in 3D sketches as seen in figure 10.8. Figure 10.9 shows the initial front and rear design themes. The idea was to create a strong vertical themes, illustrating the masculine feeling of US market cars. Also, the treatment of the surfaces is very theoretical and shows strong bones combined with geometrical graphics. Figure 11.2 on the right page shows the leading sketches for the proportion model.

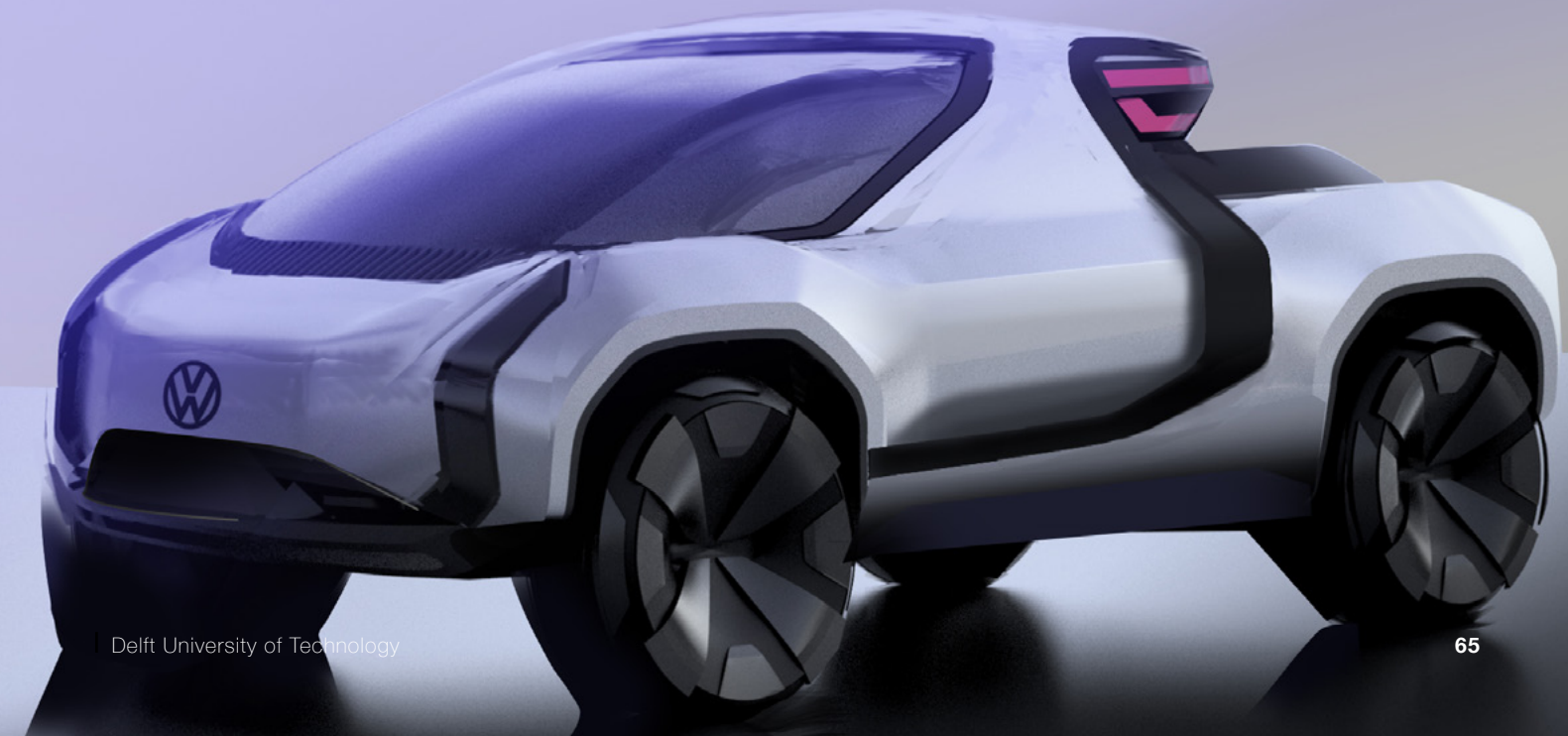
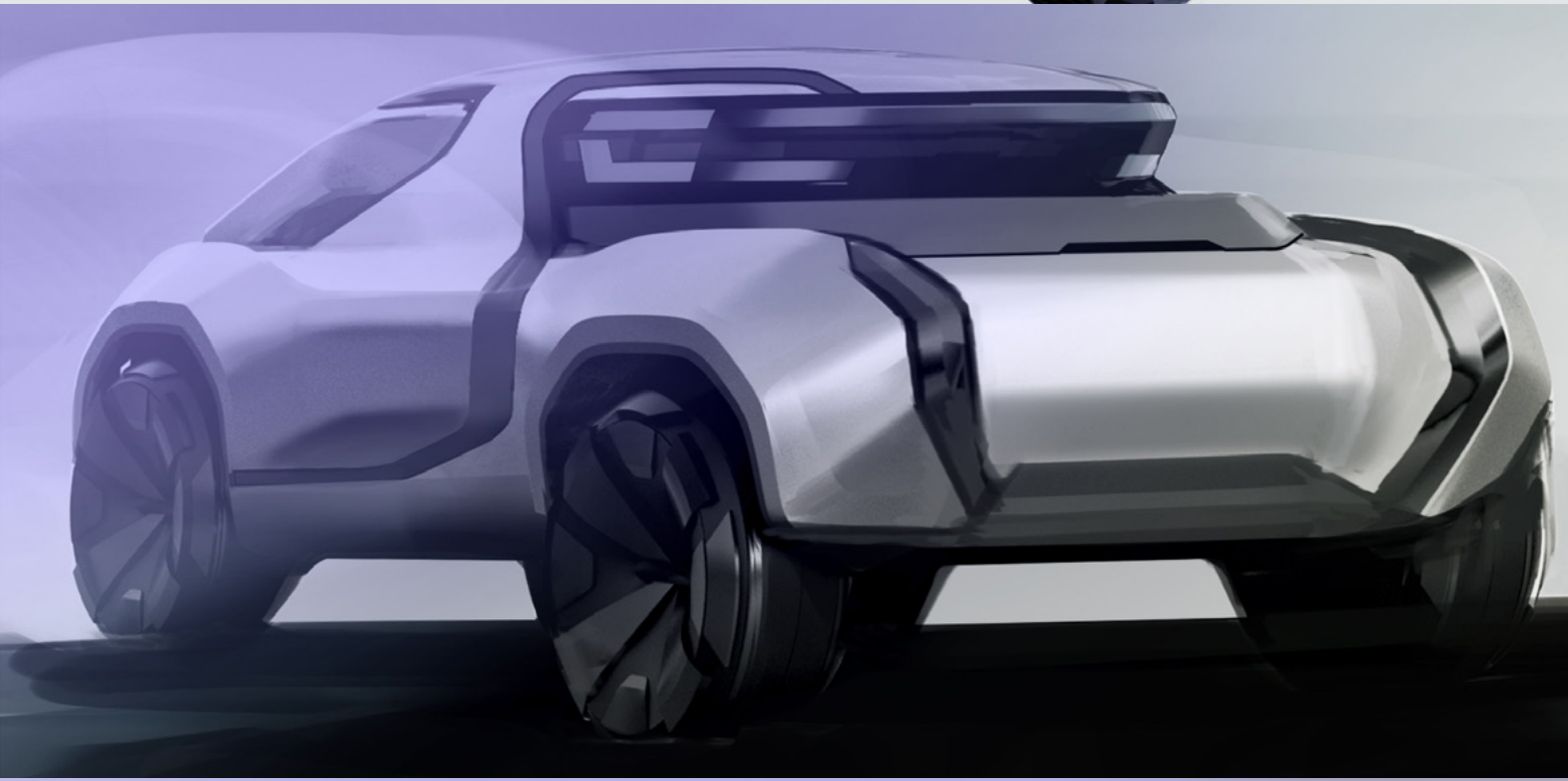
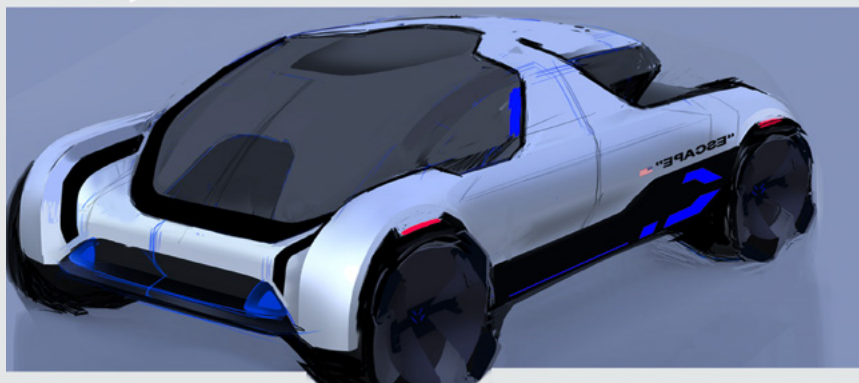
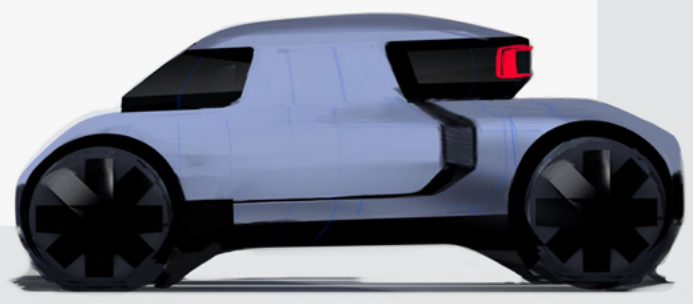
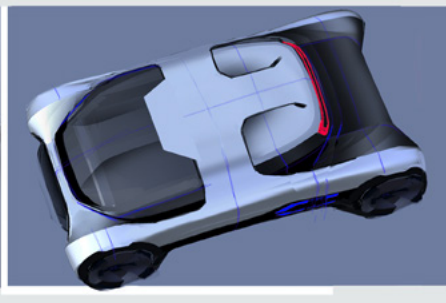
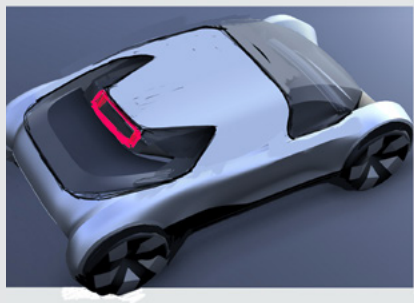
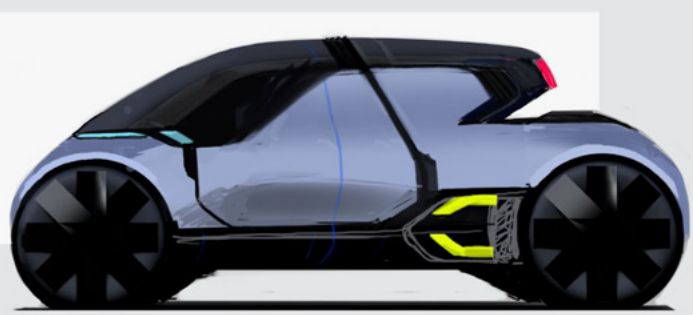
11.2 Wheel Concept

