The Effect of Virtual Showrooms on The Watch Purchasing Process

Bachelor Thesis for Obtaining the Degree

Bachelor of Science

International Management

Submitted to Dr. Marion Garaus

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Affidavit

I hereby affirm that this Bachelor's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

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Author Statement

Author 1:   Michaela Riedl

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Abstract: Author 1 wrote the first draft of the abstract. After receiving feedback from the supervisor author 1 and 2 revised the abstract to include a more holistic overview over the paper.

Introduction: The general Research question, structure and implications, were developed and written by Author 1. In addition, the research was brought into a wider economical and research context by the author.

Literature Review:

2.1: Authors 1 and 2 co-wrote this chapter, they did extensive research on related topics. While author 2 focused on e-commerce and the relevance of loyalty, author 2 explained other forms of shopping and the decision making involved.

2.2: Author 1 gave an introduction to virtual reality by providing a short overview of the history. Author 2 then worked on the advantages and impact of virtual reality. Author 2 also included the systems potential effects on the participants. In addition, he laid out important aspects to increase the systems accessibility.

2.3: Author 1 examined the literature to determine aspects that influence the purchase intention of virtual showroom users.

2.4: Author 2 explored the importance of authenticity in the e-commerce world and applied it to the virtual showroom.

2.5: Author 2 examined the relevance of a satisfactory experience in. the e-commerce world and how a virtual showroom and virtual reality can aid in developing a satisfactory experience.

2.6: The relevance of word of mouth in the consumer space was reviewed by author 2. Author 2 also explored potential positive and negative word of mouth results generated by a virtual showroom.

2.7: To ensure the usability of the virtual showroom and to reduce its generation of confusion author 2 explored potation confusion factors in an e-commerce environment.

Methodology:

The hypotheses were created by both authors taking the findings during the literature review phase into account.

3.1: Author 1 explained and reasoned the chosen research design and approach.

3.2: Authors 1 and 2 co-wrote this chapter, as they co-created the virtual showroom. While author 2 was responsible for the technical aspects of creating a showroom and developing the images. Author 1 learned to use the 360 degree camera and took the pictures in the Jacques Lemans headquater's showroom.

3.3: Author 1 explained the survey design and measurement of the constructs included. The survey was design by both authors, searching for related measurement constructs for their literature review topics.

Data Analysis:

Sample Demographic: Author 1 explored and explained the demographic of the survey participants.

Hypothesis testing: Author 2 took the results from the research and ran all SPSS tests. Author 2 interpreted the results.

Findings and discussion: Author 2 summarised the findings from the data analysis and included a short discussion about perception as a predictor.

Conclusion: Author 2 summarized the thesis relating the findings to the literature and giving impulses for future research.

Limitations: Author 1 laid out the limitations of the research.

Abstract

This paper aims to demonstrate the relevance of a virtual showroom for the watch brand Jacques Lemans during the watch purchasing process. A virtual showroom could affect customer's buying behaviour and promote website visit intention based on a well-established digital tour. Nowadays, consumers increasingly switch from shopping at traditional retailers to online shopping. [1]

However, there was a literature gap due to insufficient research about showrooms. The virtual room stimuli were created by using 360-degree pictures and putting the data into a real environment. The virtual showroom displays watches that can be viewed by the showroomer, to gain a new online shopping experience. Besides that, users are given an opportunity to watch a product video and visit the firm's website. The development process involves specific processes such as planning, object modelling, navigation, web page integration and evaluation. [1]

Data was collected from a sample of 79 participants giving first insights into its effects and potential for the e-commerce space. Participants were questioned about their perception of the virtual showroom, the perceived interactivity, the level of authenticity generated, the system usability and word of mouth and purchase intentions. Results demonstrated that customers tended to be satisfied with the experience and perceived the showroom with a positive attitude. As previous literature already suggested, word of mouth and purchase intention seemed to be positively affected by the virtual showroom experience. [1]

The authors conclude that the virtual showroom demonstrates a new technology with large potential for the retailing space and can be a powerful branding tool in the online-dominant retailing environment.[1]

Keywords: Virtual showroom, Immersive visualization, Showrooms, e-commerce, Virtual tour, Store brand experience, Visit intention[1]

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[1] Written by Michaela Riedl

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List of Abbreviations

E-commerce - Electronic Commerce

HCI - Human-computer interaction

VPL - Virtual Programming Languages

VR - Virtual Reality

WIFI - Wireless Fidelity

WOM - Word of mouth

pWOM - Positive word of mouth

nWOM - Negative word of mouth

eWOM - Electronic word of mouth

3D - Three dimensional

5G - Fifth-generation wireless technology

B2B - Business-to-business

B2C - Business-to-consumer

B2G - Business-to-government

C2C - Consumer-to-consumer

Introduction

Virtual reality systems can provide valuable insights into customers' behaviour and shopping preferences and are used in industries of education, tourism, medicine marketing, and merchandising (Nowak & Flotyński, 2018). A virtual store can create at-home user experiences without leaving the current location and hence be able to purchase and inform oneself about certain products. The virtual showroom can aid a firm as well as the user (Alcañiz et al., 2019). On the one hand, companies can present various items in an easily accessible way. On the other hand, the users can have a unique experience which they would not be able to undergo if they visited the store. Visitors can obtain information without being in exchange with a salesperson and can switch items (Nowak & Flotyński, 2018). [1]

The watch market has been constantly growing and was dominated by quartz watches from 1970-2000. Since then, the traditional watch market has been faced with huge changes caused by the innovation of smartwatches. The digital age, which started in the late 1950s, has provoked a threat for brick-and-mortar retail. Especially, the retail sector has been impacted by the change in people's buying behaviour (Spanke, 2020).

Nowadays, brands are advertising in a different manner than in the past. Generation Y, the millennials, are people who were born between 1979 and 1995, they are expecting an adequate appearance of a brands' online shop. (Bazi, Filieri & Gorton, 2020). However, the buying behaviour of generation Z, people who are born between 1996 and 2010, is completely different from generation Y. Generation Z is large, powerful, and challenging and grew up with social media and smartphones (Fromm & Read 2018).[1]

Undoubtedly, wearables such as smartwatches are becoming an increasing competition to the traditional watch market. Ernst (2016) states that a wearable is any technological device a user is wearing on his body. Three main categories are being considered as wearables: wearable health technologies, wearable textile technologies, and wearable consumer electronics (Çicec, 2015). Fitness trackers have the reputation of simplifying the user's life and reveal information about one's health. However, fitness trackers may not be able to provide enough synopsis about the actual health of a user (Sullivan, 2017).[1]

Consequently, for traditional companies, these changes imply that they need to develop completely new approaches to designing and producing their items. In the last quartile of 2017, Apple Inc. has sold more Apple watches than the entire Swiss watch industry including reputable brands such as Rolex, Swatch, Jaeger-Le Coultre, and Tag Heuer (Richter, 2018). [1]

This thesis examines the output of the virtual showroom which has been installed for Jacques Lemans. The watch brand is the market leader in the price segment between 100€ and 300€ in Austria and is represented in more than 120 countries worldwide. Jacques Lemans is a family-owned business, and its product range consists of more than 600 different watches. The Carinthian watch brand is selling more than 70% of its watches abroad to the United States, China, Russia, and several other Eastern European Countries (Koren, 2015). For fashion accessories, such as watches, it is vital to have an appealing design that is perceived as the most influential factor affecting a person's purchase intention (Chen & Hsiao, 2018). To better visualize the appealing design a showroom can aid the customer during his purchasing journey. It is necessary to mention that social value and quality are not directly influencing purchase intention. However, the satisfactory quality will impact a products' value. Chen and Hsiao (2018) based their research on analysing smartwatch users. The targeted probands elucidate that emotional factors such as gratification and value for money are the most essential values before undertaking an acquisition decision (Chen & Hsiao, 2018). The better the mental image of a product provided by a showroom, the better a client can perceive the potential value given by a product. [1]

1.1 Aim and Structure of the Thesis

The aim of this thesis is to examine the effects of virtual showrooms on the watch purchasing process. This paper describes the usage of virtual reality technology and provides advantages and disadvantages of showrooming. A digital showroom of the watch company Jacques Lemans has been created by the authors. The bachelor thesis not only provides information about various artificial intelligence tools but also by installing a 360° digital tour people can enter the room and have a full virtual reality hands-on experience. The main purpose of this research is to evaluate the effect of virtual showrooms on the watch purchasing process. This thesis consists of five sections.[11] above

The introduction is the first part of the thesis and an overview of virtual reality, and the watch industry will be provided. The second part is the literature review, where a detailed definition of digital showrooms and virtual reality can be found. The literature review starts with an example of BMW's showroom and a timeline to better understand the history of virtual reality where concepts and applications of virtual reality will be explained. In the next section of the literature review, virtual reality will be explained in detail and factors affecting consumer purchasing behaviour are described. To understand all hypotheses, terms such as consumer confusion and word of mouth are illustrated. The third part of this thesis is the methodology section, where the chosen research design is explained. To close the research gaps, the authors considered a qualitative approach where a survey has been created. First, the chapter provides an overview of the implementation of the showroom. [1]

Additionally, it emphasizes the creative process of the virtual showroom. By creating a survey, the authors aim to get responses from clients, employees, and colleagues about the quality and performance of the showroom. Overall, 89 participants filled out the survey which aided the authors to understand the effects of this specific showroom. The fourth step is the data analysis which is explained in the methodology. In addition, the process of the survey development, data measurement scales, and data collection will be explained. [1]

Nonetheless, the results of this research must be interpreted with caution and a number of limitations should be borne in mind. Single and multiple regression analysis revealed that the showroom has been perceived as effective by the participants. Word of mouth, purchase intention and satisfaction were factors that measured the overall perception of the showroom. Another comparison group would have been useful to obtain results about how advantageous the showroom is. However, this would go beyond the scope of this research.[1]

Lastly, the research data will be analysed briefly. The fifth part is the discussion part where the findings are analysed. Despite the detailed explanations of virtual reality and broad concepts of "showrooming", the academic literature investigating this topic has been limited. The conclusion will summarize and reflect the thesis' findings and recommendations for future research will be described in this section. [1]

2 Literature Review

2.1 Showroom and Online- and Offline-Shopping

The following paragraph will provide insights into why a firm should consider implementing online sales approaches, inter alia, a (virtual) showroom.[1]

A showroom can be defined as a room where merchandise is exhibited for sale or where samples are displayed (Merriam-Webster, n.d.). Scarpi et al. (2014) demonstrate in an empirical investigation that online shoppers are more price-conscious than offline shoppers. [1]

Konur (2020) states that a showroom is a multi-channel shopping activity based on an online brand's augmentation to increase profit by enhancing customer engagement. It is crucial to state that by implementing a showroom a company's online channel presentation is enlarged. Customers are browsing through showrooms before making a final purchase decision (Konur, 2020).[1]

2.1.1 Click-and-mortar stores

Click-and-mortar stores are sales channels of traditional retailers who are selling their products offline as well as online. Binder et al. (2015) claim that stores such as Walmart are having a favoured position, compared to a purely online seller such as Amazon, by being represented online and in a physical environment. The authors inform about the opportunities and threats of channel integration. A potential threat in a multichannel environment is that a customer's loyalty may be eliminated due to the great amount of time a customer puts into the research of a product (Neslin et al., 2006). When a product is offered at different sellers, the consumer purchases it from the cheapest source. Nonetheless, loyalty can be improved in a multichannel environment by offering unique customer services and shopping experiences (Neslin et al., 2006). On the one hand, a further threat is that a client may take advantage of the retailer by carrying out showrooming behaviour, as explained above. On the other hand, an opportunity may be created by increasing a customer's value proposition and by providing a client with a clearer understanding of a good or service (Binder et al., 2015).[1]

2.1.2   E-commerce

Click and mortar stores are not the only providers of online stores. Due to its ease of set up and relatively low entrance barrier (Niranjanamurthy et al., 2013; Nisar & Prabhakar, 2017) e-commerce has become one of the fastest growing industries world-wide. E-commerce in its most basic form is defined as the process of offering goods and services over the internet for monetary exchange (Kaur & Joshi, 2012; Cisco iQ cited in Jewels & Timbrell, 2001). However, as e-commerce is constantly evolving the traditional view of a two-sided transaction is less applicable (Aparicio & Nhampossa, 2011). With a multitude of players involved, for each step of the process (Aparicio & Nhampossa, 2011) the complexity of an e-commerce transaction becomes more apparent. Building those transaction platforms has been an ongoing process for the past 20 years (Aparicio et al., 2021). E-commerce consists of five major transaction forms, business-to-business (B2B), business-to-consumer (B2C), business-to-government (B2G), consumer-to-consumer (C2C) and mobile commerce. B2C being the relevant form for the development of a virtual showroom in the watch market. B2C's main focus is the completion of a transaction between a business and a customer through a website purchase (Nisar & Prabhakar, 2017).[2]

2.1.2.1   *Loyalty*

Owing to the internet, in e-commerce a competing store is easy to reach, and comparison shopping is therefore more likely (Srinivasan et al., 2002). As such building (?) a loyal customer base can be beneficial to maintain a profitable and economic sales volume (Sharp & Sharp, 1997). Loyal customers are less focused on the economics of a transaction and rather base their decision on the relationship with the company (Aparicio et al., 2021). Nonetheless, loyalty does not ensure the purchase of a product from a brand in 100% of the transactions (Uncles & Laurent, 1997). Loyalty can be divided into attitude and behavioural components (Uncles & Laurent, 1997). [2]

With the emergence of e-commerce e-loyalty has also risen in popularity within the research community (Toufaily et al., 2013). Toufaily et al. (2013), suggest an increased focus on using emerging technologies to build a customer community and to divert from the focus of loyalty solely on customer satisfaction. As satisfaction plays a key

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[2] Written by Kolja Heimberger

role in assessing the customer experience, and customer experience is seen as a key factor in generating customer loyalty (Cachero-Martínez & Vázquez-Casielles, 2021; Grewal & Roggeveen, 2020; Japutra et al., 2021), building a preferrable customer environment suited to the companies aims and products should be desirable.[2]

To build a loyal customer base the right form of a customer experience environment is recommended. Customer experience can be designed and created in a multitude of ways. It should be considered throughout the customer journey (Grewal & Roggeveen, 2020). The experience should include the customers' desire to go through the shopping process not only with the goal to purchase a product but also as an emotional experience (Cachero-Martínez & Vázquez-Casielles, 2021). With the development of new technologies and improvements of computers and internet connections, researchers recommend leveraging those advancements (Grewal & Roggeveen, 2020). [2]

However, the experience should be tailored specifically to the kind of service or product offered by the company and the related emotions to set product or service category (Bleier et al., 2018). A virtual environment can evoke a multitude of emotions in the customer, Cachero-Martínez and Vázquez-Casielles (2021) build their customer experience on five elements, visual, intellectual, social, pragmatic and emotional. The focus of a virtual showroom lies on the visual aspect of the experience, but it also touches on the intellectual element. Graphic, design and image quality together play an important role in generating a positive affiliation with the online store (Rose et al., 2012). Rose et al. (2012) also recommend an increase in user control within the store as this has a strong positive affiliation with satisfaction. If a virtual showroom fulfils this criteria, perception of the showroom and the sensation of interactivity should be significant. This leads us to propose the following hypothesis:

