The important attributes of a smartphone for Dutch young adults

Bachelor thesis

Ruben Vermeulen 504005

1. Executive summary

This research is about the importance of smartphone attributes for Dutch young adults. Dutch young adults are the people who use their smartphone the most in the Netherlands according to research done by Simyo, a Dutch telecom company (Emerce, 2019). Dutch people to the age of 30 use their smartphone 50 days per year, and this was before the lockdowns due to covid-19. It is plausible that this number will be higher over 2020 due to those lockdowns. Besides the smartphone use of people in this age category, this research is also relevant, because people can perceive more value from customized products (Frank & Schreier, 2010). The smartphone market is a market that has little customization when buying a product. With this research, smartphone companies can identify the importance of certain attributes and make a smartphone that fits the key target market. The central research question of this research is as followed: *What attributes of a smartphone are important for Dutch young adults when buying a smartphone?*

There are three theoretical and three empirical questions that will be answered. The theoretical questions are as followed:

1. What do people use their smartphone for?
2. How do people perceive value from smartphones?
3. What are the effects of orientation on consumer satisfaction when buying a product?

The empirical questions are as followed:

1. What does the market of smartphones look like in the Netherlands?
2. What are the recent innovations within the smart phone market?
3. On what smartphone attributes are the companies focussing in product development?

The key findings of the literature study are that the smartphone's main use is the use of social media for communication, information such as the news, and leisure. The smartphone also still gets used for making phone calls or texting. Moreover, people use the smartphone to play games. Regarding perceived value, people perceive value through different factors. The factors that influence perceived value the most, are the physical attributes of a product, the performance of a product, the value for money and the brand image. Product orientation can increase product satisfaction, but it is not the most important factor among the factors influencing product satisfaction.

The market of smartphones has been dominated by two companies, Apple and Samsung. Lately Huawei has joined the competition in the Netherlands. The retail volume has dropped over the last five years with approximately 16%, while prices have been going up in the last five years, which results in revenue staying around the same level over the last five years. The distribution has shifted more to e-commerce over the last five years, with e-commerce providing around 50% of the retail volume in 2020. Moreover, people are buying more sim-only subscription with a separate smartphone. Most innovations in the smartphone market have been on physical attributes, like the camera, but also complete new features, like the foldable phone from Samsung and Huawei. Apple is also innovating in the distribution channel with their own Apple stores. Moreover, there has been focus on internal performances of the smartphone. Companies that focus on performance in their product development are Apple and Huawei. Samsung is focussing more on the camera, while Nokia has been focussing on the price attribute lately.

Based on these key findings, the following hypothesis were made:

- H1: Brand will have a significant impact on the perceived value
- H2: The price will be more important than brand for perceived value
- H3: Physical attributes will be more important than internal attributes
- H4: People who prefer Samsung, will perceive more value from the camera compared to people who prefer Apple or Huawei
- H5: People who prefer Apple, will perceive more value from internal attributes compared to people who prefer Samsung or Huawei

For this research, a choice-based conjoint analysis was used on a sample of 106 respondents that were reached through different kinds of social media and SurveySwap. The survey was made by using the results of ten interviews. The choice-based conjoint analysis makes use of a logit regression. This logit regression works with probabilities, where the probabilities are giving of choosing a certain profile over another profile. For this research, the consumer characteristic favourite brand was added for an interaction effect with the attributes.

The key findings of the interviews were that price, brand, internal storage, screen size and battery life are the most important attributes that Dutch young adults in this sample look at when buying a smartphone. The levels of these attributes were also determined by the interviews. The levels were €250, €500 and €750 for price, Apple, Samsung and Huawei for brand, 64GB, 128GB and 256GB for internal storage, 5, 6 and 7 inches for screen size, and 1 day, 1,5 days and 2 days for battery life. The choice-based conjoint analysis showed that internal

storage and price have a significant impact on the consumers' choice of a smartphone, where internal storage is the most important attribute, followed by the price. Screen size, brand and battery life were not significant. When looking at the interaction effect, the interaction between brand and favourite brand and the interaction between internal storage and favourite brand were significant. This means that there are differences between the groups based on favourite brand on the attributes internal storage and brand. Samsung preferers have the highest probability to choose a phone with higher internal storage, followed by Huawei preferers and then Apple preferers. The interaction of favourite brand with brand is more straightforward. Every group has a higher probability to choose the phone from their favourite brand. Samsung preferers prefer Huawei over Apple when choosing between them. Apple preferers prefer Samsung over Huawei and Huawei preferers prefer Samsung over Apple.

The answer to the central research question is that price, brand, internal storage, screen size and battery life are the attributes that the Dutch young adults in this sample look at when buying a smartphone. After the survey, it was found that only price and internal storage are significant, with internal storage being the most important attribute, followed by price. H1, H3, H4 and H5 are refuted, while H2 is accepted.

Recommendations for this market is to focus more on the internal performances, like Apple already does. Besides that, there should also be less focus on the camera. The third recommendation is to focus more on value for money, since a lower price increases utility. Recommendations for future research is to do this type of research on elderly people, since they are still an opportunity in this market. Another recommendation is to do this research with a random sample and more respondents. The last recommendation is to this research in another country in Europe, to compare the results of different countries in Europe.

Table of Contents

2. Introduction

Smartphones have become a major part of people's life. A research done by Simyo, a Dutch Telecom company, found out that an average Dutchman spends 34 days a year on his phone (Emerce, 2019). Dutch people to the age of 30 spend the most time on their phone, almost 50 days a year. It is important to notice that these numbers are from 2019, so before the covid-19 crisis. Due to lockdowns all over the world, so also in the Netherlands, it is likely that these numbers will be even higher over the past 15 months. This is because people had to spend more time at home and the smartphone was almost the only way to communicate with people from outside your household. The fact that younger people use the smartphone more than the average Dutchman, shows that the young Dutch adults are the most important target group for smartphone companies. This also shows that it's important that people have smartphones that meet their requirements, since we spend so much time on our phone.

The smartphone market is still a market where customization is limited, but people perceive more value from customized products. Frank and Schreier (2010) discuss in their paper that there are different reasons why people perceive more value from customized products. One of them is the process of making a customized product. Another reason is the interaction between preference fit and process enjoyment. The last reason is the interaction between preference fit and perceived process effort. The preference fit is the most important factor for the perceived value of customized products. In the market of smartphones, customization is still very limited. At the moment, the interface of the smartphone, for example the apps on your home screen and the background, is something that can be customized. By doing research on what customers find important attributes in smartphones, companies can deliver the closest things to customized products within the smartphone market. This can increase the perceived value for customers, since preference fit is the most important factor and with this information, they can create a smartphone that fits the preferences of the key target market. This shows that this research is relevant for companies who make smartphones, because it can increase sales when people perceive more value from their smartphone.

For this research, the central research questions is as followed:

What attributes of a smartphone are important for Dutch young adults when buying a smartphone?

In the literature study, there will be three theoretical and three empirical questions that will be answered. The theoretical questions are as followed:

1. What do people use their smartphone for?

2. How do people perceive value from smartphones?

3. What are the effects of orientation on consumer satisfaction when buying a product?

The empirical questions are as followed:

1. What does the market of smartphones look like in the Netherlands?

2. What are the recent innovations within the smart phone market?

3. On what smartphone attributes are the companies focussing in product development?

There can be some ethical issues in this research. According to Fouka and Mantzorou (2011), the major ethical issues in conducting research are: a) informed consent, b) beneficence c) respect of anonymity and confidentiality and d) respect for privacy. The last two points can be difficult when conducting interviews. There is a respect of anonymity and confidentiality within the survey, but this can't be done for the interviews, since they need to be voice recorded and transcribed. The privacy also can't be guaranteed, since there is a possibility that other people hear the voice recorded interviews, and the transcribed interviews will be added to the appendix.

There are also some possible research limitations. One of them is my resources. For this research, a survey needs to be distributed. The only way this can be done, is by sending the surveys to friends and family and hope they can spread it to some of their friends. This is a combination of convenience sampling and snowball sampling. This means that the sample will not be random, and this can affect the results of the research compared to the same research done with a random sample. Another limitation considering the sample is that most of the people will probably be from the region of Rotterdam, since the most people in my social circle are from that region. Another possible limitation is time. The time given for this research is six weeks. Although it is enough time to do the statistical research, it can be difficult to collect the right amount of data. The goal of this research is to get 100 respondents for the survey, but more respondents can give better results, so time can be a possible limitation.

In the literature study, the above mentioned theoretical and empirical questions will be answered and be transformed into hypotheses. Then in the methodology, The data collection will be discussed, the relevant data about the sample will be discussed and the analysis method

will be discussed. In the research outcome, the results of the research will be discussed with a summary of the key findings. Last, the key findings of the literature study and the research will be discussed, the central research question will be answered, the recommendations will be made and the possible limitations will be discussed.

3. Literature study

3.1 What do people use their smartphone for?

Smartphones can be used in many different ways. Vanhaelenwyn, Waeterloos, Joris, et al. (2020) researched how young people in Belgium use their smartphone. 4255 young people from secondary school in Belgium, aged between 12 and 18, filled in an online survey about media use on digital devices. They found that social media was very important, with Instagram and YouTube as most used social media for leisure. Besides that, they used social media to communicate with each other. They mostly use Snapchat and WhatsApp for that. They also use social media as a source for news. 88% of the young people said that they use their smartphone the most to follow the news digitally. Belgian young adults also use their smartphone to listen to music using YouTube or Spotify. It has to be said that this research was conducted for a different age category and for another country than this research, although it will be likely that there will be similarities between the two groups.

Another thing people use their smartphone for is mobile gaming. In a paper by Lopez-Fernandez, Männikko, Griffiths et al. (2018), they conducted a research to see if there is a relationship between mobile gaming and self-perceived problematic smartphone use in Finland and Belgium. From the online survey they sent out for this research, they found out one-third of the 899 respondents use mobile games. The research showed that there was no relationship between mobile gaming and problematic use of a smartphone.

Moreover, people use smartphones for calling and texting. A research by Gao, Li, Liu and Liu (2016) was done to see if there is relationship between smartphone use and social anxiety or loneliness. They made three groups for social anxiety and loneliness based on the Interaction Anxiousness Scale and the University of California Los Angeles Loneliness Scale. The groups are participants with a high score, a middle score and a low score. They found out that people with a high score get less incoming and outgoing calls compared to participants with a low score. They also sent and received less text messages, used health & fitness apps more and used camera apps less frequently.

A smartphone can also be used as a camera. As was already seen in Vanhaelwyn et al. (2020), teenagers use the app Snapchat as a way of communication. Snapchat is an app that mostly makes use of the camera. But besides Snapchat, people also make pictures using their smartphone for other social media. The most common way people take pictures with their smartphone is by making a selfie, either by just extending your arm, or by using a selfie stick.

Hess (2015) wrote an essay about selfies and stated that our communication behaviour in public places has changed due to the increase in technology of smartphones. Selfies are part of those changes in communication behaviour, being a way to express your online identity, to connect with others and longing for authenticity digitally.

From these papers, it can be seen that there are multiple uses for the smartphone. The main use is for social media. Social media gets used for communication between friends, for news and for leisure. Beside social media, people use the smartphone for mobile gaming. The smartphone also gets used for calling and texting. And last, people use it for the camera. The use of the smartphone can depend on the type of people. For example, people with a higher score for social anxiety, use the smartphone less for calling and for photo's.

3.2 How do people perceive value from smartphones?

Value perception is an important factor in marketing. Companies try to create a value proposition for the customers, but to do that you need to know how people perceive value. Sweeney and Soutar (2001) did research on consumer perceived value. They developed a four-dimensional scale for perceived value, with the dimensions being quality, price, emotional value and social value, to increase the knowledge on perceived consumer value, including utilitarian and hedonic components. This study shows that consumer choice behaviour can be better explained using multiple dimensions than just value for money. The scale model, developed by Sweeney and Soutey, demonstrates that consumers assess products in functional terms, expected performance, value for money, versatility, enjoyment or pleasure derived from the product (emotional value) and the social value of the product. This model can help to develop more sophisticated positioning strategies for marketers. This model can also be an opportunity for retail strategists to explore all dimensions of customer value and take it into account when deciding the market approach. To relate this study to smartphones, it is good to know what customers value when assessing products and which dimensions are useful for smartphones companies to improve on. Since smartphones are products that get used often in a day and are quite an expensive product, it can be argued that the expected performance, value for money and the emotional value of the products are the most important factors to look at for smartphone companies.

