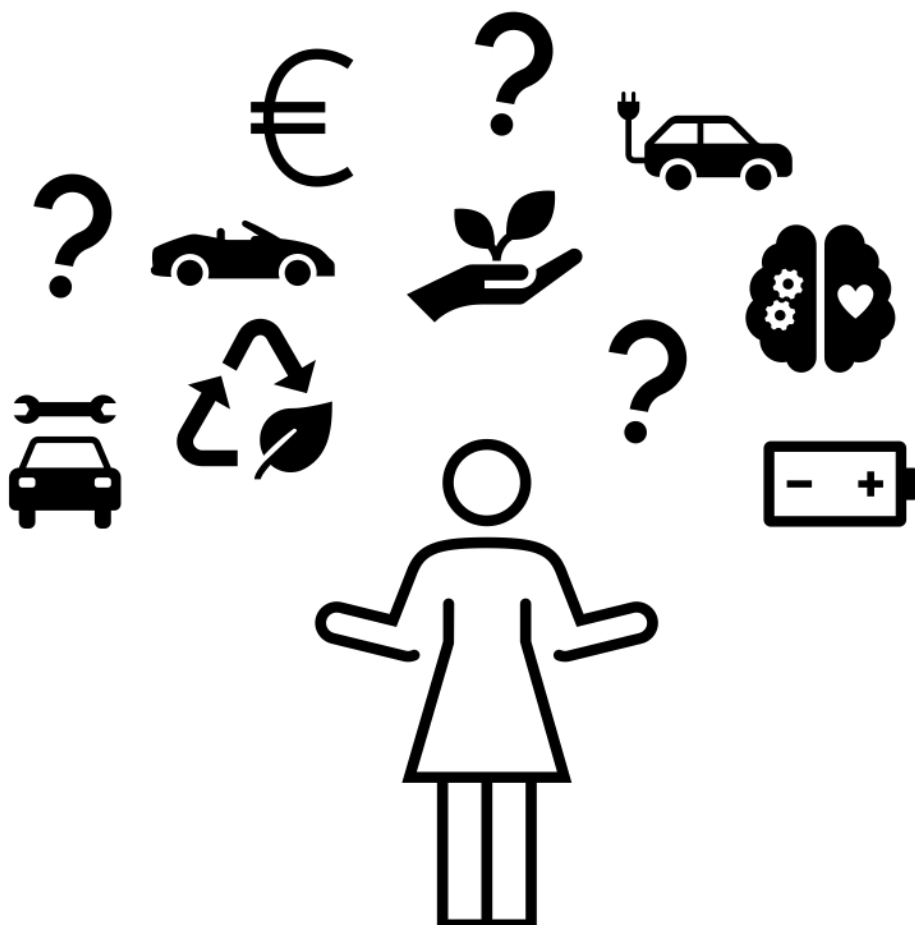


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Women's Consumer Behavior and Motivation
to Purchase an Electric Car



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Abstract

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Keywords: Electric car, consumer behavior, pre-purchase factors, purchase decision, gender data gap, electric vehicle marketing for women

The purpose of this thesis was to study women's consumer behavior and motivation to purchase an electric car. A qualitative research was conducted to find answers on what women need, and desire from an electric car and which type of concerns they do have towards them, which type of pre-purchase decisions they make and how they make their purchase decision. Only by recognizing and understanding women the data gap in the current electric vehicle marketing can be fulfilled and their opinions can be taken into consideration.

A semi-structured focused interview was conducted for 25-35 years old, educated, and working women in order to receive very detailed and precise information of women's buying behavior and their motivation to purchase an electric car. The interviews included three themes: electric cars, pre-purchase factors and purchase decision, which were divided into subthemes and finally into the interview questions.

The results highlighted that the interviewed women were interested in electric cars, but they were not ready to buy one yet. Their main concerns were battery life, driving range and charging infrastructure. In addition, the price had also an influence on their decision making. Therefore, the most remarkable finding relating to EVs was the importance of a battery swapping service for the interviewed women. The performance and design were the most important features of a car together with the devices or equipment of a car.

Tiivistelmä**Kirjoittaja:** Toivonen Aino**Julkaisun nimi:** Naisten kuluttajakäyttäytyminen ja motivaatio ostaa sähköauto**Tutkintonimike:** Bachelor of Business Administration**Avainsanat:** Electric car, consumer behavior, pre-purchase factors, purchase decision, gender data gap, electric vehicle marketing for women

Tässä opinnäytetyössä tutkitaan naisten kuluttajakäyttäytymistä ja motivaatiota ostaa sähköauto. Kvalitatiivisella tutkimuksen avulla etsittiin vastauksia siihen, mitä naiset tarvitsevat ja haluavat sähköautolta ja millaisia huolenaiheita sähköautot heissä herättävät, millaisia ostopäätökseen liittyviä tekijöitä heillä on, sekä miten he ostopäätöksensä tekevät. Vain tunnistamalla ja ymmärtämällä naisia ja heidän kulutuskäyttäytymistään voidaan täyttää sähköautomarkkinoinnissa oleva tietovaje ja ottaa naisten mielipiteet paremmin huomioon.

Puolistrukturoitu teemahaastattelu toteutettiin 25–35-vuotiaille, koulutetuille ja työssäkäyville naisille saadakseen erittäin yksityiskohtaista sekä tarkkaa tietoa naisten ostokäyttäytymisestä ja motivaatiosta ostaa sähköauto. Haastatteluissa oli kolme teemaa: sähköautot, ostoa edeltävät tekijät ja ostopäätös, jotka jaettiin alateemoihin ja lopuksi haastattelukysymyksiin.

Tulokset osoittivat, että haastatellut naiset olivat kiinnostuneita sähköautoista, mutta he eivät olleet vielä valmiita ostamaan sellaista. Heidän suurimmat huolenaiheensa liittyivät akun keston, ajomatkaan ja latausinfrastruktuuriin. Lisäksi sähköautojen hinnalla oli vaikutusta heidän päätöksentekoonsa. Yksi merkittävimmistä havainnoista sähköautoihin liittyen oli akunvaihtopalvelun merkitys naisille. Suorituskyky ja design olivat auton tärkeimmät ominaisuudet yhdessä auton varusteiden ja teknisten ominaisuuksien kanssa.

Forward

The idea of writing this thesis stems from my great passion towards cars, ambition to work in the automobile sector and personal willingness to make a change in the world of bias. I dream of a world, where it would not be abnormal as a woman to be passionate about cars and driving. I want to thank the teachers at my home university, especially my thesis supervisor Sami Malm, and KAMK in general for offering the possibility to study abroad and in order to have the chance to study more automotive related subjects.

I want to thank my family and my friends from the bottom of my heart for supporting me through my studies and always encouraging me to follow my dreams and going to the direction where I want to. Their support during my thesis process has been indescribably important. I also want to thank the interviewees and everyone who I was able to share my thoughts about my topic with and who showed their interest on it and encouraged me. Those fruitful conversations gave me lots of drive and inspiration during the whole thesis process.

Lastly, I want to dedicate this thesis for the young girl with big dreams with great ambition to change the world better. The girl, who never gave up no matter what life brought on her way, and always moved forward, towards her dreams with a brave heart. Keep on going, you can achieve anything you want to. This is just the beginning.

Ingolstadt, 29.11.2021.

Aino Toivonen

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List of Symbols

BEV= Battery Electric Vehicle

BMW = Bayerische Motoren Werke AG

CO₂ = Carbon Dioxide

EMEA= Europe, Middle East, and Africa

EU= The European Union

EV= Electric Vehicle

GM= General Motors

ICE= Internal Combustion Engine

OEM = Original Equipment Manufacturer

PHEV= Plug-In Hybrid Electric Vehicle

USA= United States of Amerika

1 Introduction

The automobile industry landscape is very wide and ever-changing type of an industry. It is counted into the largest industries in the world by its revenue. It also has to bear much pressure and is under the public eye considering the changing climate regulations and the goal to reduce the carbon dioxide emissions. As a result of that, during the past few years automotive manufacturers have been facing a huge change in a short period of time: electric vehicles. Suddenly, the European Union commission's targets to reduce the CO₂ emission have had an enormous impact on the automobile industries' electric vehicle sector, which has boomed in Europe ever since.

In the history of an automobile radical alternatives for the traditional internal combustion engine were often searched for when people had doubts about the future of a car, concerns of the fossil fuels or its negative effect on climate (Mom 2014, p.269). This ongoing rush of the electrification of an automobile is a radical change against the climate change. There is a need to find an alternative for oil and a power source that will not raise the CO₂ emissions. At the moment it seems like from all the alternative power sources to replace the ICE vehicles, electric engine has the highest capacity or at least it would be the most sustainable one. However still the car manufacturers are already talking about better alternatives, such as hydro cars, so it is difficult to say if an electric car is only a temporary stage in the development of a more sustainable car.

During the past years the automobile industry has been claimed to struggle with a remarkable gender problem when it comes to target electric vehicle (EV) marketing to women. Even before electric cars were on the market, it was thought by common automobile professionals, that quiet and sustainable electric cars would be targeted for women, while big, strong, and loud, more masculine petrol cars would be more men's cup of tea. However, electric cars, which were seen as a niche product for decades, have been pushed through the markets during the past few years due to the climate crisis and concerns of declining fossil fuel supply. Car manufactures have been put back behind the wall with trying to take as many electric cars to the market as possible and as soon as possible, to attend the race against others and to show that they are keeping up with the current change in the automobile industry with their models and most importantly to be able to sell as many products as possible.