During the sketch-phases, several ideas for features were explored. One of them is a concept for the wheels. As the car bridges both the world of Efficiency, where the infrastructure is well engineered and organized, as the world of Escapism, where nothing is paved and true nature is still visible, it should offer different driving characteristics as well. The concept for the wheels provides this. Figure 11.1 shows the concept. When driving in the Efficient world, the wheels are one solid shape. However, when arriving at the border of the Escapism world, the wheels get 20mm wider and rotate 45 degrees. In this way, the track is better and the rims generate off-road studs. Both parts of the rim are connected by a flexible mesh material (orange part).



Figure 11.1 // Explanation sketch of the wheel concept

Figure 11.2 // Development sketches of the chosen concept direction which were used for the proportion model



▼ 11.3 Other Features

Besides the concept for the wheels, more features (see figure 11.3) are designed to give the vehicle the right character.

❶ Panorama view

The first idea is embodied by the cockpit view and missing A-pillar. In order to create memories and experience the escapism driving to the fullest, the view from the cockpit shows the full surrounding.

❷ Front dropped windshield

In the development, one can see that the front end of the glass is very low. In this way, the passengers can see much more of the direct environment than in a traditional bonnet situation. This is done because of the possibilities to go off-road with the vehicle. In this way, one can experience rough terrain in a more controlled way. The idea mimics the feeling that is used in video games since a long time.

❸ Protective bumpers

In order to be able to escape in the American landscape, the car needs to be able to cross rough terrain. Therefore, the bottom layer of the car is a protective bumper parts on front, rear and both sides.

❹ Technical indicator

In order to directly see the status of the car, the bottom LED indicates the battery status, charging mode and sharing status.

❺ Gullwing doors

The body side graphic is used to indicate the door opening system. The car makes use of Gullwing doors in order to make it possible for all three users to enter the car in both "Escape"- and "Efficiency" mode.

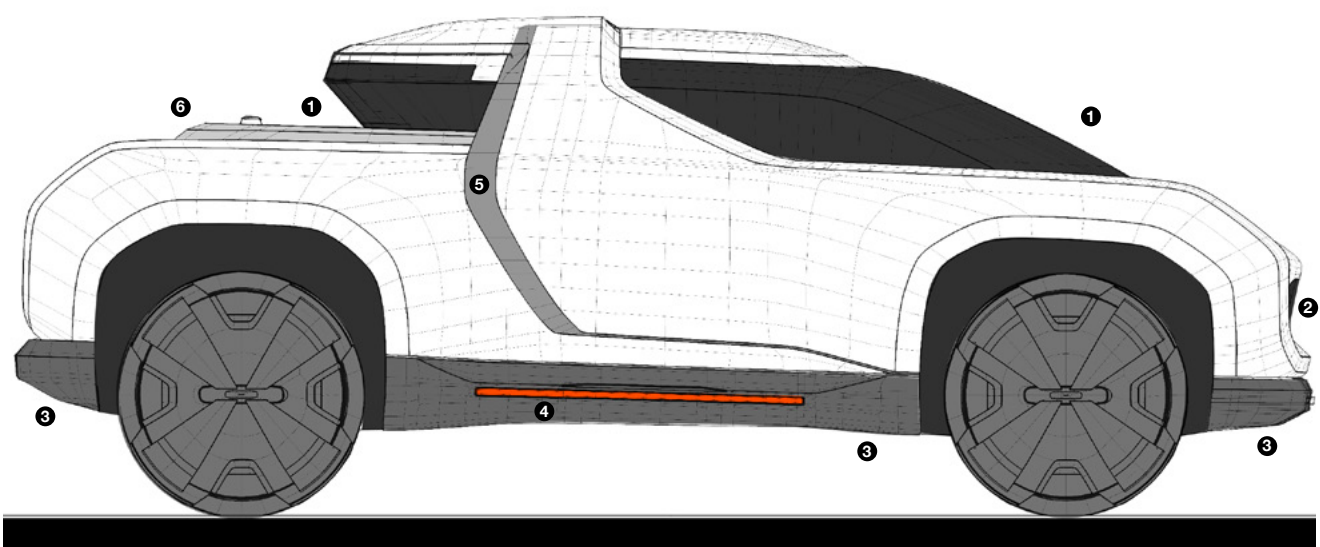


Figure 11.3 // Illustration of concept with features by number

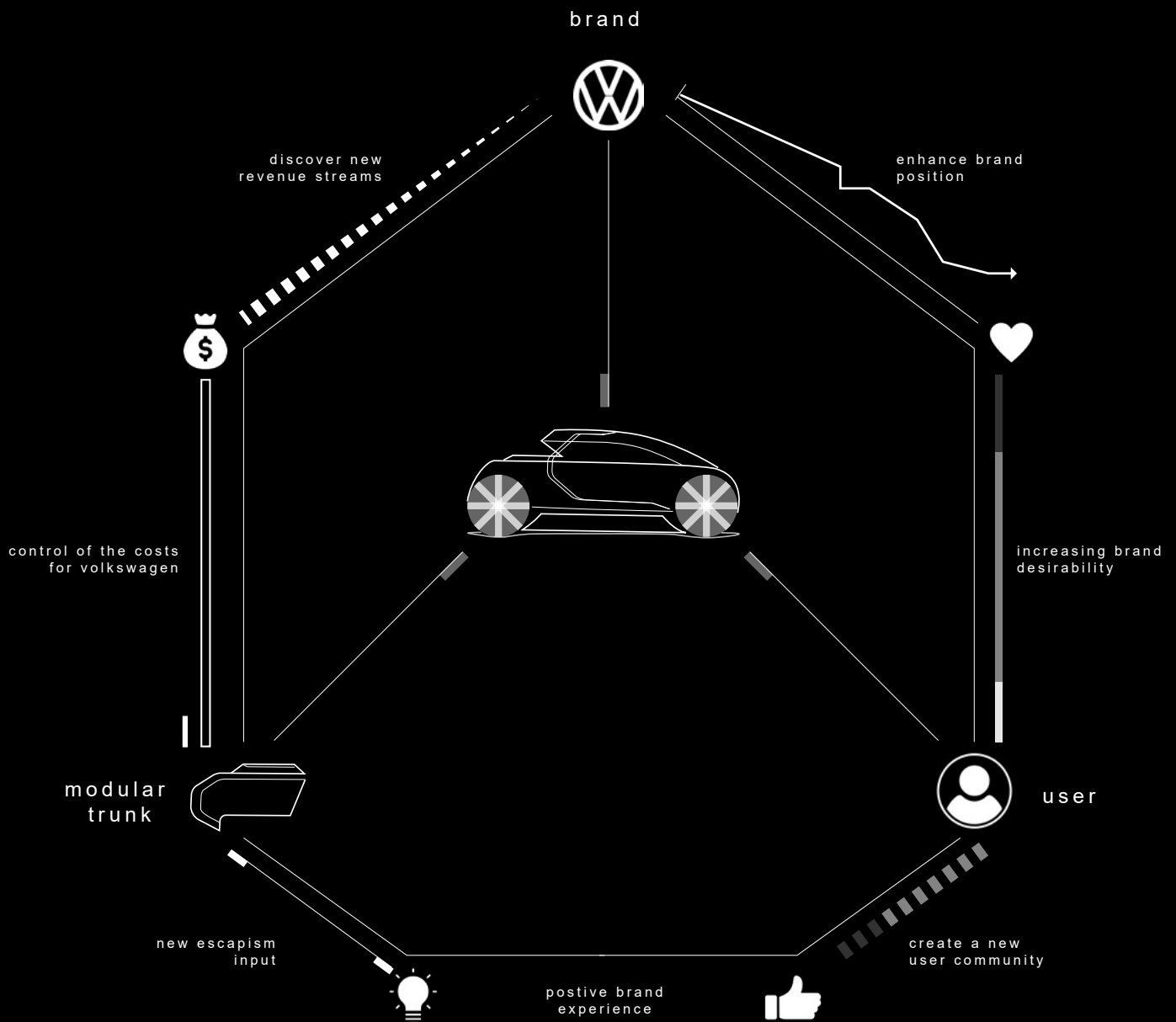


Figure 11.4 // Illustration of the concept behind the "Modular Trunk"

6 Modular Trunk

Taking a closer look at the product-use scenario, it became visible that the product should offer different possibilities while escaping. For example, it should be possible to escape just for a short amount of time in the city but also for a long weekend in the outback of the Grand Canyon. Therefore, the idea was there to think about a new way of customising the product. It was concluded from the analysis that the generation of 2035 has a different approach towards products and is more attracted to pay for services. Figure 11.4 shows the idea of a modular trunk of the

car. In this case, the basic interaction will remain the same inside the car. However, when desired, users can ask Volkswagen to provide different modular options for the rear end, matching the desired functions. In this way, Volkswagen is keeping in touch with its clients and can find new revenue streams in leasing contracts or customisation fees. As it will be easier to create our own products with DIY-technologies, it could even be possible to create a new network between Volkswagen customers, where they interact with each other, swap ideas and create a new community.