A study by Lee and Shin (2018) researched consumers perception towards smartness characteristics of smartphones to understand the influence of products smartness on consumer satisfaction. The smartness was divided into five dimensions: autonomy, adaptability,

reactivity, multi-functionality and the ability to cooperate. They put out a questionnaire to 388 consumers in their 20s. The results were that adaptability and multi-functionality have a significant influence on customer satisfaction, and the other three did not show a significant impact. This study shows that the customers perceive more value from multi-functionality and adaptability in a smartphone.

Haba, Hassan and Dastane (2017) did research on factors leading to consumer perceived value of smartphones and its impact on purchase intention among Malaysian working professionals. They used a theoretical framework where there are five variables that influence the consumer perceived value and the purchase intention. The five factors are social value, perceived usefulness, perceived ease of use, economic value and brand image. They found that social value and perceived ease of use do not have a direct or indirect effect on smartphone purchase intention. Perceived usefulness, economic value and brand image have a direct effect on consumer perceived value and an indirect effect on smartphone purchase intention. They also found that consumer perceived value has a significant impact on purchase intention among Malaysian working professionals.

From these papers, it can be said that there are multiple factors that influence the perceived value. One of the factors is the smartness of the phone, where adaptability and multi-functionality are important. Other factors influencing perceived value, are the value for money, the emotional value and the expected performance. Moreover, brand image is seen as important for the perceived value of the smartphone.

3.3 What are the effects of orientation on consumer satisfaction when buying a product?

There are multiple factors that can influence customer satisfaction, beside the satisfaction people get from the product itself. Tanner (1996) discusses the factors that influence customer satisfaction. Tanner mentions that satisfaction occurs when the purchase expectations are met. This can be product related, but also related to the buying process. Tanner explains this by giving an example from psychology. In psychology, it is believed that although a person may not appreciate a group decision, if the process for that decision was fair, the person will be satisfied with the decision. This also means that if that person believes that if the process was unfair, he will not be satisfied with the decision. This shows that process satisfaction can be an important factor in the buying process. Tanner also conducted a research on the relationship between process and product satisfaction. He found a positive relationship between process and

product satisfaction. However, the process satisfaction was negatively related to the next purchase participation. Tanner also looked for the factors influencing the process satisfaction. He found that decision influence was positively related to the process satisfaction. The risk of not participating and the formal rewards were negatively related to the process satisfaction. From this study, it can be said that orientation, which is part of the buying process, positively influences product satisfaction, so indirectly also the consumer satisfaction.

Beside consumers doing their own research for products, consumers can also get help through a salesperson. A study from Humphreys and Williams (1996) looked for a relationship between interpersonal process attributes and technical product attributes on customer satisfaction. They found a positive correlation between the interpersonal process attributes and customers' overall satisfaction. Beside that they also found a positive correlation between technical product attributes and customers' overall satisfaction. This study shows that by companies can help customers with the orientation for a product with the use of a salesperson, and that this can increase the overall satisfaction of the customers.

A research by Veloso et al. (2017) looked for determinants of customer satisfaction in Portugal. The research had five aims: (1) to see if perceived service quality contributes to customer satisfaction, customer-perceived value, and corporate image, (2) if corporate image and customer-perceived value contribute to customer satisfaction, (3) if customer-perceived value contributes to corporate image, (4) if customer satisfaction influences the intention to return to the store and (5) if the loyalty to staff influences the intention to return. The results suggested that service quality does influence corporate image, perceived value and customer satisfaction significantly. Moreover, the main determinants of customer satisfaction are perceived value and service quality. Customer satisfaction, corporate image and perceived value also affect behavioural intentions towards shopping significantly.

Based on these studies, it can be said that the product orientation can increase customer satisfaction when buying a product. This can be done by the customers' own research on products, but also through salespersons helping the customers with the choice of products. Orientation can help with setting product expectations and increase the customer satisfaction. The perceived value gets influenced by orientation, so orientation can be seen as a main determinant of customer satisfaction.

3.4 What does the market of smartphones look like in the Netherlands?

The market of smartphones has been dominated by two companies in the past five years. Samsung has been the biggest in that period, followed by Apple (Passport, 2021a).

Figure 1: Brand shares in percentages in the smartphone market in the Netherlands in 2015 and 2020
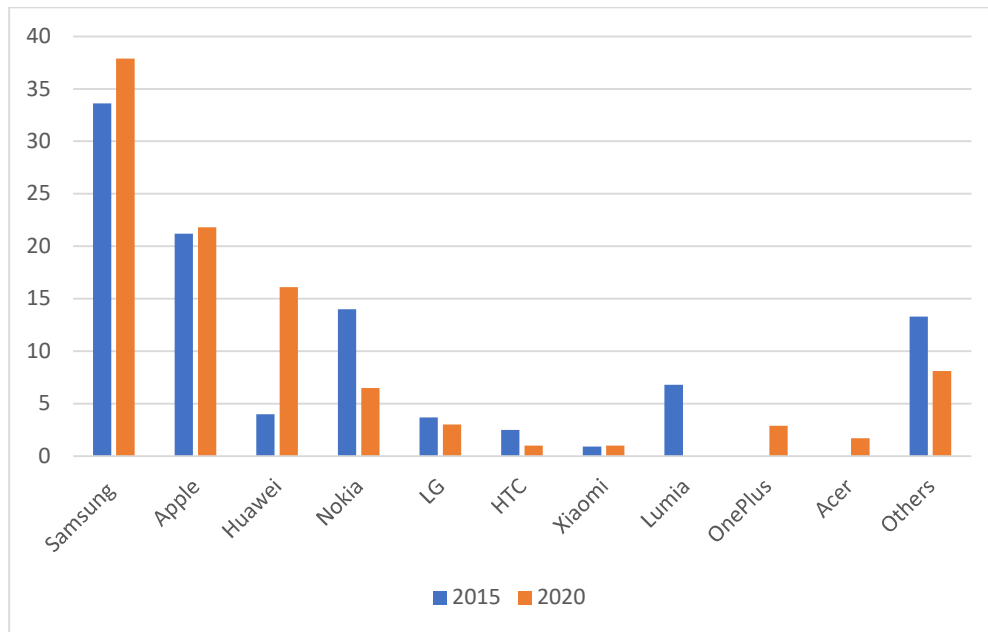

Table notes: Figure 1 shows the brand share percentages based on retail volume. Companies included in the others are Sony, Lenovo, Blackberry, Motorola, Asus, ZTE and other companies not specified by Passport (2021).

Figure 1 shows the development of brand share over the last five years. Huawei had the biggest growth in the last five years, overtaking Nokia for the third biggest smartphone company in the Dutch market. Nokia is the company with the biggest downfall, but they are still the fourth biggest company in the Dutch smartphone market. Samsung has been the biggest company in the Dutch market quite comfortable, almost doubling the brand share of the second biggest company in the Dutch market, Apple.

There has been a big change in the distribution of smartphones in the Netherlands from 2015 to 2020 (Passport, 2021b). In 2015, 67% of the retail was store based, and 33% of the retail was through e-commerce. 55% of the sales took place in electronics and appliance specialist retailers. 3,2% of the sales were in grocery retails and 8,2% in mixed retailers. Over the last 5 years, the distribution switched to more online, with e-commerce almost overtaking store-based retailing with e-commerce having 48% of the sales. 41,3% of the sales happen in electronics

and appliance specialist stores. 2,3% of the sales happened in grocery retailers and 8,4% in mixed retailers.

The smartphone market in the Netherlands is slowly declining if you look at the retail volume (Passport, 2021c). In 2015, the retail volume was around 5.987.700 phones. In 2020, 5.019.900 phones were sold. The retail volume has dropped with 16% over the last 5 years. Average prices of smartphones have increased over the last five years (Wokke, 2020). The inflation corrected average price in 2015 was €439,48. In 2020 the average price was €530,33. This means that the revenue over the last 5 years has stayed around the same level.

With smartphones, people have the choice of buying a smartphone with a subscription of a telecom provider, so they pay a monthly fee for the smartphone, or just the smartphone on its own with a sim only subscription. An article by the NOS (2017) reported a research by Telecompaper that more people are choosing to buy the smartphone with a sim only subscription. In the third quarter of 2017, 44% of the sold phones were without subscription. In the first quarter of 2017, this was only 33%. This shows that over time, more phones have been sold as a separate device.

The smartphone market can be described as a market that is stagnating in terms of revenue, and decreasing in terms of retail volume. The distribution is becoming more e-commerce over the last five years, compared to store based retail volume. Samsung is the biggest smartphone company in the Netherlands over the last five years, followed by Apple. Huawei has been on the rise over the last five years, while Nokia had the biggest downfall over the last five years. People are also buying more sim-only subscriptions with a separate device over time.

3.5 What are the recent innovations in the smartphone market?

One of the recent innovations that gets used by most brands in the flagship series of their smartphones is wireless charging. Samsung was the first to introduce wireless charging back in 2015 (Samsung, 2019a). The wireless charging was introduced on the Samsung S6. Using the technology of wireless charging, Samsung also introduced wireless PowerShare (Samsung, 2019b). You can charge your phone using another phone with the same technology, by putting the backside of the phone on the backside of the other phone. Wireless charging became a success, with Apple also introducing the feature on the iPhone 8 in 2017 (iPhone Life, 2021).

Another innovation is the foldable phone. Samsung released the foldable phone under a new series, called the Z Fold, in 2019 (Samsung, 2021b). The fold of this smartphone can be compared with a book, so a vertical fold. The innovative parts can be found in the screen and

the hinge mechanism. The hinge should be smooth and natural, and have a long durability. That is why Samsung had a device which they used to fold the phone 200.000 times. The screen is also important, because it needs more durability since the screens will touch each other when you fold the phone. Samsung also introduced the Z Flip, which is also a foldable phone, but it folds horizontally (Samsung, 2021a). This technology makes the phone a modern version of a mobile flip phone. An advantage of the Flip is the very compact design when the phone is folded. Huawei also introduced a foldable phone in their Mate-series (Huawei, 2020). The big difference between the foldable phones of Huawei and Samsung, is that the Huawei phone has the screen folding away from each other, so the screens don't touch each other when folded, while the Samsung phone has the screens folding towards each other.

An innovation on the camera feature is the introduction of the ultrawide angle camera. LG was the first to introduce it in 2016, making it possible for pictures to have 135º field of view (GSM Arena, 2021b). This is much bigger than the normal camera, which only has field of view of 75º. This innovation of LG has become a success, but not necessarily for LG. Nowadays, most smartphones have an ultrawide angle camera, but LG have not had a big growth in the market because of this innovation, as seen in the first empirical sub question. Another improvement of the camera was not in the hardware, but in the software. Google is the one that has the most success with this, despite it not resulting in a high market share as can be seen in the first empirical sub question (Williams, 2018). Google has their own smartphone series, the Pixel. Google has an unique way to upgrade their phones, as can be seen with the upgrade from the Pixel 2 to the Pixel 3. The Pixel 3 hardly improved on hardware compared to the Pixel 2, but it is built with new algorithms which allows to make new types of pictures. These software related improvements make use of machine learning, which means that the older Pixel phones also get enhancements. This results in the Pixel 2 making the same quality pictures as an iPhone with better hardware, and even keeping up with the next generation of the iPhone.

In terms of distribution, more sales have gone through e-commerce over time, as can be seen in sub question about how the smartphone market looks. But there is a smartphone company that still uses physical stores as an important part of their distribution. That company is Apple. There are three Apple stores in the Netherlands (Apple, 2021). The advantages of an Apple store for Apple, is that Apple can decide the product placement in the shop and they can influence the service quality. This is an innovative step from Apple, since other big companies do not have their own physical stores.

Most innovations that smartphone companies make are innovations on the physical side of the phone. Samsung and Huawei introduced a foldable phone, while LG introduced a new camera lens for the smartphone, which has become a standard for almost every new smartphone. Only Google used software innovations for features to improve, mainly for the camera, but this hasn't resulted in success regarding the market share. In distribution, Apple has innovated with their Apple store, but e-commerce is getting bigger over time.

3.6 On what smartphone attribute are companies focussing in product development?

For this question, four companies will be discussed. The first two are Samsung and Apple, since those are the biggest companies in the Dutch smartphone market. The other two companies are Huawei and Nokia. This is because Huawei had a big increase in market share over the past five years, while Nokia had the biggest downfall in market share over the past five years.