However, during the rush to the market car manufactures seemed to forget one aspect or target group: women. There are multiple articles arguing that car manufacturers are missing their highly potential market, when they are not targeting EVs to women. Another very interesting fact is that women were supposed to be the actual target market for the electric cars in the past. It was thought that EVs attract women, because they are silent, stylish, and suitable for women's needs (Scharff 1991).

The aim of the thesis is to create a clear insight of what a millennial woman feels about electric cars, demands from their car and how they like to purchase their cars. Which factors motivate and affect their buying decision, focusing on the point which would motivate them to buy an electric car. In this research the following questions will be answered:

- What do women think about electric cars?
- Which are women's most important pre-purchase factors?
- How do women make their purchase decision?

This qualitative research is searching for answers on what women need and desire from electric cars and their concerns towards them. Only by recognizing and understanding women the data gap in the current electric vehicle marketing cannot be fulfilled and their opinions can be taken into consideration. The research is made by interviewing potential women customers, to see how women feel about electric cars, and analyzing their buying behavior and finding the key issues and reasons. First, the background of the issue will be introduced, then the research method will be explained and after that the research result will be presented and discussed.

The reason why this thesis topic is important, is that there is simply not enough data collected of women's purchasing behavior, especially focusing on the electric cars. In general, the problem is not that the data is not collected, but rather than the collected data is not separated by gender. It can be said that almost all the statistics of the car consumer studies were presented from a general point of view, where the data was not separated by gender and therefore the possible differences between women and men cannot be recognized. Fulfilling the information gap of women's car consumer behavior on automobile sector is not only a question of gender equality, but also a matter of economic benefit for the car manufacturers, since women are influencing over eighty percent of the car purchase decisions. Therefore, it would be most likely profitable for the car manufacturers to target women.

2 Theoretical background

This section will explain better the background of the topic. For understanding the consumer behavior of women nowadays, it is important to have a broad sight of the issues that have affected the development of human history and culture, especially socio-cultural aspects. It is especially important to understand the journey that an electric car has gone through during its lifetime and see the roots of the “gender issue” in general, to understand the reasons why it is important to change the current structure of the society and to target the women as a potential customer for electric cars.

2.1 The data gap

The equality issues between genders and especially the need to make the society more equal has arisen remarkably during the past years. Automotive industry is known for being a very male dominated industry and therefore there is still much to do to give women more visibility within the industry and to make it more female attractive. The car manufacturers could also continue the same way they have been doing until this day, but the society is changing and the companies who have solutions to become more female friendly might be a step forward compared to the manufacturers that do not cater to the demographic of women. Referring to Ghosn’s words mentioned earlier in the text (p.5); the public is waiting for the transition and now it is car manufacturers time to react to that and change the image of the brand and in the end the image of whole industry. Consumers, in this case, women, do expect that companies understands their needs. However, multiple articles are arguing that automobile industry and especially electric car marketing are failing to attract women, who would be their potential customers. There is also questioned why car manufactures are not or have not been marketing electric cars to women. Overall, this issue stems from our society, which very male focused and full of data gaps, that we have learned to live with.

The definition of a gender data gap, according to CBS International Business School (2021) is, “The gender gap is the difference between women and men as reflected in scientific, social, political, intellectual, and other aspects. It describes the fact that the scientific data on which our modern world is based was almost invariably collected by and for men.” One crucial aspect to mention about gender data gap is, that it is not generally malicious or even deliberate.

Actually, it is the opposite. It is the outcome of a way of thinking, that has its roots deep in the human history and therefore it is as not thinking. The society has just shaped around the male perspective. Criado Perez (2019) argues: “The result of this deeply male-dominated culture is that the male experience, the male perspective, has come to be seen as universal, while the female experience – that of half the global population, after all – is seen as, well, niche.” (Criado Perez 2019, p.XI-XII.)

In the article *Electric cars have a women Problem* LeVine (2020) claims that: “From Tesla to Ford, electric carmakers are all making the same mistake – only marketing to men.” All EV manufacturers are point out, that while US and European car manufacturers are rushing their electric car models to the market, they have completely forgotten the existence of women. It is already recognized that automobile manufacturers should focus their marketing better on women, since there are multiple articles from different sources about it. However, the perspective of the car industry and -marketing are still often very male focused. It is difficult to say for sure, why it is still like that, but as mentioned before, the gender data gap is a cause and consequence from the reasons. Nevertheless, the society cannot be made more gender equal, if the female data is not collected or separated from the general data collected and analyzed together with men. The importance of collecting the female data and targeting the women better cannot be emphasized too much.

The problem is that the data is not either collected or used or just simply taken into consideration. The studies about women’s purchase behavior towards not collecting information of women is a data gap and not using the data is a decision that leave the women outside.

The awareness of gender equality has risen the need to give females more attention in the male dominated industry.

2.2 The development of electric cars

The invention of a car is often connected to the moment when Carl Benz invented the motorized car, which is given much attention in the history books, and electric cars were followed by it much after that. Contrary to this assumption, an electric car is not an invention of the last decades, it was actually invented before the ICE vehicles and the development of an electric car was

considerably ahead of an ICE car in the early 1800 (Guarnieri, (n.d.) p.1). However, the history and development of an electric car has been very fluctuated and even radical alternatives for the ICEs were often searched for when people had doubt about the future of a car or when the concerns towards fossil fuels were arisen (Mom 2014, p.269).

In the documentary “Revenge of the electric car” (2011) the former CEO of Nissan and an electric car idealistic Carlos Ghosn described the emerged concerns among citizen of a climate change and the change that the automobile industry needs to do against the climate change to react to the concerns of people with following words: “The public is expecting that from us. It’s expecting that from us. It’s expecting that car manufacturers step up and present technology in order to respond to these concerns. We think it’s going to be a huge return for the company. We are going to be patient; we are going to have to manage it. It is going to change the face of the company. It’s going to change the face of the brand. And it’s going to change probably even the image of our (automobile) industry.”

In 1990s General Motors invented the first modern age electric car in the world, the EV1, which they later, ironically, murdered by themselves. Their own invention, which was becoming famous in California. The EV1 was a revolutionary car. It was the first ever mass-produced electric car that was fast, silent, and smooth as its design. In addition to that, the technology it was using was advanced, and many electric cars nowadays are using the same technology that was invented for the EV1. (Revenge of the electric car 2011.)

2.2.1 Tesla

Only a half a decade ago, when people were talking about electric cars, most of the time, they meant Tesla. Tesla was the first fully electric car brand, that “made it through alive” after all previous market entries of electric cars were shut down one by one. Tesla created the idea of a “future supercar”, with their electric sport cars and they received much attention from the media around the world (Revenge of the electric car 2011). They showed that this is future, and the future is here now. Another reason is the lack of the competition. Still in early 2000, electric cars were seen as a niche and futuristic product, which did not have a wide clientele. By being the real electric car pioneer, Tesla made a great gap between them and other electric car manufacturers. The gap can be seen today, because Tesla is still holding the pole position of electric car sellers worldwide.

Ranking	Manufacturer	Model	Average units sold per year
1	Tesla	Model 3	215 000
2	Wuling	Hongguang Mini EV	125 925
3	Tesla	Model Y	100 000
4	Nissan	Leaf	85 988
5	BAIC	EU-Series	65 333
6	VW	ID.3	54 495
7	SAIC	Baoujun E-series EV	53 877
8	Hyundai	Kona Electric	52 184
9	Audi	e-tron	47 324
10	Renault	Zoe	35 599

Table 1: The best-selling electric cars in the world in 2021 (Crawford 2021)

As the table 1 shows, Tesla's part of the current BEV sales is predominant. The sales of their two best seller models are higher than the three other models in top 5 list together. Therefore, the reason why electric cars may be seen masculine is not only that Tesla was the only famous electric car brand for years on the market, but it still is the overwhelming leader of the market. Tesla is not only seen to be a very masculine brand, because of its founder Elon Musk, but also, because it is targeted to men. The fact that Tesla has a remarkable impact on how electric cars are viewed and why electric cars can be considered to be very masculine cannot be belittled.

Comparing to any other car manufacturers, one factor that makes Tesla to differ from the others, is that Tesla does not do any kind of actual marketing. Their marketing relies on the brand image and net worth of Elon Musk. Therefore, when the whole brand is connected to one man only, female customers do not most likely feel easy to identify with it or the Tesla brand. Tesla is also seen as a very elitist brand and a car due to its high price and the niche availability. The change in the society, where a car was not seen only as a vehicle, but also a sign of having a certain lifestyle, changed radically during the last years, at the same time when Tesla started to become more famous. People purchased cars to step out from the crowd and obviously having an electric car was a very good way to do it. That may be one factor why Tesla and electric cars were seen as an elite vehicle for men who earned much money and were also interested in new technologies.

2.2.2 Current situation

According to World economic forum, Europe is leading the way to other countries in new EV sales (Broom 2021) and it is not a wonder when thinking about the ambitious climate goals of EU for reducing the CO₂ emissions. Therefore, the production and sales of EVs have increased considerably in during the last years (Figure 1). Currently the European Union commission is planning to make even stricter laws to cut down the CO₂ emissions of new cars. According to Hampel (2021) the goal of reduction would be sixty percent by 2030 and by 2035 to reach the target of complete hundred percent, which would mean that the sales of new internal combustion engine vehicles would be completely shut down in the EU. That act would also have a critical impact and radically decrease the production of ICE vehicles not only in the Europe, but also globally. Automotive manufacturers have also reacted to the change of the market conditions. For instance, Daimler AG announced in their media report *Mercedes-Benz prepares to go all-electric* (2021) that they will shift their whole portfolio electric by the end of the decade, if the market conditions just allow them to do that. They have also announced to bring at least one electric vehicle per every vehicle category to the markets by 2025. It can be said that the reign of electric cars has begun.