H1: The perception of the showroom positively affects the level of perceived interaction.[2]

2.1.3 A virtual reality-based example of a showroom

Figure 1 gives an example for a visual and interactive user experience through a virtual showroom developed by the German car manufacturer BMW (BMW Canada, n.d.). Baharom and Zolkifly (2016) claim that the "storefront", "store layout", "store

interior" and "interior display" are key indicators of visual merchandising. The storefront consists of the firm's logo, illumination, and banners of a store, which all are elements of exterior decoration. The store layout is the method by which firms use their square base area for distributing their products and services (Baharom & Zolkifly 2016). Seating and indoor graphics are allocated to store interior and interior display inter alia covers the store's decorations. Previous research indicates that visual merchandising is associated with a strong tendency towards a car purchase from a car brand with a virtual showroom (Baharom and Zolkifly 2016).[1]
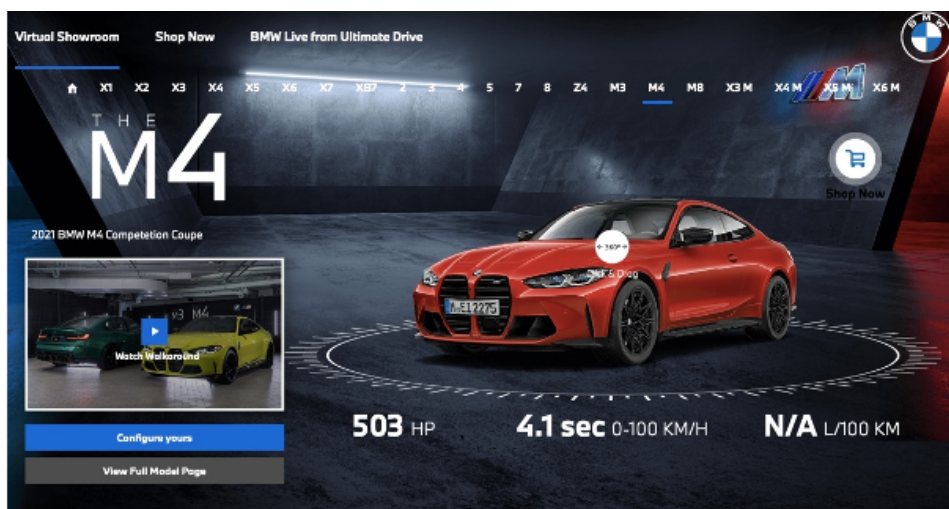
Figure 1: Virtual Showroom by BMW (BMW Canada, n.d.)

2.1.4 Traditional showrooming compared to competitive showrooming

Understanding the customer's engagement with a showroom is an essential element in building the right showroom mix to maximize the benefits. Gensler et al. (2017) state that showrooming can be approached by customers behaving in two different strategies namely "traditional showrooming" and "competitive showrooming". Traditional showrooming can be explained as visiting an offline retailer and obtaining information about an item and ordering the product online from the same retailing cooperation (Gensler et al., 2017). In contrast, competitive showrooming is a showrooming phenomenon where potential customers are informing themselves about a product at an offline retailer, but they purchase the product online elsewhere (Konur, 2020). Gensler et al. (2017) elucidate an example of competitive showrooming. Toys"R"Us and PetSmart arise to be showrooms for online

corporations such as Amazon Inc. or the Alibaba Group. Showroomers are taking advantage of in-store client consulting because they ask about specific product features and nevertheless, showroomers are ordering products online (Flavían et al., 2019). Predominantly, specialized face-to-face retailers such as multi-brand stores are negatively affected by showrooming because the online comparison to alternative sellers is convenient for clients. As a matter of fact, in the showrooming process, a customer does not feel committed to a specific brand. Therefore, the client can purchase a product via an online channel or obtains a good from a competitive firm (Schneider & Zielke, 2020). It is vital to mention that a multi-brand store is a store whose product portfolio includes more than a single brand (Schneider & Zielke, 2020). Brandão and Rodrigues (2020) argue that brands increasingly attribute value by creating memorable shopping experiences. For instance, when a salesperson behaves politely but not intrusive towards a client (Brandão and Rodrigues, 2020). In a survey in 2019, clients were asked to mention customer services, which they find appealing. They mention that they prefer to test new products by obtaining free samples and further opportunities of trying out new products without feeling pressured. These methods develop emotional bonds and good relationships with a brand (Brandão and Rodrigues, 2020).[1]

2.1.5 Mobile-assisted shopping

Which shopping methods a potential customer is considering for his or her purchase is partially influenced by the technological advancement of digital marketing. Today's customers consult online and offline channels for their shopping experience (Fiestas & Tuzovic, 2020). In addition to visiting physical stores more than 60% of consumers worldwide are utilizing mobile phones in their shopping routine and thereby are becoming active showroomers (Fiestas & Tuzovic, 2020). As a matter of fact, mobile-assisted shoppers not only obtain information from a retailer, but they also purchase the desired item online from a competitor while they are still present at the brick-and-mortar-store (Fiestas & Tuzovic, 2020).[1]

Fiestas and Tuzovic (2020) have defined four profiles of mobile-assisted showroomers summarizing attitudes, motivation, and shopping behaviours. The "undaunted-treasure hunter" (32% of respondents) has high physical and mobile channel reciprocal interactions and enjoys showrooming. This person is purchasing solely

online because he is willing to find the best deal online. Whereas the "frugal experience seeker" (24% of respondents) is a price-sensible shopper who seeks to have a convenient shopping experience, preferring to obtain information from his smartphone rather than from sales staff. The "organized juggler" (38% of respondents) is the most tech interested showroomer, this person adores showrooming and knows indeed which retailer is worth visiting. This shopper does inform himself by searching the world wide web as well as by asking friends and family. This shopper will purchase the product online after experiencing the product in a store. Lastly, the "friendly diplomat" (9% of respondents) is the type of customer who favors one brand touchpoint and aims to find the best deal while engaging with the sales staff. This person is willing to terminate showrooming because of two different motives. On the one hand, this shopping type wants to avoid confrontation with the salesperson. On the other hand, he wants to buy goods from a store when he has the feeling that someone offered him a special discount (Fiestas & Tuzovic, 2020).[1]

2.1.6 Decision to visit a showroom

A consumer's channel perceptions and contextual factors are influencing aspects regarding a shopper's showrooming decision, which will be detailed in Figure 2 (Gensler et al., 2017). [1]
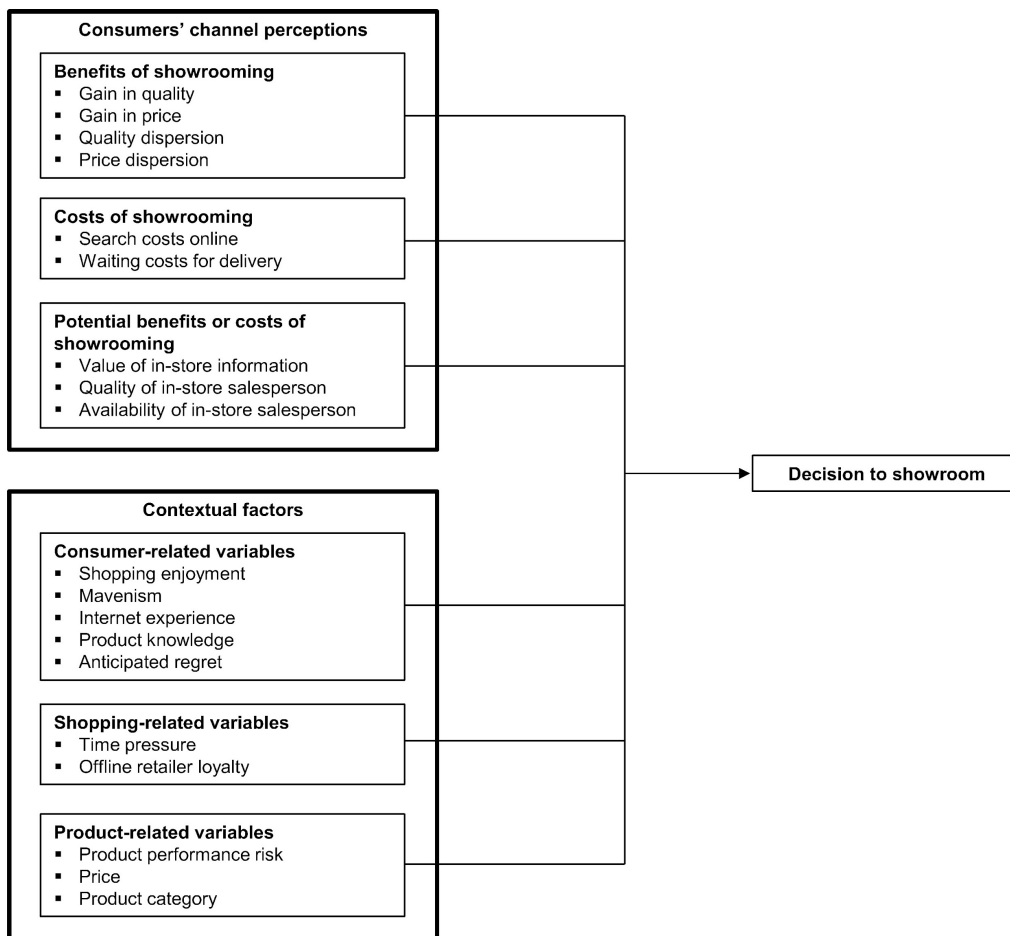
Figure 2: Conceptual framework: Decision to showroom (Gensler et al., 2017)

Consumer-related variables, shopping-related variables and product-related variables are contextual factors which are components in the decision whether to adopt showrooming (Gensler et al., 2017). Consumer-related variables such as shopping enjoyment, mavenism, internet experience, product knowledge, and anticipated regret are outlined as consumer-related variables (Gensler et al., 2017). A businesses' competitiveness in a sector reflects it effectiveness to understand the market by using innovative marketing approaches through business relationships (Bazi, Filieri & Gorton, 2020). Moreover, social media engagement can stimulate the purchase intention, electronic word-of mouth and brand identification as well as relationships and loyalty. Social media can be advantageous for brands, since brands can interact with customers, respond to complaints and improve customer relationships (Bazi, Filieri & Gorton, 2020). Customers decide on their channel selection depending upon

channel-related cost-benefit appraisals. When an expected advantage of a channel is greater than the expected cost, consumers are approaching a distinct channel (Gensler et al., 2017).[1]

Shopping-related variables are time-pressure and customers' loyalty towards a retailer. The benefits and costs of showrooming, as well as the potential benefits or costs of showrooming are indicators for a consumers' channel perception. On the one hand, potential customers who want to be time-efficient in their shopping generally tend to avoid showrooming, because shifting channels involve longer time-demanding procedures (Gensler et al., 2017). On the other hand, potential customers who are pleased by shopping will be more likely to employ showrooming and improve their shopping expertise (Gensler et al., 2017). Product-related variables are the risk of product performance, price and the category of a product (Gensler et al., 2017). The higher the price of an item is the higher is the financial risk associated with a customers' product purchase. In research from Kokho Sit et al. (2018) showroomers not only care about the price of a product. A brand's reputation and the offered customer service between an online seller and a physical retailer are precisely compared (Kokho Sit et al., 2018). [1]

When customers inform themselves conscientiously about an item, the product performance risk is especially high. To avoid distrust retailers must ensure that product information referring to special offers, discounts, and prices are displayed consistently online and in the physical store (Kokho Sit et al., 2018). Overall, product price, and product performance risk are likely to lead customers to showrooming behaviour (Gensler et al., 2017). This chapter is relevant because it provides a clear understanding of variables that are affecting a customer's decision to showroom.[1]

2.1.7 Various buying behaviour patterns

It is expedient for an organization to be aware of the different buying behaviour patterns of various customer groups. Schneider and Zielke (2020) state that it is crucial to identify distinct segments of showroomers. In their research four showrooming segments considering factors such as time of purchase, device for purchase, retailer consistency versus switching as well as demographic and psychographic variables have been developed. Demographic segmentation is reflecting a persons' gender, age,

social class, and stage of life. Demographics however cannot provide a researcher with motives of a customers' consumption decision (Vyncke, 2002). The word psychographic is composed of "psychology" and "demographics", where social and behavioural sciences are being analysed. A person's lifestyle can be defined as patterns of action that vary from individual to individual (Vyncke, 2002). The four segments have been divided into "the comfort oriented economic shopper", "the loyal showroomer cluster", "the mobile economic shopper" and "the conservative shopper" (Schneider & Zielke, 2020). "The comfort-oriented economic shopper" (more than 25% of respondents) is the most sceptical type towards a retailer. This shopper buys repeatedly from other retailers while dwelling in showrooming. This showrooming type is in his thirties and prefers ordering from home using a computer or smartphone (Schneider & Zielke, 2020). The "loyal showroomer cluster" is mostly females who are staunch supporters of a retailer. They are looking for social contact in the store by engaging with a salesperson (Schneider & Zielke, 2020). Continuing with "the mobile economic shopper", whose purchase intention is related to order products online and changes entities within the buying process. This showroomer is in his late 20s, living in a single-person household, and encompasses all income groups (Schneider & Zielke, 2020). Lastly, the "conservative shopper" is informing himself using the internet and in the same move is ordering an item online. This average showroomer is 34.91 years old and tends to be loyal to a retailer if his or her high desire for social contact is met by the retailer (Schneider & Zielke, 2020). It is vital for an organization to be aware of different shopper segments to know which shopper is the ideal target group. Figure 3 displays factors that a customer is considering during his cost-benefit analysis while showrooming.[1]
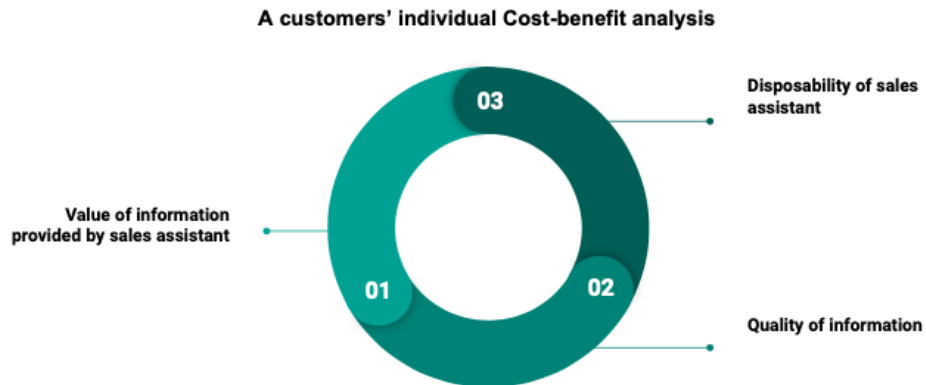
Figure 3: A customers' individual cost-benefit analysis (based on Gensler et al., 2017)

Gensler et al. (2017) have formed a framework (see Figure 3) that can either be advantageous or disadvantageous for showrooming, depending on a customers' cost-benefit analysis. A cost-benefit analysis can be defined as "*the process of comparing the costs involved in doing something to the advantage or profit that it may bring*" (Cambridge Dictionary, n.d.). Gensler et al. (2017) have indicated three factors that are vital for this framework. Firstly, the value of information gathered by an individual or sales assistant. Secondly, the quality of information and thirdly the disposability of the sales assistant (Gensler et al., 2017).[1]