Samsung

Samsung has three main series in the field of smartphones: The S, A and J series. The S series is the flagship of Samsung, so most big innovations will be put into that series. A recent and well-known innovation of Samsung is the foldable phone, which is actually a separate series of Samsung called the Z series (GSMArena, 2019). The smartphone was released in September 2019 and Samsung reported that before the end of 2019, they sold 1 million phones. Because of the success, Samsung have released a successor, the Samsung Z fold 2, and there is a third one on the way. Another innovation of Samsung are their screens. Samsung introduced the AMOLED screen in 2010, and over time they improved this screen, with dynamic AMOLED being the newest screen used since the S10 (Samsung, 2019a). Samsung also created a bigger screen-to-body ratio. The Samsung S7 had a 72.1% screen-to-body ratio (GSMArena, 2016) and the successor, the Samsung S8, had a screen-to-body ratio of 86.2% (GSMArena, 2018). The Samsung S21 has a screen-to-body ratio has screen-to-body ratio of 87.2% (GSMArena, 2021a). Another innovation on the S21, a feature that is also promoted in the commercials, is the camera. The main camera can film in 8k, and the main camera nowadays exist of 3 different cameras. To compare to the S-series five years before, the S7 only has one camera and films in 4k (GSMArena, 2016). So it can be said that the main focus of Samsung was on the screen, with the introduction of the AMOLED screen and the foldable screens, but they transitioned to focus more on the camera over the last years.

Apple

Apple only has one range of smartphone: the iPhone. Apple use iOS as the operating system, compared to the Samsung, Huawei and Nokia, who use Android. The operating system can be considered as the main focus in the beginning of the iPhone, since iOS is only used on Apple products. This means that they can improve it in any way they want. Apple also introduced Siri (Apple, 2018). Siri is a virtual assistant that works with voice control. It was introduced in 2011 on the iPhone 4 (Clifford, 2017). Siri can set an alarm or a timer, send and read texts, do maths and suggest shortcuts based on your daily routine (Apple, 2018). This in combination with the operating system shows that Apple focussed more on the internal attributes than physical attributes. Looking at the camera of iPhones, you can see the same development as at Samsung (iPhone Life, 2021). With the iPhone 11, Apple introduced a ultra-wide camera, which gave the iPhone three main cameras. With the iPhone X, Apple introduced another feature, making use of the selfie camera. It is called Face ID and it works as an extra security for unlocking your smartphone. With this technology, it becomes harder for outsiders to unlock your phone and get to your private information. Apple also had a controversial feature, which is a feature they removed: the headphone jack. Apple introduced the wireless AirPods, which meant that if you wanted to listen music from your phone, you had to buy AirPods or other Bluetooth earbuds. Overall the main focus of Apple is still on the internal performances and software of their smartphone, although they have put more focus on physical attributes, like simplicity with removing the headphone jack and improving the main camera.

Huawei

Huawei uses Android as their operating system. The Huawei P8 was the first release of the P-series, the flagship of Huawei (Nield, 2021). The P-series replaced the Ascend, which was the first flagship of Huawei. Huawei was ahead of their competitors at that time with their storage with 64GB. To compare with Apple, the iPhone 6, the newest iPhone at that time, had 16GB storage in the standard edition (iPhone Life, 2021). The phone after the P8 was the P9, which came with a better processor, which Huawei make themselves and is called Kirin (Nield, 2021), and camera. The P10 saw again a better processor, but this time the storage increased to 128GB. A big step was made with the P20, the successor of the P10. The screen was improved and the phone became significantly larger than its predecessor. The P30 introduced a triple lens, like we have seen at Apple and Samsung. They also used an OLED screen for the first time in the P-series. Internal storage was increased again to 256GB, as well as 8GB RAM. In 2020, Huawei introduced the P40. The most noticeable change was that there were no Google mobile services,

due to the global issues between China and the US (Beavis, 2019). The phone has no big changes compared to the P30, only the camera was improved. Besides the P-series, Huawei also has a Mate-series. In this series, Huawei introduced the foldable phone, like we have seen at Samsung. Huawei is also in their second generation of the foldable smartphone. To conclude, Huawei focussed on internal storage in the beginning, trying to create an advantage over the competitors. But further into the development in the P-series, you see that there is more focus on internal performance with Kirin processors and the increase in RAM.

Nokia

Nokia started making smartphones in cooperation with Microsoft. The phone ran with Windows, which is completely different compared to their competitors. The first smartphones had some critics, partly due to the lack of applications you could download compared to the App Store from Apple and the Google Play Store. The first big innovation in the Nokia Lumia series was on the Lumia 1020, released in 2013 (GSMArena, 2013). The 1020 had a big camera at the back, which had 41 megapixels, which was a lot at that time for a smartphone. To compare, the main camera of the Samsung S7 had 12 megapixels, and that was released in 2016 (GSMArena, 2016). In the next generation of Nokia Lumia, they actually dropped this camera feature, with the newest model of that generation, the 930, only having 20 megapixels (Tweakers, 2014), although it can film in 4k. In 2017, Nokia went a different direction by using Android as their operating system for the Nokia 6 (GSMArena, 2017). From 2018, all Nokia-smartphones use Android One (Kieskeurig, 2021). Android One uses no mandatory apps you cannot uninstall, and uses the most simple version of Android, only updating safety features. This increases the durability of the phone and gives more storage room for things that are important for the user. With the Android Nokia's, Nokia do have a price advantage over their competitors, with the newest phone, the Nokia 8.3 5G, being around €350,- (bol.com, n.d.-a), compared to Samsung's newest phone, the S21, being around €780,- (bol.com, n.d.-b). To conclude, they started with the focus on the camera, with which they actually had a big advantage compared to the competition. Nokia decided to change the focus point by first changing the operation system to Android. It seems that simplicity and price has become the main focus of Nokia, with the prices of their smartphone being lower than most competitors and the use of Android One.

3.7 Key findings and hypotheses

Based on these sub questions, there are some key findings. First of all, the smartphone can be used in multiple ways, where the use of social media for communication, information and leisure is the main use. Second of all, most people perceive value from the physical attributes of products, the performance of the product and the value for money. Brand image can also be important for perceived value. Thirdly, the process of buying a smartphone can positively influence the product satisfaction, which can be done through a salesperson or through the customers' own orientation. Based on these findings, the following hypothesis are made:

H1: Brand will have a significant impact on the perceived value.

H2: The price will be more important than brand for perceived value.

H3: Physical attributes will be more important than internal attributes.

Looking at the smartphone market, there are two big companies, Samsung and Apple. They have been leading the market for the last five years in the Netherlands. The average prices of smartphones have gone up over the last five years, while the retail volume has decreased over the last five years. Sales have also slowly transitioned to a higher percentage of e-commerce sales, with e-commerce now being the most successful way of distribution. The innovations have been mostly on physical attributes of the smartphone, with the camera being the main focus for most companies. This can also be seen when looking at main focus of the four companies discussed. Samsung have focussed more on their camera. Apple went a different way and focusses more on internal performances. The same can be said for Huawei. Nokia started with the focus on the camera, but as their market share decreased, Nokia started to focus more on the price to make a budget phone which is easy to use. Based on these findings, the following hypothesis are made

H4: People who prefer Samsung, will perceive more value from the camera compared to people who prefer Apple or Huawei.

H5: People who prefer Apple, will perceive more value from internal attributes compared to people who prefer Samsung or Huawei.

The dependent variable in this paper is the perceived value. The independent variables of this research will be brand, price, physical attributes and internal attributes. The physical and internal attributes will be determined by the in-depth interviews. The independent variables will be dummy variables, which makes the conceptual model look like this:

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

Where X_1 and X_2 are dummy variables for the brand, X_3 and X_4 are dummy variables for the price and X_5 and X_6 are the variables for the undetermined internal and physical attributes. These will also be dummy variables, but the amount of levels and attributes can only be determined when the results of the interviews are in.

4. Research Methodology

With research, there is a distinction between quantitative and qualitative research. Quantitative research is information about numbers or quantities, with which statistical tests can be done. Qualitative research uses words and gets used for insights and experiences, and cannot be used for statistical analysis. This research has a qualitative part and a quantitative part. Most of this research is quantitative with the use of a survey and the analysis of the data from the survey. The qualitative part of this research are the interviews, which are used to choose the attributes for the choices in the survey. The reason for this research to choose mainly for quantitative research, is because in this research, the goal is to find the importance of different smartphone attributes, which can only be done with the use of numeric data and statistical analysis.

For the interviews, close friends and family between the age of 18 and 25 will be used to answer the questions. Most of the interviews were done through Zoom. The data of the interviews is collected between the 7th and the 9th of July. Ten participants were interviewed. More participants were not necessary due to information saturation. Information saturation occurs when extra interviews do not give any new information. The social demographics of the participants are in Table 1.

Table 1: Social demographics of the participants of the interviews

Number	Age	Gender
1	21	Male
2	23	Male
3	21	Male
4	21	Male
5	21	Male
6	21	Male
7	21	Male
8	18	Female
9	21	Male
10	21	Male

Most participants were friends or students from the same year, which means that they are all around the same age. The male to female ratio is also high, because of the availability of participants.

For the survey, the data collection will be done by asking friends, family, students and old classmates to fill in the survey, as long as they are between the age of 18 and 25. They will also be asked to spread the survey to other people aged between 18 and 25. Respondents are also found using the website SurveySwap, where you can post your survey and students can fill in surveys for free. The answers are fully anonymous, using the anonymous link for distribution and disabling the tracking of the IP addresses. The profiles the respondents have to choose between, have been made through JMP, which made sure that there are no uninformative choice sets. The data for the survey has been collected between the 13th and 20th of July. The data has been cleaned by build-in skip logic in the survey. This meant that when respondents said that they were younger than 18 and older than 25, they would go to the end of the survey. The raw data can be found through a link in the appendix. The descriptive statistics can be found in Table 2.

Table 2: Descriptive statistics of the survey respondents

Category	N	Percentage
Respondents	106	100%
Male	59	55,7%
Female	45	42,4%
Non-binary	0	0%
Prefer not to say	2	1,9%
Samsung	52	49,1%
Apple	42	39,6%
Huawei	5	4,7%
Other brand	7	6,6%
		Average
Age		21,4

The analysis method chosen is a choice-based conjoint analysis. The choice based conjoint analysis uses a logit model with dummy variables. The parameters are obtained through maximum likelihood estimations. The attributes in the model will have three levels, which means that each attribute will be in the regression with two dummy variables. So for example, if Samsung and Huawei are 0, than it is an Apple phone. The interpretation will be that every dummy variable will be compared with the level used as the standard. If a coefficient is positive, it means that people are more likely to buy the phone if it has that level of that attribute. The coefficients will be tested for significance with a likelihood ratio test, with the coefficient being significant when the p-value is lower than 0,05. The program that will be used for the analysis, is called JMP. Since this method works with probabilities, the probability needs to be denoted by the following equation.

$$p_{ij} = p(choice_i) = j$$

Where p_{ij} is the probability, j is either 1 or 2, the number of profiles to choose from, and i is the choice itself, which goes up with the number of choices made. The probability p_{ij} has two characteristics, namely that $p_{i1} + p_{i2} = 1$ and that $0 \leq p_{ij} \leq 1$. It is assumed that ε follows i.d.d. Gumbel distribution, which allows to deal with more outliers.

The regression model will look like this:

$$U_{ij} = \beta_1 * Samsung + \beta_2 * Huawei + \beta_3 * Price_{250} + \beta_4 * Price_{500} + \beta_5$$
$$* Screensize_{5inch} + \beta_6 * Screensize_{7inch} + \beta_7 * Storage_{64GB} + \beta_8$$
$$* Storage_{256GB} + \beta_9 * Batterylife_{1da} + \beta_{10} * Batterylife_{2day}$$

With U_{ij} being in the function $P(choice_i = j) = \dfrac{e^{U_{ij}}}{\sum_{n=1}^{2} e^{U_{in}}}$

There is also a respondents' characteristic, namely favourite brand of smartphones. Favourite brand is a categorical variable with categories Apple, Samsung and Huawei, coded between 1 and 3.

To see which attribute is the most important for the choice of a smartphone, effect marginals will be used. This will be done by comparing the marginal utility range for the attributes. This can be done with an option inside the program JMP.

5. Research outcome

The main research question of this research is as followed: What attributes of a smartphone are important for Dutch young adults when buying a smartphone? The interviews will determine the attributes, and the analysis of the data generated from the survey will determine the significance and the importance of the attributes. Looking back at the literature study, it was found that most people perceive value from the physical attributes of products, the performance of the product, the value for money and the brand image. People can also perceive value from the buying process, through product orientation or through help from a salesperson.