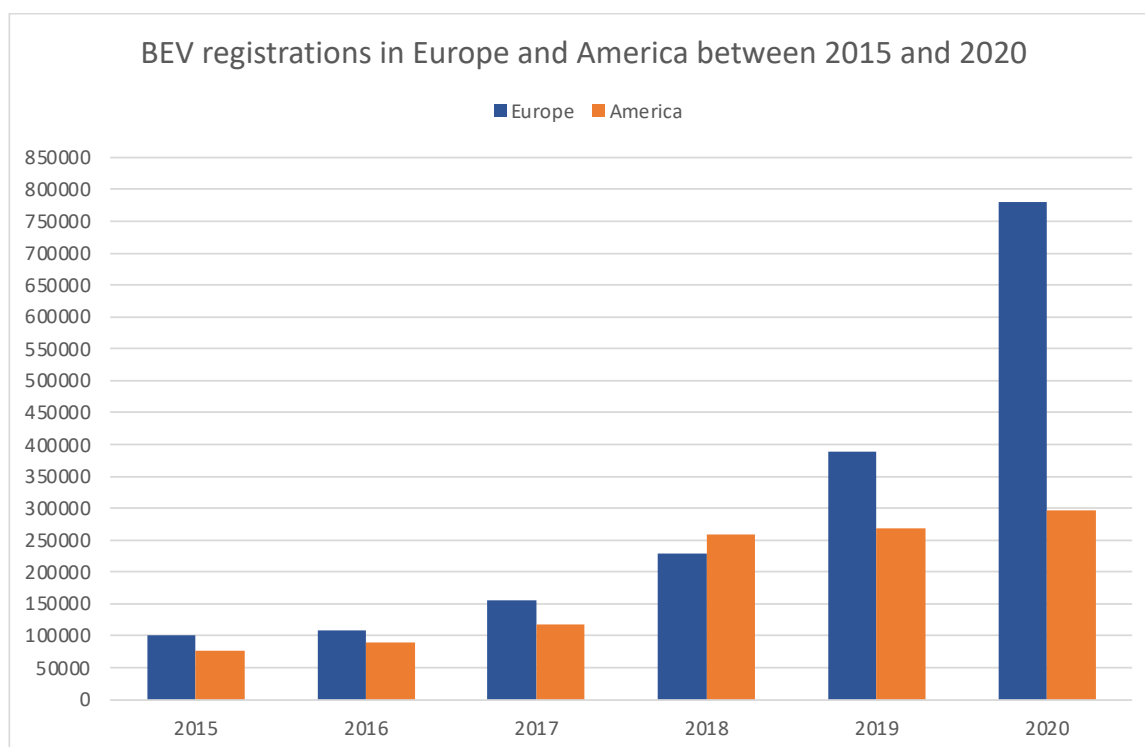


Figure 1: Battery electric vehicle registrations in selected regions worldwide between 2015 and 2020 (Statista 2021)

The figure 2.2 compares the development of EV registrations between Europe and America from 2015 until 2020. Europe has been leading every year excluding 2018, when the launch of Tesla model 3 peaked the sales in the USA. However, the amount of EV registrations in Europe over doubled in Europe from 388 219 units in 2019 to 779 538 units in 2020. In addition, between Q1-and Q2 in 2021 there were 492 021 EVs registered in Europe, which is 122% up compared to 2020. (Kane 2021.)

2.3 Consumer behavior

Having information of what the customers want and why they are buying certain products is vital for the marketers nowadays. Knowing and understanding the consumers gives the companies all the necessary information to catch the potential customers for themselves. It also helps to create the right marketing strategy. The consumer buying decision process and consumer behavior analysis are ways to know how to market a product in the most efficient way. (Barkman 2018.)

One definition of a consumer behavior is: "Consumer behavior is the study of consumers' choices during searching evaluating, purchasing, and using products and services that they believe would satisfy their needs". To satisfy the needs of customers it is important to recognize the variety of customers and their aspirations. Humans share identical needs such as biological needs, but psychological needs are shaped by individuals' experiences, education, and the surrounding environment. (Schiffman & Wisenblit 2019, p.32-35.)

Market segmentation is a process that divides markets into groups of customers with similar needs or characteristics. There are many ways to divide customers into separate segments, for example, demographic, psychographic and behavioral segments. Since consumers are changing fast nowadays, demographic segmentation is providing less trustworthy information and therefore when studying consumer behavior, psychographic and/or behavioral segmentation is more reliable. The behavioral bases for segmentation are presented in the figure 2 below. (Sethna & Blythe 2016, p.33-35.)

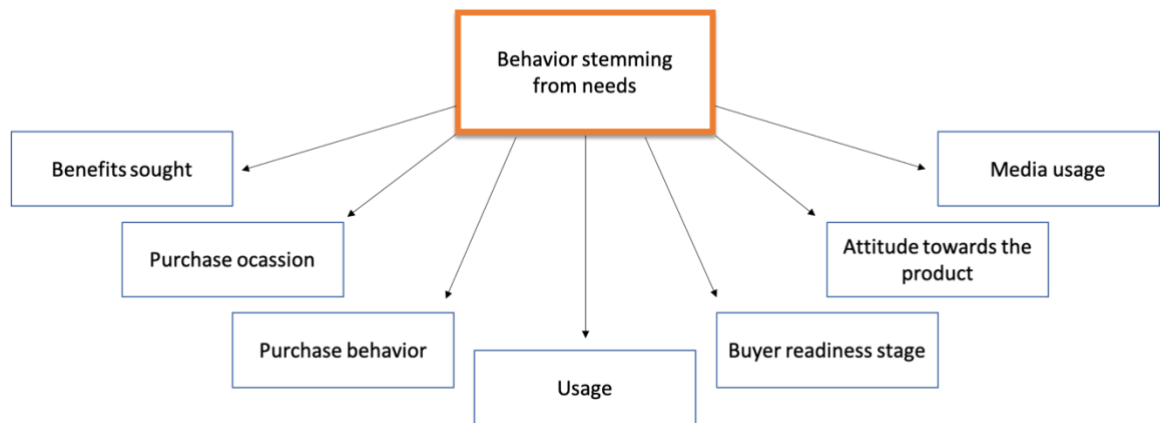


Figure 2: Behavioral bases for segmentation (Sethna & Blythe 2016, p.37)

Some remarkable mistakes that can be made when thinking about are that the need of a customer should not be generalized. Customers' needs should be seen individually, to achieve the ultimate benefit from it. Generalizing customers' needs and behavior is only taking the focus away from the most important aspect in marketing which is realizing the customers' needs and fulfilling them. Generalizing is only putting many different people inside of the same frame and that does not tell any reliable information of the reality. Targeting is identifying the certain selection of potential customers and then determining the best suitable products for them and creating a marketing strategy which is specified for them.

2.4 Consumer decision making

As its best a marketing strategy can be fruitful for initiating the brand image in the customers' minds. Within the car industry, especially inside of the Europe, and in Germany, the competition between the brands such as Mercedes-Benz, BMW and Audi is very ambitious and the importance of the marketing cannot be underestimated. If the marketing campaign goes wrong, it can have very crucial impacts on the sales and the image of a car manufacturer. One mistake or campaign that has gone wrong can fling the customers from one company to another. The right marketing cannot be done without knowing the potential customers. For optimizing the marketing of a product for the right customer group the company needs to study the customer behavior. Thus, knowing consumers' buying behavior is a necessity in marketing. Therefore, their decision-making factors (Figure 3) need to be studied.

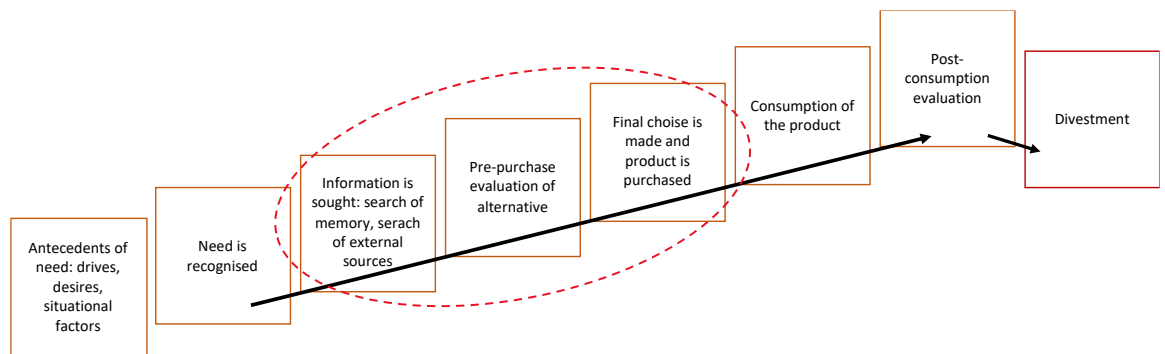


Figure 3: The decision-making process (Sethna & Blythe. 2016, p.75)

This research is concentrating on the customer's buying behavior from the activities after recognizing the need of purchasing a car to the moment of purchasing. Therefore, the main stress of the research is on the three following decision-making stages: information search, pre-purchase evaluation and the customers buying behavior relating to the action of purchasing after making the final decision, thus how or where the customer will accomplish the purchase.