Furthermore, a cost-benefit analysis is connected to financial metrics such as willingness to pay and opportunity cost. A customer's willingness to pay and his opportunity cost are factors of a cost-benefit analysis (Boardman et. al, 2017). A customer's willingness to pay is the greatest money amount he is willing to settle for a product (Boardman et. al, 2017). Willingness to pay is a component of consumer demand, therefore a marketer must understand which products will be purchased at distinctive price levels (Boardman et. al, 2017). The opportunity cost can be described as a value that can be allocated in its best alternative use, evaluating the costs and benefits of each available option. For instance, the opportunity cost of spending money on a holiday trip instead of spending the money on a state-of-the-art university book is not getting a new textbook (Boardman et. al, 2017). This paper aims to get an understanding of a customer's cost-benefit analysis to know if he or she is willing to spend money to create value by buying a watch.[1]

2.1.8 Showrooming compared with webrooming

Showroomers and webroomer*s* have different patterns: webroomers' ambition is to make the most favourable purchase, whereas showroomers seek to find a products' best price in order to be satisfied (Flavían et al., 2019). In showrooming, potential customers are visiting retailers where they obtain information about a product and purchase it online. Results revealed that showroomers are likely to post reviews about their purchases when they are satisfactory and unsatisfactory (Kokho Sit et al., 2018). During their shopping process, showroomers may experience positive as well as negative feelings. Retailers should match their online and offline content which both, should be user-friendly and interactive to avoid negative experiences by their customers (Kokho Sit et al., 2018). Positive emotions in the showrooming process for instance are excitement and curiosity. Whereas negative emotions such as confusion, stress, and disappointment may arise in the evaluation process. It is vital to encourage showroomers to leave a positive review after the purchase and to respond to negative comments in a fast and honest way (Kokho Sit et al., 2018).[1]

Webroomers purchase the product from a retailer because they want to avoid unfavourable side-effects of online shopping such as shipping cost, delivery time and return process (Han et al., 2020). In webrooming, potential customers inform themselves online and buy an item offline (Flavían et al., 2019). In particular clients who want to buy an expensive good with high confidence are webrooming.[1]

As a matter of fact, showroomers decide on the optimal purchase decision but webroomers have more oversight over their acquisition than showroomers (Flavían et al., 2019). Showroomers perceive themselves as effective when finding cheap offers or being fast in the purchase process of a product (Flavían et al., 2019). Showroomers are likely to draw up online reviews about their purchases if they were satisfactory or unsatisfactory (Kokho Sit et al., 2018). Flavían et al. (2019) carried out an investigation and reported that cross-channel shopping overshadows single-channel purchasing at all levels. Webroomers as well as showroomers want to improve knowledge before acquiring a product, they want to be time- and money-efficient (Flavían et al., 2019). Virtual showrooms allow a customer to reflect a product precisely and thereby product returns are likely to get reduced and a client's overall confidence for purchasing the item grows (Han et al., 2020). Prosperous organizations

are seeking advantage through webrooming behaviour. A successful example of implementing webrooming into a store can be achieved by installing a WIFI network into a local store. Thereby, consumers can read online reviews about a certain product comprehensively, compare details, and research product characteristics (Han et al., 2020). It is crucial to differentiate between showroomers and webroomers to know about the preferences of these shopping types.[1]

2.2 Virtual Reality (VR)

Virtual Reality is an important technological advancement making online showrooms feasible. Figure 4 provides a historical overview, before explaining the applications and implementation of Virtual Reality.[1]
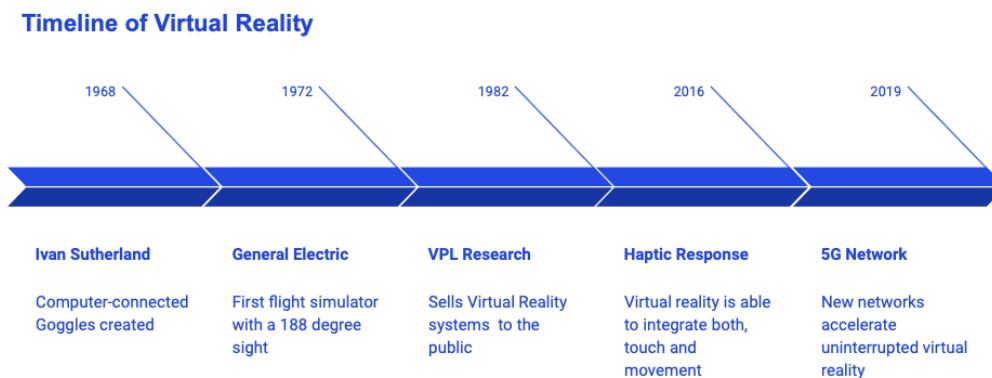

Timeline of Virtual Reality

1968	1972	1982	2016	2019
Ivan Sutherland	**General Electric**	**VPL Research**	**Haptic Response**	**5G Network**
Computer-connected Goggles created	First flight simulator with a 188 degree sight	Sells Virtual Reality systems to the public	Virtual reality is able to integrate both, touch and movement	New networks accelerate uninterrupted virtual reality

Figure 4: Timeline of Virtual Reality (based on Orloski et al., 2017)

To understand how virtual reality can positively affect a customer's view on a brand, the timeline above has been designed. While concepts and applications of virtual reality will be explained in the sections below, the timeline above indicates milestones of the development of virtual reality. The main goal of virtual reality marketing is to influence a person's affective, cognitive, and cognitive level of behaviour and to connect a customer with a brand towards an emotional touch (Barnes 2016). In 1968 Sutherland invented a system where a user could see the computer-generated objects which were overlaid on the real-time environment of the practitioners (Orloski et al. 2016). Orloski et al. (2017) claim that Sutherland's invention nowadays would be considered to be the foundation of virtual and augmented reality. Haptic response stands for the concept of implementing haptic interfaces that make contact to the user for example through vibration (Orloski et al. 2017). Haptic devices include mass-

market controllers but also devices that include a detection system that measures movement and is giving sensory feedback (Barnes, 2016). The 5G Network, which has been developed in 2019, enables large data transmission of 3D Videos and streaming virtual reality experiences (Orloski et al., 2017). [1]

3D worlds are commonly shared between individuals and avatars and are ultimately contributing to the virtual reality experience (Barnes 2016). Orloski et al. (2017) suggest that implications for 5G networks are feasible to become significantly imperative in the gaming and entertainment sector, for haptic evolution as well as for education and healthcare (Orloski et al. 2017).[1]

Virtual reality (VR) is traditionally defined as a computer-generated, three-dimensional (3D) world that contains interactive elements (Bryson 1996). However, for the context of virtual showrooms non-physical component-based definition is more suitable. Steuer (1992) defines VR based on telepresence and mentions the limitations of including physical immersion components such as "*goggles 'n gloves*" (Steuer 1992, p 5) due to their unspecified potential for variance. Sherman and Craig (2018) build their definition on immersion including the fundamental physical immersion which they see as a prerequisite for virtual reality mental immersion. Steuer (1992) mentions a limitation of defining virtual reality based on both immersion and telepresence as they sometimes have contradictory definitions. For this reason, this thesis will lay out how immersion and telepresence are used in this research.[2]

2.2.1 Immersion

Immersion has a multitude of definitions, some contradicting each other, based on the technologies the researchers immersed their participants. Sherman and Craig (2018) divide immersion into physical and mental immersion. *Physical immersion* is determined by the amount a consumer is surrounded by the virtual environment in space (Raja et al, 2004). This is hard to achieve with a virtual showroom integration on a website, as a typical recommendation includes head tracking via a headset (Raja et al, 2004; Sherman & Craig, 2018). Nonetheless, one focus of the experiment should be the user input, as this positively corresponds with a cognitive association with the virtual environment (Spielmann & Mantonakis, 2018). *Mental immersion* on the other

hand is influenced by the level of engagement and involvement in the consumed media (Sherman & Craig, 2018).[2]

In a gaming context immersion is defined and generated by three sensory cues, auditory, mental and visible, they aid in immersing the player in the game (Brown & Cairns, 2004). The feeling of immersion however is limited, and the feeling of immersion varies throughout the gaming experience (Brown & Cairns, 2004). Building a virtual showroom based on all three elements might be beneficial, however, to avoid cognitive and sensory overload within this new form of e-commerce auditory cues should be left out. In addition, Jennett et al. (2008) recognise the objectiveness of immersion, and the resulting difficulty of building a clear definition, this is partially lessened by the fact that research participants have their individual definition of immersion.[2]

In virtual reality immersion is based on the quality of the image and the rendering of the world, Bowman and McMahan (2007), acknowledged the objectiveness of immersion, however, also mentioned its measurability. Bowman and McMahan (2007) distinguished between immersion and presence, in comparison to Brown and Cairns' (2004) definition, Bowman and McMahan (2007) separate the feeling of presence from the stimuli generating immersion. Bowman and McMahan (2007) nevertheless acknowledges the variability in the feeling of presence within an individual based on timing independent from the technology.[2]

2.2.2 Telepresence

To understand the term *telepresence*, the researchers first have to define what presence means in general. Steuer (1992) defines presence as "*the sense of being in an environment*" (p. 6), in his case presence is limited to a natural environment that has a direct impact on sensory organs. Steuer's (1992) definition has strong similarities to immersion definitions based on Brown and Cairns (2004) definition. For a digital environment telepresence might be more suitable as it combines elements of immersion and presence into one single definition. Telepresence can be experienced by a mediation medium (Steuer, 1992), those mediums include digital representation or construction of environments. Reeves and Nass (1996) suggest that telepresence can have a similar effect on the consumer's mind as experiencing the same actions in

a natural environment. This gives telepresence special relevance for the effective usage of virtual showrooms, as an increase in telepresence directly influences consumer attitude and the subsequent purchase intention (Hopkins et. al, 2004). Klein (2003) and Steuer (1992) set vividness and interactivity as requirements for a convincing virtual reality. Vividness does not only consist of high-quality imagery and audio but should also include interactivity (Park et. al, 2008). One aspect of interactivity is a spatial three-dimensional (3D) world where the user can see into the distance, around objects and objects from all sides (Park et al.,2008).[2]

2.2.3   Sensory feedback

An important element towards building immersion and telepresence is the quality of sensory feedback. Visual and haptic feedback play an important role in a consumer's perception of the product (Krischna, 2006). Especially visual feedback has a central part in e-commerce by affecting the product perception and choice, the researchers suggest that the type and orientation of a product's visual depiction supports the mental image built by the consumer (Elder and Krischna, 2012).[2]

However, a discrepancy between visual and haptic feedback as is present in the space of e-commerce may have a confusing effect on the mental imagery of the consumer (Luo et al, 2019). Krishna (2006) examined the interplay between visual and haptic feedback and their roles in judging a product's dimension. The researcher showed that visual feedback plays a stronger role when both senses are in use. To aid virtual physical feedback and avoid confusion the implementation of interactive media and touchscreen aided interactions is beneficial to the consumers product perception (Luo et al., 2019). In addition, a sensible amount of interaction within the novelty of a virtual showroom can result in a decrease of consumer confusion.[2]

With 3D room constructing software and 3D cameras (insert program and camera used in our research) such an effect can be achieved and implemented onto the company's website. The implementation of a virtual showroom benefits multisensory feedback as the consumer is motivated towards an interaction with the room and an active examination of the product from multiple angles via self-enforced inputs. This form of interactive virtual sales form is already in use in the form of virtual tours

especially in tourism since the "*severe acute respiratory syndrome coronavirus 2*"
(SARS-CoV-2) spread lead to a worldwide pandemic (Itani & Hollebeek, 2021, p. 1).[2]

2.2.4 Virtual Tours

Utilizing a virtual tour (virtual showroom) is widely underused (Husson, 2016) even
though the usage has shown a lot of potential in increasing the purchase intention of
customers. By offering a more interactive form of advertisement compared to videos
or images with texts attached, a virtual tour increases the potential to create a strong
mental image about the product and the usage of said product (Schlosser, 2003). By
giving the consumer the role of a creator, virtual tours transform marketing into a
joint adventure between the marketer and the consumer, with a path that is chosen
by the customer (Pine et al., 1998).[2]

By giving the consumer the power of being a creator with the help of physical inputs
"(e.g., clicking the mouse, moving the view of environment with the mouse [...])"
(Spielmann & Mantonakis, 2018, p.256) the advertiser increases the sensation of
telepresence. As a result, interactivity in virtual showrooms has a positive impact on
the consumers attitude towards the product (Eelen et al., 2013).[2]

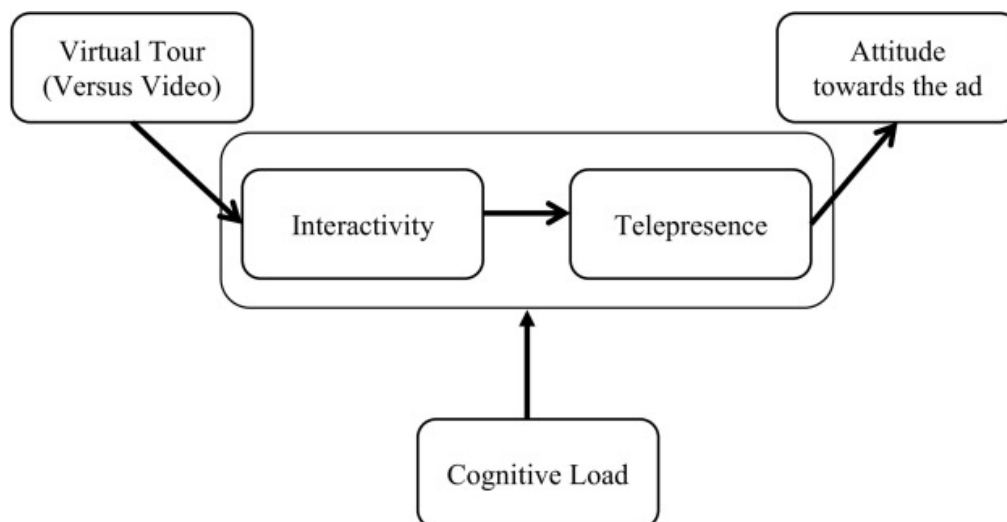*Figure 5*: Effect framework of virtual tours on attitude towards the ad (Spielmann & Mantonakis, 2018)

Spielmann and Mantonakis (2018), suggest – as seen in Figure 5 – that cognitive load
has a moderation role in the effectiveness of an advertisement and its ability to give
the user the feeling of telepresence. In particular a low cognitive load can lead to
higher preferences of the product.[2]

Research in the field of cognitive load theory indicates a relationship between the amount of information acquired and the *cognitive load* present during the information collecting activity (Paas et al., 2003). Cognitive load is influenced by multiple factors, it increases with the amount and extent of "*component skills*" (Paas & van Merrienboer, 1994, p. 355) also labelled as "s*ubskills*" (Paas & van Merrienboer, 1994, p. 355). These are important skills in completing and understanding the at hand task (Paas & van Merrienboer, 1994). Another element that has an increasing effect on the cognitive load is the hierarchy of goals that are needed towards solving the at hand task (Paas & van Merrienboer, 1994).[2]