▼ 11.4 Design Freeze

At this point in the project, the design comes to a “Design Freeze”. Designers will recognize that one can always work further and change a design, but for the time-frame of this project, the design will not be iterated further. However, suggestions for further development can be found in Paragraph 13.1.

11.5 Design DNA

Each car that wears the Volkswagen logo should breathe the Volkswagen DNA. From the styling analysis of Paragraph 3.4 and 3.5, some conclusions were derived. These aesthetic “guidelines” can be found within the design language of the brand. Therefore, they are implemented in this vehicle as well.

“Logic” Design

The first thing that every Volkswagen should have is logic in the lines, volumes and proportions. From the side view, it is visible that the bones and highlights are logically aligned, pointing in the coherent direction. Also, the horizontal lines work in the same ratio of wedge.

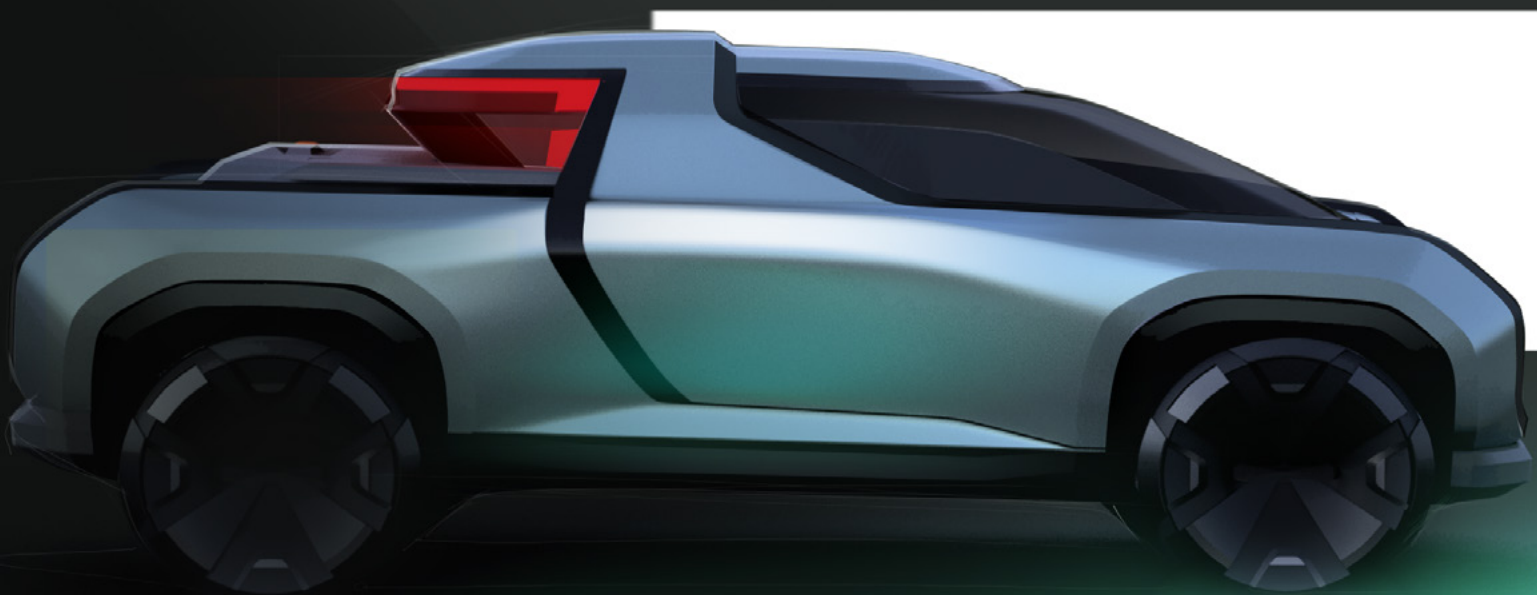
Wrap-Around Theme

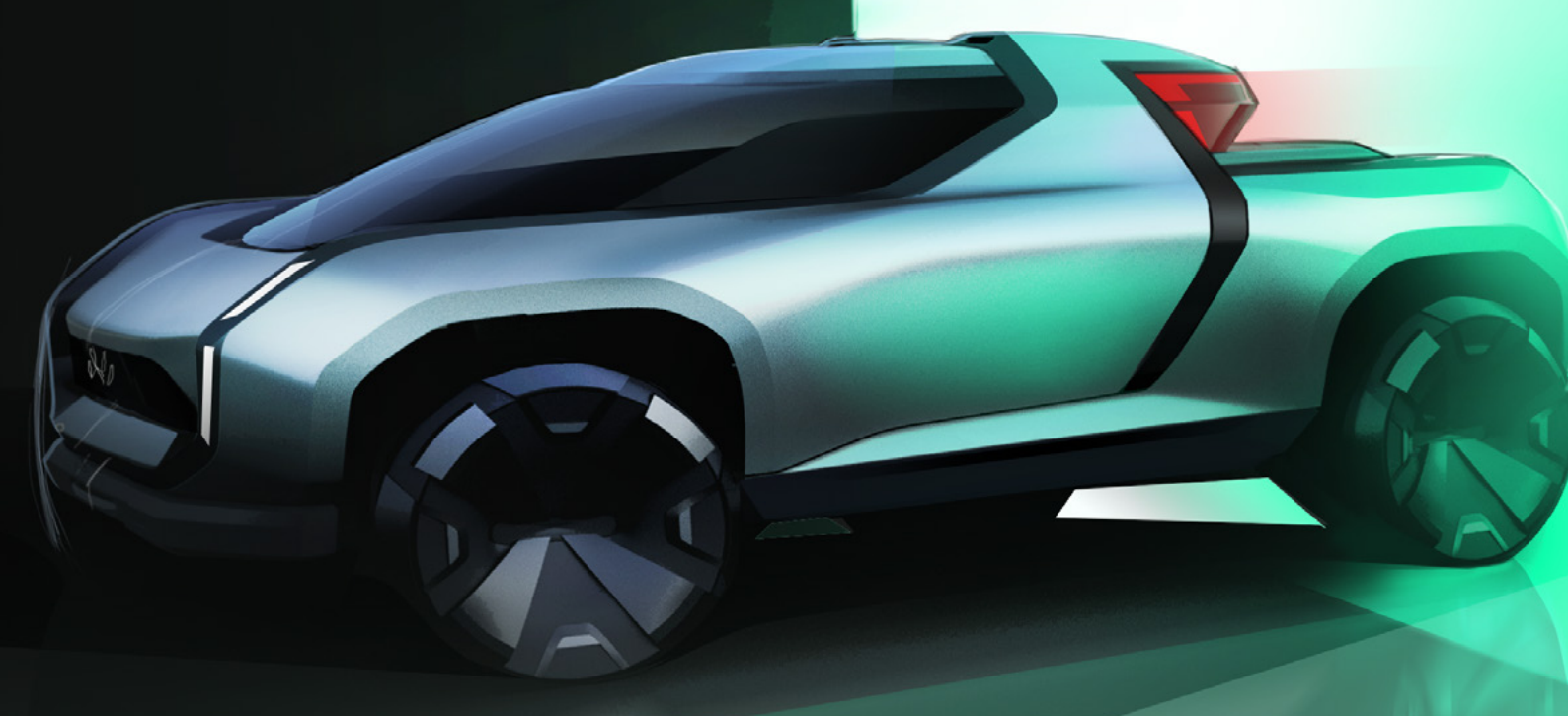
Furthermore, every Volkswagen has a line that runs continuously around the car, packing all elements together. In this case, it is the line that separates the soft volume from the body with the robust bottom parts, that goes around the complete car and connects the all elements visually from every perspective.

11.6 The Name, Valor

The concept is called Valor. Volkswagen has a tradition of naming their models after wind names. Following the tradition, Valor is a wind type as well. The Valor wind is a Southern-American wind type that is famous for changing quickly from direction after the previous wind. The idea of going against the stream is perfectly fitting the concept behind this vehicle.

Figure 11.5 // Collection of final sketches for the proportion model





▼ 11.7 3D Process

The step from sketch to 3D model is done with the program Autodesk Speedform. Speedform is a Poly-modeling program with many advantages. One of them is that it allows the designer to try out themes and proportions really quickly in 3D. The process is a much more flexible approach than the traditional way, where a lot of time is spent on sketches before going to the 3D modeler. Figure 11.7 shows the time lapse of the sketchmodelling process, from a really rough tryout in silhouette into a more detailed 3D proportion model.

11.8 Surfacing

Figure 11.6 shows the 3D model before the design freeze. The themes are well balanced and proportions are both realistic as good looking. The surfacing is done in a rather theoretical approach, giving the car a bold and strong feeling.

11.9 Details

After the design freeze in Speedform, the model was transferred to Autodesk Alias for the detailing. Figure 11.6 shows some of the angles of the 3D model before rendering. The details of the vehicle show a rather product-design approach. This is matching the boldness of the rest and give a modern feeling to the car. More detailed views on the details can be found in the chapter “Communication”.