A Global Automotive Consumer Study in EMEA countries conducted by Deloitte 1 (2021) indicates the main trends of a new car purchase behavior. The report shows the key insights of current topics on automobile sector, like electricity, autonomous driving, and effect of digitalization on purchase process. The key findings were that still most of the studied countries would prefer an ICE vehicle for their next car. Only 4 to 10 percent (depending on the country) of the respondents would choose a BEV. Another interesting point is, that despite the digitalization and the COVID-19 pandemic, which forced the purchase process to become virtual, customers still highly prefer buying their cars in person from dealerships. The study highlighted, that it is still important for the customers to see the vehicle before buying, having a test drive or interact with a real salesperson. The personal contact is very important for the convenience and reliability of the purchase process. Almost all the countries studied had the most trustworthy relationship with the car dealers, excluding Turkey and South Africa, who felt most associated with the brand of their car.

Another global focused study made by Deloitte 2 (2021) found out, that only 23 percent of the purchasers in Germany were interested in the vehicle subscriptions, that gives them the possibility to have multiple models from the same brand for their use. Also, 53 percent of the German respondents were not researching alternatives for financing their current car. Their most significant characteristics associated to loan, lease or subscription account were the flexibility for early termination or the possibility to switching the vehicles (35%), all-in rates

(34%), easy pay process or auto-pay (28%), the lowest rate for credit rating (26%), and convenience (24%). The global survey also highlighted, that Germany had the lowest trusted relationship with the car brand compared to the other countries around the world, but they trusted the car dealer instead. That confirms that the European countries value the relationship with the car retailers more than other countries and they are also important for the purchasing process.

A car retail salesperson described the biggest difference between women and men, when it comes to buying a car, is that women often make their decision quicker than men. Women wants to see different options and hear from different models and then they choose which model fits the best for their needs. Men tend to consider about it more and look different options also online before doing the buying decision. He also mentioned that women are shy when it comes to coming to a dealership to buy a car. Sometimes they may even send a friend of them to search for a perfect car for them. But then again, the female customer has described her needs to the other person. This is possible because women often have less requirements when buying a car or their needs are more practical and less particular than men's wishes.

According to a survey made in the USA, 62 percent of all the sold new cars were bought by women and 85 percent of the overall car purchases were influenced by women (Newman 2019). That reveals that women are playing a very remarkable role in the purchasing activity of a car. Based on this information, it would be vital for the car manufacturers to study women's buying behavior and shift on their focus more on female perspective and attracting them.

Newman (2019) mentions that women are using their social networks when searching for a suitable car for themselves. They ask their friends and family for advice as well as possibly ask from social media some tips or recommendations. Women are searching for models that are suitable for their lifestyle, emphasizing points like practicality, reliability, and safety of the vehicle. Newman also wrote that women are not as brand loyal as men and that they do not have a specific car on their mind, when they go to buy one.

During the buying process there are many errors to females. factors that women want from cars and car marketers were highlighted in Di Santo's (2017) article. A survey made by Bauer Media presented that even 42 percent of women's did not feel understood by car advertisers as well as it was patronizing. Also, 59 percent of female respondents told the car buying experience to be either 'average' or 'terrible'. When man walks into the car merchandise, he will be asked what he wants but in a same situation with female the dealers often assume to know what women

want. Generalization is one mistake that car dealers are often doing, and women need to face quite often. It makes women feel that the dealer knows their needs better than they do and therefore turns down women's own voice and needs, which makes them feel diminished.

Study conducted by Bauer Media presented that 49 percent of women feel vulnerable while visiting car stores and 90 percent of women in UK feel more comfortable when they enter the store with a man. That indicates that a relatively large group of women do not seem assured during the buying action compared to men. Which means that buying experience should be made more appealing for women. Entering the store and talking to the sales personal should be a situation that women are feeling confident with. Di Santo also states in the end of her opinion: "With women being a powerful and increasingly influential group of potential buyers, the rewards for automotive brands in improving how they talk to this audience is clear. With millions of dollars at stake, satisfying women by delivering a more holistic and tailored approach to their path to car purchase has never been more critical." (Di Santo 2017.)

A study made by the University of Sussex and Aarhus researchers indicates that targeting EV marketing for highly educated women could be a more efficient way to direct consumers towards electric vehicles. They are not targeted so far, but they would have a high potential because of their higher environmental and fuel efficiency awareness compared to men.

2.5 Consumer behavior electric cars

The four main reasons worldwide for why people are not willing to buy an EV listed on the World Economic Forum website are the high price, lack of charging points, deficiency of microchips and the risk of a battery fire, the last concern was mainly appearing in China (Broom 2021).

According to a survey conducted by Opinium Research Company in 2020 in the United Kingdom, only eight percent of the attendees predicted their next car to be electric. The main reasons people did not want to purchase an electric car were the lack of charging points (37%), the limited range or incompetence of the range with a single charge (35%), the high price of the EV compared to other power sources (33%), the inability to charge the car at home (30%) or concerns towards the length of the life cycle of the battery (26%). Other grounds mentioned in the survey were for instance, the dissatisfaction of the design of electric cars, the lack of knowing other people who has an EV before purchasing one or thinking electric cars are not better for the environment than the ICE cars. (Kwik Fit 2020.)

A recent German survey was clarifying the most important aspects in an electric car, as well as the reasons why Germans have not bought an EV so far. The results showed that the most important features in an EV in Germany is the range (58%), followed by price-performance ratio (50%), charging time (43%), charging infrastructure (41%), environmental balance (32%), safety (21%), and look (4%). (Beutnagel 2021.)

Deloitte has conducted a global study (table 2) for car consumers, which was concentrating on concerns people have towards electric cars in six countries: France, Germany, Italy, UK, China, and United States. The survey was conducted in 2018 for the first time and repeated in 2020 with the same questions to see how the perspective towards electric cars has changed in two years. Taking a deeper look into the results within Europe, the three biggest concerns during both years were the driving range, cost/price premium and lack of vehicle charging infrastructure, the main stress on driving range and lack of charging stations. The concerns towards charging time, safety of the battery or other aspects were relatively small. The concerns towards price or driving range has mainly decreased during the years, except for Italy. Instead, people have become more worried about charging related topics. Concerns towards charging time and lack of charging infrastructure has increased in every European country attending to the survey, except Italy. Also, safety of the battery technology has begun to generate slightly more concernment among all the countries than in 2018. (Walton, Hamilton, Alberts, Fullerton-Smith, Day, Ringrow 2020.)

2020 Global Auto Consumer Study												
	France		Germany		Italy		UK		China		US	
	2018	2020	2018	2020	2018	2020	2018	2020	2018	2020	2018	2020
In your opinion, what is the greatest concern regarding all battery-powered electric vehicles?												
Driving range	31 %	28 %	35 %	33 %	4 %	27 %	26 %	22 %	25 %	22 %	24 %	25 %
Cost/price premium	32 %	22 %	22 %	15 %	19 %	13 %	24 %	16 %	9 %	12 %	26 %	18 %
Time required to charge	11 %	15 %	11 %	14 %	18 %	16 %	13 %	16 %	12 %	15 %	10 %	14 %
Lack of electric vehicle charging infrastructure	16 %	22 %	20 %	25 %	44 %	32 %	22 %	33 %	18 %	20 %	22 %	29 %
Safety concerns with battery technology	4 %	11 %	5 %	10 %	7 %	10 %	6 %	12 %	22 %	31 %	8 %	13 %
Others	6 %	2 %	7 %	3 %	8 %	2 %	9 %	1 %	14 %	0 %	10 %	1 %
Total	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Sample size	1083	1266	1287	3002	1048	1274	965	1264	1606	3019	1513	3006

Table 2: 2020 Global Auto Consumer Study (Walton & Co. 2020)

The millennials and generation Z are very aware of the future of the Earth, and they are willing to make sustainable changes towards more eco-friendly future. They are also more interested in

purchasing EVs than the older generations. An article *EVs seen reaching sales supremacy by 2033, faster than expected* (2021) argues, that 30% of European millennials want to drive EV. Also, in the US the young adults, millennials, and generation Z, are the generations with the highest interest towards buying an electric car, millennials with 47 percent and the generation Z with 42 percent interest. (Spencer & Funk 2021.)

According to a research of Italian millennials' intention to buy an EV conducted by Italian University Students, millennials interest of buying an EV relies a lot on social factors. It was stated in the study that: "Specifically, the more positive is the attitude, the higher is the behavioral intention, and the greater is the perceived social pressure, the higher is the intention to purchase the car." It stresses that the communication towards millennials should be emotion-based rather than informative. Another perspective that came out was, that majority of millennials would not be the purchasers of the electric cars but rather users. The young age and connection to family are reasons for that. Another significant matter was that millennials would rather drive an EV without needing to worry about the expenses. (Nosi, Pucci, Silvestri, Aquilani 2017.)