To be able to take in all information given by a virtual tour the cognitive load should not exceed a certain threshold as it increases the danger of information overload (Ariely, 2000). For this reason, it is important to design the user interface as intuitively as possible to minimize the increase of cognitive load generated by a new form of interaction between the consumer and the e-commerce shop. Understanding the different forms of interaction is of importance, as *interaction* can bring additional value to the advertisement as a study has shown that with increased interaction, the potential of individuals to recall the given information increases (Schaffer & Hannafin, 1986; Spielmann & Montonakis, 2013). Interactivity also increases the preference towards a product (Elder & Krishna, 2012) and increases the positive attitude held (Spielmann & Montonakis, 2013). This is due to the difference in evaluation and value given to information if the consumer has the ability to manipulate the information gathering process and give different aspects of the product researching processes different weights (Ariely, 2000).[2]

The dangers of limited capabilities to take in all information collected is partially influenced by the level of involvement needed in controlling the information stream (Posner, 1986 cited in Ariely, 2000). Limited resource availability can lead to a reduction in information processing done by the consumer (John, 1983 cited in Ariely, 2000).[2]

2.2.5 Human-Computer Interaction

Interaction can be achieved through different forms of in and outputs. The study involved with exploring forms of interactions between computers and humans is the

Human-Computer Interaction (HCI) (Thuseethan & Kuhanesan, 2015). The consumer has multiple ways of sending and receiving information provided by the computer, the most important ones are "*vision, hearing and touch*" (Dix et al., 2005, p. 1). Dix et al. give a general outline on how different parts of a computer affect human sensory. To build the virtual showroom as interactive as possible and to avoid potential confusion an exploration of HCI is necessary.[2]

The showroom should be design in a way where it does not make it difficult for the user to understand how it works to reduce strain and avoid frustration (Dix et al., 2005). Bleier et al. (2018) recommend user-controlled interactions that mimic real live situations. In the case of a virtual showroom walking around and being able to freely explore the room give the user the sensation of reality like experiences. In addition, gains of the showroom should be made clear to the user as soon as possible to validate his learning efforts (Dix et al., 2005). One way to reduce the difficulty is to implement ergonomics, ergonomics of the interaction are concerned with the context given to the user after a physical input (Dix et al., 2005). A study conducted by Pietschmann et al. (2012) suggests that authentic input devices increase the level of emersion computer game users experience. The implementation of menus is suggested to help the user to navigate (Dix et al., 2005).[2]

The visual representation of the showroom in virtual form is aided by colour choice based on an adequate portray of importance of information (i.e., relevant information should be coloured in signal colours) (Dix et al., 2005). To achieve a three-dimensional interface can be simulated by distorting two-dimensional objects to seem three-dimensional by adjusting size and perspective according to the user's position (Dix et al., 2005)[2]

2.2.6 Universality of design

As a virtual showroom should be usable and appeal to a majority of potential customers the design and interactivity tools need to be designed as accessible as possible by adhering to the principles of universal design published in 1997 by the North Carolina State University (Connell et al., 1997). The principles are as follows taken without alteration from the original source without alteration of the content.[2]

1st Equitable Use: The design is useful and marketable to people of diverse abilities. The design has to provide the same means of use for all users if possible identical or equivalent, no user is segregated or stigmatized. All users are provided with privacy, security, and safety. The design is appealing to all users.[2]

2nd Flexibility in Use: The design accommodates a wide range of individual preferences and abilities. The design provides choice in the methods of usage, it is usable both by right- and left-handed users. The design accommodates for the user's accuracy and precision and is adaptable to the user's pace.[2]

3rd Simple and Intuitive Use: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. For this unnecessary complexity is eliminated, the interface is consistent with the user's expectations and intuitions. The design accommodates a wide range of literacy and language skills. The information is ordered by its importance. After and during the task completion effective prompting and feedback is given to the user.[2]

4th Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. Use redundancies in presenting essential information by using different modes (pictorial, verbal, tactile). Adequate contrast is provided between essential information and its surroundings. Legibility of essential information is maximized. Differences between elements can be described (i.e., make it easy to give instructions or directions). Compatibility for a variety of devices or techniques usable by people with sensory limitations is provided.[2]

5th Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions. Elements are arranged to minimize hazards and errors. Warning of hazards and errors are provided. Fail safe features are implemented. Unconscious actions are discouraged in tasks that require vigilance.[2]

6th Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue. Users are allowed to maintain a neutral body position. Reasonable operation forces are used. Repetitive actions are minimized. Sustained physical effort is minimized.[2]

7th Size and Space Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility. A clear line of sight to important elements is provided for both standing and seated users. All components can be comfortably reached by seated or standing users. Hand and grip size are accounted for. Enough space for assistive devices or personal assistance is provided.[2]

Connell et al. (1997) emphasize that not all principles and their associated guidelines are relevant for a virtual showroom however they build a solid basis for all design decisions. In the case of a virtual showroom principles one, two, three, four and six are the most relevant especially from an accessibility standpoint as its virtual nature allows people with different handicaps to still experience a low effort instore like shopping experience. This makes understanding forms of interaction with the showroom particularly important to minimize confusion and maximize the relevant effects of immersion and telepresence to increase the effectiveness.[2]

2.3   Factors affecting consumer purchasing behaviour

Showrooming is an important part of the overall shopping experience which is particularly influenced by product details, social media activity, and the overall purchasing behaviour of a person. Electronic commerce introduces new opportunities for businesses. Organizations are using state-of-the-art communications, which enables them to make a shopping experience faster and progressively convenient. Consequently, firms do not necessarily need to sell goods by implementing a brick-and-mortar store (Bucko et al., 2018). Not only large-scaled businesses profit from an electronic shop, but also small-to-medium sized businesses can gain a compete in the world-wide web (Bucko et al., 2018). However, to fully benefit from the potential of virtual showrooms, it is essential to understand other factors that influence consumers' shopping behaviour as well. The following section outlines these factors which need to be considered when deciding on the development of virtual showrooms.[1]

Khaniwale (2015) mentions that consumer shopping behaviour is impacted by cultural, social, personal, and psychological factors. Dennis et al. (2014) state that a *consumer's shopping behaviour* can be greatly influenced by a shopping experience

within the retailer's environment. According to Bucko et al. (2018) the following factors further are affecting buying behaviour. Price is determined by the price of the product plus shipping plus discounts and special offers. Bucko et al. (2018) define *availability* as the number of accessible products. Reviews about the seller and products are factors that are included in the variable of *social proof* (Khaniwale, 2015). The word *scarcity* is defined as a limited offer of the product including time-limited and special offers. These factors should be considered when creating a virtual showroom. For instance, product price and availability should be implemented into a virtual showroom. This is advantageous for a showrooming customer, who has the advantage that he has a convenient shopping experience, and the perceived quality of a showroom rises.[1]

Benlian and Koch (2015) describe scarcity as the point where the demand of a product exceeds its supply and claim that limited offers such as "only 4 items left in stock" are efficient scarcity tactics used by most marketers. On the one hand, supply-based scarcity has a positive impact on a products' value because it perceives a need for uniqueness. On the other hand, demand-based scarcity makes customers purchase an item due to other customers' recommendations and behaviour (Benlian & Koch, 2015).[1]

Product details are described as product photos and product videos. Conditions are accessible terms and conditions as well as accessible shipping methods. Lastly, social media activity is the company's social media activity plus the number of social media followers (Benlian & Koch, 2015). Regular optimization of online stores (e.g., one-page checkout) is vital for delivering the performance a potential customer is expecting (Ghaeli et al., 2019). Not only the in-store environment is affecting a customer's purchase behaviour, also his emotional state has an influence on the purchase decision (Baharom & Zolkifly 2016). In 1994 an environment response model was developed which differentiates between a customer's three stages in a shopping environment. The three stages can be broken down into cognitive, emotional, and conative (Baharom & Zolkifly 2016). Cognitive is perceived as an action resulting from a specific situation, it is the state where a customer informs himself about the product, and thereby he is acquiring knowledge. For instance, a low-calorie cookbook is appealing for a person who is watching his diet (Baharom & Zolkifly 2016). When a

client observes how happy the woman who's smiling on the book cover seems, the emotional stage is entered. In the emotional stage feelings such as liking, preference and conviction are demonstrated. The emotional phase also can be demonstrated by using negative expressions. For instance, a crying child living in poverty also leads to entering the emotional stage (Baharom & Zolkifly 2016). Lastly, conative refers to action and attitudes. When the book is advertised as a limited special offer the consumer may complete a purchase because of scarcity (Baharom & Zolkifly 2016). In conclusion, consumer behaviour comprises the way a natural person informs himself, purchases, and utilizes goods and services to satisfy his necessities and requirements (Benlian & Koch, 2015). It is important to be aware of a customer's shopping behaviour which should be considered when implementing a virtual showroom.[1]

The preeminent goal of virtual showrooming is to prompt purchases. This can be done by understanding a client's purchase behaviour. Therefore, a firm must understand its customer's purchase intentions. "*Purchase intentions are an individual's conscious plan to make an effort to purchase a brand*" (Singh & Spears, 2004, p.56). Purchase intention can be construed as personal preferences referring to an association which should not be confused with an attitude which relates to an individual's motivation completing a certain behaviour (Singh & Spears, 2004). In web-shopping, a customer's purchase intentions are affected by attitude which can be derived from confidence (Cha & Hong, 2013). Cha and Hong (2013) define purchase intention regarding the world wide web as a customer's intention to buy from the internet. Attitude is directly affecting a user's acceptance intention as well as the attitude towards a product within a firm's product range (Chen & Hsiao, 2018).[1]

A digital showroom must be implemented to reach a generous target audience. Therefore, social media platforms such as Facebook can help a brand to gain the trust and attention of its followers and can increase a person's interest in a brand. Beukeboom et al., (2015) exemplify that a brand's Facebook followers are being perceived as loyal and they are willing to engage with the brand on social media. A brand's social media activity and a person's brand loyalty and purchase intention are positively correlated (Beukeboom et al., 2015). Chen and Hsiao (2018) clarify those different observations of perceived value are decisive inducements of purchase

intention It can therefore be assumed that a positive perception of the virtual showroom would result in an increase in purchase and brand interaction intention**:**

H3: Perception of the virtual showroom positively influences future intentions with the brand.[1]

2.4   Authenticity

In addition, customers are searching for authentic products and an authentic shopping experience (Gilmore & Pine, 2007). Virtual tours have shown effectiveness in building an authentic experience for tourist attraction (Kim et al., 2018) as such they might be effective in generating the same emotions for e-commerce customers. Gilmore and Pin (2007) define authenticity as a service or product that is in line with the customers world view. In 1988 Cohen already recognized the importance of authenticity in tourism and described it as searching for an experience based on once own perception and intuitions.[2]

Another area where 3D environments helped with creating a more authentic experience was in foreign language learning (Lan & Liao, 2017) having a more authentic experience could generate a more positive association with the store and increase the customer's acceptance of the product (Bruhn et al., 2012).[2]

Pine (2021) recommends building a space where customers feel like it is in accordance with their world view and where they can discover how a company's products are in line with their views. Such a place could be a virtual showroom as it gives freedom to explore to the consumer. Therefore, an evaluation of the perception of the showroom and its effect on the feeling of authenticity should be made. Hence, the researchers suggest that:

H4: The perception of the showroom positively influences the store's authenticity.[2]

2.5   Satisfaction

Fornell et al. (1996) define satisfaction as a combined measurement of experience of the purchase and consumption of product. Oliver (1999) defines satisfaction as a pleasurable experience. Both definitions focus on the experience of the customer. To understand how a customer can be satisfied by his shopping experience

understanding how he experiences is of importance. The customer experience occurs in a multitude of direct and indirect touch points with the company, direct touch points are controlled and influenced by the company itself such as a virtual showroom for digital shopping. Indirect touch points include word of mouth and recognisable company elements, for a watch maker that might be a unique watch design that is directly associated with the company (Meyer & Schwager, 2007).[2]

The former mentioned experiencing authenticity during the shopping activity is another direct touch point, but it is not the only element generating a positive image of the company. One of the first mentions of customer experience as an emotional factor in the purchasing behaviour of customers was conceived by Holbrook and Hirschman in 1982. The researchers emphasise the importance of multisensory feedback and other aspects related to the enjoyment with the product and the imagination of set enjoyment bevor making a purchase. It is therefore reasonable to assume that the increased interactivity of the showroom is of some relevance and a satisfactory experience within the showroom can positively affect the purchase intention. Having a positive customer experience also increases the customer retention rate (Gentile et al., 2007).[2]

A successful customer experience relies on various involvements by the customer, those include "*senses, emotions, thoughts, acts, values and relations*" (Gentile et al., 2007, p.404). Here again lies a potential strength of a virtual showroom as it stimulates more senses than a traditional e-commerce site and increases the cognitive load making it more thought provoking (Schlosser, 2003). This again influences the customers' perception of the showroom. An exploration of the effect perception has on customer satisfaction can give further insights into how satisfied the customer is with the showroom experience. Resulting in the following propositions:

H5: Satisfaction with the virtual showroom positively affects the purchase intention.

H6: Perception of the virtual showroom positively affects the customers' satisfaction with the showroom.[2]

2.6 Word of Mouth

In addition to stimulating sales and generating a more satisfactory experience, a virtual showroom might also have increased marketing benefits by generating consumer-based Word of Mouth **(H7)**. Word-of-mouth (WOM) is the informal communication between sender and receiver concerned with a product or experience (Verma & Yadav, 2021). WOM plays an important role in consumer perception for several reasons. The abundance of online review and forum pages allows a simpler exchange of information between users compared to traditional WOM (Chen et al., 2004).[2]

Word-of-mouth is a powerful tool for both, online and offline sellers. Online WOM can be described as the process where a customer is gathering online information about product reviews which are easily accessible 24/7 (Scarpi et al., 2014). Overall, the shopping environment (physical or online store) shapes the word-of-mouth, and the shopping orientation shapes the content. Shopping orientation can be observed based on two shopping motivations, whether a customer is shopping for pleasure or for demand of a product (Scarpi et al., 2014).[2]

Word of Mouth is defined by Keller (1967) as a communication between potential and prior customers about the adoption of the product and less as a persuasive action by the existing customer. The research discovered that pWOM positively affected the likelihood of purchase (Keller 1967). The effects of WOM were amplified for potential customers who associated a high risk in purchasing the product (Keller 1967). Negative word-of-mouth can have the contrary effect on a potential customer Naylor & Kleiser cited in Talwar et al., 2020).[2]

A growing form of WOM is electronic word of mouth (eWOM) as customers have the ability to share their experiences in forums on online communities with no physical boundaries allowing for a less advertiser-controlled exchange (Verma & Yadav, 2021). The most common place for eWOM communication is web-based consumer discussion platforms due to their ease of use and accessibility for the consumer (Henning-Thurau et al., 2004).[2]

Consumers are motivated to use eWOM for different purposes the cluster most users were incentivized by an economic drive (Henning-Thurau et al., 2004). Simply offering a good service might not be enough to increase WOM for this reason the researchers test for the effect of a new sales channel offered to the consumer on the WOM and if the impact is significant. By analysing the positivity of WOM the researchers can estimate how the customer perceived the service as WOM is also incentivized by a negative experience (Henning-Thurau et al., 2004).[2]

To positively influence WOM and generate new WOM prior research suggests the relevance of perception of a product (Lui & Lee, 2015). By testing the effect, the perception of the showroom has on WOM intentions the importance of the virtual showrooms influence on WOM will be partially tested. More formally, the researchers propose that:

H7: Satisfaction with the showroom positively influences the word-of-mouth intentions.

