How can German fashion retailers improve their consumer service to meet the ever more demanding consumer`s expectations in the digital age?

Research dissertation presented in partial fulfilment of the requirements for the degree of

Master of Science in International Business Management

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Candidate Declaration

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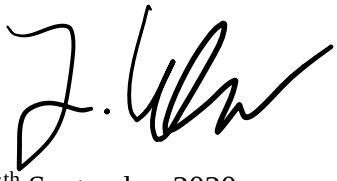
I certify that the dissertation entitled:
How can German fashion retailers improve their consumer service to meet the ever more demanding consumer`s expectations in the digital age?
Submitted for the degree of: **Msc. International Business Management** is result of my own work and that where reference is made to the work of others, due acknowledgement is given.

Candidate signature: 

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Dedication

This dissertation is dedicated to my mother Annette Klar-Reiß, who taught me my ambitions and supported me in the past always.

Acknowledgement

Throughout the writing of this dissertation I have received great feedback and support. Therefore, I want to thank you Dr. Alessandra Vecchi, who shared her expertise knowledge in the formulating of research topic and gave me always useful feedback on every other chapter. Moreover, I want to thank Josh Moran also, who was a great teacher on the tool SPSS. Moreover, I want to thank Mary Whitney and Aine Mc Manus for the useful zoom meetings during the dissertation time.

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Abstract

This dissertation outlines the problems and change of the German fashion retailers. Therefore, the digitalization is necessary for retailers to survive. However, they have difficulties to implement it in the right way. Moreover, the consumer shopping behaviour is different before and after the Covid 19 lockdown. Therefore, the retailers need to reach the target groups with the right service activities. However, the literature does not indicate which target group prefers which service activity, so that every fashion retailer can know how to satisfy the customer needs. This alludes to the objective of this study to optimize the service in German fashion retailers with the right Omni channel activities and effective instore technologies by focusing on the shopping behaviour before and after Covid 19 of the different target groups and types of retailers. The theoretical background refers to the literature in the fields of consumer behaviour, consumer service, Omni channel, instore technologies and Covid 19. The conceptual framework, which is based on the literature, focuses on the influence of Covid 19 on the consumer shopping behaviour. Moreover, the influence of the target groups on the Omni channel as well as instore technologies to optimize the service is mentioned.

The findings are based on the literature review and a quantitative survey of 385 German consumer. The survey was analysed with cross tables and the Anova to find out the statistically significance between the target groups. Therefore, the likelihood of each target group according to different instore technologies and Omni channel activities for German fashion retailers were the new findings. In more detail it can be said that the e- coupons, self-checkouts and digital loyalty cards are the only technologies that the different target groups of the German fashion consumer like. The findings of the shopping behaviour before and after Covid 19 alludes to the point that Omni channel activities are more important since more people buy online and the majority like to buy offline and online. The different Omni channel activities as information search, inspiration search, delivery options between offline and online channels were tested to find out which target group likes, which options.

Finally, retailers can use these findings to implement new technologies and reach each target groups in the right way.

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1 Introduction

1.1 Overview of the topic

Germany has one of the biggest retail industries in the world (Zentes and Rittinger, 2009; Sandberg, 2010). The German offline fashion retail has several problems because the online channel as a more invisible competitor rises (Oh and Polidan, 2018). Furthermore, the main reasons are that the customer expectations are changing because of the high use of technology (Oh and Polidan, 2018).

The switching of customer to shop online has an influence on the performance of the offline retail as the turnover declines by 2% in 2019 compared to the previous year (Freutel, 2020b). The change of the mind-set of the consumer and the consumer purchase process is influenced heavily by the Covid 19 pandemic in 2020 as well since consumer shop more online and buy offline mainly necessary goods (McKinsey, 2020). Since the German fashion retailers turnover declined in week 4 after the lock down to 24% compared to the previous week, the fashion retailers have to change the traditional settings of the business (Freutel, 2020a; McKinsey, 2020). Therefore, the future fashion retail will be more a balance of offline and online activities and includes a high use of digital tools, which is called Omni channel (McKinsey, 2020).