From the interviews, the attributes and the levels of the attributes will be chosen for the survey. Two important attributes that will be in the survey are the price and the brand. These attributes were mentioned by all respondents. For price, the following three levels are chosen: €250, €500 and €750. This is because multiple respondents said that their budget was between 200 and 300 euros for a new smartphone. Some were also prepared to spend around 800 euros, but to keep the distance between the levels the same, 750 euros has been chosen. For brands, the following levels have been chosen: Samsung, Apple and Huawei. This is because every respondent of the interview either had a Samsung, Apple or Huawei. Another attribute that was mentioned many times by the respondents is the internal storage. Most new smartphones have at least 128GB for internal storage, so this will be used as the middle one for the levels. This means that the levels look like this: 64GB, 128GB and 256GB. Storage always doubles in amount, which is why the

step from level two to level three is bigger than the step from level one to level two. Another attribute mentioned is the screen size. Most respondents were happy with a screen size around six inches, but also mentioned that the smartphone shouldn't be much bigger due to the size of pockets. This means that the following levels are chosen for screen size: 5 inches, 6 inches and 7 inches. The last attribute that will be taken into account is the battery life. The respondents that said that battery life was important, mentioned that they were very happy if the battery life was around 1,5 days before it needs to be recharged. This means that 1,5 days will be used as the middle level, since 1 whole day was the minimum for some of the respondents, and most new phones have a battery life that reaches 1,5 days. This means that the levels of battery life look like this: 1 day, 1,5 days and 2 days. The transcribed interviews and the voice recordings can be found in the appendix.

The survey had 106 respondents, with choices based on the attributes and levels that were based on the interviews. From the data of the survey, the significance was tested of the attributes through a likelihood ratio test. The results of this can be found in Table 3. The attributes are also interacted with favourite brand, which is the variable Fav.Brand in Table 3

Table 3: Likelihood ratio test

Attribute	X^2	Significance
Price	22,839	<0,0001
Brand	0,000	1,0000
Screen size	0,000	1,0000
Internal storage	47,010	<0,0001
Battery life	0,000	1,0000
Fav.Brand*Price	0,000	1,0000
Fav.Brand*Brand	219,285	<0,0001
Fav.Brand*Screen size	0,000	1,0000
Fav.Brand*Internal storage	13,642	0,0339
Fav.Brand*Battery life	6,034	0,4194

From Table 3, it can be seen that the price and internal storage have a significant impact on the consumers' choice on smartphones. The other attributes are not significant, which means that they do not have a clear impact on the consumers' choice on smartphones. This does not mean that these attributes have no effect at all on the consumers' choice. It can be that the respondents

are opposed, which can lead to the effect being cancelled out. When looking at the interaction with the favourite brand, it can be seen that the interaction of favourite brand and brand, and favourite brand and internal storage are significant. This means that there is a significant difference between the groups with a favourite brand on the attributes brand and internal storage. When comparing different profiles with the only difference being internal storage and the favourite brand, you can see the difference between those groups. From these comparisons, it can be seen that for people who prefer Samsung, there is a higher probability to choose the phone with a higher internal storage than people who prefer Huawei and Apple. People who prefer Huawei also have a higher probability of choosing the phone with more internal storage than people who prefer Apple. Table 1A shows this, which can be found in the appendix. These comparisons are also done for the brand attribute. This shows that when comparing an Apple with a Samsung phone with all other attributes the same, that the people who prefer Apple have a higher probability to buy the Apple phone, while the people who prefer Huawei or Samsung have a higher probability of buying the Samsung phone. When comparing a Samsung and a Huawei phone, people who prefer Huawei have a higher probability of buying a Huawei, while the people who prefer Samsung or Apple have a higher probability of choosing the Samsung. When comparing an Apple and a Huawei phone, the people who prefer Apple have a higher probability to choose the Apple phone, while people who prefer Huawei or Samsung have a higher probability of buying a Huawei phone. This can be found in Table 2A, 3A and 4A in the appendix.

Table 4: Effect marginals

Attribute	Range	Importance
Price	1,131	0,287
Brand	0,543	0,138
Screen size	0,379	0,096
Internal storage	1,241	0,315
Battery life	0,640	0,163

Table 4 shows the importance of the attributes. The importance has been calculated as the relative importance compared to the other attributes. From Table 4, it can be seen that internal storage is the most important attribute. 64GB has a large negative effect on utility, while 256GB has the biggest effect on utility. The second most important attribute is the price, with a lower

price giving the most utility, as can be expected. Battery life is the most important after price, with 2 days battery giving the most utility. Brand is the fourth most important, with Samsung giving the most utility and Huawei having a negative effect on utility. Screen size is the least important out of the five attributes, with a 6 inch screen giving the most utility and a 5 inch screen having a negative effect on utility.

The key findings are that the attributes price and internal storage have a significant impact on the consumers' choice of smartphone. These attributes are also the most important, as can be seen from the effect marginals in Table 4. In the interaction of the preference of brand, the attributes brand and internal storage were found as significant. This means that there are significant differences between the different groups based on preferred brand on the attributes brand and internal storage. People who prefer Samsung, have a higher probability to choose a smartphone with more internal storage than people who prefer Huawei or Apple. People who prefer Apple, have a higher probability to choose an Apple smartphone when there is a choice between Apple and Samsung, and Apple or Huawei. They also have a higher probability to choose a Samsung when choosing between Samsung and Huawei. People who prefer Samsung, have a higher probability to choose a Samsung when getting the choice between Samsung and Apple. This is the same when choosing between Samsung and Huawei. When choosing between Apple and Huawei, they have a higher probability to choose the Huawei phone. People who prefer Huawei, have a higher probability of choosing a Huawei compared to a Samsung or Apple phone in a choice between two phones. They also have a higher probability to choose a Samsung when getting the choice between Samsung and Apple.

6. Conclusion & recommendations

The literature study of this research was used to answer questions about what the main uses are of a smartphone, how people perceive value from products, if the product orientation added value to the product satisfaction, what the smartphone market looks like in the Netherlands, what the innovations are in the smartphone market and what smartphone companies are focussing on in product development. The key findings were that the smartphone's main use is the use of social media for communication, information such as the news, and leisure. The smartphone also still gets used for making phone calls or texting. Moreover, people use the smartphone to play games. Regarding perceived value, people perceive value through different factors. The factors that influence perceived value the most, are the physical attributes of a product, the performance of a product, the value for money and the brand image. Product

orientation can increase product satisfaction, but it is not the most important factor among the factors influencing product satisfaction.

The market of smartphones has been dominated by two companies, Apple and Samsung. Lately Huawei has joined the competition in the Netherlands. The retail volume has dropped over the last five years with approximately 16%, while prices have been going up in the last five years, which results in revenue staying around the same level over the last five years. The distribution has shifted more to e-commerce over the last five years, with e-commerce providing around 50% of the retail volume in 2020. Moreover, people are buying more sim-only subscription with a separate smartphone. Most innovations in the smartphone market have been on physical attributes, like the camera, but also complete new features, like the foldable phone from Samsung and Huawei. Apple is also innovating in the distribution channel with their own Apple stores. There also has been focus on internal performances of the smartphone. Companies that focus on performance in their product development are Apple and Huawei. Samsung is focussing more on the camera, while Nokia has been focussing on the price attribute lately.

In the research of this paper, it was found from the interviews that price, brand, internal storage, screen size and battery life are the most important attributes people looked at when buying a smartphone. From the survey, it was found that price and internal storage are the two attributes that have a significant impact on the consumers' choice of smartphone. The other attributes were not significant. Internal storage is the attribute that has the biggest influence on the consumers' choice looking at effect marginals, followed by price. Moreover, there was tested for an interaction effect between the favourite brand of the respondents and the attributes. The interaction between favourite brand and the attribute brand, and the interaction between favourite brand and internal storage were found as significant, which means that there are differences between the different groups based on favourite brands on the attributes brand and internal storage. The differences between these groups was measured by comparisons. It was found that people who prefer Samsung, have the highest probability to choose the phone with more internal storage, followed by people who prefer Huawei and then people who prefer Apple. For the interaction effect with the brand, it was found that people who prefer a certain brand, will always choose that certain brand when that brand is in one of the choices. People who prefer Samsung, have a higher probability of buying a Huawei when choosing between an Apple and a Huawei phone. People who prefer Apple, have a higher probability of choosing a Samsung phone when choosing between Samsung and Huawei. People who prefer Huawei, have a higher probability of choosing a Samsung when choosing between Apple or Samsung.

When comparing the key findings of the literature study with the research done in this paper, it can be seen that there are some similarities and that there are some differences. First a look at the similarities. From the literature study, it was found that Apple, Huawei and Samsung are the biggest companies in the Dutch smartphone market. When determining the attributes and attribute levels, it was found from the interviews that the respondents had smartphones from those three brands. Another similarity is with on the factors influencing perceived value. In the research, it was found that price and internal storage have a significant effect on the consumers' choice and indirectly on the utility of a phone. These attributes are comparable to the value for money and the performance of the product, which are two factors influencing perceived value according to the literature study. This shows that the research results were in line with the theory of perceived value. There are also similarities in the area of brand image. In the research, the attribute brand did not have a significant effect on the consumers' choice of a smartphone. But there is a difference between the groups based on favourite brand when looking at the brand attribute. For example, people who prefer Samsung have the smallest probability to buy an Apple phone. This can have different reasons. One of those reasons can be the different operating system that Apple uses compared to Samsung and Huawei, who both use the same operating system. This can also be related to the brand image, which shows that brand image can play a role in the consumers' choice. This is in line with the literature study, where brand image is one of the factors that influences perceived value.

There are also some differences. In the literature study, it was mentioned that physical attributes of a product have an impact on the perceived value. This cannot be said from this research. The respondents of the interviews mentioned screen size as an important factor when buying a phone. But the data from the survey showed that screen size has no clear impact on the consumers' choice of a smartphone. This shows that the research done on this sample is contradicting with the literature study about perceived value. Another difference is about the focus of the smartphone companies on product development. Apple and Huawei are the companies that focus on the internal performances. The attribute that was mentioned often in the interviews was the internal storage. In the research done on this sample, it was found that people who prefer Samsung have the highest probability to choose the smartphone with the higher internal storage. If Apple and Huawei focus on internal performance, than the people who prefer Apple and Huawei should also value internal performance more. So this research seems contradicting with the empirical research.

The central research question of this research is as followed: What attributes of a smartphone are important for Dutch young adults when buying a smartphone? Based on the interviews of the research, it was found that price, brand, internal storage, battery life and screen size were the important attributes when looking for a smartphone to buy. From the survey that was based on the answers of the interviews, it was found that the attributes price and internal storage have a significant impact on the Dutch young adults in this sample when choosing a smartphone, while screen size, brand and battery life do not have a clear impact on the consumers' choice of a smartphone. Internal storage is the most important attribute, followed by price, then battery life, then brand and last is screen size. The interaction effect between the favourite brand and the attribute brand shows that someone's favourite brand can influence the probabilities of choosing a certain brand over another brand. Since the sample was not a random sample, it will not be possible to generalize these results to all Dutch young adults.

The first hypothesis is that brand has a significant impact on the perceived value. When looking at the brand attribute without the interaction effect, this hypothesis needs to be refuted. But taking the interaction effect with the favourite brand into account, then brand can have a significant impact on the perceived value, since there are differences in the probabilities of choosing certain smartphones when looking at the different groups based on favourite brand.

The second hypothesis is that the price will be more important than the brand for perceived value. This hypothesis can be accepted, since the price attribute is more important than the brand attribute according to the effect marginals in Table 4.

The third hypothesis is that physical attributes will be more important than internal attributes. This hypothesis will be refuted, since both internal attributes, internal storage and battery life, are more important than screen size, as can be seen in Table 4.

The fourth hypothesis was that people who prefer Samsung, will perceive more value from the camera. This hypothesis is refuted by this research. The camera is not one of the important attributes according to the interviews. Respondents who did mention the camera, said that the camera was not that important for their choice, because most cameras on smartphone are good enough for them.

The last hypothesis is that people who prefer Apple, will perceive more value from internal attributes compared to people who prefer Samsung or Huawei. This hypothesis will be refuted too, because the comparisons showed that people who prefer Samsung had the highest probability to buy the smartphone with more internal storage, followed by people who prefer

Huawei and then people who prefer Apple. Table 5 shows an overview of which hypotheses are accepted and which are refuted.

Table 5: Overview of the hypothesis

Hypothesis	Accepted or refuted
H1: brand has a significant effect on perceived value	Refuted
H2: price will be more important than brand for perceived value	Accepted
H3: physical attributes will be more important than internal attributes	Refuted
H4: People who prefer Samsung, will perceive more value from the camera compared to people who prefer Apple or Huawei	Refuted
H5: People who prefer Apple, will perceive more value from internal attributes compared to people who prefer Samsung or Huawei	Refuted

There are some recommendations that can be made for the smartphone branch. The first recommendation is to focus less on the camera with product development. Most smartphone try to improve the camera with every new smartphone, but this research shows that the people who use the smartphone the most, do not see the camera as one of the important attributes when buying a smartphone. The second recommendation is to focus more on internal performances in product development. The internal storage was the most important attribute that has an impact on the consumers' choice of a smartphone. In the interviews, the speed of a phone was also mentioned sometimes as a factor where people look for in a smartphone. Apple already focusses on internal performances, but the biggest smartphone company in the Netherlands, Samsung, is not fully focussing on that attribute. A third recommendation is to look at the value for money and the price. The average price of a smartphone is increasing over time, as was seen in the literature study, but the people in this sample prefer a lower price. So it could be a good strategy to introduce cheaper phones which have a good value for money. Samsung and Huawei are already doing this, but Apple is still unfamiliar in this part of the market. There could be an opportunity for Apple to introduce a cheaper phone to reach more customers.