H8: The perception of the showroom positively affects word of mouth intentions.[2]

2.7   System Usability

A well running and easy to use system can have positive effects on WOM generated by a virtual showroom. This is in accordance with the effects of user experience. A core component of every system is the systems usability, achievable through a smooth communication between user and interface (Tsakonas & Papatheodorou; 2006, Folmer & Bosch, 2004). By increasing and focusing on system usability during the development process and in testing, the acceptance and effectiveness of a new system can be increased, thereby increasing its efficiency in the market (Folmer & Bosch, 2004). In addition, a website or store with high usability decreases the level of prior knowledge and training needed to interact with the store, increasing its accessibility for potential customers (Benbunan-Fich, 2001).[2]

Furthermore, can a useable and accessible system decrease the level of consumer confusion thereby reducing its generation of negative WOM (nWOM). As one of the many causes for nWOM is consumer confusion (Garaus, 2018). In understanding consumer confusion and the effects on the customer, developers can take steps to

avoid confusing elements and thereby make the experience for the customer more enjoyable.[2]

Mitchell and Papavassiliou (1999) identified three main origins for consumer confusion *"(1) over choice of products and stores (2) similarity of products (3) ambiguous, misleading or inadequate information conveyed through marketing communications"* (Mitchell & Papavassiliou, 1999 p. 320). Two of these confusion drivers are of importance for a virtual showroom, over choice of products and inadequate or misleading information offered with in the store. Another factor increasing the level of confusion is a result of a lack of familiarity with the technology in use especially within older generations (Mitchell & Papavassiliou, 1999; Willis, 2006). As such the perception of the virtual showroom and the consumer confusion customers experience should be related and confusion increased while perception decreases.[2]

Walsh et al. (2007) partitioned consumer confusion into three main categories "*similarity confusion*" (p. 702), "*overload confusion*" (p. 698) and "*ambiguity confusion*" (p. 699). Similarity confusion is based on the similarity of brand and products (Mitchell & Papavassiliou, 1999; Walsh et al., 2007) and can lead to a decision delay or non-decision to avoid a wrong product choice (Mitchell & Papavassiliou, 1999; Walsh & Mitchell, 2005). Overload confusion is the result of too much information about a product leading to an inability to process the information (Mitchell & Papavassiliou, 1999; Walsh et al., 2007). In relation to misleading or ambiguous information is the ambiguity confusion as the consumer is unable to distinguish between relevant and irrelevant (Walsh et al., 2007). Leaving the customer confused and thereby hindering his ability in making a decision could result in a non-purchase decision due to cognitive overload. More formally the researchers suggest the following hypotheses:

H2: Perceived interaction within the showroom increases system usability.

H9: A favourable perception of the showroom increases system usability.

H10: System usability positively affects purchase intentions.[2]

3 **Methodology**

The following chapter elucidates this thesis' methodology. First, the chapter provides an overview over the research approach and key research hypothesis. Additionally, it emphasizes the creation process of the virtual showroom. In addition, the process of the survey development, data measurement scales and data collection will be explained. Lastly, the research data will be analysed briefly. To enhance the readability of this thesis, the theoretically developed hypothesis are summarized below:[2]

H1: The perception of the showroom positively affects the level of perceived interaction.

H2: Perceived interaction within the showroom increases system usability.

H3: Perception of the virtual showroom positively influences future intentions with the brand.

H4: The perception of the showroom positively influences the store's authenticity.

H5: Satisfaction with the virtual showroom positively affects the future intentions with the brand.

H6: Perception of the virtual showroom positively affects the customers satisfaction with the showroom.

H7: Satisfaction with the showroom positively influences the word of mouth intentions.

H8: The perception of the showroom positively affects word of mouth intentions.

H9: A favourable perception of the showroom increases system usability.

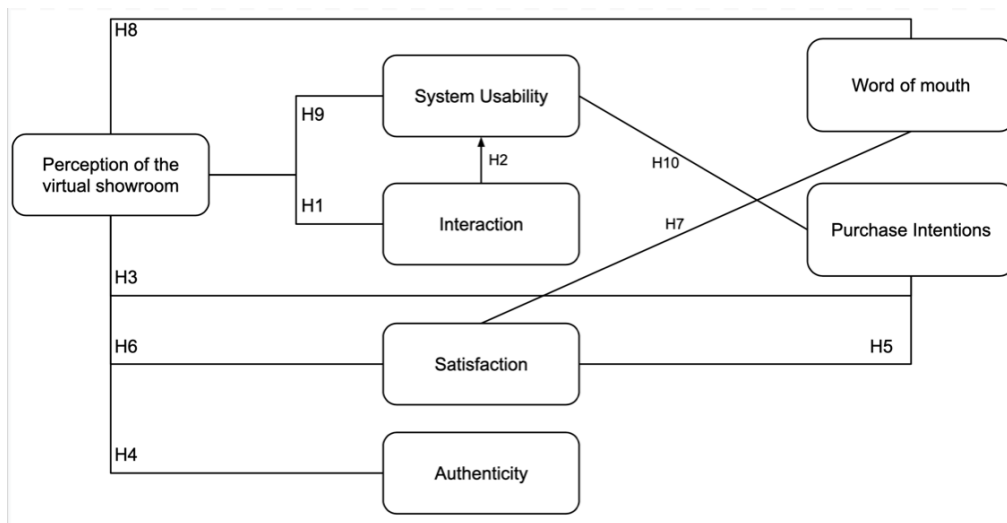H10: System usability positively affects purchase intentions.

Figure 6: Research framework

Figure 6 gives an overview over the relationships between dependent and independent variables explored in this thesis. While word of mouth, future intentions and authenticity always act as dependent variables and perception of the showroom as an independent variable, interaction and consumer confusion take both the role as a dependent and independent variable as they are considered mediation variables.[2]

3.1 Research Approach and Design

There exist three different forms of research design: Qualitative Research, Quantitative Research and Mixed Methods research. The researcher needs to decide which design fits best to researchers' objectives (Creswell, 2014). A qualitative design aims to explore the meaning of groups or individuals and research questions are being stated rather than hypothesis. Mixed methods research includes both, qualitative and quantitative approaches. This approach can provide a more concluded comprehension than either research approach alone (Creswell, 2014). A quantitative design is the investigation of an experience where numerical data such as surveys and questionnaires are being analysed.[1]

Typically, a deductive approach will be used in quantitative research. Firstly, the researcher tests a theory. Secondly, the investigator tests the research question from this theory. Thirdly, the researcher defines variables derived from the theory. Lastly,

the researcher evaluates variables using an instrument to evaluate the findings (Creswell, 2014).[1]

In a qualitative research design, predominantly an inductive approach will be applied. In inductive reasoning the researcher gathers information from for example an open-ended structured interview. Afterwards, the data is being analysed and the researcher investigates in generalizations. In the end, the researcher possesses generalizations (Creswell, 2014).[1]

This thesis will employ a quantitative research design carrying by using a survey as a primary data collection. To obtain results quantitative research numerical data is collected and analysed. The purpose of quantitative research is to test hypothesis, understand cause and effect and make predictions. The studied group is randomly selected, and specific variables are studied during the research (Apuke, 2017). Further, quantitative data measured by using structured validated data-collection instruments. Finally, a statistical report with comparisons of means and the significance of findings will be written (Apuke, 2017). According to Apuke (2017) a survey queries someone to collect certain data for an analysis under a specific condition. Survey is a form of quantitative research that is concerned with sampling questionnaire, questionnaire design and questionnaire administration to gather data from a population. By using statistical methods, a survey questionnaire measures the characteristics of a given population (Apuke, 2017). Survey research emphasizes on people and their beliefs, motivations, attitudes, and behaviour.

Further benefits of internet-based research are that it is time-efficient for the researchers and many people can be reached within a short time frame (Wright, 2006). The questions can reach from single-and-multiple-response questions to open-ended questions (Evans & Mathur, 2005). Another factor that should be considered is that online-based surveys are a cost-saving method because there is no need for printing (Wright, 2006).[1]

However, online survey research also has its drawbacks such as sampling issues where it cannot be guaranteed that respondents provide accurate information about their demographics (Wright, 2006). Another disadvantage of online survey research is that it may be perceived as junk mail and therefore ignored by web users (Evans & Mathur,

2005). Moreover, online research is impersonal without any human interaction and respondents frequently are concerned about privacy and security issues (Evans & Mathur, 2005).[1]

Summing up, online survey research possesses strengths and weaknesses which the researcher must be aware of before conducting an online investigation.

3.2 The process of creating a virtual showroom

The virtual showroom has been created because the authors needed the showroom as a stimulus testing experiences and perceptions of the participants referring to the digital showroom. Otherwise, without having any experience with virtual showrooms, respondents would not have been able to answer questions and go through a virtual reality adventure. [1]

The authors clearly assigned responsibilities before creating the digital tour. Michaela has been responsible for the in-house process in Austria, while Kolja has been installing the showroom in Germany. The researchers have acquired the Ricoh Theta Z1, which is a state-of-the-art 360° view camera. [1]

Kolja did extensive research to figure out which 360° camera would be most suitable for the job. While ease of use and image quality were at the centre of the research focus. Workflow and price also played an important role. Most 360° cameras are built and intended for virtual house tours. Those do not need an extremely high image quality as small details like watch faces are unnecessary for house tours. At the same time these cameras offer an easy workflow in parts because of a large online community offering tutorials and external plug-ins and in part because the manufacturers are aware of the time constraints and image quality requirements of semi-professional virtual house tours.[1]

Michaela ran a sample test which has been analysed by Kolja. Together, the researchers analysed the samples. The first attempt failed because the wrong recording program has been installed. Afterwards, the so-called "Dual Fisheye Plug-In" has been installed to the software to guarantee more precise recordings. Afterwards, Michaela tried the version at a vineyard at the sunrise where the recordings were edited by Kolja. The images were uploaded to the vineyards' social

media by Michaela around Easter and generated great social media interactions. The Facebook post reached 10,619 people. Within 8 days, 166 likes, 12 comments and 28 people shared the post showing three different perspectives from the vineyard.[1]

The researchers decided to invest some of their spare time to play around and understand the camera and program before dedicating themselves to the showroom. The equipment needed was the Ricoh Theta Z1, a tripod and much patience. As mentioned above, Michaela was responsible for providing Kolja with all materials from Austria. She has spent three days making precise pictures from the showroom and showcases. A timer has been set that no unwanted subjects are seen in the room. After every filming tour the researchers arranged a call and discussed further improvements. For instance, Kolja suggested installing a green image on the TV or that the height of the tripod should be altered. The decoration of the showroom has been arranged by Michaela. The aim was to make the showroom as appealing as possible. Therefore, the desks have been decorated with glass bottles, the current brochures with the newest brochures were arranged on a little table and the blinds were opened to create a light atmosphere. Surprisingly, the battery life of the camera is short and therefore the camera needed to be charged after several image recordings. Michaela procured the pictures from the watch collection and sponsorship. The authors decided to focus on the latest two watch collections and to reach a target group aged 18-30. [1]
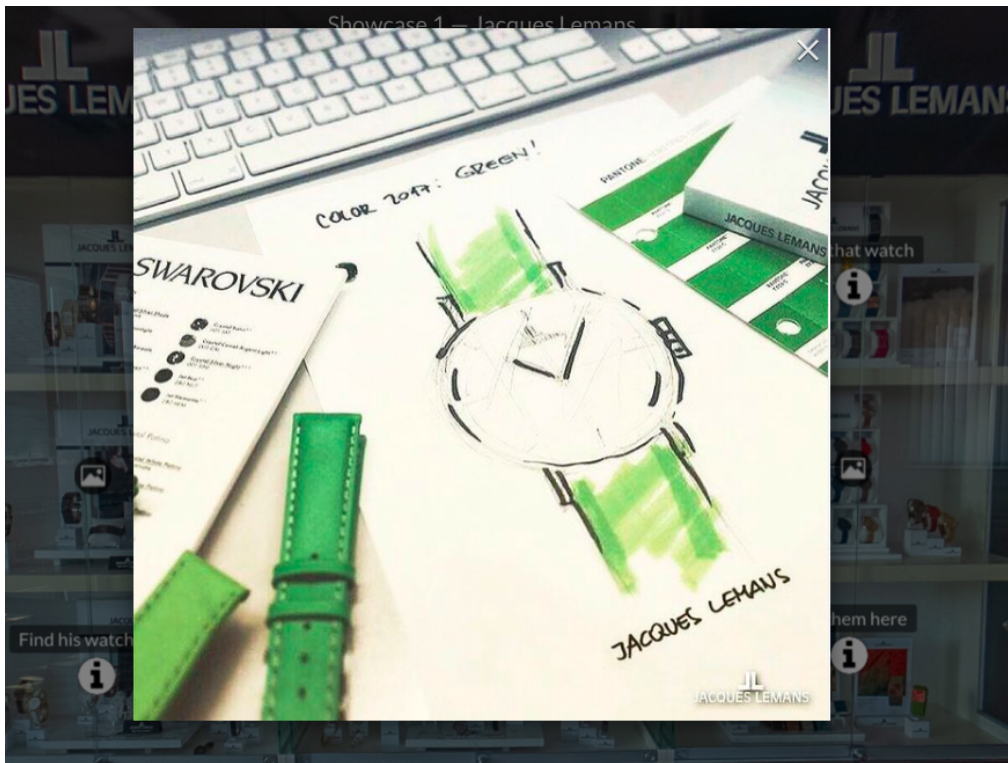
Figure 7: Inhouse draft of the design collection

During the whole process Jacques Lemans' marketing and design department has been involved and asked for their opinions. They have provided the researchers with a trend and product forecast. In order to reach a younger client base, the researchers inserted pictures from young influencers and trendy testimonials such as the Austrian snowboarder and freestyler Anna Gasser. Therefore, all images selected are aiming to attract a young customer, therefore trendy pictures have been sent to Kolja.[1]

During the northern hemisphere's summer months, the researchers will work together on the showroom and aim to make it as professional as possible and to be implemented on the company's website and social media. Further, the authors aim that every watch representative who possesses an iPad will present and subsequently sell watches by adducing the virtual showroom.[1]