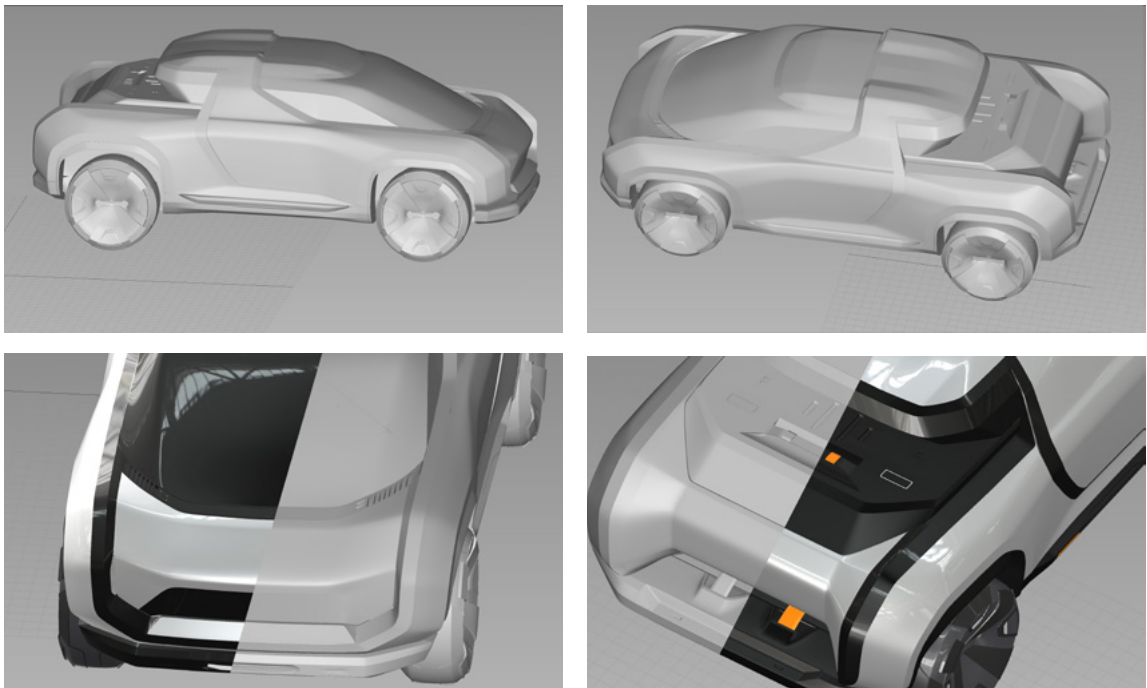


Figure 11.6 // Captures from the 3D-modelling process. Alias surfacing and rendered material

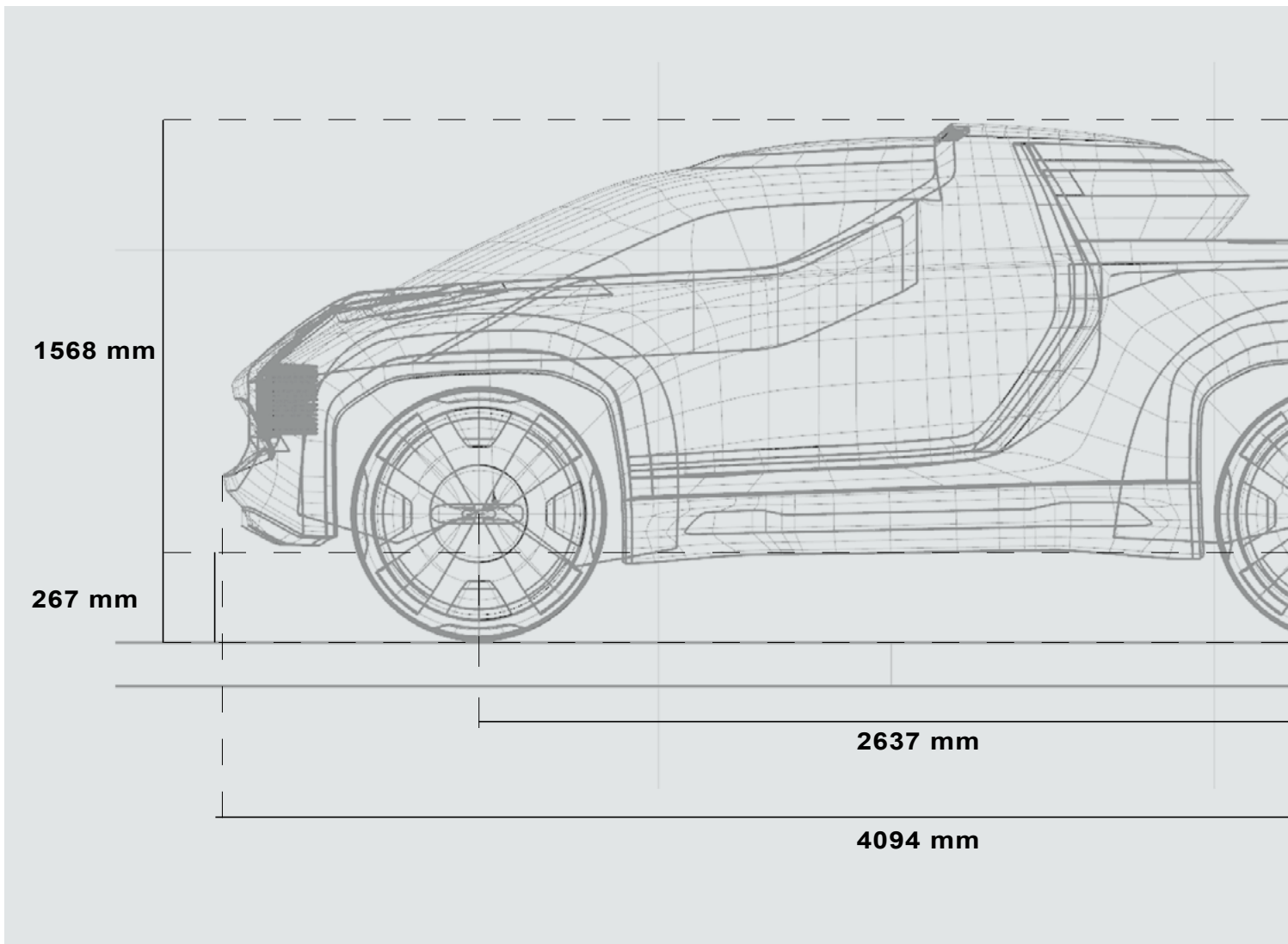


Figure 11.7 // Development of the sketchmodeling process over time (read from zigzag from top left to bottom right).

▼ 11.10 Dimensions

Figure 11.8 shows the dimensions of the car. The goal at the start of the styling process was to find a complete new, iconic silhouette with different proportions. This idea in combination with the MEB-platform specifications shows a pick-up impression with mid-size electric dimensions. For example, the wheelbase is based on the Golf Mk7.

There is however a remarkable difference in width, due to the fact that the car has to make it possible to slide the three seats. In the situation where the seats cross each other, the car is then a three seater in one row. Therefore, the car is slightly wider than the average MEB-platform car. This is not a problem due to the adaptable axis.



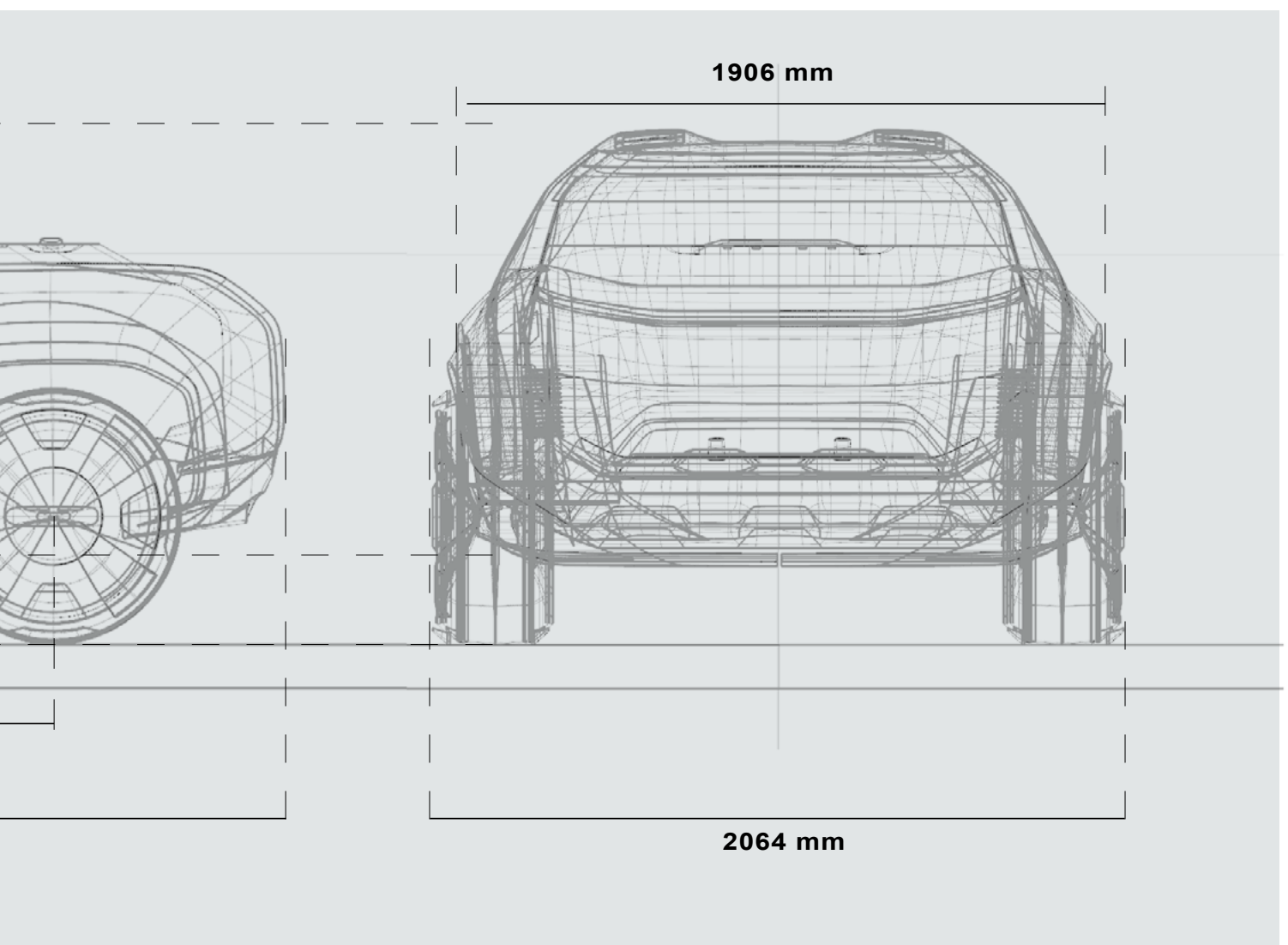


Figure 11.8 // Technical drawing of the dimensions in side- and front view.