There are also some recommendations for future researchers. One of them is to do a similar research on elderly people. More elderly people are getting smartphones, but most smartphones can be too difficult for elderly people. By doing this type of research, smartphone companies can make a smartphone that is targeted on elderly people and take an opportunity in a part of the market that still has potential to grow. Other recommendation is to do this research on a

bigger sample with a random sample. This research did not make use of a random sample, so the results could differ when this research is done on a random sample. Another recommendation for future research is to do this type of research in another country in Europe, to see if there are big differences between Dutch young adults and young adults from another European country. This could help smartphone companies to see if they need to diversify their product portfolio per country, or if most young adults in Europe think the same about smartphone attributes.

In the introduction, some possible research limitations were mentioned. The first limitation mentioned was the sample. As was expected at the beginning of this research, the sample is not random. This is because of a lack of resources for distribution. There is also a big chance that most of the respondents will be from province Zuid-Holland. There is no data available on this subject to back this up, but considering that the survey has been distributed through social media, it will be likely that this statement is true. The second limitation that was mentioned in the introduction was time. Time was not that big of an issue in hindsight. It could have been better to have had more time for the interview, since it could have increased the quality of the interviews. With this short amount of time for the interviews, there was not enough time to reflect on my interview skills and improve the other interviews. Besides this, time has not been an issue for this research. A limitation not mentioned in the introduction, was my inexperience with this data analysis method. The inexperience with the program JMP was not an issue, since it was quite an easy to use program. The methodology on the other hand was more difficult, especially the formula used for this research. So more lessons on this area of data analysis could improve the quality of this research.

I learned a lot during the process of making this bachelor thesis. First of all, I learned how to make sub questions and a narrow enough central question. I learned how to use the choice based conjoint analyses and how to make a survey that fits with this method. I learned how to do interviews, getting as much information from as few questions as possible. While reflecting on my work, I noticed that I could have done the interviews a bit better, because I could have got more information from some of the respondents. I also found out that getting respondents for a survey can be very difficult and that it takes some time to get the amount of respondents that I wanted for this research. Overall, I think I learned enough to know on which areas I need to improve on when writing my next paper.

7. References

Apple. (2018). *Siri*. Retrieved 25 June 2021, from https://www.apple.com/siri/

Apple. (2021). *Apple Store - Lijst van Stores*. Apple (Nederland).
https://www.apple.com/nl/retail/storelist/

Beavis, G. (2019, October 2). *Huawei ban: the global fallout explained*. TechRadar.
https://www.techradar.com/news/huawei-ban

Bol.com. (n.d.-a). *bol.com | Nokia 8.3 - 5G - 64GB - Blauw*. Retrieved 25 June 2021, from
https://www.bol.com/nl/p/nokia-8-3-5g-64gb-
blauw/9300000004817271/?Referrer=ADVNLGOO002015-G-115031024083-S-
1075917875414-9300000004817271&gclid=CjwKCAjwwqaGBhBKEiwAMk-
FtDmSWHGE1WtA71BYPSIQ81nmfswLlUiN9CKga8CuTh3fAlDpTavCfRoC1esQ
AvD_BwE

bol.com. (n.d.-b). *bol.com | Samsung Galaxy S21 - 5G - 128GB - Phantom Gray*. Retrieved
25 June 2021, from https://www.bol.com/nl/p/samsung-galaxy-s21-5g-128gb-
phantom-
gray/9300000020732481/?bltgh=jgdOcLIEcnIzROibUWtHWw.2_9.10.ProductTitle

Clifford, C. (2017, June 29). *Here's how Siri made it onto your iPhone*. CNBC.
https://www.cnbc.com/2017/06/29/how-siri-got-on-the-
iphone.html#:%7E:text=Siri%20launched%20on%20the%20iPhone,4%2C%202011.

Emerce. (2019, 26 augustus). *Nederlanders zitten 34 dagen per jaar op smartphone*.
https://www.emerce.nl/wire/nederlanders-zitten-34-dagen-per-jaar-smartphone

Fouka, G., & Mantzorou, M. (2011). What are the major ethical issues in conducting
research? Is there a conflict between the research ethics and the nature of
nursing?. *Health science journal*, *5*(1), 3.

Franke, N., & Schreier, M. (2010). Why customers value self-designed products: The
importance of process effort and enjoyment. *Journal of product innovation
management*, *27*(7), 1020-1031.

Gao, Y., Li, A., Zhu, T., Liu, X., & Liu, X. (2016). How smartphone usage correlates with
social anxiety and loneliness. *PeerJ*, *4*, e2197.

GSMArena. (2013). *Nokia Lumia 1020 - Full phone specifications*. GSMArena.Com.
Retrieved 25 June 2021, from https://www.gsmarena.com/nokia_lumia_1020-
5506.php

GSMArena. (2016). *Samsung Galaxy S7 - Full phone specifications*. GSMArena.Com. Retrieved 25 June 2021, from https://www.gsmarena.com/samsung_galaxy_s7-7821.php

GSMArena. (2017). *Nokia 6 - Full phone specifications*. GSMArena.Com. Retrieved 25 June 2021, from https://www.gsmarena.com/nokia_6-6885.php

GSMArena. (2018, February 11). *Samsung Galaxy S9 vs Galaxy S8: comparing the screen to body ratio*. GSMArena.Com. https://www.gsmarena.com/galaxy_s9_vs_s8_an_early_look_at_the_screen_to_body_ratio-news-29530.php

GSMArena. (2019). *Samsung Galaxy Fold - Full phone specifications*. GSMArena.Com. Retrieved 22 June 2021, from https://www.gsmarena.com/samsung_galaxy_fold-9523.php

GSMArena. (2021a). *Samsung Galaxy S21 5G - Full phone specifications*. Retrieved 25 June 2021, from https://www.gsmarena.com/samsung_galaxy_s21_5g-10626.php

GSMArena. (2021b, February 28). *Flashbacks: the phones that revolutionized mobile cameras, part 1*. GSMArena.Com. https://www.gsmarena.com/flashbacks_the_phones_that_revolutionized_mobile_cameras-news-47923.php

Haba, H., Hassan, Z., & Dastane, O. (2017). Factors leading to consumer perceived value of smartphones and its impact on purchase intention. *Global Business and Management Research: An International Journal*, *9*(1).

Hess, A. (2015). Selfies| the selfie assemblage. *International journal of communication*, *9*, 18.

Huawei. (2020, February 24). *HUAWEI Mate Xs | HUAWEI Netherland*. Retrieved 22 June 2021, from https://consumer.huawei.com/nl/phones/mate-x-s/

Humphreys, M. A., & Williams, M. R. (1996). Exploring the relative effects of salesperson interpersonal process attributes and technical product attributes on customer satisfaction. *Journal of Personal Selling & Sales Management*, *16*(3), 47-57.

iPhone Life. (2021, April 8). *The Evolution of the iPhone: Every Model from 2007–2020*. Www.Iphonelife.Com. Retrieved 25 June 2021, from https://www.iphonelife.com/content/evolution-iphone-every-model-2007-2016

Kieskeurig. (2021). *Nokia Android One*. kieskeurig.nl. Retrieved 25 June 2021, from
https://www.kieskeurig.nl/p/pagina/mobiel/smartphones/nokia

Lee, W. J., & Shin, S. (2018). Effects of product smartness on satisfaction: focused on the perceived characteristics of smartphones. *Journal of theoretical and applied electronic commerce research*, *13*(2), 1-14.

Lopez-Fernandez, O., Männikkö, N., Kääriäinen, M., Griffiths, M. D., & Kuss, D. J. (2018). Mobile gaming and problematic smartphone use: A comparative study between Belgium and Finland. *Journal of behavioral addictions*, *7*(1), 88-99.

Nield, D. (2021, April 18). *Huawei smartphones: a complete history of its phones ahead of the Huawei P50*. TechRadar. https://www.techradar.com/news/a-history-of-every-huawei-flagship-phone

NOS. (2017, November 9). *Minder mensen kiezen mobiel op afbetaling bij abonnement*. https://nos.nl/artikel/2201929-minder-mensen-kiezen-mobiel-op-afbetaling-bij-abonnement

Passport (2021a). *Brand shares mobile phones in the Netherlands* [Data file]. Retrieved from
https://www-portal-euromonitor-com.eur.idm.oclc.org/portal/statisticsevolution/index

Passport (2021b). *Distribution mobile phones in the Netherlands* [Data file]. Retrieved from
https://www-portal-euromonitor-com.eur.idm.oclc.org/portal/StatisticsEvolution/index

Passport (2021c). *Market size mobile phones in the Netherlands* [Data file]. Retrieved from
https://www-portal-euromonitor-com.eur.idm.oclc.org/portal/statisticsevolution/index

Samsung. (2019a, August 1). *10 for 10: Highlights from a Decade of Galaxy Innovation*. Samsung News. https://news.samsung.com/global/10-for-10-highlights-from-a-decade-of-galaxy-innovation

Samsung. (2019b, February 21). *[In-Depth Look #3] Brains and Brawn: The Galaxy S10's Performance-Focused Features*. Samsung News. https://news.samsung.com/global/in-depth-look-3-brains-and-brawn-the-galaxy-s10s-performance-focused-features

Samsung. (2021a, April 29). *Samsung Galaxy Z Flip | Samsung Nederland*. Samsung nl. https://www.samsung.com/nl/smartphones/galaxy-z-flip/

Samsung. (2021b, May 31). *Samsung Galaxy Fold | Samsung Nederland*. Samsung nl. https://www.samsung.com/nl/smartphones/galaxy-fold/

Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. Journal of retailing, 77(2), 203-220.

Tanner Jr, J. F. (1996). Buyer perceptions of the purchase process and its effect on customer satisfaction. *Industrial Marketing Management*, *25*(2), 125-133.

Tweakers. (2014). *Nokia Lumia 930 Zwart - Kenmerken*. https://tweakers.net/pricewatch/378261/nokia-lumia-930-zwart/specificaties/

Vanhaelewyn, B., Waeterloos, C., Joris, G., Martens, M., De Wolf, R., De Leyn, T., ... & Ponnet, K. (2020). Onderzoeksrapport Apestaartjaren: De Digitale leefwereld van jongeren

Veloso, C. M., Ribeiro, H., Alves, S. R., & Fernandes, P. O. (2017). Determinants of Customer Satisfaction and Loyalty in the Traditional Retail Service. *Economic and Social Development: Book of Proceedings*, 470-485.

Williams, O. (2018, October 9). *The Pixel 3's Camera Proves Software Is the Only Smartphone Innovation That Matters*. Vice.Com. Retrieved 22 June 2021, from https://www.vice.com/en/article/7x3m8b/pixel-3-camera-software-pixel-xl

Wokke, A. (2020, May 29). *Telefoons worden veel duurder - Maar kopen we ze ook?* Tweakers. Retrieved 20 June 2021, from https://tweakers.net/reviews/7862/all/telefoons-worden-veel-duurder-maar-kopen-we-ze-ook.html

8. Appendix

8.1 Interviews
Interview 1

Ruben: Ja, interview 1, dit interview wordt opgenomen voor onderzoek. Is dat oke?

Respondent: Ja, prima.

Ruben: Oké, dit onderzoek gaat gebruikt worden voor mijn survey om de attributen te bepalen, smartphones en en we gaan naar de eerste vraag: waar kijk jij naar als je een smartphone koopt?

Respondent: De product attributen, die voor mij wel sterk meespelen, is het merk. Ik ben

grootte Apple fan, zeg maar, laat ik het zo noemen. Dus het is wel belangrijk voor mij dat dat dat het een vertrouwd merk is, niet dat ik zeg maar elke keer weer een andere telefoon heb, ook een andere besturingssysteem heb, want bij Apple werkt het heel goed zeg maar, als je andere apparaten er al van hebt, dan wordt het echt geïntegreerd als je een nieuw apparaat aanschaft dus dat is heel fijn en ik vind het ook wel heel belangrijk dat als ik een nieuw Apple apparaat dan koop, dus een nieuwe Apple smartphone, dat je camera bijvoorbeeld, sterk verbeterd. Dus dat vind ik wel een belangrijk aspect. En als ik kijk naar bijvoorbeeld prijs, ja, de de, de trend van iPhones is natuurlijk wel dat die steeds langer, ja weer duurder wordt. Het wel, dat is natuurlijk minder mooi voor de portemonnee en daar pas ik misschien wel mijn gedrag op aan, dat ik niet elke twee jaar, maar misschien elke drie of vier jaar een nieuwe telefoon koop. Want ja, kwaliteit wordt wel beter zeg maar, ze gaan wel langer mee dan vroeger, bijvoorbeeld de iPhone 4 na twee jaar gewoon echt dood.