The digital tour starts in front of the entrance of the showroom, figure 8. In the entrance hall, photos of Jacques Lemans previous and current testimonials are displayed. On the right side one can observe the soccer player Neymar Jr. On the left side the Georgian pianist Khatia Buniatishvili and the actors Kevin Costner and Clint Eastwood can be seen.[1]
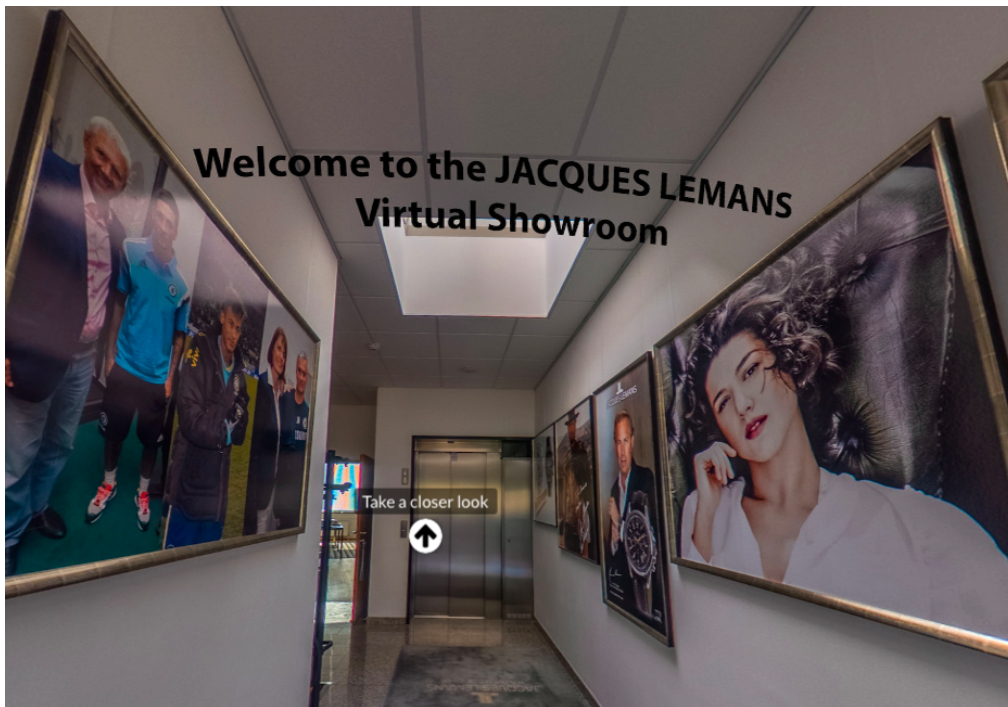
Figure 8: Entrance to the virtual showroom

The showroom was captured while the sun was shining, this has been done to achieve a bright and friendly atmosphere. More than 250 photos and videos with various settings have been taken to see the final results. Of course, the image processing part has also been a lot of work. The picture below demonstrates the raw photo before it has been edited. To capture the showroom while maintaining colour accuracy and keeping bright spots to a minimum, all photos were recorded in High Dynamic Range (HDR) through the use of the Dual Fisheye Plug-In (hirota41d, n.d.), this plug-in allows the camera to take up to 9 pictures of each scene. Each picture has a different brightness setting automatically chosen by the plug-in. The HDR format allowed Kolja to adapt the settings of each image to show a wider range of brightness in different areas of the image. With an increase in exposure range varying across the image, bright spots keep their detail while dark spots are also fully detailed (Brady, 2014). [1]

During the editing process there is a vast number of settings that can be changed to achieve a realistic image with high colour accuracy and details as seen in figure 9. The main settings Kolja changed on each picture, were exposure, contrast, temperature and tint. Highlights were reduced to a minimum and shadows increased to a maximum as recommended by various online tutorials. Most of the settings were applied with the automatic setting provided by Lightroom. The auto setting button recreates the

image to look as close to a normally taken picture as possible. HDR then allows to tweak parts of the settings further to achieve an even more realistic photo with clearer details as mentioned in the prior paragraph.[2]
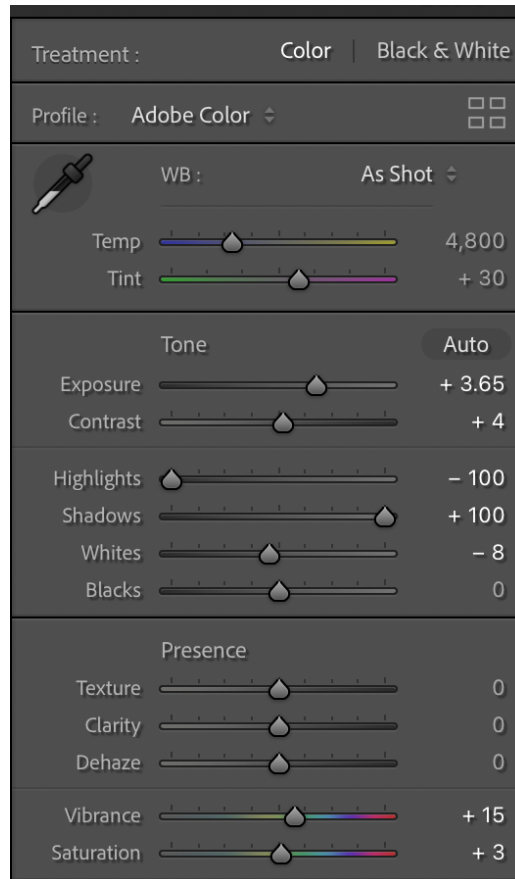
Figure 9: Lightroom colour editing tool

To reach the final 360° traversable showroom the spherical picture in figure 10 has to be transformed into 360° panorama picture. This was possible through the use of multiple photo editing programs. With a plug-in provided by the camera manufacturer, called the Ricoh Theta Stitcher for lightroom, Lightroom can prepare the image for Photoshop, where all further steps will take place.[2]

The first step in Photoshop was to re-adjust the exposure setting to achieve the preferred look by the researchers. Afterwards the images were exported as an 8bit PNG file. Due to a bug in the software, transforming a 16bit image into a 360° panorama image, results in the colour settings changing thereby altering the appearance of the image. The new file was then used to create the panorama image. In this panorama view Kolja was able to remove the tripod and its accompanying

shadow through the help of Photoshops image patching tool, with AI assistance, the tool takes the surrounding image parts into account to fill in the blank spots left behind by the tripod. In some areas Kolja had to manually fill in noticeable image deformations with the use of the copy tool, this tool allows the user to copy any part of the image to a desired location. This is especially useful for floors and repeating or single-coloured patterns.[2]

After all the unwanted elements were removed the image was exported as a 360° panorama JPG. The exported file could then be uploaded to the virtual tour program of choice.[2]

The researchers chose panoroo.com, after some research the website was chosen, as it has a free trial period, offers easy to use elements and takes care of hosting the showroom. After all images were uploaded, ordered and renamed to make the virtual showroom as easy to understand and use as possible.[2]

Figure 10: RAW capture by Rico Theta Z1
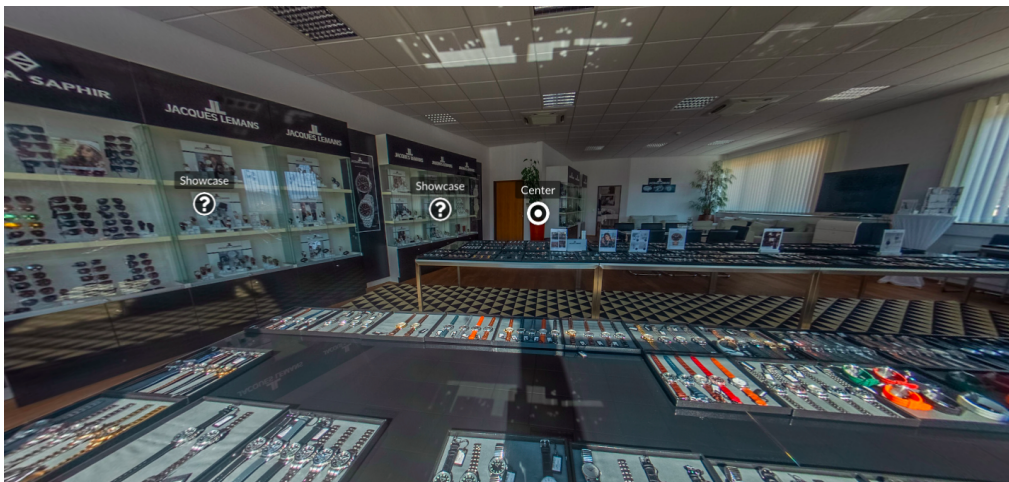
Figure 11: Final image uploaded to panoroo.com

Figure 12 shows the final form of showcasing used to give customers access to product images, links and further materials. This provides more information about the watches and makes the experience more interesting.[1]

Figure 12: Showcase with links to images and products

By clicking on the information icon visible in figure 13, customers are directly led to an appealing picture of the applicable product.[1]
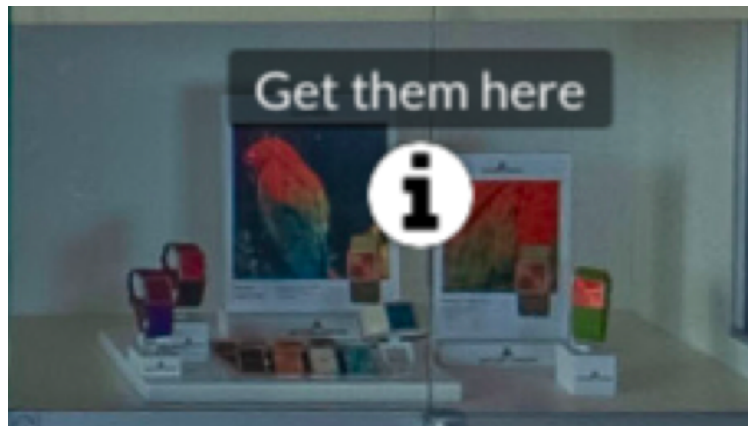
Figure 13: Close up of link to product website

In the digital room several links have been inserted, which directly lead to Jacques Lemans' homepage, an example for such a website is visible in figure 14. At the homepage further specifications are explained and potential customers can purchase their watch directly in the web-shop.[1]
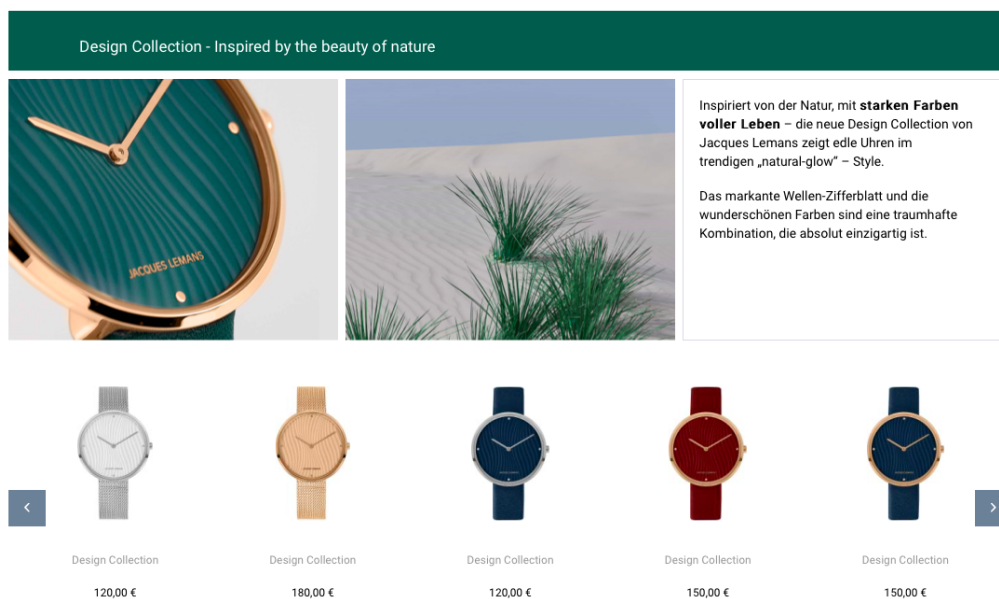
Figure 14: Product website for the design collection by Jacques Lemans

Figure 15 demonstrates the view a person has when entering the room. The room consists of a couch and a table, where the latest prospects and product catalogues are displayed. At the table in the middle group meetings are being held. The rest of the room is consisting of watch showcases and an exhibition, where nearly 620 watch items from all Jacques Lemans collections are shown. In daily business this room is

mostly used by international clients who make their orders via looking at the watches personally to get a better image of the size, colour and quality. [1]
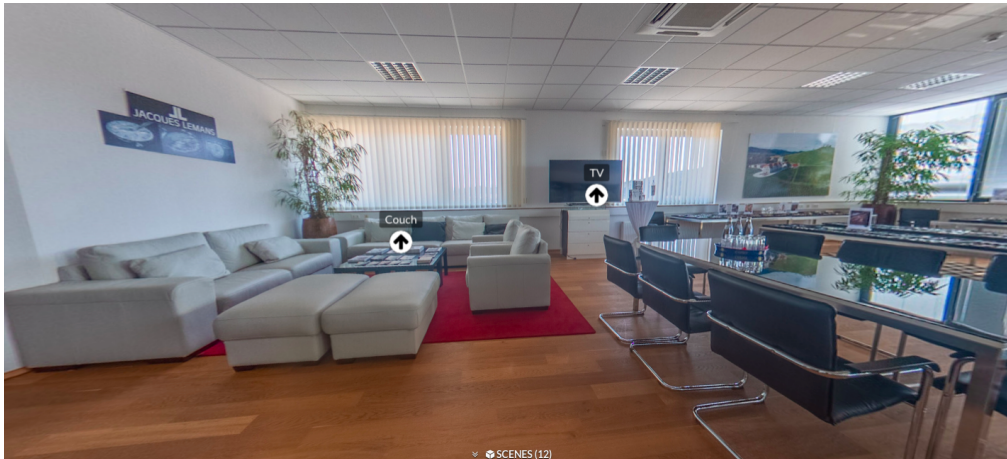
Figure 15: View inside the virtual showroom

By clicking on the TV which can be found next to the white sofa, a video of the Eco Power Solar Collection pops-up and can be viewed by the showroomer (Figure 16). It has been a challenge to design the showroom in an appealing way but not to overload the showroomer with information.[1]

Figure 16: Jacques Lemans advertising video

As a matter of fact, the researchers subsequently want to analyse the sales attributed to the showroom's success. Thereby affiliate marketing will help us to understand the preferences of the targeted audience. In conclusion, the practical part was time-consuming, but in the end the researchers were highly satisfied with the outcome.[1]

4 Measurement of Constructs

After having visited the showroom, two questions assessed if respondents indeed spent some time in the showroom – "Please tell us how you experienced the virtual showroom and what you liked most" and "How many minutes did you approximately spend in the virtual showroom?". The question "Have you already participated in this survey?" serves as a filter question as respondents only can participate in the survey once.[1]

In the first section of the survey, a set of questions was designed to obtain background information about the technical know-how of the participants and to measure their online shopping frequency and how familiar they are with virtual reality technology. The researchers employed a 7-point Likert Scale ranging from strongly disagree (1) to strongly agree (7) to guarantee a constant measurement scale.[1]

Respondents were asked to rate the virtual showroom in general. In this test perceived environmental aesthetics served as operationalization for showroom perceptions and were measured on a semantic differential -3/+3. Contestants could select between Colourful/drab, Negative/positive, attractive/unattractive, bright/dull, pleasant/unpleasant, motivating/unmotivating, depressing/cheerful, tense/relaxed, Good/bad, Boring/Stimulating, Unlively/Lively, and Uninteresting/Interesting borrowed from Fisher (1974).[1]

In the next section, the authors wanted to know how participants' interactive experience was during the exploration of the showroom. The interactivity was measured on a 7-point Likert scale and was applied from a study examining "How user-driven interactivity in virtual tours leads to attitude change" published by Spielmann & Mantonakis (2018). Questions such as "I felt I had a lot of control over my visiting experience" and "During the exercise, my body was in the room, but my mind was inside the world created by the computer." constituted the scale for assessing interactivity.[1]

On the subsequent page, the researchers measured the authentic experiences. Questions adapted from Kim (2020) such as "The virtual showroom provided me with authentic experiences.", "The virtual showroom provided me with genuine

experiences.", "The virtual showroom provided me with exceptional experiences.", and "The virtual showroom provided me with unique experiences." A 7-point Likert Scale measured the four questions from strongly disagree (1) to strongly agree (7).[1]

Satisfaction was measured based on the research of Khadka et al. (2017) and Biesok et al. (2018). The items "The showroom meets my demand" and "I am satisfied with the virtual showroom" were inspired from the paper written by Khadka et al. (2017) indicating a case study about customer satisfaction and customer loyalty. "The virtual showroom is close to ideal", and "Overall, I am happy with the product display of the virtual showroom." were adapted from the framework published by Biesok et al. (2018) whose study suggests models of customers satisfaction with supermarkets in Poland. The satisfaction was measured on a 7-point Likert scale from 1 strongly disagree to 7 strongly agree.[1]

 In the following section, the researchers were interested in the participants' future intention after visiting the virtual showroom and about word of mouth. A set of questions were included based on the studies authored by Beukeboom et al. (2015), Yuan et al. (2021), and Garaus (2018). The query "If you were to buy a watch, how likely would you be to buy a Jacques Lemans watch?" was taken from the research paper released by Beukeboom et al. (2015) where brand evaluations and purchase intention were the focus of the research. The questions "I intend to purchase products from jacques-lemans.com instead of selecting other platforms." and "I intend to continue to buy products from jacques-lemans.com rather than stop buying." were inspired by the publication from Yuan et al. (2021) focusing on cognition, value perception and purchase intention of organic food. Garaus (2018) has researched confusion in internet retailing which was the basis for the word-of-mouth-questions in this research. Three questions were asked referring to word-of-mouth and a 7-point Likert Scale measured each question from strongly disagree (1) to agree strongly (7).