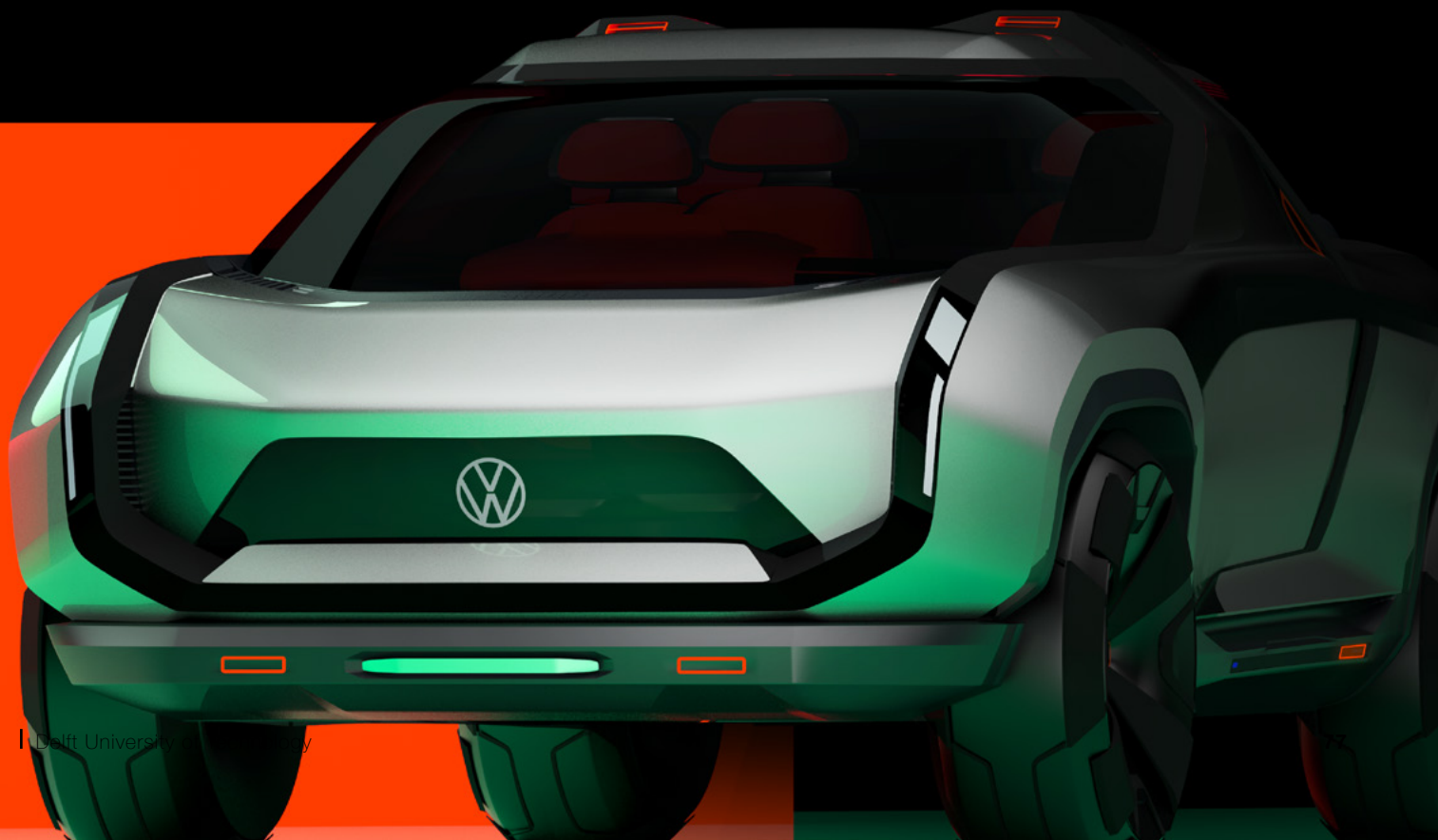
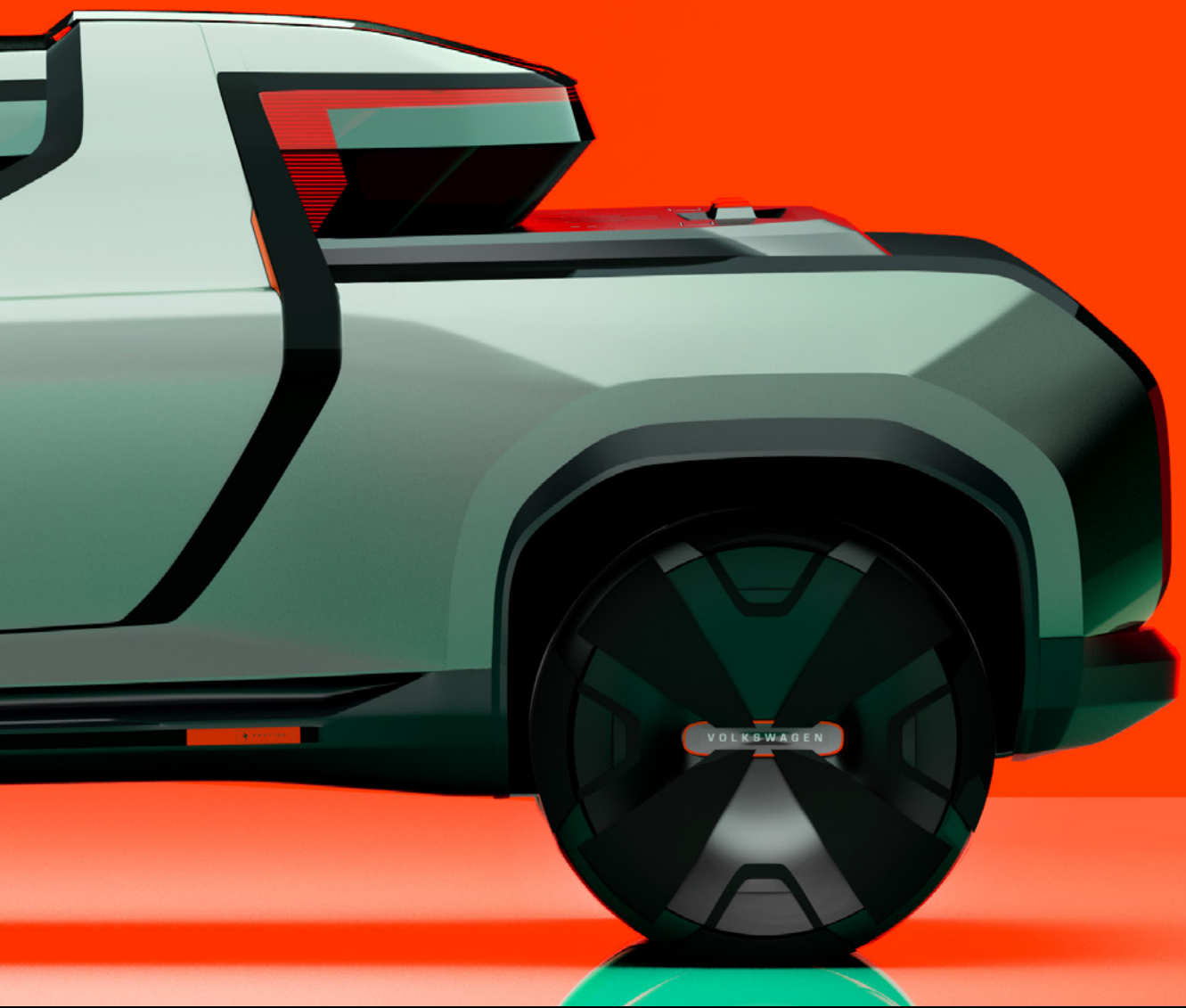


PART E // IMPRESSION



Part E is the communication of the final product. The chapter shows several shots of the final design in studio and context.