Deloitte (2020, 20-21) presents in their Global Automotive study the consumers' motivations to buy an EV instead of an ICE. When looking the answers of German respondents (figure 4), over half of the respondents would consider buying a PHEV or BEV because of lower emissions, around one quarter because of lower operating costs, twelve percent for rebates or tax incentives, social status or keeping up with the latest technology, as well as the brand or other factors were both mentioned by five percent of the respondents. When asking how much customers would be ready to pay more for an electric in Germany, 43 percent would not pay more, 24 percent would be ready to pay less than 800€, 17 percent between 800€ and 2500€ and 11 percent more than 2500€. Five percent of the respondents are not sure if they would be ready to pay more and how much.

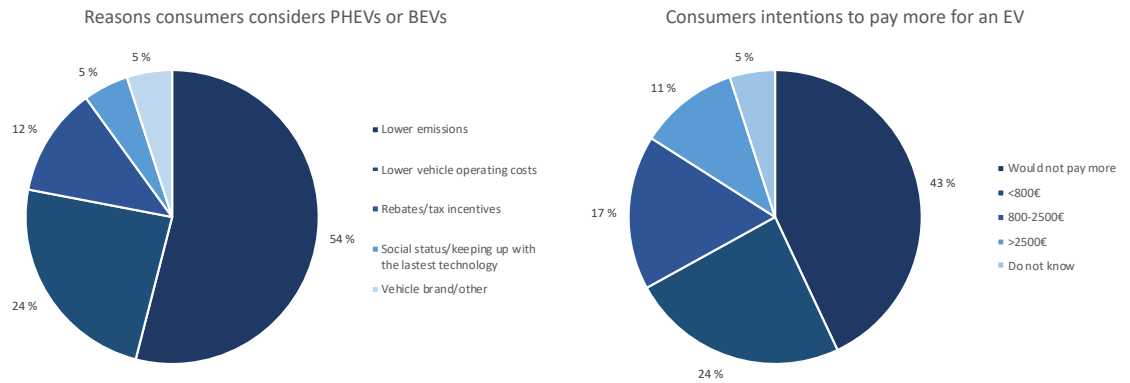


Figure 4: Factors affecting on customers motivation to buy an EV in Germany (Deloitte 2020, 20-21)

The Global Automotive Consumer Study also reveals that most of the German respondents expect the minimum driving range of an EV to be either 640 kilometers (34%) or 480 kilometers (34%). Twenty percent expect it to be at least 320 kilometers, six percent 160 kilometers and only one percent 80 kilometers. However, the average daily range of the studied group is driving is forty kilometers. That indicates that the respondents' expectation for the range is much higher than their actual daily need would be. (Deloitte 2020, p.22-23.)

2.5.1 Consumer behavior women and electric cars

There is quite few numbers of studies and information provided about women's relations to electric cars, because the topic is relatively recent and therefore not widely studied so far. Most of the studies shows data from both genders together, without representing the results separately by gender. Therefore, it is difficult to say if and how women and men's opinions are differing from each other. The factors affecting to that are the limited availability of EVs, which has made EVs seen more like a specialty with a niche market, than a daily vehicle. Also, focusing the car marketing for both genders individually instead of watching it through male dominated or family focused point of view, and the need of taking women into account as an individual person is very currently noticed topic.

2.5.2 Pre purchase factors

According to Schiffman & Wisenblit (2019, p.378.) pre-purchase search means: “a stage in the customer decision-making process where the consumer tries to identify a product that will satisfy a recognized need better than other alternatives.” When the need of a certain product is recognized, a consumer will go through a series of pre-purchase activities. The higher the risks are when purchasing a product, the bigger the time and effort put on the pre-purchase activities is. The information during the pre-purchase search comes either from internal or external sources. Internal sources include individuals own experiences, and memories. External sources are either marketer-generated, like advertising, brochures, sellers, websites etc., or non-marketer generated, like friends and family, magazine articles, government reports, etc. On both occasions most of the information derives from seller-based sources, which is accordingly effortless and inexpensive for the consumer. If the consumer does not have enough internal information for accomplishing the buying decision, external search needs to be made. Normally the word-of-mouth communication is more effective than marketer-generated communication, because it is interactive, enables giving feedback and confirming the information and is more reliable, because it often come from friend or a family member who has profit purpose like salespersons. (Sethna & Blythe 2016, p.79-82.)

2.5.3 Purchase decision

When considering purchasing a product, a part of the pre-purchase search process is also evaluating the possible risks and trying to reduce them. Since electric cars are relatively new products on the wide market segment, and they became more popular relative rapidly, there are lots of concerns towards purchasing one. Also, majority of the population are categorized to be inexperienced buyers, which makes the When people feel unsure about the product or the risk is too high, they just simply do not buy the product. There are four types of risks related to the purchasing decision: psychological risks, financial risks, physical risks, and functional risks (Figure 5). Most of the concerns and risks towards electric cars are either financial or functional. The risk when purchasing a car is high because cars are expensive and it is counted to be a long-term purchase, even though car leasing, sharing or flat-rate deals are becoming more popular all the time. Also, the trends, regulations and petrol price are factors that are swinging the value of the car. Like mentioned before (Table 2) most of the customers concerns are centralized to the range,

price, or the charging infrastructure (which can be combined with the concerns towards the sufficiency of the range). Other risk aspects are the length of the battery age, the retention of the value of the car, functioning in harsh weather conditions such as cold winters, and overall reliability of the technology. (Sethna & Blythe 2016, p.79-81.)

In addition, when going back to the Tesla topic, many early adopters and purchasers of Tesla have been risk takers. People have invested money in the company and pre-paid their vehicles even without certain guarantee of their money to return or receiving the vehicle (Revenge of the Electric car. 2011). The average customer of an electric car has been a person, whose demand to have an EV has been greater than the possible risks, a risk taker. There was also no reliable proof if the technology was safe or the length of the product lifespan. That also confirms the fact, that many purchasers were not only eager to own an electric car, but also financially able to face the unpleasant situation where they have already paid for the product that may never be arriving at their house, which may have major and costly technical problem and not be working as wished after some years or if a service for solving those issues will be offered. In addition to that, just like nowadays, there was also no clear information of how the price of the vehicle will be in the future. Of course, if there are not many Teslas produced, it would have been a collecting rarity and therefore the price would have thought to multiply. Nowadays, there cannot be proof of that neither. Therefore, a current challenge is to convince the consumers that the possible risks that are connected to the EVs are low enough or make the demand or benefits to be greater than the risks.

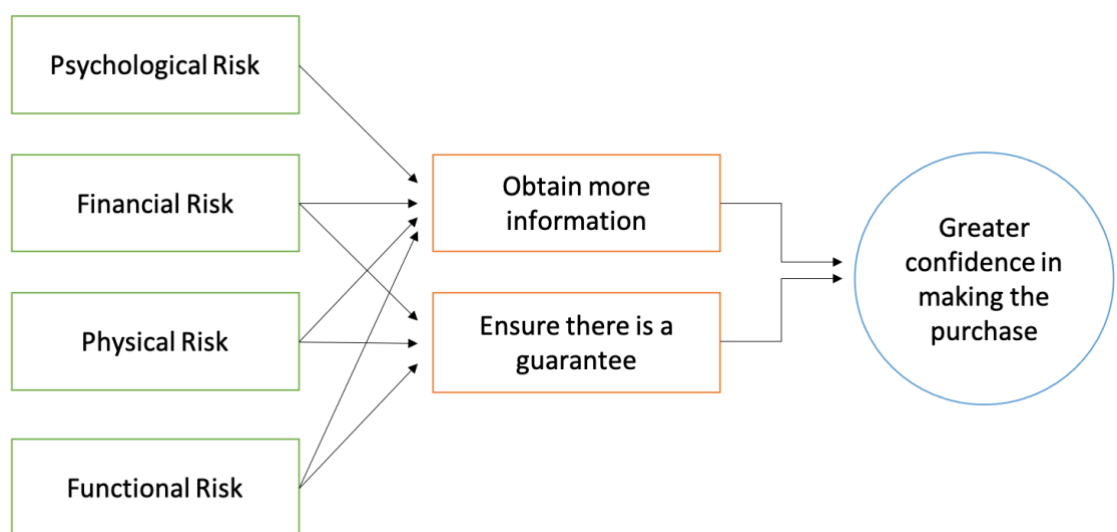


Figure 5: Risk reducing process (Sethna & Blythe 2016, p.81)

When looking the risk reducing process (Sethna & Blythe 2016, p.81) from an electric car point of view, obtaining more information to avoid the risks is still quite difficult but its part is crucial, since there is not long-term experience available so far, only theoretical hypothesis and estimations. Some unsure factors are for instance the durability of the battery or if the how continuous usage of EVs in harsh weather conditions is affecting on the technology of the car and therefore the length of the vehicle life (Walton & Co. 2020). Hence, the so-called testing-process of the EVs is still going on. Also, the technology is developing all the time and therefore for example the duration of the batteries can be increasing remarkably during the next years, and more sustainable and cheaper producing materials and methods can be found. In addition to that, since more vehicles are produced all the time, the price of the equipment, like batteries, and the whole car can be assumed to decrease. all the aspects mentioned above together are affecting to the confidence of purchasing an EV, and as presented, there are still many unsure factors, that are preventing from the certainty of making the purchase decision. Solving them or providing reliable information of the topics will have a major uplifting effect on the attitude and purchase volume of EVs.