Ruben: Ja, klopt, welke telefoon heb je nu?

Respondent: Ik heb een iPhone. Xs, na de 10 is dat.

Ruben: Oké, je had het net over de camera best belangrijk voor jou is. Op telefoon die je nu hebt, ben je tevreden met de camera?

Respondent: Ja, over het algemeen wel, maar dat wel toevallig, dat dan van de week. Ik dacht van, Mmm, misschien zijn is de de iPhone van nu is wel zo sterk verbeterd dat ik zou overwegen van nou, ik zou voor voor nieuwe iPhone gaan, want ik dacht ik keek naar die foto, toen dacht: ik kan eigenlijk denk wat beter met technologie van nu. Ik vond het een beetje grauw. Ik dacht die kleuren mogelijk best wel beter uit te komen, kan ook aan het weer liggen, hé, want zonnig is het niet geweest, afgelopen tijd.

Ruben: Dat klopt, oké, zei ook dat de prijs enigszins belangrijk is. Al heb je natuurlijk wel die trend bij Apple dat hij duurder wordt ehm zou je qua prijs nog hoger willen zitten dan je huidige telefoon.

Respondent: Nee, dat is wel echt een Max. Ja, ik ziet ik zie het niet echt als een uitgave ofzo, ik zie het meer een beetje als een investering. Als ik mijn telefoon ga kopen, ik smeer het gewoon over over de jaren uit, dus ja, dan maakt het ook niet veel uit, ja, dat.

Ruben: Oké, dan is het interview denk ik klaar, ik heb al mijn vragen gesteld

<u>Interview 2</u>

Ruben: Oké, dit interview wordt opgenomen voor het onderzoek is dat prima?

Respondent: Ja dat is prima

Ruben: Okay. Deze interviews worden gebruikt om de survey te maken van het onderzoek en het onderzoek gaat over smartphones. De eerste vraag is, waar kijk jij naar als je een smartphone koopt?

Respondent: Sowieso de grootte ervan, of die hun broekzak past, en naar dingen als opslag, processorsnelheid. Dat is het eigenlijk wel. Ik heb een beetje snel is. Dat ie lang mee kan

Ruben: En welke telefoon heb je nu?

Respondent: Ik heb nu een iPhone 8s.

Ruben: Oké en dan je zei dat intern geheugen belangrijk is, is dat goed genoeg op die telefoon?

Respondent: Ja, op deze op dit moment wel. Ik heb nu geloof ik 128GB.

Ruben: Dat is oké. En qua schermgrootte vond je ook belangrijk, in ieder geval de grootte van de telefoon, maar dat is vaak gerelateerd aan de schermgrootte. Is dat te groot, groot genoeg, te klein?

Respondent: Dit is eigenlijk wel de perfecte grootte en Dat is eigenlijk wel jammer dat Apple niet ja eigenlijk alleen nog maar groter is gegaan, geen idee hoeveel inch ik nu heb.

Ruben: Dat zoek ik aan het eind wel op. En zo is het RAM geheugen dat ze belangrijk, de snelheid van telefoon zeg?

Respondent: Ja processorsnelheid vind ik belangrijk inderdaad. Dat is op deze telefoon wel prima.

Ruben: Oke, Heeft voor jou voor de rest prijs nog invloed op de telefoon die uitzoek?

Respondent: Op zich wel, maar aan de andere kant koop ik wel een telefoon met in mijn achterhoofd dat hij een aantal jaren mee kan gaan. Dus dan ja, ik hoef niet, dus ik heb niet dat ik 400 euro aan een telefoon uit moet geven heeft. Als het wat meer kost, meer richting de 800 of 1000 euro heb ik dat er ook wel voor over, als hij wat langer mee kan gaan

Ruben: Ja. En merk is dat nog belangrijk?

Respondent: Ja voorkeur gaat nog steeds uit naar Apple, Maar ik sta wel open om andere merken te bekijken, als ik een nieuwe nodig heb.

Ruben: Oke, dan heb ik alles wat ik nodig heb voor dit interview.

Interview 3

Ruben: Voor we het interview beginnen, zal ik je vragen: Vind je het prima dat het interview opgenomen wordt?

Respondent: Yes dat is prima.

Ruben: Oké, dit interview wordt gebruikt voor de survey van dit onderzoek om te helpen met de vraag daarvoor. Het gaat over smartphones, dus we gaan nu beginnen met de eerste vraag, en dat is: waar kijk je naar als je een smartphone koopt?

Respondent: Op dit moment heb ik een smartphone. Die heb ik dan gecombineerd met zon deal dat je dus een smartphone, ook in combinatie met data en als je dan uiteindelijk zo'n en uiteindelijk wordt afgelost, dan had je smartphone houdt dat je dan kan kiezen of je dezelfe wilt houden of dat je dan een nieuwe wilt.

*Ruben :*Ja, ja.

Respondent: Mmm en ik zit in principe al best wel een tijd bij de zelfde provider tele2, het wat ik dan hebt gedaan, dan zat ik volgens mij 2016 had ik daar mijn eerste smartphone, die was een gecombineerd met de deal en toen, jaartje of twee geleden, heb ik dus een nieuwe, die afgeslotent en krijg ik dus een nieuwe telefoon. Dus in principe was dat de basis voor waarom ik daar dan een telefoon heb genomen, moet uitleggen waarom ik specifiek voor deze heb gekozen.

Ruben: Ja, dat kan

Respondent: Ehm in principe, deze kwam dus terecht. Ik weet niet exact waarom ik voor Samsung had gekozen of daarvoor was dat gewoon de makkelijke keuze volgens mij en ik was toen tevreden met met het merk. Uiteindelijk heb ik dus een nieuwe versie gekozen toen ik een nieuw contract afsloot. Ik had eerst een s6 volgens mij en toen een s8 en nu zit ik op een s10 volgens mij, dat is gewoon een geupdate versie steeds, omdat ik gewoon tevreden was met hun merk en dan een nieuwe versie koos.

Ruben: Oké. Is er dan naast merk een vereiste waaraan de telefoon moet voldoen? Of is het merk het belangrijkst?

Respondent: Ehm, nee, precies in principe merk, je zou kunnen denken aan camera. Camera is voor mij niet heel erg belangrijk, omdat het niet enorm veel fotos neem, ehm, de basis is gewoon bekendheid met het merk en dan uiteindelijk gewoon een nieuwere versie kiezen.

Ruben: Dus vind je dan de performance van de telefoon nog belangrijk, zeg maar hoe snel die is.

Respondent: Mmm ja, in principe moeten natuurlijk wel gewoon een redelijke snelheid hebben, maar het is niet per se altijd heel belangrijk is dat het meest up to date versie is die die enorm sterke performance ik doe geen speciale dingen op je telefoon waar dat voor nodig is.

Ruben: Oké, je zei dat dat dat zeg maar een camera voor jou niet heel belangrijk is, maar op de telefoon die je nu hebt, is die camera wel, zeg maar goed genoeg, zeg maar waar je hem voor moet gebruiken?

Respondent: Volgens mij is die gewoon prima, is vergelijkbaar met een iPhone, volgens mij is een iPhone iets beter qua merk, met de camera, maar deze is nog steeds best wel prima, op het moment dat ik fotos neem. Dan is het wel gewoon prima te doen.

Ruben: Oké.

Respondent: Maar omdat ik niet heel veel fotos neem met mn telefoon, is het niet super relevant in mijn keuze om deze telefoon te kiezen

Ruben: Nee, precies oké, bedenken wat ik nog meer kan vragen. Zou je snel van merk switchen?

Respondent: Ehm in principe op dit moment niet, denk ik. Er zijn wel een paar overwegingen op het moment dat vergelijkbare telefoon is die echt veel goedkoper is van een ander merk, dan zou je kunnen denken dat misschien makkelijker is om daarvoor te kiezen. het moet echt substantieel verschil maken qua kosten. Dus als er echt een paar 100 euro tussen zit, dan je denkt van: ja, dat is wel prima keuze. Of op het moment dat er bij een ander merk telefoon komt die echt echt heel veel beter is, met een vergelijkbaar prijs, dat zou dus wel een mogelijkheid zijn. Maar zolang de telefoons van andere merken ongeveer vergelijkbaar zijn, prijs en kwaliteit, zou ik niet heel snel van van dit merk veranderen.

Ruben: Oké, dan heb ik alles wat ik nodig hebben, voor het interview. Dank je wel.

Respondent: Is prima, geen probleem

Interview 4

Ruben: Oké, het interview wordt opgenomen, voor onderzoek doeleinden, is dat goed?

Respondent: Dat is prima.

Ruben: Oké, ik zou eerst even kort uitleggen wat de bedoeling is van is dit interview. Ik zal een paar vragen stellen zal niet lang duren en het wordt gebruikt voor het maken van de survey van het onderzoek. We gaan naar de eerste vraag, waar kijk je naar als een telefoon koopt?

Respondent: Ehm sowieso wel, het merk wat ik koop vind ik heel belangrijk. Ik zit eigenlijk altijd op Samsung dus dat is wel een dingetje. Verder ja, ja, dat is meer het abonnement dat je erbij koopt, dat er genoeg data op zit wel toch wel vaak dat ik op 4G zit. Dus dat vind ik belangrijk. Ik ben niet zo echt van de van de enorme telefoons. Dus een beetje, ja, gewoon met je broekzakformaat zeg maar zijn, niet te groot en verder: ja, denk, ja, gewoon ook niet te duur. Dat vind ik ook wel heel belangrijk. Ik ga niet, ik ben niet van de iPhone, zeg maar dat ik echt 1000 euro aan een telefoon uitgeef.

Ruben: Nou oké, wat voor een telefoon heb je nu?

Respondent: Ik heb nu een samsung.

Ruben: Nog iets specifieker?

Respondent: Een A51 is volgens mij ja.

Ruben: Oké ehm, je zei dat de prijs wel enigszins belangrijk is. Is de prijs van de telefoon, ben je daar tevreden mee? Of zou je zeggen, voor de volgende telefoon misschien duurder?

Respondent: Ja, ik zat normaal op de S-range, maar dus dat dat zijn eigenlijk wel een de meest verkochte telefoons, volgens mij. Ze waren nu bij de S20 en 21 en die vond ik wel weer aan de dure kant. Dus nu heb ik voor het eerst eentje uit de A-range gekocht dan en dat dat vond ik op zich wel een hele goeie, goeie prijs, kwaliteit verhouding.

Ruben: Oké, en je zegt dat het formaat belangrijk is. Is deze grootte goed of?

Respondent: Ja, deze is wel ik denk wel dat het wel een beetje rond het maximum zit, dat wel echt. Hij steekt af en toe een beetje in je broekzak, zeg, maar het gaat net.

Ruben: Ja, dat het nog net niet ongemakkelijk, zeg maar.

Respondent: Ja precies

Ruben: Oké, dat was het denk wel qua vragen, dus bedankt voor het interview.

Respondent: Graag gedaan.

Interview 5

Ruben: In het begin, wil ik even vragen, vind je het goed dat dit interview opgenomen wordt voor het onderzoek?

Respondent: Ja dat is prima

Ruben: Oke, deze interviews zullen gebruikt worden om de survey te maken van dit onderzoek en het onderzoek gaat over smartphones, en dan gaan we nu door naar de eerste vraag: dus waar kijk jij naar als je een smartphone koopt?

Respondent: Ehmm, vooral naar batterij, gewoon dat die lang genoeg mee kan gaan. De schermkwaliteit vind ik ook wel belangrijk. Snelheid moet op zich gewoon goed zijn. Voor de camera maakt het mij persoonlijk niet echt veel uit. Het moet gewoon, ja, zoiets dat goed genoeg moet zijn, maar voor mij is het al heel snel goed genoeg. Dus als je bijvoorbeeld een telefoon van 150 euro zou kopen, zou ik het ook wel prima vinden met de camera erop, dus dat maakt voor mij niet heel veel uit. Een beetje hetzelfde geval is met merken. Het maakt mij niet heel veel uit, ik switch vrij veel tussen merken, maar ik kies meestal wel telefoons van wat bekendere merken, zeg maar, bijvoorbeeld, ik heb al meerdere keren een Samsung smartphone gehad.

Ruben: Ja, snap ik, en wat voor telefoon heb je nu?

Respondent: De Samsung galaxy A52

Ruben: En je had het er net over dat batterijduur belangrijk is, ben je daar tot nu toe tevreden mee met de huidige telefoon?