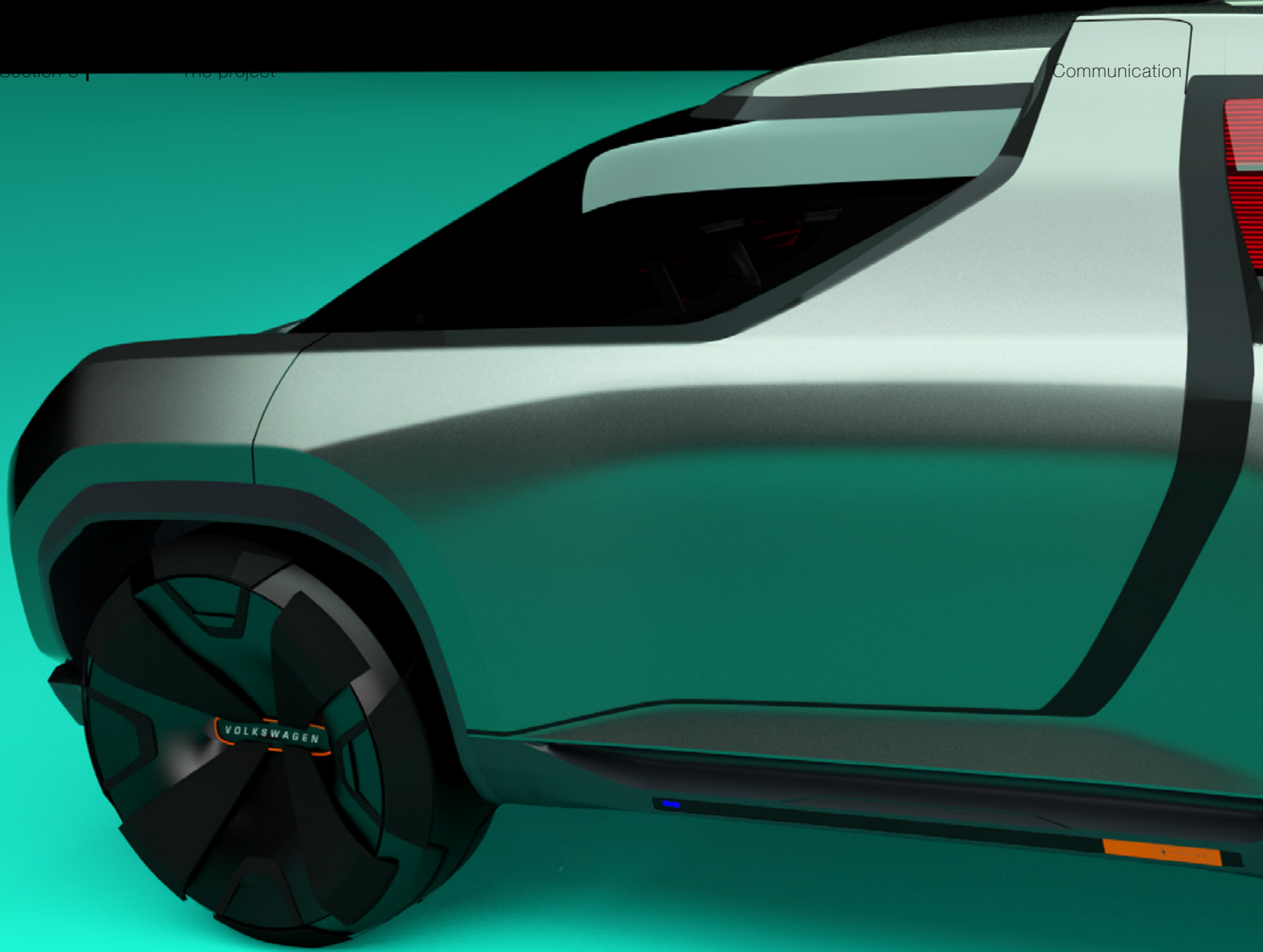


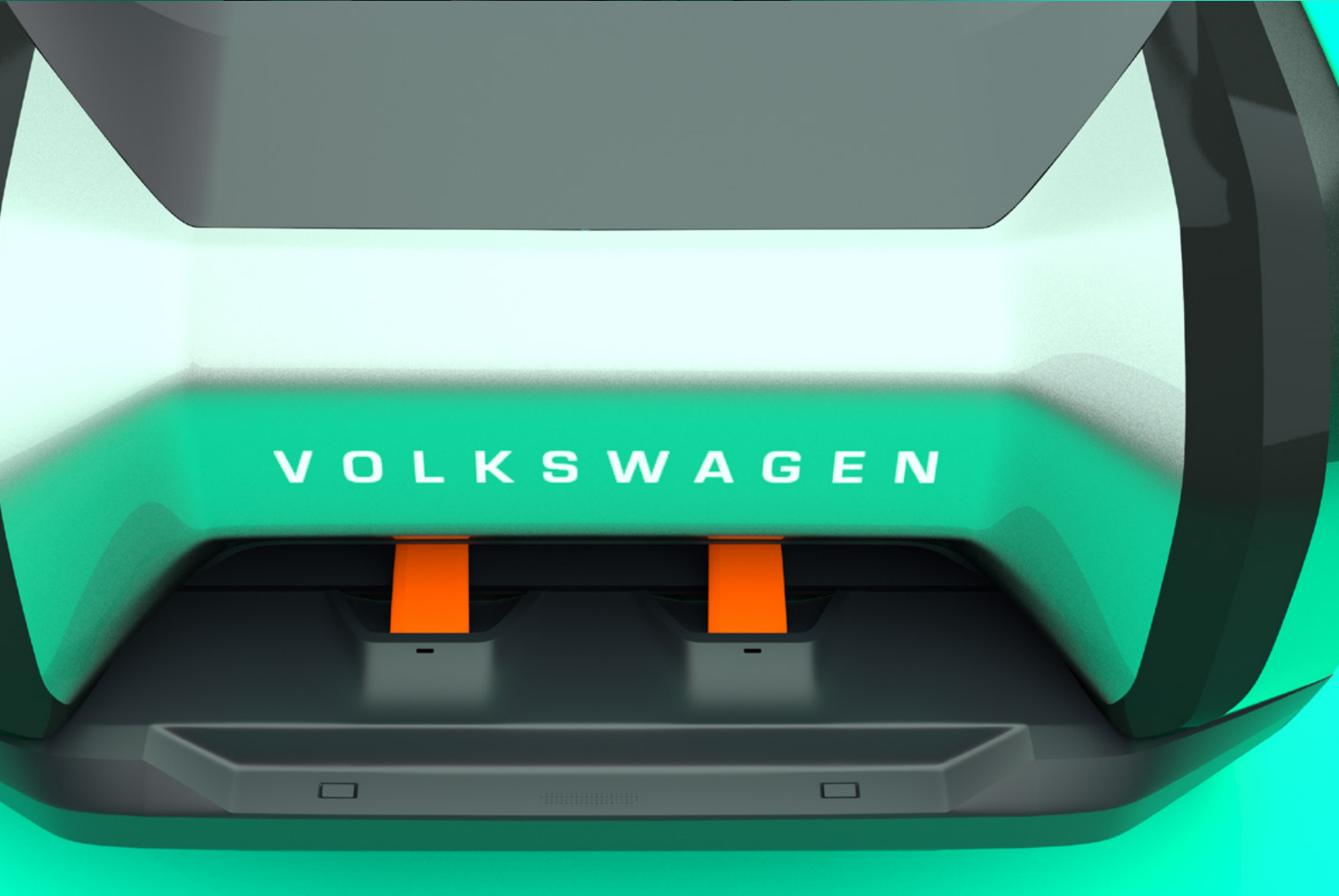
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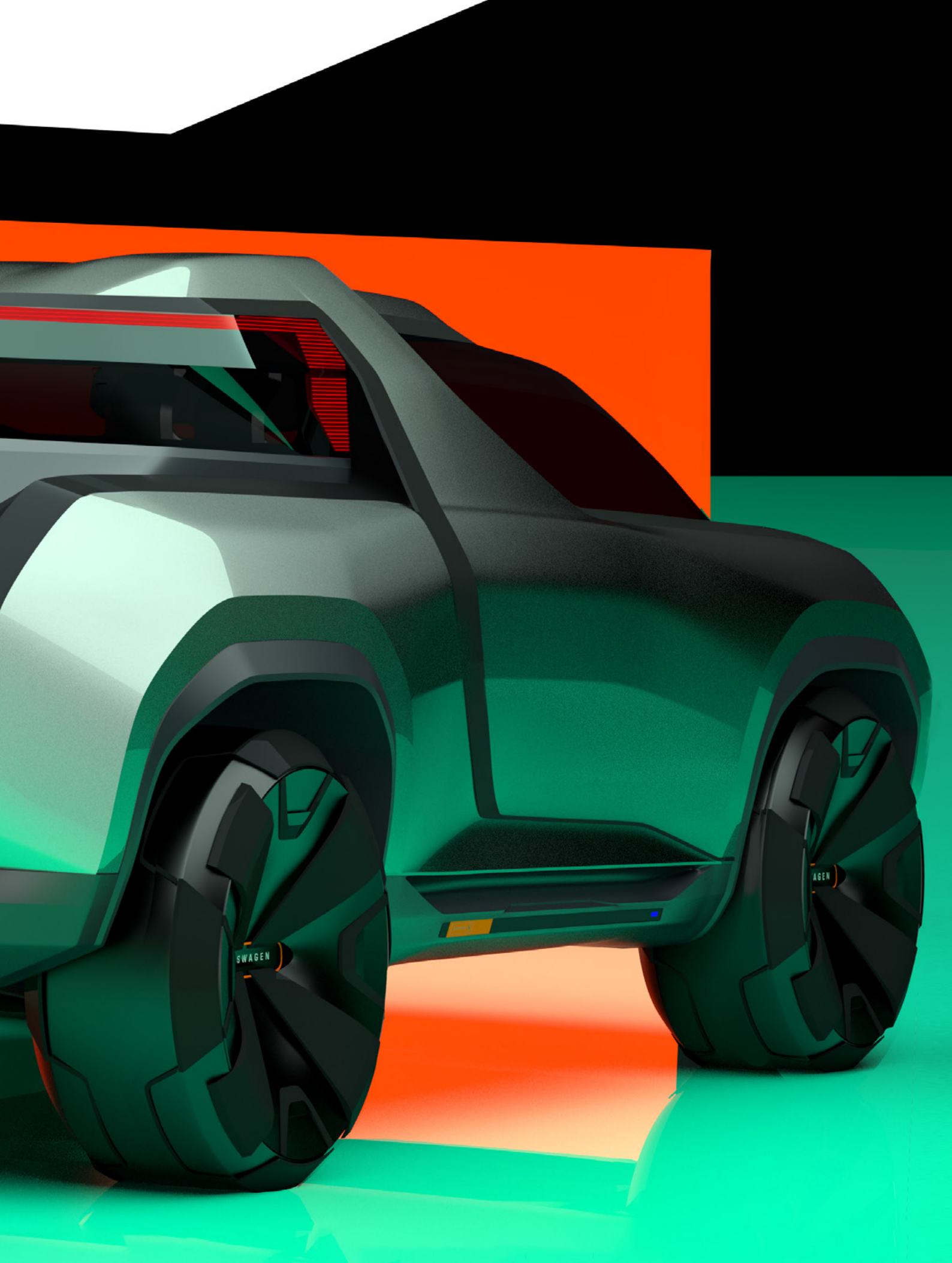