The importance of ensuring a guarantee is crucial when it comes to expanding the sales of electric cars. Guarantees make the customers feel the purchasing to be safer. For instance, when there is a battery guarantee, which promise free or flat-rate price change for the battery within a certain period of time, the concerns towards battery lifetime will remarkably decrease. Also providing convenience service for the electric cars will guarantee them, that in case of problems they will not be let alone, and the use of an EV stays carefree. Also, leasing a car is one kind of a guaranteed type of having a car. The owner will pay certain amount of money and use the vehicle careless. In Germany leasing an electric car has become very common especially among the companies because of the regulations of the state. That is also a very practical way to increase the production of the electric cars within the country, which is very vital for the German OEMs. (Sethna & Blythe 2016, p.81.)

3 Research method

Choosing a right research method for the research is very important in order to obtain the best possible and most precise outcome. The research method chosen to this thesis is qualitative research, which enables a close and detailed review of the phenomenon (Corbin & Strauss 2015, p.38).

3.1 Qualitative Interview

The data collection method used in this research is a focused interview. Focused interview is one form of a semi-structured interview, enabling more adjustable communication between the interviewer and the interviewee (Näpärä 2019). Semi-structured interview means, that the themes are closely chosen according to the purpose of the research, or the sources used in the theoretical part, but the interview itself is not precisely structured (Corbin & Strauss 2015, p.39). Preparing for the focused interview demands good mastering of the theory behind the topic and precise selection of the interviewees (Näpärä 2019).

The interviews covered three themes: electric cars, pre-purchasing factors and purchasing decision, which were divided into substitutes (Table 3). The specific questions can be reviewed from appendix 1.

Themes	Subthemes
Electric cars (general)	General opinion about electric cars
	Purchasing an electric car
	Motivating factors
	Main concerns
	Buying vs leasing
Pre-purchasing factors	Most important features in a car

	Sources of information
	Effect of social factors on buying decision
Purchase decision	Purchasing options
	Confidence of making the purchasing alone

Table 3: Interview themes

The purpose during the interviews was to receive as much information as possible without affecting the outcome. The questions were framed in such a way as to acquire the information required for research without compromising flexibility. Meanwhile and that there are room for open explaining of the interviewees as well as space for spontaneous follow-up questions. The interviews were held face to face which made the interaction seamless and gave the interviewer the possibility to read well and react quickly to the body language and reactions of the interviewees.

3.2 Data Analysis

Once the research data is collected, it needs to be analyzed. There are multiple ways to analyze the data, but the method chosen for this research is a data analyzing process (figure 6) for qualitative research presented by Creswell & Creswell (2018, p.194).

3.2.1 Data Security

The security of the data was strictly secured during the interviews, data analysis and data storing. The interviews were recorded with a mobile phone and each record was transferred to the laptop right after the interview for storage. The collected data was stored on the laptop of the author behind with a password secured folders. Copies of the collected data were also saved to the Microsoft OneDrive as backup if needed.

The gathered data was anonymous which means that any personal information of the respondents was not collected, and the respondents cannot be identified from their answers. The respondents were informed and agreed of the data security, data processing, and anonymity of

the interview before the interviews. The collected data was deleted right after they were not necessary anymore and the thesis was completed.

3.2.2 Implementation

The interviews were recorded with a mobile phone. In addition to that, handwritten notes were also made during the interviews. The data was transferred to the laptop after the interviews and transcribed with Microsoft Word. After having the data in a written form, the analyzing process itself was ready to begin. The data analyzing process used in this semi-structured research is presented in the figure 6.

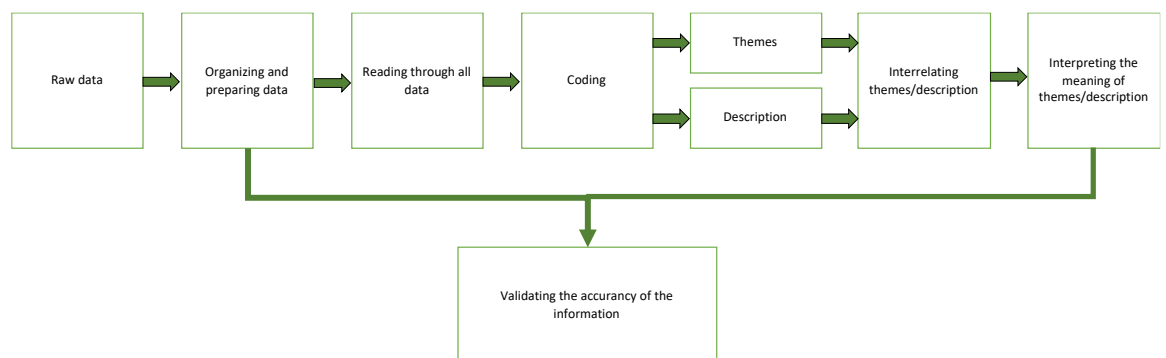


Figure 6: Data analyzing process in qualitative research (Creswell & Creswell 2018, p.194)

The data analyzing process begins from the moment when the raw data is collected. The first step of the process is organizing and preparing data, which means transcribing the interviews, going through the data, and sorting out it into different categories. The second step, reading through all data, includes creating a first idea of the studied topic and the meaning of it. The following step, coding, is creating categories and labeling them with a connecting word, which is often something that the interviewees have used. Themes & description are generated based on the codes to describe the setting or people and themes for the analyzing. After that, those themes are analyzed individually or constructed into a general description. Interrelating themes and description is the part where the connections between different categories is identified. Interpreting the meaning of themes and description is the final step where the actual writing process of the answers begins, and the themes are described. (Creswell & Creswell 2018, p.193-195.)

3.3 Sample

The sampling method used in this research is purposive sampling, which means that the interviewees were chosen by their suitability for the interview (Merriam & Tisdell 2016, p.294). The respondents were chosen through the network of the author keeping on mind that each of the respondents strictly fulfilled the required standards for receiving truthful and accurate outcome. The requirements of the respondents were as follows:

- Gender: female
- Age: between 25-35 years (Millennials)
- Graduated (A higher level of education is preferred)
- In the work life
- No children
- Driving license/need of a car

The reasons why young women were chosen as a target group for this research are that young generation is very aware of the current climate issues, and they are not only demanding, but also willing to make changes and decisions towards a better, more sustainable future. The young adults, and even fewer young females, are not often targeted when marketing the cars either. The group of interviewed women are all between 25-35 years old, graduated and in work life. That makes purchasing a car and especially an electric car, which is still in general more expensive, for them possible. Some of them are in a relationship and some of them are single, but any of them do not have kids, so the factor, that they would purchase a car considering the point of view of having a family and needing a car for the need of a family is excluded from the research. The marital status of the respondents is a secondary factor, since all of them are persons, who needs a car in the daily business and therefore the focus on purchasing a car is on purchasing for themselves and their needs only. Thus, the interviewees already had an own car. The researched group presented both people in and people not in a relationship.

3.4 Research Evaluation

The research will be successfully completed when the research questions are answered, precise and possibly new information of the topic can be received, conclusions can be made based on the answers, the research outcome is harmonious with the research theory part and the research aims are fulfilled.

The research has progressed like expected and there were not major problems occurring during the process. Covid-19 pandemic had a minor effect on the interviewing part, since one interview needed to be cancelled. Despite to that the interviewing process proceeded because new interviewee was found quite effortlessly. The needed outcome can be achieved since every research question was answered properly and therefore the conclusions can be made. The results are also mainly corresponding with the theory part, which indicates that the results are trustworthy, and the research was succeeded. Also, women's opinion of electric cars, their most important pre-purchase factors, and how do they make their purchase decision, as well as some new perspectives and information were successfully discovered with the research.

3.5 Reliability and validity

The main risk affecting on the reliability of the research is the relatively low number of interviewees. Three women is not a high amount, but the author believes it is enough to create a deep and detailed understanding of the women's buyer behavior and attitude towards electric cars. The sample also includes only highly educated women, which makes the point of view very narrow and excludes women from lower and higher income classes. Another point to mention is that all of the respondents had by chance comprehensive level of technical knowledge due to their educational background. The respondents also lived in Germany, which does not give a very international aspect to the topic, even though their cultural backgrounds were partly different.

The greatest risk affecting on the validity of the interview is that for some reason the respondents would not deliver accurate information. Therefore, it is important to create the interview environment as comfortable as possible, to ensure the confidential relationship between the interviewer and the interviewee for the interview.

4 Research Results

This chapter presents the results of the research. The results are divided into three categories after the themes of the research: electric cars, pre-purchase factors and purchase decision. The main findings of the research are demonstrated in the following table 4 and the notes made during the interviews are presented in the appendix 2.

Electric cars	General opinion about electric cars	As an idea good In practice unsure
	Purchasing electric car	Not ready to buy at the moment
	Motivating factors	Environmental friendliness Sparing costs in a long run
	Main concerns	Driving range Battery life Charging infrastructure Price Lack of service
	Buying vs leasing	Preferring purchasing Leasing would be attractive with better contract conditions Leasing an EV feels safer than buying one
Pre-purchase factors	Most important features in a car	Performance Design Devices/safety devices Price Brand Gearing/automatic

	Sources of information	Online Family and friends Lastly ->Retailer
	Effect of social factors on buying decision	Brand does matter, it is seen as a provement of a quality
Purchase decision	Purchasing place	Retail shop
	Purchasing options	Purchasing
	Confidence of making the purchasing alone	Two of the respondents could make the decision alone One would like to have people with her

Table 4: The main findings of the research

The table consists of three columns: research themes, question subcategories, and the summarized results of the research. The key findings are listed under each subcategory and the further findings are presented and discussed in each section separately below.