Respondent: Ja zeker, deze gaat ongeveer anderhalve dag mee.

Ruben: Dat is best lang

Respondent: Maar hij is ook nog vrij nieuw hé

Ruben: En beeldschermkwaliteit was ook belangrijk, hoe is dat op de huidige telefoon?

Respondent: Ik kan het beste even de specs erbij pakken.

Ruben: Dat is prima

Respondent: Volgens mij was het een refresh rate van 90, dacht ik, uit mijn hoofd. Ik heb trouwens van de A52 de 4G versie. Ik heb degene met 128 GB en een camera van 64 megapixels

Ruben: Wat ik hier zie is dat de 4G versie een 90Hz display heeft

Respondent: Ja 90 hertz en een Super AMOLED display en dan 6,5 inch, maar grootte maakt mij niet heel veel uit, als het maar groot genoeg is en dat is meestal vanaf 6 inches.

Ruben: Ja precies. En merk was dus niet heel belangrijk, zolang het maar een bekend merk is

Respondent: Ja gewoon een merk dat al een beetje om bekend staan dat ze goede telefoons maken. Ik zou niet snel een nieuwe telefoon kopen van een gloed nieuw merk

Ruben: Ja het moet dus wel een beetje naamsbekendheid hebben

Respondent: ja dat wel, het is toch een product dat je koopt om meerdere jaren te gebruiken, dus je wilt wel zekerheid hebben dat het gewoon goed is zeg maar

Ruben: Ja begrijpelijk. En in hoeverre speelt bij jou de prijs een rol?

Respondent: Prijs vind ik heel belangrijk. Ik ben niet zo iemand die de aller duurste telefoons koopt. Meestal ga ik tussen de 200 en 300 euro. Verder dan dat wil ik niet echt gaan.

Ruben: Dan heb ik alle info die ik nodig heb voor dit interview, dus dank je wel

Respondent: Alstu.

Interview 6

Ruben: Oké, dit interview wordt opgenomen worden voor het onderzoek. Is dat oke?

Respondent: Ja, dat is oké.

Ruben: Oké, dit interview zal gebruikt worden om de survey te maken van het onderzoek. En dan dan gaan we nu beginnen: waar kijk jij naar als je een smartphone koopt?

Respondent: Ik denk dat het belangrijkste is voor mij de prijs is om te beginnen, ik stel een soort range op waarin ik kijk. Dat is een voorbeeld van 200 a 300 euro en dan ga ik vaak vergelijkingen maken. Beste prijs kwaliteit verhouding proberen te zoeken en dat doe ik middel door zelf een beetje naar de specificaties te kijken. Maar ik vind dat ze daar altijd best vaag over doen op de site zelf, dus eigenlijk niet veel te vinden, dus dan moet je vaak iets meer in-depth onderzoek doen en dat doe ik bijvoorbeeld via YouTube video 's, dat vind ik altijd wel een goeie, daar praat iemand altijd wel met veel verstand over een mobiel, veel meer dan ik, en dan kun je via de comments ook nog een beetje kijken of mensen hetzelfde idee hebben of andere mening hebben, of via de like ratio, of dat een beetje goed is, dan zat ook een goed zitten en soms nog via andere sites zoals recensies. Maar bijvoorbeeld ook als je hulp, reddit bijvoorbeeld, zoekt, dan is vaak ook nog wat een en ander te vinden. Of aanbevelingen in vergelijking mensen met ervaring, ET cetera proberen zo veel mogelijk toch wel de prijs-kwaliteit verhouding is voor mij het belangrijkst denk ik, doorslaggevend.

Ruben: Oké, welke telefoon heb je nu?

Respondent: Ik heb nu de Huawei Honor 8X,

Ruben: Ja oke, met de prijs kwaliteitverhouding van die telefoon, ben je daar tevreden mee?

Respondent: Ja, daar ben ik flink tevreden mee. Ik weet dat hij ongeveer, maar dat was een paar jaar geleden en er was maar 200, 250 euro ofzo misschien 300 in ieder geval tussen 200 en 300. Zoiets zocht ik en het kan gewoon eigenlijk alles wat ook alle Samsungs en iPhones op dat moment ook konden en is volgens mij al een redelijke tijd uit de mobiel, maar dan voor een mindere prijs, zo werd het aanbevolen, verkocht en ik gebruik 'm nu al een paar jaar. Inderdaad, ik, ik denk, dat klopt, want ze zeiden.

Ruben: Oké, dan denk ik dat het interview er nu opzit, ik heb mijn vragen gesteld.

Respondent: Oké.

Interview 7

Ruben: oké, dit interview wordt opgenomen voor onderzoeksredenen, is dat oke?

Respondent: Ja, dat is prima.

Ruben: Ik zal even uitleggen dat het interview wordt gebruikt voor voor het maken van de survey van dit onderzoek en dat gaat over smartphones, dus gaan we naar de eerste vraag: waar kijken je naar als je een smartphone koopt?

Respondent: Ten eerste, kijk ik naar de prijs, want uiteindelijk, je koopt het met geld. Dus toen, als iets veel duurder is dan de anderen, dan kijk je natuurlijk eerst naar de wat goedkope opties. Ik denk dat tegenwoordig, je hebt natuurlijk heel veel schermgroottes dus dan kijken welke schermgrootte ik zou willen er zelf niet echt een voorstander van de iPad mini formaten.

Ruben: Ik snap je.

Respondent: En ik denk dat ook wel naar het merk kijk, want ik heb ik heb, ja, ik heb altijd samsungs of iPhones gehad, alleen dan maar de samsung zal ik wel vaker.

Respondent: Maar bij Samsungs in het verleden had ik dus dat ik dan het problemen kreeg met de batterij, dat hij dus, ja, dat ik dan op een halve dag, dat ie dan leeg was en met het opladen, dus als je dan zeg maar het oplaadding erin deed, dat ie dan gewoon geen contact maakte, terwijl ik dat bij iPhones, gaat het natuurlijk ook op een gegeven moment stuk, alleen voor mijn gevoel, was die duur langer, want nu heb ik ook mn telefoon al drie jaar, terwijl ik nooit een Samsung 3 jaar heb kunnen gebruiken. Dus in dat opzicht kijk ook wel, zeg, maar qua prijs, verhouding en welk merk het is, kijk ik daar, vind ik ook wel zwaar meewegen ja, je kan natuurlijk wel de telefoon kopen met zieke specificaties, een nieuw merk, maar ik heb liever telefoon met iets mindere specificaties van een merk waarvan ik weet dat die het een x aantal jaar gaat doen.

Ruben: Ja precies dus duurzaam...

Respondent: denk dat dat

Ruben: Duurzaamheid is voor jou best belangrijk.

Respondent: Ja precies, want ik heb liever een telefoon, dat u dan iets minder zwaar draait, omdat die echt dat die 4k filmpjes kan afspelen, maar dat hij dat in normaal HD doet, dan wanneer die, ik wil niet dat hij dan in een jaar stuk is zeg maar.

Ruben: Ja precies.

Respondent: Wat je ook van die nieuwe merken die zeggen van ja, we hebben zieke prestaties, drie cameras denk ik, van ja, dan kan allemaal wel, maar ik heb liever dat je nog doet na een jaar met twee camera's.

Respondent: Ik denk dat dat voor mij het belangrijkste dingen zijn.

Ruben: Dan ga ik door naar de volgende vraag: wat voor telefoon heb je nu?

Respondent: Ff kijken, dit is een iPhone 7, ik weet niet uit welk jaar hij is, een zwarte

Ruben: Kleur maakt denk niet uit, iPhone 7 heb ik genoeg aan. Je zei dat je scherm grootte was best belangrijk. Ben je daar tevreden mij met je huidge telefoon?

Respondent: Ja, alleen, ik denk wel omdat nu natuurlijk de standaard iets groter is, dat iets groter ook wel zou kunnen.

Ruben: Oké en de duurzaamheid?

Respondent: Volgens mij heb ik nu, als je zeg maar nu in nieuwe koopt, is hij relatief klein.

Ruben: Ja, dat klopt, ja, dat klopt. Ze zijn flink groter geworden over de tijd, dat merk ik ook. En de duurzaamheid van de telefoon. Is dat ook tevreden mee?

Respondent: Ja, die is dus heel goed. Ik pas altijd wel goed ook op al mijn spullen is. Er zit ook geen krassen op of zo. Dus ja, ik weet niet in hoeverre dat duurzaamheid is, maar ook intern. Ja, natuurlijk altijd met telefoons, dat die na twee jaar, dat die dan geheugen vol zit.

Ruben: Ja.

Respondent: Daar heb ik ook last van, maar voor de rest doet alles het nog.

Ruben: Dat herken ik oké, dan dan denk ik wel dat ik mijn mijn vragen gesteld heb voor dit interview is, dus bedankt!

Respondent: Is goed.

Interview 8
Ruben: Welkom bij dit interview. Voor ik begin, zou ik willen vragen: is het oké als ik dit interview opneem?

Respondent: Ja hoor.

Ruben: Oké, deze interviews worden gebruikt voor het maken van de survey van dit onderzoek. Het onderzoek gaat over smartphones. Dan ga ik nu naar de eerste vraag: waar kijk jij naar als jij een telefoon koopt?

Respondent: Als ik een telefoon koop, dan kijk ik het meeste naar wat er in de telefoon zit. Dus, processor, hoeveel geheugen daarin zit, eventueel naar het scherm. Maar ik vind het wel fijn, inderdaad, als het scherm een beetje van hoge kwaliteit is, een hoge resolutie heeft en het moet wel heel erg licht kunnen zijn, want anders dan is het lastig als je het buiten gebruikt.

Ruben: Ja, wat voor de telefoon heb je nu?

Respondent: Ik heb momenteel een Huawei honor 8X volgens mij. Die is inmiddels al een tijdje uit eh twee, twee jaar geleden dat ik die heb gekocht. Alleen als ik de volgende keer een telefoon zou kopen, dan zou het geen Huawei meer worden.

Ruben: En waardoor komt dat?

Respondent: Ah, omdat de service van Huawei vooral in Europese landen niet al te best is meer, want volgens mij kun je niet meer op de Google play store en aangezien de Chinese datacollectie toch wat heftiger is geworden en er wat meer naar buiten is gekomen, heb ik dat toch liever niet.

Ruben: Oké, je had het over de processors en interne geheugen belangrijk vind van een telefoon. Hoe is dat op je huidige telefoon?

Respondent: Voor de prijs was het goed. Ik de meestal een beetje een prijsvergelijking ik hoef niet per se een hele dure mobiel te hebben, als hij maar voor de prijs erg goed werkt en vergeleken met andere mobieltjes dan wel snellere processor heeft.

Ruben: Je had het ook over de kwaliteit van het scherm. Ben je tevreden met de kwaliteit van het scherm van deze telefoon?

Respondent: Nou, het scherm is in principe prima, niks op aan te merken.

Ruben: Oké, en je zei net ook kort dat de prijs ook wel van belang is. Heb je altijd een budget die je instelt voordat je een telefoon uit gaat zoeken?

Respondent: Ja, meestal weet ik ongeveer een budget waar ik rond kijk en dan rond dat budget maak ik dan een vergelijking tussen mobieltjes die daar een beetje omheen zitten. Dus bijvoorbeeld, ik had in gedachten 250 euro voor een mobiel, de vorige keer, en toen heb ik gewoon gekeken naar: wat zit er een beetje omheen? Dus van 200 tot 300 ongeveer. En dan vergelijk ik inderdaad de processor, het scherm, hoe die het doen, dat kun je meestal doen op andere websites gewoon.

Ruben: Oké, zou je je budget nog verhogen als je je volgende telefoon uitzoekt, of weer rond hetzelfde budget kijken?

Respondent: Ja, het lijkt erop dat mobieltjes vooral in prijs zijn gestegen, dus misschien zal ik mijn budget inderdaad moeten verhogen, maar het liefst, ik gebruik mijn mobiel niet zo heel veel, dus het liefst blijf ik ongeveer rond de 250 euro zitten.

Ruben: Oké, je zei dat je wilde gaan switchen van Huawei naar een andere merk als er een nieuw telefoon komt. Heb je dan nog een merk in gedachten?

Respondent: Geen Apple, dat vind ik heel vervelend werken, vooral als ik dingen op de computer wil doen met mijn mobiel, bijvoorbeeld bij bestanden komen. Ik heb eerder heb ik een Samsung telefoon gehad. Dat vond ik op zich ook wel prima. De switch inderdaad.

Ruben: Oké, dan heb ik alle informatie die ik nodig heb. Dank je wel voor het interview.

Respondent: Ja, graag gedaan.