 The authors desired to find out how participants experienced the usability of the virtual showroom. Therefore, questions such as "I think that I would like to use this virtual showroom frequently." and "I thought there was too much inconsistency in this virtual showroom." were included in the questionnaire. The measurements were adapted from the usability evaluation in the industry study of Brook (1996). Ten

questions were asked, and a 7-point Likert Scale measured each question from strongly disagree (1) to strongly agree (7).[1]

Lastly, individuals were asked to provide us with data regarding their nationality, gender, and age. For online shopping frequency, familiarity with virtual reality technology, and time spent in the showroom a 7-point Likert Scale from strongly disagree (1) to strongly agree (7) was applied to maintain the coherence of the measurement scale.[1]

5   Data Analysis

5.1   Sample Demographics

Overall, the survey has been answered by 79 participants who have been approached via Jacques Lemans' customer database. Moreover, the authors have sent out the survey to the Modul University Vienna Community Facebook Group and the link to the survey has been shared on the researchers' social media platforms on Instagram and Facebook. [1]

Before filling out the survey participants needed to browse through the digital showroom to be able to respond to the questions. The researchers measured the frequency distribution of gender among the participants. 35,44% of the respondents were male and the vast majority (60,76%) indicated themselves as female. One participant was transgender (1,3%) and 2 people preferred not to communicate their gender (2,5%).[1]

The sample consists of four age groups which are defined in research from Kostelić (2019). Age group 1 is called Generation Z, participants who are younger than 27 years belong to this age group (Kostelić, 2019). In this research, 40,4% of the participants are associated with group 1. Generation Y is the age group 2 where people are aged between 28 and 44 years (Kostelić, 2019). 26,6% of the respondents are accredited to age group 2. Age group 3 are the so-called Generation X and participants are aged between 45 and 56 years. 21,5% of this research's participants adhere to generation X. Age-group 4 are the baby boomers and are older than 57 years. The baby-boomer

age group is less significant with 11,4%. The oldest participant of this investigation was 70 years old. [1]

The following paragraph describes the nationality of the 79 participants. The great majority of the participants were Austrians (45,6%), followed by Germans (24,1%). 21% preferred not to give information about their nationality. Each 2,5% can be attributed to Peru and Bolivia. One participant was Russian, one from Portugal, and another individual was from India.[1]

The researchers aimed to gather data about the how often participants purchase items online within a month. The results of online shopping frequency of the participants range from zero times online shopping a month (1,3%) to 40 times online shopping per month (1,3%). 27,8% of the respondent's order goods online once a month. Followed by 13,9% who order online twice a month and 12,7% who purchase items online three times per month. 8,9% of the attendees obtain their online delivery four times per month and 10,1% purchase from the world-wide web 5 times per month. The other numbers are not significant except for the frequency 7, where people (8,9%) place an order 10 times per month. It can be concluded that participants are frequently considering online shopping as the method of obtaining their desirable products.[1]

Another crucial factor is the participants' familiarity with virtual reality technology. 24% of the respondents strongly agree on their familiarity with VR, and 15,2% agree that they are familiar with VR technology. The great majority of 31,6% indicate that they somewhat agree and 10,4% neither agree nor disagree about their knowledge of VR. Each 3,5% disagree and strongly disagree about their familiarity with VR. Summing up, participants were highly educated about the usage of virtual reality technology. The mean score of the participants' familiarity with virtual reality is M= 5,04. The mean is the average and is calculated by adding up all 79 responses and dividing the sum by the total number of respondents. The mode of this data set is 5 and is defined as the value that occurs the most frequently in the data set. The Likert scale reached from 1, which is indicated as the minimum to the maximum of 7.[1]

The final demographic factor analysed in the survey was time spent in the showroom. The range was from "no time spent in the showroom" to "100 minutes spent in the

showroom". Most participants (26,6%) spent 5 minutes in the virtual showroom, followed by 12 participants who visited the room for 10 minutes. The showroom has been visited four minutes by 11,4% of the respondents, three minutes by 13,9%, and two minutes by 10,1% of the participants. Each 2,5% of the population have visited the digital room for 15 and 30 minutes.[1]

The socioeconomic information is analysed by the breakdown of this populations' gender, age, nationality, familiarity with virtual reality technology, and time spent inside the showroom. These steps help the researchers to draw a clear demographic profile of the participants who visited the virtual showroom.[1]

5.2 Hypotheses Testing

To test the effect the independent variable has on the dependent the researchers ran single and multiple regression based on the number of variables influencing the dependent variable.[2]

5.2.1 Interaction

The mean and modes for perceived interactivity questions answered by the participants indicates that most participants were between "somewhat agree" and "agree" except for the feeling of presence and the two-way communication between with the content where the mean lies between "neither agree nor disagree" and "somewhat agree" indicating areas where interaction could be increased or changed. All the questions have modes above or equal to 5 indicating a cumulation of respondents agreeing with the feelings of interactivity asked for.[2]

To test the effect perception of the showroom has on interaction the researchers ran a linear regression examining the significance of perception as an independent variable and predictor for the perceived interaction as a dependent variable. The perception of the showroom appears to be a good predictor for the level of interactivity customers experienced, with $F_{(1,77)} = 1821.965$, $p < .001$, $R^2 = .838$. It accounts for 70.3% of the variance present in perceived interactivity. By further examining perception as a predictor, it becomes clear that it is a useful predictor ($t = .838$, $p < .001$). As a consequence, the researchers can reject the null-hypothesis related and confirm that perception of the showroom has a significant impact on the

perceived level of interactivity of the showroom, accepting the alternative hypothesis H1.[2]

5.2.2 Satisfaction

Table 3 presents the mode and mean for the individual questions related to satisfaction with the virtual showroom and the overall mean and mode for all the questions combined. The overall mean of 4.92 indicates that visitors of the showroom "somewhat agreed" with the level of satisfaction generated by virtual showroom. With the lowest mean for the idealness of the virtual showroom of 4.67.[2]

The perception of the showroom also appears to predict the satisfaction customers experience, it explains for 74.1% of the variance ($F(1, 76) = 220.070$, $p < .001$, $R2 = .861$). By examining the significance of perception as a predictor through the t-value, the researchers can assume its relevance ($t = 14.835$, $p < .001$). This leads to a rejection of the null hypothesis and acceptance of the alternative hypothesis H6.[2]

5.2.3 System Usability

To determine the system usability, the researchers recoded all positive worded questions, to unify the direction of the Likert scale. As such a higher score indicates a lower level of system usability. The mean and mode for the individual questions and the overall mean of 2.7 indicate that participants were between "somewhat disagree" and "disagree" for the negatively annotated system usability questions. For the positive questions participants indicated on average a "somewhat agreeance" and "agreeance" with the proposed system usability indicator. [2]

Running a multiple backwards regression analysis with perception of the showroom and perceived interactivity as independent variables as predictors for system usability revealed that while a composite of both predictors was significant and accounts for 25.1% of the variance ($F(2,76) = 12.755$, $p < .001$, $R2 = .501$). Using both predictors result in a higher level of prediction, it however reduces the significance of the individual predictors, with perception having a t-value of $t = -1.332$, $p = .187$ and perceived interactivity of $t = -1.540$, $p = .128$). Based on the principle of backwards regression perception gets eliminated as a predictor resulting in the new model with

which predicts 23.4% of the variance $(F(1,77) = 23.497, p < .001, R^2 = .484)$. Interactivity has an increased relevance with a t-value of t = -4.847, p < .001.[2]

These findings lead the researchers to reject the alternative hypothesis H9 that indicates an increase of system usability with an increase in perception of the showroom. The hypothesis H2 related to the effect perceived interactivity has on system usability, however, is accepted.[2]

5.2.4 Authenticity

The authenticity of the virtual showroom was "somewhat agreed" on by the customers, with an average overall mean of 4.97. With the uniqueness of the experience having the lowest mean but a higher mode than the genuineness of the experience.[2]

Analysing the significance of perception as a predictor for the authenticity customers experience inside the showroom through linear regression, the researchers were able to conclude the effectiveness of perception as a predictor for authenticity with 65.9% of the variance explained $(F (1, 77) = 148.767, p < .001, R^2 = .812)$. Further underlined by the t-value (t = 12.179, p < .001). The researchers therefore rejected the associated null hypothesis and accepted the alternative hypothesis H4 indicating a relationship between perception of the showroom and the perceived authenticity.[2]

5.2.5 Purchase intention

The mean and mode for purchase intention and repurchase intention in relation to Jacque Lemans indicate an overall mean of 4.61. As such it can be assumed that most customers were in between "neither agree nor disagree" and "somewhat agree". Customers where especially indecisive about using the showroom again with a mean of 4.06, the high mode of 7 for this question, however, suggests a tendency to extremes within the choice of using the virtual showroom as a regular shopping tool.[2]

The researchers determed which of the variables are relevant predictors for the purchase intention. Running a backwards multiple regression analysis revealed that two of the predictors where relevant. Perception (t = 2.643, p = .01) and satisfaction (t = 4.216, p < .001) being those significant predictors while system usability (t = .529, p = .599) being eliminated as predictor in the first step. The new model without system usability revealed a significance in predicting purchase intention with perception and satisfaction as a predictor, accounting for 69% of the variance (F (2, 76) = 84.522, p < .001, R2 = .831). While including system usability also revealed a significant model for the prediction of purchase intention that accounts for 69.1% of the variance (F (3, 75) = 55.881, p < .001, R2 = .831), the model was less effective, due to the smaller F-value.[2]

This leads the researchers to accept both H3 and H5 revealing a relationship between the perception of the showroom, satisfaction with the showroom and purchase intentions generated by the showroom. H10 on the other hand was rejected indicating an insignificant relevance of system usability in relationship to purchase intention.[2]

5.2.6 Word of Mouth

Customers appear to "somewhat agree" or even "agree" with the sentiment to talk about and share their experience with the virtual showroom as indicated by the overall mean of 5.48 shown in table 6. With strong tendencies to talk positively about Jacques Lemans and to recommend the company.[2]

To determine whether WOM intentions are influenced by satisfaction and perception of the showroom the researchers ran a multiple regression with the backwards stepwise method to evaluate the influence each of the independent variables has on the dependable variable WOM. The backwards regression revealed a significance in the prediction model that explains 50.4% of the variance (F (1, 77) = 78.395, p < .001, R2 = .710). However, perception was non-significant in this model (t = 1.566, p = .122) while satisfaction can be considered significant (t = 8.854, p < .001) after eliminating perception from the model.[2]

The results from the multiple linear regression testing led the researchers to reject H8 as an alternative hypothesis, due to the non-significance of perception in predicting the word of mouth intentions. H7 on the other hand was accepted as satisfaction

accounted for a significant part of the variance in the word of mouth intentions of the participants.[2]

5.2.7 New research framework
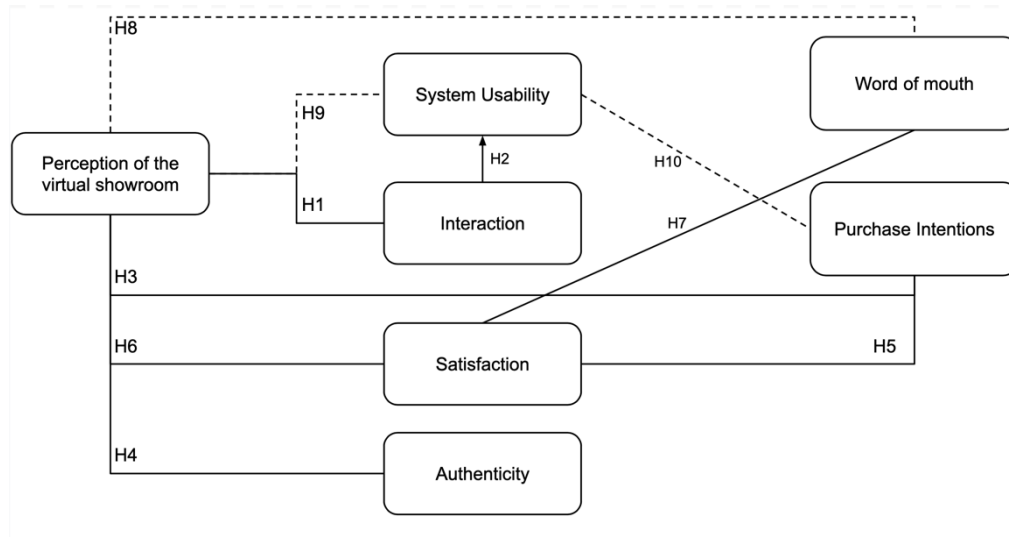
Figure 17: Updated research framework

Figure 17 depicts an updated version of the research framework introduced in the methodology. The doted lines signify relationships between independent and dependent variables that could not be proven during the research phase.[2]

6 Findings and discussions

This chapter goes into detail on each hypothesis and elaborates on the acceptance or rejection of the alternative hypotheses.[2]

The virtual showrooms perception overall had a positive tendency, as had the level of perceived interactivity presented by the virtual showroom, as already indicated by the literature. The linear regression revealed the significance impact of perception on perceived interactivity. Consequently, the alternative hypothesis one, is accepted. This can be led back to the implication that interaction and perception go hand in hand as a well perceived virtual showroom is helped along by clear and intuitive design which again makes the interaction with the showroom easier.[2]