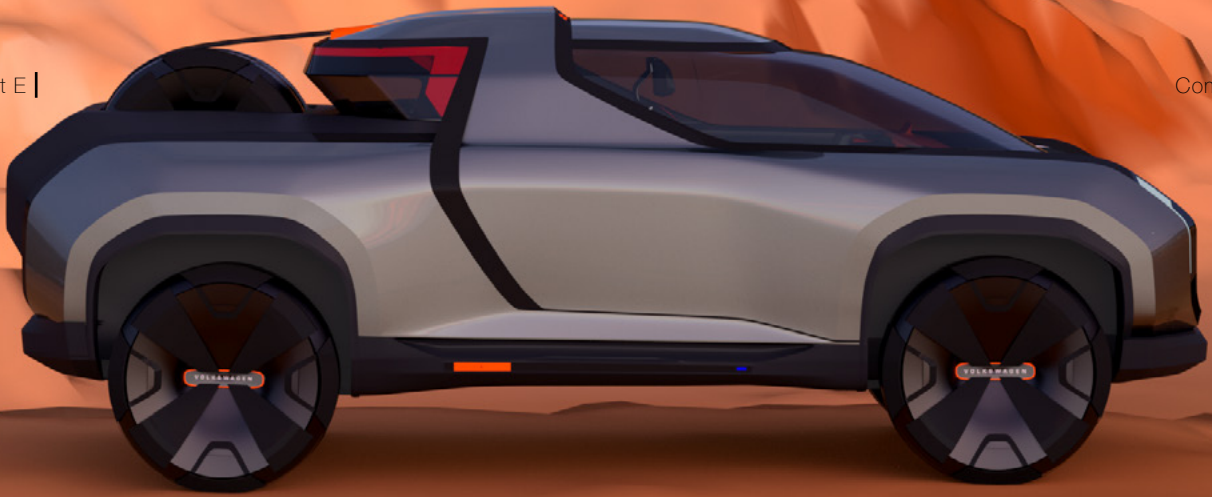


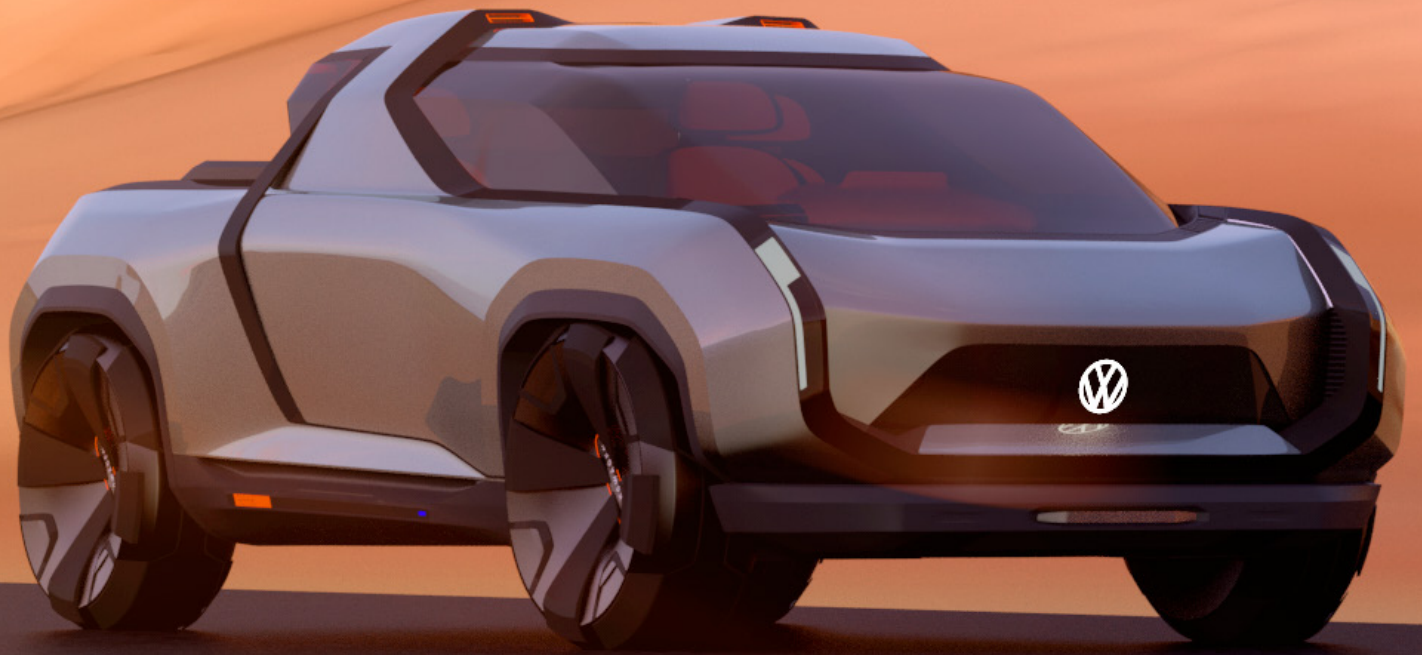


















PART F // EVALUATION



Part F concludes the project with an evaluation. This chapter discusses the product and process. A design can always be developed further, but what would be the recommendations for Volkswagen for the next step? The chapter finishes the project with a personal reflection and final word.

13 DISCUSSION

The last chapter of the thesis concludes the design with recommendations for Volkswagen and an evaluation of the project and process. The chapter is concluded with a personal evaluation of the designer.

▼ 13.1 Recommendations

In the professional industry, it takes around 4 years to develop a car from scratch. Logically, the half year result of the graduation project could be developed further. This chapter discusses which parts of the vehicle could be improved and iterated.

Surface Quality

Figure 13.2 shows the highlights on the body side run do not run as smooth as desired. This is where one reaches the maximum quality of a polygon modeling tool like Speedform. The next step in the process would be to switch to NERBS-program like Alias and rebuild the surfaces. This is however not the task of a car designer but rather the task of the 3D-modellers. The task of the designer is to deliver an idea in any form, usually a sketch. Within Volkswagen, the level reachable with poly-modeling is enough to work with a modeler. Unfortunately, this project could not get the budget to bring the surface quality to the next level. Nevertheless, figure 13.2 shows that the theory of the surfaces and the directional highlights could be improved.

Line Curvature

Another disadvantage of Speedform is that it is not possible to “freeze” a line or

surface. Therefore, when a CV-point is moved, it influences other surfaces and loses the coherent curvature in the line. For example, the wheel arch should be slightly curved in the Y-plane. However, because of the different patches and attachments to the body side, the arch is not running smoothly along the curve (see figure 13.1). This would be easier to control in a NERBS-program like Alias.

