

Exploring new market segments

Conceptual designs based on market and trend research

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Donkervoort Automobielen is a dedicated sports car manufacturer, producing extreme, lightweight super cars. Since all of their open-top roadsters are very much based on the same, traditional open-wheel concept, the challenge was to explore new vehicle concepts. Hence, this bachelor thesis aimed to research the opportunities for venturing into new market segments, as well as finding out corresponding design implications. The results were translated into a conceptual design proposal. The goal of the design process was only to visualise the research findings.

Firstly, market research was conducted to investigate the state of multiple market domains. This led to the conclusion that the off-road domain was interesting to look into, due to the substantial growth rate of the SUV market. To become more familiar with off-road vehicles, more market analysis was done, which resulted in an overview of potential vehicle types that the design could take shape of.

Next, the brand identity of Donkervoort was analysed, since Donkervoort produces unique sports cars. Hence, all cars should embody the same design philosophy. Looking closely at the styling design, as well as interviewing Donkervoort owners and diving into the history of the brand, resulted in a clear image of what makes the brand so unique.

Furthermore, trend research was carried out to predict a possible future scenario for the year 2033, using the Vision in Design (ViP) method by Hekkert & Van Dijk. This was done to determine to what extent an off-roader design would be relevant in the future. The main finding was that the design should have an adventurous, yet sporty character, which should enable users to temporarily escape from daily life.

All insights from this first analyse phase were translated into design requirements. These formed the foundation for the design phases that followed. The first design step was about exploratory form finding by means of abstract and creative methods, such as random shape generation. Next, ideation sketches were made to generate a wide variety of styling directions, as well as ideas for the functionality and technical composition of the vehicle. The most promising ideas were bundled into two concepts using a morphological chart.

Concept 1 represented a rather novel concept for the company, as it was characterised by an innovative, sustainable powertrain. The main styling elements were a unique window in the side exterior panel, and the wide, rugged front fascia. Concept 2 was a more conservative concept, due to the internal combustion engine. A one-piece windscreen continuing all the way to the rear of the vehicle, as well as integrated rally lights, characterised the styling design of concept 2.

To select one final concept, both concepts were assessed on the level of meeting the drafted requirements.

Concept 1 turned out to be more successful, mainly because it was more lightweight, more practical and because it had a more coherent styling design. The concept was briefly elaborated by optimising the technical dimensions and developing the rear styling design.

The final design was modelled completely in virtual reality (VR), to speed up the design process. This made it possible to literally sketch lines 'in the air' and model surfaces over them. Subsequently, the 3D model was rendered, creating presentation images of the final design. This design proposal represented the visual outcome of the market and trend research.

Finally, the results led to the conclusion that it is indeed interesting to consider developing new vehicle concepts in the future. However, technical and financial feasibility will be the biggest challenges, since Donkervoort remains a small-series manufacturer.