The second hypothesis had to be rejected due to a lack of clear indication of perception significantly predicting the system usability. This can have several reasons, as perception can have various causes, including the usability. Its main focus in the research was visual and emotional. Usability on the other hand is dependent on the ease of achieving one's goals within the virtual showroom.[2]

Purchase intention had multiple predictors, while system usability was deemed insignificant resulting in the rejection of the tenth hypothesis, perception and satisfaction of the virtual showroom are considered meaningful predictors. With satisfaction as the more impactful predictor. This leads to the acceptance of hypotheses three and five.[2]

The stores authenticity appeared to be agreed upon by the virtual showroom visitors. In addition, perception of the virtual showroom can be considered a relevant predictor of store authenticity, leading the researchers to accept alternative hypothesis four.[2]

The relationship between satisfaction with the virtual showroom and its perception became apparent after running the linear regression analysis, resulting in the acceptance of the alternative hypothesis six. This reveals the close relationship that a positive experience has with the satisfaction of visitors, as the literature already suggested.[2]

Word of mouth was considered to be influenced by both satisfaction and perception, the researchers however discovered, while they both can be seen as valid predictors perception had an insignificant impact on WOM compared to satisfaction. As a result, both related alternative hypotheses have been accepted by the researchers.[2]

Perception has revealed itself as a good predictor for most of the independent variables, as most concepts explored a subjective experience participants had with the showroom. For this reason, users who had a good or great overall experience with the virtual space, were more inclined towards a positive attitude to other explored concepts.[2]

7 Conclusion

Online shopping is constantly developing, cutting-edge innovations can help to set companies apart. A virtual showroom can help in achieving such a unique selling point. With this research the researchers aimed at testing the effectiveness of a virtual showroom in generating word of mouth and increasing sales, by providing customers with a pleasurable online shopping experience. To examine the effectiveness of a virtual showroom in the context of online watch selling, the researchers created a virtual showroom based on an existing showroom present in the Jacque Lemans headquarters. The virtual showroom was then shared to a diverse group of people from different nations and in different age groups to be tested. Afterwards the sample group filled out a questionnaire with questions concerned about perception, satisfaction, authenticity, system usability, interactivity, purchase intention and word of mouth intentions. The questionnaire was filled out by 79 people reached through a convenience sample from the researchers. The study revealed that customers tended to be satisfied with the experience and perceived the showroom in a positive light. As prior research suggested the relationship between perception of the experience and satisfaction with the showroom has been present, as a positive relationship, as such improving poorly perceived elements of the showroom can result in an overall increase in satisfaction (Gentile et al., 2007, Schlosser, 2003).[2]

The research also revealed a significant relationship between satisfaction and purchase intention and between satisfaction and word of mouth intention making an increase in satisfaction desirable for the company when implementing a virtual showroom. Especially word of mouth seemed to be positively affected by the virtual showroom as most participants indicated a willingness to share their experience with third parties. This has important implications for the company implementing a virtual showroom as it can capitalize on the word-of-mouth potential to increase traffic and thereby indirectly increase purchases. As a consequence, the researchers recommend looking into potential ways to encourage word of mouth through the showroom and to convert visitors into customers. This also includes further examination of consumer confusion as prior research suggested a negative impact by consumer confusion on purchase intention (Mitchell & Papavassiliou, 1997; Walsh & Mitchell, 2005) and in generating negative word of mouth (Garaus, 2018).[2]

The expected predictors for consumer confusion however could not be proven during the research, this might have several reasons. The most probable is an insufficient measurement scale to examine the level of consumer confusion experienced by visitors. As such further research should look into the level of confusion generated by a virtual showroom and its causes to avoid negative effects generated by the showroom. This could also lead to an increase in the system usability. While the system usability scale from Brook (1996) scored a good score (69.78), this score is close to the cut of point of 68, as such an increase in system usability is desirable to strengthen the positive effects generated by a virtual showroom.[2]

The researchers suggest taking a deeper look into the interactivity of the virtual showroom as Connell et al. (1997) suggest that the right level of interactivity and clearness of design can help to improve the usability of a system. Connell et al. (1997), also suggest building every system with accessibility in mind. Therefore, when further developing the virtual showroom, accessibility and interactivity should be further examined to make the usage as easy and intuitive for potential customers as possible.[2]

While testing for the relationship between perception of the virtual showroom and interactivity the researchers determined a significance in predicting the level of interactivity experienced by the customer. This led to the conclusion that with an increase in perception the perceived interactivity of the showroom will also increase. This further proves the importance of developing the virtual showroom with multiple aspects in mind to build a pleasurable user experience.[2]

The researchers also aimed at testing the level of uniqueness and authenticity provided by a virtual showroom. The survey revealed a general uncertainty within the sample group about the level of unique experience and authentic experience provided by the showroom. This should be further explored in future research by generating a deeper understanding of what makes a virtual showroom unique and how to emphasise those unique selling points to generate a more authentic experience for potential customers. To achieve this one potential area is the perception of the showroom as the research discovered a clear connection between the perception of the showroom and the authenticity of the experience.[2]

In general, the research revealed several potential advantages of a virtual showroom, by building a new experience that customers see as worthwhile to share and that could potentially increase the level of immersion generated for online shopping. As this research was mainly focused on the potential of a virtual showroom in generating positive word of mouth and purchase intentions in visitors some aspects where unaccounted for and the researchers suggest to further explore how different aspects of a virtual showroom influence the shopping experience. In addition, a comparison between traditional showrooming, e-commerce shopping and virtual showrooming could be beneficial to evaluate the strengths and weaknesses of each shopping system to build a better experience for the customer and thereby increase sales and customer loyalty (Beukeboom et al., 2015).[2]

8   Limitations of the Research

Although the research has reached its aims, there were some unavoidable limitations. The results of this research must be interpreted with caution, and several limitations should be borne in mind. An additional comparison group would have been helpful to obtain results about how advantageous the showroom is. For instance, a sample group could have done the digital tour whereas another group was only visiting Jacques Lemans' online shop. However, this would go beyond the scope of this research. Quantitative research in form of a survey has been chosen because it is the best suitable way to gain details about the behaviour of a sample of individuals. There exists a knowledge gap in directly relatable research, this results in less appropriate measurement scales. The survey was distributed to Jacques Lemans' international client database and to a convenience sample of friends and families of the authors. Further, the survey link was forwarded to Jacques Lemans' employees and stakeholders. They might have been biased about the showroom or the perception of the company. Summing up, a convenience sample may not be representative due to people's involvement with the firm.[1]

The language of the investigation has been English. Therefore, German speakers may have been confused or unable to participate in the survey. A further limitation of the study is that the showroom and survey were comprehensive and time-consuming. This may be a reason why several participants have left the survey at an early stage.[1]

First respondents had to browse through the digital tour and then they had to fill out a long questionnaire including some open-ended questions. Further, the researchers assume that it has been disadvantageous and demotivating for several participants to start the survey with an open-ended question.[1]

Another notable challenge that was discovered along the way is the lack of research on the field. Only a limited number of research papers have been available about digital showrooms, which complicated and extended the literature review process. The survey approach did not allow to assess any longitudinal effects. The time available to investigate the research problem and to quantify the effects over time has been constrained by the due date of this paper. It would have been beneficial to measure the effects of the showroom over a longer time period to discover the exact preferences of the audience.[1]

Lastly, the sample population of 79 participants is considered as rather limited. Most participants were from Austria and Germany. Therefore, the demographics are strongly limited to these western European countries.[1]

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Appendices

Appendix 1

Survey Design

Have you already participated in this survey? (Filter question, if yes: You can only participate in this survey once. Thank you very much for your support!)

Please tell us how you experienced the virtual showroom and what you liked most.

How many minutes did you approximately spent in the virtual showroom: _____ Minutes

In the following we want to get a bit of background information about your technical know-how. To what extent have you been in contact with the following technologies.

How often do you shop online: ____ times a Month

Have you made any experience with virtual stores in the past? yes/no

I am familiar with virtual reality technology (1-strongly disagree – 7-strongly agree)

How do you rate the virtual showroom in general?

(Semantic differential, -3 to +3)

Colorful/drab
Negative/positive
attractive/unattractive
bright/dull
pleasant/unpleasant
motivating/unmotivating
depressing/cheerful
tense/relaxed
Good/bad
Boring/Stimulating
Unlively/Lively
Uninteresting/Interesting

We would like to know how your experience was during the exploration of the showroom. Please evaluate the following aspects of the show room (1-stroingly disagree – 7-strongly agree)

IA1 I felt I had a lot of control over my visiting experience.

IA2 My actions decide the kind of experience I got.

IA3 I felt that I could choose freely what I wanted to see.

IA4 I experienced a two-way communication with the content.

IA5 I felt that the content was responding to my input.

IA6 During the exercise my body was in the room, but my mind was inside the world created by the computer.

AE1. The virtual showroom provided me with authentic experiences.

AE2. The virtual showroom provided me with genuine experiences.

AE3. The virtual showroom provided me with exceptional experiences.

AE4. The virtual showroom provided me with unique experiences.

We would also like to know how the virtual showroom meets your expectations and requirements. Please indicate the extent to which you agree/not agree with the following statements. (1-strongly disagree – 7-strongly agree)

SF1 The showroom meets my demand.

SF2 I am satisfied with the virtual showroom

SF3 The virtual showroom is close to ideal

SF4 Overall, I am happy with the product display of the virtual showroom.

In the following, we are interested in your future intention after visiting the virtual showroom. Please indicate the extent to which you agree/not agree with the following statements. (1-strongly disagree – 7-strongly agree)

PI1 If you were to buy a watch, how likely would you be to buy a Jacques Lemans watch?

PI2 I intend to purchase products from jacques-lemans.com instead of selecting other platforms.

PI3 I intend to continue to buy products from jacques-lemans.com rather than stop buying.

WOM1 I would say positive things about this Jacques Lemans

WOM2 I would recommend Jacques Lemans to someone who seeks advice

WOM3 I would encourage friends and relatives to purchase watches from with Jacques Lemans

To determine the usability of the virtual showroom we would like to indicate to what extend you assess the following 10 statements. (1-strongly disagree – 5-strongly agree)

SUS1 I think that I would like to use this virtual showroom frequently.

SUS2 I found the virtual showroom unnecessarily complex.

SUS3 I thought the virtual showroom was easy to use.

SUS4 I think that I would need the support of a technical person to be able to use this virtual showroom.

SUS5 I found the various functions in this virtual showroom were well integrated.

SUS6 I thought there was too much inconsistency in this virtual showroom.

SUS7 I would imagine that most people would learn to use this virtual showroom very quickly.

SUS8 I found the virtual showroom very cumbersome to use.

SUS9 I felt very confident using the virtual showroom.

SUS10 I needed to learn a lot of things before I could get going with this virtual showroom.

Finally, we would appreciate if you could share some personal information with us:

Nationality _____

Age _____

Gender (male/female/diverse)

How often have you purchased Jacques Lemans watches in the past? _____ times

Do you want to tell us something else?

Appendix 2

Perception	Mean	Mode
Drab/Colourful	5.39	6
Negative/Positive	5.73	7
Unattractive/Attractive	5.37	7
Dull/Bright	5.33	6
Unpleasant/Pleasant	5.56	5
Unmotivating/Motivating	5.28	7
Depressing/Cheerful	5.44	5
Tense/Relaxed	5.42	7
Bad/Good	5.72	7
Boring/Stimulating	5.16	7
Unlively/Lively	5.09	6
Uninteresting/Interesting	5.56	7

Note: In this test perceived environmental aesthetics were tested on a semantic differential -3/+3

Interactivity	Mean	Mode
I felt that I had a lot of control over my visiting experience.	5.47	6
My actions decided the kind of experience I got.	5.32	5
I felt that I could choose freely what I wanted to see.	5.58	7
I experienced a two-way communication with the content.	4.58	5
I felt that the content was responding to my input.	5.27	6
During the experience my body was in the room, but my mind was inside the world the computer created	4.49	6
Overall	5.12	

Note: The questions are presented in the order they were shown to the participants. The interactivity was measured on a 7-point Likert scale (1- strongly disagree, 7- strongly agree).		
Satisfaction	Mean	Mode
The showroom meets my demand.	4.86	6
I am satisfied with the virtual showroom.	5.09	6
The virtual showroom is close to ideal.	4.67	5
Overall, I am happy with the product display of the virtual showroom.	5.09	6
Overall	4.92	

Note: The questions are presented in the order they were shown to the participants. The satisfaction was measured on a 7-point Likert scale (1- strongly disagree, 7- strongly agree).		
Confusion	Mean	Mode
I think that I would like to use this virtual showroom frequently.	*3.92*	*7*
I found the virtual showroom unnecessarily complex.	3.34	1
I thought the virtual showroom was easy to use.	*2.27*	*1*
I think that I would need the support of a technical person to be able to use this virtual showroom.	2.32	1
I found the various functions in this virtual showroom were well integrated.	*2.75*	*3*
I thought there was too much inconsistency in this virtual showroom.	2.95	2
I would imagine that most people would learn to use this virtual showroom very quickly.	*2.27*	*1*
I found the virtual showroom very cumbersome to use.	3.51	5
I felt very confident using the virtual showroom.	*2.34*	*1*
I needed to learn a lot of things before I could get going with this virtual showroom.	2.04	1
Overall	2.77	

Note: The questions are presented in the order they were shown to the participants. The satisfaction was measured on a 7-point Likert scale (1- strongly disagree, 7- strongly agree, for all even numbered and 1 – strongly agree, 7 – strongly disagree, for all uneven numbered question). All uneven number questions are in cursive.

Authenticity	Mean	Mode
The virtual showroom provided me with authentic experiences.	5.09	6
The virtual showroom provided me with genuine experiences.	5.01	5
The virtual showroom provided me with exceptional experiences.	4.91	6
The virtual showroom provided me with unique experiences.	4.86	6
Overall	4.97	

Note: The questions are presented in the order they were shown to the participants. The authenticity was measured on a 7-point Likert scale (1- strongly disagree, 7- strongly agree).

Purchase Intention	Mean	Mode
If you were to buy a watch, how likely would you be to buy a Jacques Lemans watch?	4.90	5
I intend to purchase products from Jacques-lemans.com instead of selecting other platforms.	4.75	5
I intend to continue to buy products from Jacques-lemans.com rather than stop buying	5.00	7
I would visit this virtual showroom again.	4.81	7
In the future I would very probably shop at this virtual showroom again.	4.06	7
I would patronize this virtual showroom	4.15	4
Overall	4.61	

Note: The questions are presented in the order they were shown to the participants. The purchase intention was measured on a 7-point Likert scale (1- strongly disagree, 7- strongly agree).

Word of Mouth	Mean	Mode

I would say positive things about this Jacques Lemans.	5.57	7
I would recommend Jacques Lemans to someone who seeks advice.	5.56	7
I would encourage friends and relatives to purchase watches from Jacques Lemans.	5.32	7
Overall	5.48	
Note: The questions are presented in the order they were shown to the participants. The word-of-mouth intentions were measured on a 7-point Likert scale (1- strongly disagree, 7- strongly agree).		

Appendix 3

Showroom images

Main entrance

Main entrance 2

Showroom center

Showroom couch

Showroom TV and table

Showcases 1

Showcases 2

Showcases 3

Showcases 4

Showcases 5