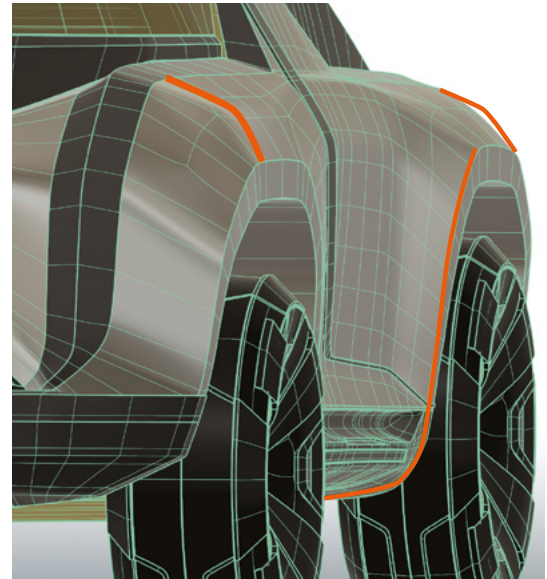


Figure 13.1 // Surfacing improvements for next steps

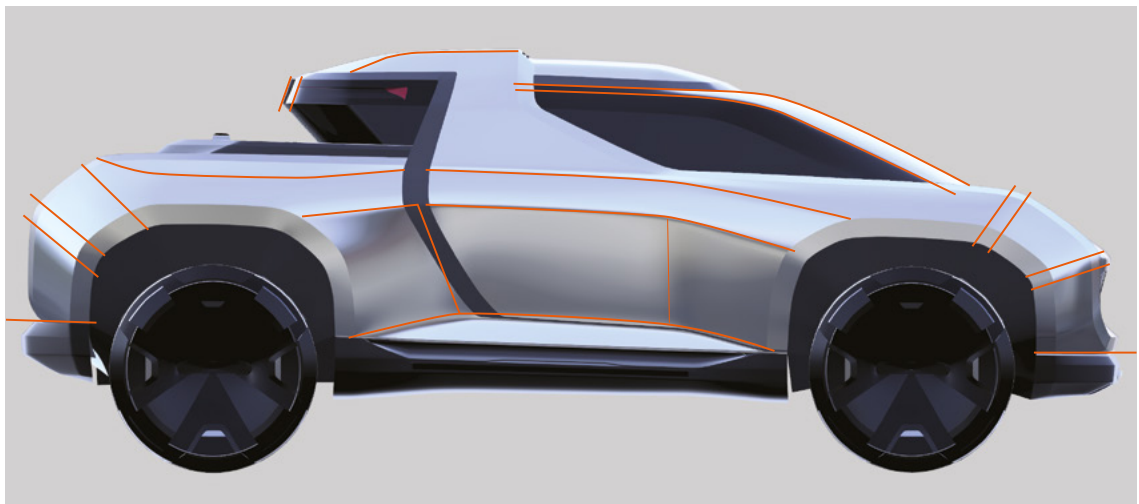


Figure 13.2 // "T-tape drawing" of the corrected lines for further development

Front graphic

The initial direction of the front graphic was very interesting. The vertical orientation of the fender and headlamps was not seen before and provoked a lot of interest by the client. However, the step made in the development process did not lead to the full potential of this idea. Of course, this is a subjective remark based on personal taste but I would recommend that Volkswagen invests in the search for a horizontally oriented design theme (see figure 13.3).

Feature Development

The concept was designed with several features. In the next phase of the project, these features would require a research on the feasibility of the working principle and production costs. For example, the full glass cockpit is something that could make the production increasingly more difficult. The same will be needed for the wheel concept, Gullwing doors and modular trunk.

Business Model

As mentioned in chapter 11.3, the idea is to not only create a new car, but also a business model alongside the concept. With the modular trunk, it is possible to setup a service from Volkswagen where users lease, rent or create their own modules and exchange with each other or even propose their ideas to Volkswagen. However, in order to sell this idea to the board of management, Volkswagen should internally develop the idea along with the marketing department. While developing this idea further, they should take more factors into account than only the product and service. It could be integrated in cities, generate new community places, open up new retailers for DIY-design and so-on.

Figure 13.3 // Vertical vs. Horizontal front graphic

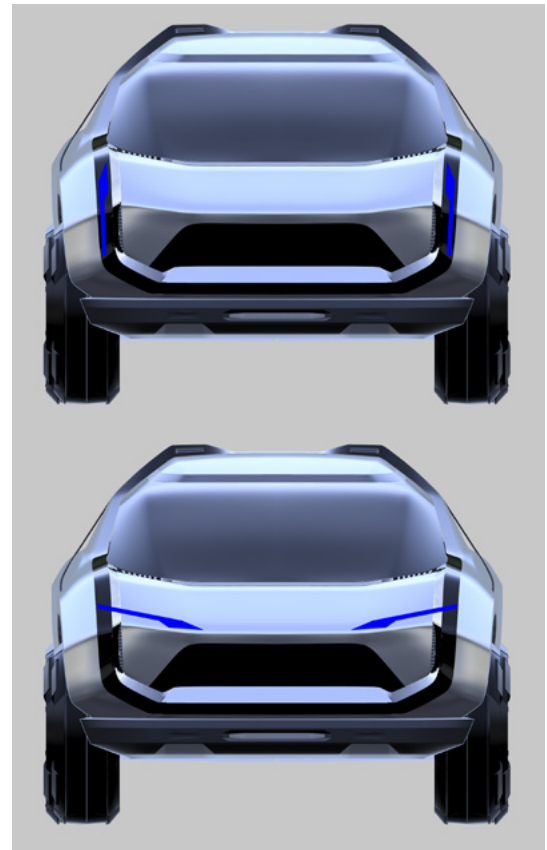


Figure 13.4 // Community of Volkswagen drivers

▼ 13.2 Process evaluation

A design process is difficult to judge. In the ideal case, the process is completely linear, without any bumps along the road, giving the designer enough time to explore the amount of solutions he or she wants. However, this is never the case. Even during the professional projects it became clear that the design process is something flexible, with many steps back and forth.

With the experience I gained after completing the study at the TU Delft, I can conclude that the design process in this project was smooth and organized. ViP can be quite a tough method if you are mentally stuck or not able to envision the right future. Thus, the danger of remaining too long in the analysis phase and lacking time to properly design the product was not as big as I imagined upfront.

However, if I were to redo the project, I would make sure to finish the Design Brief completely before the kick-off. This way, you can directly start with the project instead of losing a few weeks due to the assignment not being clear enough. Having a better defined assignment also saves time in the analysis phase.

During both the internship and thesis, I discovered new programs and learned new processes that fitted my design vision and skills. For example, the rather new program Speedform is shaping my personal process a lot. It allows me to sketch ideas in the form of doodles, sketch quickly over that digitally and then move to Speedform to see the potential of an idea. When I am satisfied with the base, I use Speedform as an underlay to quickly iterate and have realistic solutions. Also, working in a 3D-model helped me to get a feeling for 3D theory and surfaces. The effect that is created when roughly sketching over Speedform is rarely seen and creates interest from the professional designers, something that is essential to have during an internship.

Furthermore, this kind of process saves a lot of time in the modeling process. If you can deliver a rough 3D-model to the

modeler, he can model faster and more accurately than when he has to start with a static sketch.

The negative point of this process is the communication. In the exterior design department, people still judge the style and type of sketch instead of the design itself. When sketching over 3D, it is difficult to have the same emotion in the image as is visible in a handmade sketch. Thus, it takes some additional time to make the sketch more attractive before presenting. Although I understand that it is part of the job, it feels like reverse-engineering to me.

13.3 Experience evaluation

The internship at Volkswagen was my first experience in a professional car design studio. It became clear that I missed basic knowledge regarding the styling process. Although the industry is up for a change, I discovered that the biggest part of the daily job is shaping nice objects. I learned a lot in the first 8 months of the internship by participating in a lot of projects and took every opportunity for feedback. I improved my sketching level, got more knowledge about 3D-surfacing and got the chance to make a physical model. Making a model is a fantastic experience, enabling you to learn from and work with (German) modelers, coordinate your own project and train delicate skills like taping and sanding. Although the design process is becoming more digital, the exterior design department is still highly interested in physical objects like sketches and models. Therefore, I am very happy that I got the opportunity to make this model and showcase it in my portfolio.

As mentioned in the preface of this report, my personal goal for this project was to enhance my skills that I gained from my internship. I had to show that I was able to take the next step in regard to my personal development. Therefore, it was quite disappointing when I was told that there was no budget for a physical model during my thesis. The complete budget for interns was canceled and therefore I could not get any support during the project. This news was actually the most difficult point of

the thesis. When looking at the competing students at other brands, a physical model is necessary if you want to aim for the top. It is even more disappointing when you could have managed to make the model in terms of timing. This news set me back a few days trying to get myself motivated again. Eventually, I decided to focus on a fully digital presentation with detailed animation, as that was something that I wanted to learn as well.

13.4 Personal evaluation

Lastly, I want to conclude this report with a personal evaluation. In order to learn from the project, it is necessary to take a critical look at yourself as a person and as a designer.

Volkswagen & TU delft

One of the difficult parts of the graduation project is to manage the opinion of both the client and the university, especially when performing the project in a car design studio. The university requires a deeply founded analysis, while the studio is looking for cool and crazy ideas. TU Delft has a more different approach than most transportation design schools. This is something positive as the people at Volkswagen are interested in the potential of the student. It is however difficult to convince them of the potential of these kind of students when they are used to fancy styling projects, but are presented a more academic analysis. So as the student, you have to manage both sides and their expectations. Eventually, I learned to find my way of working and became more strategic in my presentations. To know “what” to show “when” is one of the most important lessons I learned during my thesis.

Presenting

During the studies, you learn to present by “doing”. I don’t perceive presenting as difficult, it is however a different story when you need to present in a different language in front of the highest chief. This kind of pressure is something that I never experienced before, but after a few times I was able to present professionally yet casually, something that was evaluated

positively in my feedback at Volkswagen. At the end of my thesis I was able to find motivation out of the adrenaline from presenting in front of the chief and colleagues.

Eager To Learn

Being eager to learn is part of my character. I used all possibilities to learn and get feedback from colleagues during both the internship and thesis. This is something that my colleagues valued as well. As I was a student without any experience in the industry, I took all the advice to heart and was not confident about my own opinion. Evaluating this project, I think that at some points I could have been more confident about my own work and try to work out my own opinion first. I learned that it is more valuable to fight for your own opinion instead of following every feedback. It can be concluded that even though as a student, you can still be confident about your work and try out ideas independently.

Final Result

Concluding this report, I can say that I am really satisfied about my thesis project. I think that I came really far in a short period as a transportation designer. I got great positive feedback from the Volkswagen designers and leaders. For me, the main goal was to open a door which would lead to a future position at Volkswagen and based on their feedback, I think that I have succeeded. Furthermore, I think that the university can be proud of the project as well. I managed to implement an academic project in a professional styling studio and keep the interest of both parties. I showed the potential of IDE students for the industry and build up a good relation with Volkswagen.

All in all I am really grateful with the opportunity that I got at Volkswagen, the guidance from the TU Delft team and the result of the final project. Now let’s see where it brings me!

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MASTER THESIS



Thank you for your interest

Graduate Student

Alain Snoodijk

Supervisory Team

W.F. Kets
E.D. van Grondelle

Client

Volkswagen AG
Berliner Ring 2
38440 Wolfsburg
Germany

Delft, July 2019

Delft University of Technology
Faculty of Industrial Design Engineering
Msc. Intergrated Product Design