4.1 Electric cars

When asking about respondents' opinions about electric cars, any of them was not very convinced of them yet. One of the respondents stated: "I think it is high time that something is happening in the matter of our environment. On the other side, the concept for the energy resources we have to use for the electric cars is still not mature." Anyways, the main message of the respondents was clear: it is important to create new more environmentally friendly and sustainable technologies and options to replace the ICE vehicles, but none of the respondents would buy an EV at the moment. The main reasons were issues related to battery life and charging infrastructure. Every respondent pointed out, that the charging time and infrastructure as well as battery life are their main concerns towards electric cars.

The research highlighted that the studied women would be motivated to buy an EV because of the environmental factors, thus using an EV will not be producing CO₂ emissions into the atmosphere. Another main motivator was the lower usage costs of an EV compared to the ICE in

the long run. However, the respondents mentioned together with that the possible costs that will appear because of the need of buying a new battery in the future, is still concerning when thinking of the costs of the usage in the future. The concerns are bigger than the benefits at the moment, and that keeps the women away from buying an electric car.

The concerns towards owning a BEV were mostly long-term focused, which means that the women are considering cars as a long-term investment. One respondent told that for her the problem was, that here in Europe there is not sufficient service developed for swapping the battery, and that Europe would need more battery swapping stations like in China for example to make it convenient to change the battery when its efficiency runs down. She also thinks that the amount of charging stations is too low in Germany and in Europe in general at the moment. She could see herself owning an electric car if the problem with the battery capacity would be solved.

The charging infrastructure in general is a one big barrier. between women and the EVs. Two of the respondents said, that since they are living in the city center, they do not have a possibility to have their own wall-box and they should search for public charging stations which are limited at the moment and not right outside of their houses. That also creates them extra work and requires more time when leaving work for example. They also stated that using an EV conveniently would also most likely require a charging station at their workplace. They were neither ready to wait for hours for their vehicle to charge when they are driving a longer distance. Even though the battery capacity would be enough to cover their everyday life needs, they want to have the power to decide how and when to drive. One respondent stated that she feels like as an only car, electric car is not convenient. She would see the electric car practical for everyday use and then ICE as a car for longer distances, like driving to holidays, since the charging infrastructure is not that comprehensive in all European countries yet, charging an EV would possibly cause extra difficulties.

Two of the respondents mentioned also, that the value of the electric car in the future is also a big question mark and creates certain type of uncertainty. However, those concerns were closely connected to the battery life, since the price of the EVs are estimated to decrease in the future due to better and cheaper battery technologies, which may also decrease the price of the car. Mentioned together with that was the fact that since the battery life and possible costs for changing it in the future are not known yet, it cannot be known how that will affect to the price and if it will cause some remarkable extra costs. However, the concerns towards the value shared the respondents into different categories. One believed that the price of the car could probably maintain, since the cars are getting more common and EU has planned to ban ICE vehicles, so it

would force the people to buy electric cars. Other one stated, that since the prices of the electric cars are estimated to decrease, it could be that the value of a more expensive car bought in the early stage would decrease remarkable and the possible outdated technology could possibly also decrease the price later on.

None of the respondents had any special concerns towards the safety of electric cars in general during driving. But one respondent said that she is not aware what would happen considering the battery in case of a big accident. The respondents agreed that they trust the common car manufacturers, who are manufacturing ICEs and technology that they are using for the EVs. They think that the safety does not differ from EV only manufacturers like Tesla. Alternatively, unknown brands or new EV brands would arise more concerns and be more unreliable.

Each of the women wanted to have a car which would run long without extra problems on the way. Also, the good and smooth service was an important factor that came up when talking about purchasing a car. They wanted to be sure that no matter when and where they are they can get service quick if needed. Two of the respondents highly valued the importance of service of the electric car. Developing a service, that would guarantee, that the customer does not have to worry about the battery related concerns would be very important.

When thinking about the price of an electric car, two of the women stated that they can truly understand the high price of the electric cars and that the price is not what makes them not to buy, because of the sparing in long run. However, they also said that leasing or subscribing an electric car would be a safer option to try it now, since then they would not have to worry about the possible future problems concerning the battery life or extra costs it may cause them, as well as the lack of the provided information of electric cars.

The driving range was one of the concerns all the respondents were sharing. However, when asking about their daily driving range, they were mostly driving only short distances, so technically the battery of an electric car would cover the need of their daily range. Therefore, it seemed more to be a concern if they would drive longer distances. They were worried, that driving with an electric car would require some extra planning, especially longer distances.

4.2 Pre-purchase factors

The performance was the most important feature in in the car. Another factors the respondents demanded from their car were design, price, equipment. All women also preferred an automatic car over a manual one because of the easiness. The most unexpected answer from all the interviewed persons were that they One respondent said that overall, the design of a car is her very important and especially the interior, since she is seeing the car most of the time from inside while driving the car.

Visiting the retailer was part of every respondent's buying process at some point. The information searching sources varied a lot between the respondents. One respondent told searching options first online, but after that going to the retailer for receiving more information of the different options. Another one told doing the information searching stage online with a help of a family member, who had lots of knowledge about cars, and she entered the retailer only for test driving the car/cars she felt the most suitable for her based on the information search. When the decision of a certain model was made, only after that she to the help of a sales personal. She said that main reason for that is that she does not rely on that the retailers would convey her reliable information about their models compared to other brands models. Thus, she thinks that the retailers are praising their own vehicles to the moon and bragging the other manufacturers. The third respondent also said that she will ask help from her brothers and friends who have lots of information of different models and make herself the searching and selecting more after the design of the car. She also said that she would like her friends or brothers to also test drive the car that she could have also they opinion of the car.

Every respondent said that the brand of the car is important to them, two of them pointed out that they would like to have a "premium sector car" like Audi, Mercedes, or BMW. One of the respondents stated: "I would definitely buy a car from Audi rather than from Renault". Two of them has bought a more expensive brand because of the higher equipment and design. They also said that if you buy a car from upper class brand, they expect that this car has already high-quality features and safety than the cheaper brands, where they should buy more and better equipment to reach to the same level. Also, they expect that the technology and safety are better among those brands. One of the respondents stated that the brand does not have to be a premium brand, but a still a good and reliable brand. She stressed the reliability and good quality of a brand without the extra "fanciness" of premium cars.

4.3 Buying action

The research revealed about that the respondents would like to buy their vehicles from a retailer instead of purchasing one online. They also found it important to see and test drive the car before buying it. So, it can be said that the traditional in-store purchasing trend is not quickly fading away in automobile business.

When asking the interviewees interest of buying a car over other owning options like leasing, financing or vehicle subscribing, they all preferred buying. All the respondents have considered leasing a car, but the leasing options were not satisfying them and therefore they would rather buy a car instead of leasing. Two of the respondents pointed out that if the conditions of leasing or subscribing would be better they would definitely do that instead of buying. However, at the moment buying a car is full filling their needs better.

Two of the respondents said that they would feel comfortable to go to the retailer to buy a car by themselves. One said that she would like to take male family members with her, because she feels more confident when there are people who knows more about the cars that she does, so she is sure that she will do the right decision and since she has hardly any knowledge of cars, the salesperson could basically sell her any kind of a car. She also rather has an opinion from a person close to her, who has expertise over the topic.

5 Discussion

In this chapter the findings of the research are discussed. It is important to remember that the responses are individuals' personal feelings and opinions, and therefore they should not be generalized. However, the research disclosed the types of concerns women have towards electric cars and their consumer behavior and experiences during the purchasing process. The collected data can be used to create a certain type of picture of the issues, which reveals some important factors that should be considered when marketing and selling cars to women.

5.1 Electric cars

As it was expected based on the theory, women are interested in purchasing an electric car because of the environmental reasons. Another major motivator was the expected low usage costs of an electric car and the money that would be spared because of the gasoline costs in the long run. That indicates that the studied women are most likely thinking about purchasing a car as a long-term investment, instead of product that will be changed after some years. It must still be taken into the consideration, that the income of the respondent, as well as individual's willingness to invest money in a car is has a huge impact on that factor and can be varying between the women remarkably.

In many articles it was argued that electric vehicles are seen very masculine, as well as that Tesla and Elon Musk would have an effect to that. However, during the interviews it was not found out, that electric cars would have a special masculine stigma, neither or that Tesla would have an influence on how electric cars are viewed. It was only mentioned that Tesla as a brand is seen very expensive and categorized as a "luxury electric car". One reason for that may be, the demographical and cultural differences between Europe and America, since most of the articles were from the US. Tesla may have a different reputation and affection to people there compared to Europe, since Tesla is the largest car manufacturer in the US and Germany, for instance, has multiple large and famous car manufacturers. It can be also assumed, that the income level of the person is also affecting how the electric cars are viewed. Therefore, the high educated women are not seeing the electric cars so masculine, because they earn more money by themselves and therefore are able to afford one. However, the high price and the new developed technology of

Tesla makes it possibly more attractive to men than women, which does not directly mean that the brand would be particularly masculine.

It seems that electric cars are not viewed especial masculine, but due to the uncertainty combined with the high price EVs simply do not attract women the way that they would choose an EV instead of an ICE yet. If the either the price goes lower or the uncertainty would be reduced, for example with certain kind of guarantee of the battery life, women would most likely be ready to purchase one. Thus, if at least one of the risk factors would be eliminated, the motivation to purchase an EV would be higher. One factor that keeps the EVs masculine is that women want more safety, they want to have a reliable car, men are more likely to take risks. Therefore, it would be very important to increase the reliability and practicality of electric cars for everyday use with widening the charging infrastructure.