Interview 9

Ruben: Oké, welkom bij dit interview. Als eerst wil ik vragen: dit interview opgenomen voor onderzoek. Is dat oke?

Respondent: Ja zeker

Ruben: Oké, dit onderzoek wordt gebruikt. Is interviews worden gebruikt om de survey te maken van het onderzoek en het onderzoek zelf gaat over smartphones en dan gaan we naar de eerste vraag, dus: waar kijk jij naar als je een telefoon koopt?

Respondent: Sowieso de camera, of die een beetje goed is en ja, batterijleven, van hoe lang die meegaat, opslaggeheugen, ik heb nou bijvoorbeeld 128GB, dat is heel veel. Dat is denk ik al voor veel mensen ehm ja voor de rest iPhone.

Ruben: Oké, en wat voor telefoon heb je nu?

Respondent: Een iPhone 7 Plus.

Ruben: Oké, en je had het over dat de camera belangrijk is voor jou. Ben je tevreden met de camera op je huidige telefoon?

Respondent: Met de camera aan de buitenkant wel zo'n dubbele camera, de voorcamera, die is iets minder, maar ook nog steeds prima.

Ruben: Oké, en je zei ook dat het batterijleven heel belangrijk is: hoe is dat op de iPhone?

Respondent: Voor het feit dat het toestel vier, vijf jaar oud is ondertussen. Ik heb één keer de batterij laten vervangen, doet ie het hartstikke prima!

Ruben: Oké.

Respondent: En dat heb ik dit jaar gedaan.

Ruben: Oké, en je had het ook over de opslag. Opslag was bij deze ook prima, oké, want je had 128GB.

Respondent: Ja, dat is echt ruim voldoende.

Ruben: Oké, uhm, is voor de rest is prijs voor jou nog belangrijk?

Respondent: En dat is op zich ook wel leuk als de prijs laag is, maar ik heb deze telefoon tweedehands gekocht, dus je was sowieso veel goedkoper dan als je een nieuw gekocht.

Ruben: En dan heb je dan nog een budget voor een telefoon? Ik wil niet boven een bepaalde prijs zitten.

Respondent: Ehm en het ligt er ook aan wat ik te besteden op dat moment, maar ik denk: als je zeg maar je oude telefoon op nog in kan ruilen, dan 500 a 600 euro echt wel veel is.

Ruben: Oké.

Respondent: Het maximale is.

Ruben: Zou jij snel van merk switchen?

Respondent: Ik denk het niet, want ik ben eigenlijk heel tevreden over iPhone.

Ruben: Oké, dan heb ik alle informatie die ik nodig heb, dank je wel voor het interview.

Respondent: Geen probleem

Interview 10

Ruben: Welkom bij dit interview. Voor ik begin, zou ik willen vragen: dit interview wordt opgenomen. Is dat oke?

Respondent: Ja zeker.

Ruben: Oké, deze interviews worden gebruikt voor het maken van survey van dit onderzoek en het onderzoek gaat over smartphones en dan ga ik nu naar de eerste vraag, dus waar kijk jij naar als je een smartphone koopt?

Respondent: Allereerst kijk ik sowieso naar de prijs past en daarnaast ook eh. Ja, ik wil meestal wel gewoon een beetje een moderne telefoon die bij de tijd is, zeg maar ja, en ook scherm grootte vind ik ook wel belangrijk. Vroeger wilde ik graag gewoon zo groot mogelijke telefoon. Tegenwoordig zijn telefoon zo groot dat die wel in mijn broekzak fatsoenlijk moet passen. Zeg maar en eh, ja, ik vind het ook een belangrijk dat ie gewoon snel is en dus waarschijnlijk kijk dan ook indirect naar hoeveel opslag die heeft, want als je minder opslag hebt, wordt je meestal in de loop der tijd minder snel. Oh ja en batterij, batterijcapaciteit vind ik heel erg belangrijk. Anders dan ik, ik zit best wel vaak op mijn telefoon en als ik slechte batterij op mijn telefoon, dan moet ik halverwege de dag al weer opladen en dat vind ik niet heel fijn.

Ruben: Oké, en wat voor telefoon heb je nu?

Respondent: Ik heb nu een iPhone 12.

Ruben: Oké, en ben je tevreden met bijvoorbeeld de scherm grootte op de iPhone 12?

Respondent: Eh, ik ben er nu op zich wel tevreden mee, al had ik liever iets kleiner gehad, met hetzelfde, iets kleinere telefoon, met gewoon dezelfde specificaties.

Ruben: Oké.

Respondent: Maar die was er niet, dat was er niet, in ieder geval niet van Apple, dus dan is het merk ook iets waar ik naar kijk, dat ik graag een Apple wil, omdat ik ja, ik weet niet wat makkelijker overzetten want ik had hiervoor een Apple en eh ja, kan je veel makkelijker alles gelijk overzetten op ja, je volgende telefoon.

Ruben: Ja, snap ik, en je zegt dat de batterij duur belangrijk is, hoe is die op de iPhone 12?

Respondent: Daar ben ik heel tevreden over, daar kan ik echt een goede dag mee doen, langer dan meestal 24 uur, gewoon super tevreden over.

Ruben: Oké.

Respondent: Dat is ook wel de redenen waarom ik deze heb genomen, en niet de iPhone 12 mini. Die heeft een iets mindere batterijcapaciteit.

Ruben: Oké, en eh qua snelheid is dat ook naar wens?

Respondent: Ja, dat is tot nu toe allemaal top, maar ik heb hem nu denk vier, vijf maanden of zo. Dus misschien dat dat nog wel minder wordt, maar ik nu nog niks te klagen in ieder geval.

Ruben: Oké, en je zei dat de prijs belangrijk is. Heb jij een maximumprijs die jij instelt als je een telefoon uit gaan zoeken?

Respondent: Eh, ik denk ja, ik denk het wel. Het is misschien niet dat ik echt een maximumprijs heb, maar meestal is de telefoon boven de 1000 euro wordt, dan denk ik: nee, dat slaat nergens op. Kijk ook vooral, vergelijk een beetje en dan kijken wat nou voor mijn gevoel de beste deal is, zeg maar je had bijvoorbeeld ook de iPhone 12 pro die heeft dan voor een paar 100 euro meer alleen maar één extra camera, dat ongeveer het enige verschil. Dan denk je: dat hoeft voor mij niet, want ik gebruik die camera toch niet. Voor de rest, ja, je zou er waarschijnlijk wel, dan weer een Samsung voor een iets lage prijs met deze specificaties kunnen krijgen, maar dan vind ik het toch al fijner om een Apple te hebben.

Ruben: Oké, dus je had gezegd dat merk belangrijk is en jij zou niet snel switchen naar een ander merk.

Respondent: Nee, niet meer. Tenzij het echt heel veel uit gaat maken in prijs, dan eh... Ja, vooral dat het uit gaat maken in prijs of dat het heel makkelijk wordt van Apple weer dingen over te zetten op Samsung, dan zou ik misschien wel overwegen.

Ruben: Oké, dan heb ik.

Respondent: Ik vind de Apple ook gebruiksvriendelijk. Ik vind het nogal één dingetje trouwens, ik vind het ook gewoon heel chill dat je Apple heel makkelijk kan connecten met bijvoorbeeld je AirPods en met je laptop, dat ze allemaal een gesloten community dat is echt heel makkelijk met elkaar te verbinden is allemaal ook wel iets waarom ik voor Apple kies.

Ruben: Oké, dan heb ik alle informatie die ik nodig heb. Dank je wel voor het interview.

Respondent: Graag gedaan.

Link with voice recordings of interviews: https://liveeur-my.sharepoint.com/:p:/g/personal/504005rv_eur_nl/EeQZxOroBNZEkTBoU2UMggUBy3r9V_DWw8lDuRdbZvrDBg?e=trQ5Cz

8.2 Survey

Introduction: Welkom bij deze enquête. Deze enquête is bedoeld voor jongeren tussen de 18 en 25 jaar. Deze enquête is gemaakt om uw voorkeuren te meten bij het kopen van een smartphone. Uw antwoorden zijn anoniem en de resultaten worden alleen gebruikt voor dit onderzoek. De enquête duurt ongeveer 5 minuten.

First question: Wat is uw nationaliteit? (What is your nationality?) (options: Nederlands or anders, by choosing 'anders' you go the end of the survey)

Second question: Wat is uw gender? (Options: man, vrouw, non-binair en zeg ik liever niet)

Third question: Wat is uw leeftijd? (Options between 18 and 25, otherwise to the end of the survey)

10 choices between two fictional smartphones:

Attributen	Smartphone A	Smartphone B
Prijs	€ 500	€ 250
Merk	Huawei	Samsung
Schermgrootte	5 inches	5 inches
Opslag	256GB	64GB
Batterijduur	1 dag	1 dag

Attributen	Smartphone A	Smartphone B
Prijs	€ 500	€ 250
Merk	Apple	Samsung
Schermgrootte	5 inches	6 inches
Opslag	64GB	256GB
Batterijduur	2 dagen	1 dag

Attributen	Smartphone A	Smartphone B
Prijs	€ 250	€ 500
Merk	Samsung	Apple
Schermgrootte	7 inches	6 inches
Opslag	256GB	64GB
Batterijduur	1 dag	2 dagen

Attributen	Smartphone A	Smartphone B
Prijs	€ 250	€ 500
Merk	Huawei	Apple
Schermgrootte	5 inches	7 inches
Opslag	64GB	256GB
Batterijduur	2 dagen	2 dagen

Attributen	Smartphone A	Smartphone B
Prijs	€ 500	€ 250
Merk	Samsung	Apple
Schermgrootte	5 inches	7 inches
Opslag	128GB	256GB
Batterijduur	1 dag	2 dagen

Attributen	Smartphone A	Smartphone B
Prijs	€ 250	€ 250
Merk	Apple	Samsung
Schermgrootte	5 inches	7 inches
Opslag	256GB	128GB
Batterijduur	1 dag	2 dagen

Attributen	Smartphone A	Smartphone B
Prijs	€ 750	€ 750
Merk	Apple	Samsung
Schermgrootte	7 inches	5 inches
Opslag	64GB	256GB
Batterijduur	1 dag	2 dagen

Attributen	Smartphone A	Smartphone B
Prijs	€ 500	€ 250
Merk	Samsung	Apple
Schermgrootte	7 inches	5 inches
Opslag	64GB	128GB
Batterijduur	1 dag	1 dag

Attributen	Smartphone A	Smartphone B
Prijs	€ 250	€ 750
Merk	Samsung	Samsung
Schermgrootte	6 inches	6 inches
Opslag	64GB	128GB
Batterijduur	1 dag	2 dagen

Attributen	Smartphone A	Smartphone B
Prijs	€ 750	€ 500
Merk	Apple	Huawei
Schermgrootte	7 inches	6 inches
Opslag	128GB	128GB
Batterijduur	1,5 dag	2 dagen

Last question: Welk smartphonemerk heeft je voorkeur? (options: Samsung, Apple, Huawei and een ander merk)

8.3 Raw data

https://docs.google.com/spreadsheets/d/1hIMUv3M5IOlG1SSMa7Rbd0EPtktJMc-z51iIO1lU27k/edit?usp=sharing

8.4 Tables with analysis

Table 1A: Difference in probabilities between a phone with 64GB and 128GB internal storage for the favourite brand

Favourite brand	Probability phone with 64GB	Probability phone with 128GB
Apple	0,477	0,523
Samsung	0,216	0,784
Huawei	0,253	0,747

Table notes: The following attributes are the same for the two profiles: Price, brand, battery life and screen size. The probability is the chance of choosing one phone over the other phone.

Table 2A: Probabilities of choosing an Apple or Samsung phone for each preferred brand

Favourite brand	Probability choosing Samsung phone	Probability choosing Apple phone
Apple	0,132	0,868
Samsung	0,805	0,195
Huawei	0,776	0,224

Table notes: The following attributes are the same for the two profiles: Price, internal storage, battery life and screen size. The probability is the chance of choosing one phone over the other phone

Table 3A: Probabilities of choosing a Huawei or Samsung phone for each preferred brand

Favourite brand	Probability choosing Samsung phone	Probability choosing Huawei phone
Apple	0,536	0,464
Samsung	0,727	0,273
Huawei	0,407	0,593

Table notes: The following attributes are the same for the two profiles: Price, internal storage, battery life and screen size. The probability is the chance of choosing one phone over the other phone

Table 4A: Probabilities of choosing an Apple or Huawei phone for each preferred brand

Favourite brand	Probability choosing Apple phone	Probability choosing Huawei phone
Apple	0,883	0,117
Samsung	0,392	0,608
Huawei	0,165	0,835

Table notes: The following attributes are the same for the two profiles: Price, internal storage, battery life and screen size. The probability is the chance of choosing one phone over the other phone