Two respondents named the price to be one of the reasons, why they would not buy the electric car at the moment. However, all of the women said that they would be ready to pay more for the electric car, because of saving money in a long run. They said that the amount they would be ready to pay more is difficult to estimate, but it would be some thousands of euros approximately five thousand euros. Therefore, it seems that the prices of the BEVs should decrease dramatically to attract more people. Once again, they still said that if they would be sure about the savings in a long-run, or most likely, that there would not be major costs coming in the future for example because of the battery, they would be ready to pay more.

The main concerns towards electric cars were all battery related: driving range, battery life, and charging infrastructure. One very interesting point, which was not given too much attention in the literature was the importance of the service. The interviewed women pointed out that if the battery swapping service would be offered, they would most probably be ready to purchase an electric car. The battery life would be enough for daily life, but it would restrict or slow down the long-distance traveling, which happens less but is still a matter of a freedom. The research highlighted that young women would be motivated to purchase a BEV but the offer needs to be more attractive to get them to purchase one. Thus, they see that the risks of purchasing an electric car are still higher than the benefits.

The research indicated that women trust the famous car brands also as an electric car manufacturer. They expect premium brands like BMW or Mercedes-Benz to be able to produce safe electric cars. Instead of that some unknown or new car and EV brands would arise concerns.

That indicates that the safety of the car is strongly brand related and therefore brands with good reputation are trusted also with new concepts and technologies.

5.2 Pre-purchase factors

One very interesting finding of the interview was considering the most important features or factors affecting women's buying decision. All the interviewed women preferred performance and design over safety and practicality. Many articles about women's car purchasing preferences pointed out safety and practicality over performance or design. On the other hand, there were also articles saying, that women should not be generalized, and that the performance also matters to women. One major factor effecting to that may be that Germany is a country of car manufacturers and the only country in the world where people can drive on the highway without speed limits. Another aspect that should be taken into account is that it is said in German culture it is more important which kind of car you are driving instead of in which kind of house you are living in. The strong car culture and using a car as a status symbol is most likely affecting to that outcome. However, safety was also a very important factor for the interviewed women, but they did not stress it especially, because they expected that the brands or models, they were searching for had already a sufficient safety level, so that they did not need to pay any extra attention to that. Thus, they trust their preferred brands, and expect and know them to have a high safety standard. That indicates the respondents' interest towards premium level cars. The cheaper brands or model most likely do not have many safety devices as a standard.

The brand of the car seemed to have a great influence into women's purchasing decision. However, like said in the theory part, the interviewed women were not that brand loyal. One reason for the importance of the brand may be the strong car culture in Germany, as well as the need of showing off one's status, that the social media platforms, like Instagram has created during the last years. Also, the high quality of the premium brands is obviously affecting to that, since the women said, that they expect them to have a higher quality and safety standards.

5.3 Purchase decision

An interesting factor in women's purchase decision making was that they said to be confident about doing the purchasing decision by themselves, but on the other hand they wanted to have

family members or close friends with them when buying the car. The study presented in the theory chapter revealed that 49 percent of women feel vulnerable while visiting car stores and 90 percent of women feel more comfortable when they are entering the store with a man. Even though, two of the interviewed women did not feel like being patronized by the salespersons and they said that they would also be able to go and do the purchasing decision alone, it seemed that they would still like to have someone with them. That may be some kind of unintentional, psychological behavior or need or then it is more like a habit to go together to buy a car, since it is an expensive transaction and very important event in many person's life. Buying a car is something that requires lots of decision making, it is one of the most expensive things an average person is buying during the lifetime, and it does not happen every day.

6 Conclusion

This research studied women's consumer behavior towards electric cars in order to get to know the purchasing factors which would help to understand women's needs and desires for creating more effective communication and electric car marketing between women and car manufacturers in order to target electric car marketing for women. The topics covered in the research were women's general opinion of electric cars, what type of pre-purchase factors influence their decision making and how they make the purchase decision. The research revealed that young women have high interest towards electric cars but the concerns towards them are still greater than the willingness or safety to purchase one. Other words, the risk is too high at the moment and in order to decrease the effect of the risks on their decision making, there should be more information of electric cars provided and a better guarantee and customer service for the battery of the car. Those factors together with wider charging infrastructure would most likely attract the women to purchase an EV.

Women are already attracted into electric cars and therefore marketing them only for men or in general for both genders causes a data gap which should be fulfilled, in order to focus the marketing better for women and therefore OEMs are also losing profit, when not filling this gap. Therefore, it is also very important for the automobile industry to understand the women buying behaviour and this issue to target their marketing also for women and make electric cars "less masculine" and more attractive for women. Focusing on women in the car industry, would not only change the image of the company or the brand but in the end of the day the image of the whole industry and the society. It is about listening to the customers and meeting especially women's expectations, most importantly the demand of the equality between the genders.

The results of the research were mostly as expected based on the literature. The interviewed women were not ready to buy a BEV yet, because of the concerns towards battery life, driving range, charging infrastructure. Also, the price influenced the decision making. Therefore, the most remarkable finding relating to the EVs was the importance of after sales activities for the women. Since for majority of the respondents stated that if an easy battery swapping service would be guaranteed, they would feel confident to buy an electric car. The reviewed research has not studied the effect of the after sales activities on the purchasing motivation of an EV.

Another interesting finding considering the pre-purchase factors was how the studied women prioritized design and performance of the car over safety or practicality of the car. However, the studied literature also divided with this and some of studies highlighted the importance of design, brand, and performance of the car for women. It can be assumed, that the chosen sample group affected to this answer and that the most important features of a car varies a lot between different cultures, ages and income classes.

Possible further research considering to this topic could be the differences between women and men's buying behavior towards electric cars. Only by identifying the possible differences of their concerns and preferences it can be also said for sure, who the car manufacturers are actually targeting more. Another point would be studying the differences between women with different income levels, educational background as well as regional differences. It can be assumed, that the price of the electric car is a greater barrier for changing electric for lower income persons and in countries with long and cold winters decrease the interest of purchasing an electric car. In northern countries the concerns towards battery life can be assumed to be even higher and the need for a battery swapping service even more critical than in central Europe. Where the respondents did not feel that the weather conditions would affect their purchasing decision.

The reason why women's consumer behavior should be studied in the future is that it would have positive effect on many different sectors of automobile industry. It would make women feel noticed, change the industry less masculine and more gender equal and most likely boost the sales of electric cars. In other words, it can be said, that focusing the car marketing on women would not only change the image of a car brand or company, but in the end of the day it would affect the image of the whole industry and the society. The EV manufacturer who will first succeed to attract women, can possibly gain a prominent benefit on the market compared to the other companies. It is still good to remember, that as a business segment automobile industry is very agile and when one company is doing something the others will normally quickly follow.

7 Literature

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8 Appendices

APPENDIX 1: Interview questions

Electric cars (general)

- What do you think about electric cars?
- Would you buy an electric car?
 - o Why?
- Which factors would motivate you to purchase an electric car?
- Which of the following topics do concern you about electric cars: Price, value, range, battery life, charging points/time, safety, weather conditions, etc.?
- Would the purchasing method have an effect to your decision? (Leasing, financing, subscribing, purchasing)

Pre-purchase factors

- Which are the important factors affecting to your purchase decision? (Name three to five factors)
- Where do you search for the information before purchasing a car? (Online, friends, retailer)
- How much the brand, model or current trends are affecting to the buying decision?

Buying decision

- How would you purchase your car?
- Do you feel confident to do the decision by yourself?
- Would you rather lease or buy a car?

APPENDIX 2: Interview notes

Interview 1.

- Not absolutely sure about EVs. Thinks it is high time that something is happening in the matter of our environment but on the other side the concept for the energy resources we have to use for the electric cars is still not mature.
- Not ready to buy an EV yet, not convinced about the charging.
- Charging and battery life are main concerns.
- Features: design, price, performance.
- First, I will get some information online and the next step is a retailer.
- Would like to have another opinion and include the parents into the decision and also ask the brother and boyfriend's opinions.
- Would definitely rather buy a car from Audi than from Renault.
- Leasing has pros and cons but would go for buying a car.

Interview 2.

- EVs have a nice concept, but still having a high price and lack of service.
- Would not buy at the moment.
- Concerns: battery life, charging, price.
- Effect on the climate motivates.
- Leasing would be probably safer to try an EV.
- Engine, automatic, design, safety devices/devices/equipment.
- Brand is affecting.
- Asking opinion from a "car expert" who belongs to the family.
- Searching information online, visiting retailer, test-driving, purchasing from a retailer.
- Buying a car was the cheapest purchasing option.
- Feels comfortable buying a car by her own.

Interview 3.

- EVs are interesting and would be interested to buy one. There are still problems like charging, therefore the time to purchase one is not yet. More like a second car of the house.
- Eco friendliness and saving money (and petrol) motivates.
- Concerns: charging infrastructure/time, battery life, price/value.
- Features: performance, design, interior, reliable brand with quality.
- Asks opinions from friends and brothers, search information online, does test drive, purchase from a retailer.
- Brand has an effect, but it is quality over fanciness.
- Has considered leasing a car but it did not fit well for her and was a bit more expensive. With better contract conditions would rather lease a car.
- Would like to take brothers and friends with her to buy a car. Feels more comfortable and that the retailer cannot trick her. Sure to make the right choice.