Nevertheless, the offline fashion industry has the unique selling point of customer service. Customer service can lead to a higher turnover as it is a competitive advantage because it makes customers more loyal and makes repeat purchases possible. Moreover, instore experiences are for customer more important than the price (van Birgelen *et al.*, 2006; Følstad and Kvale, 2018). But the customer service activities can vary by the target group and the size of retailers since customer have different preferences (Arnold *et al.*, 1978). As the reasons for the change of the traditional retail above pointed out, the digitalization of the offline retailers is necessary to survive because it has a high influence on the consumer service to meet the change of the customer expectations.

However, there are also negative impacts because offline retailers have difficulties to implement the right technology tools. This becomes more important for consumers as they

change their behaviour. Moreover, the digitalization improves the customer service as well (Zaczkiewicz, 2018).

In summary, it can be said that the customer service has to meet the different customer expectations and be improved by the implementation and use of efficient technologies, which let the German fashion retail survive in the future (McKinsey, 2020).

1.2 Research Purpose

The consumer behaviour differs from culture to culture and the consumer needs in the apparel retail differentiate from other industries (Arnold *et al.*, 1978; Zentes and Rittinger, 2009). Consumer shop for different reasons, which include products, service, brand, marketing and experience, which influences the shopping behaviour (Newman and Foxall, 2003; Bray, 2008; Green *et al.*, 2018).

One main issue is that most retailers do not search for the purchase reasons of their consumer. In effect that means that retailers do not know their target group and the needs of the consumer, which for example can differ by the age and kind of retail (Bray, 2008; Hagberg, Sundström, *et al.*, 2016; Falode *et al.*, 2016; Green *et al.*, 2018).

As a consequence on the one hand, fashion retailers know the importance of the consumer service, but it does not match with the target audience neither, which includes e.g. customer demographics. Therefore, different service activities cannot add any value to the business (Newman and Foxall, 2003; Hagberg, Sundström, *et al.*, 2016; Green *et al.*, 2018).

A solution, could be different digitalisation tools, which can improve the relationship between customers and retailers. Furthermore, the instore digitalization can increase the customer journey and service to give the customer a unique shopping experience (Hagberg, Sundström, *et al.*, 2016).

However, German fashion retailers have difficulties to combine the several technology possibilities in the store since the companies do not know which one are the right ones according to the customer preference because they differ (Sridhaar and Zhang, 2006; Parikh, 2006; Bray, 2008; Quinn *et al.*, 2013a; Tanwar, 2015; Hagberg, Sundström, *et al.*, 2016; Paul *et al.*, 2016; Green *et al.*, 2018; Tsohu *et al.*, 2019; Grewal *et al.*, 2020).

As the above described problems point out the aim of this dissertation is to improve the consumer service in German fashion retail shops to meet the ever growing consumer expectations in the digital age.

1.3 Significance of the study

The literature introduced different consumer behaviour models, which outline different influences as information, time, social, marketing, experiences, price, availability, brand, merchandising and emotions. The outputs of the purchase process are for example that consumer satisfy their needs and the intention to purchase (Newman and Foxall, 2003; Bray, 2008; Attri and Jain, 2018). Nevertheless, Newman and Foxall (2003) pointed out that these different models are not up to date and do not focus on the different needs of the customers since every retail industry fulfils different needs. Therefore, the consumers have different expectation in a grocery shop than in a fashion shop (Arnold *et al.*, 1978). It will be interesting to analyse if the consumer behaviour is the same case in the fashion industry. Moreover, since the literature points out different influences on the consumer behaviour, the question occurs if there is a difference in the consumer behaviour according to different consumer demographics. Another interesting point to analyse will be how the consumer behaviour changes by the influence of Covid 19 and digitalization.

Moreover, different impacts and results of the consumer service are pointed out in the literature as well. Therefore, modern equipment, availability, store ambient, personal interaction, access, fulfilling promises, knowledgably staff, confident staff, attention, parking spot and business hours can lead to a repeat purchasing, higher satisfaction level, competitive advantage and more loyal customers (Paul *et al.*, 2016; Tsohu *et al.*, 2019). The digitalization, Omni channel and Covid 19 theories influences the factors as consumer behaviour, consumer service and fashion retail dramatically. Therefore, different digitalization tools can be used to support the consumer, add value to the consumer and retail (Mangiaracina *et al.*, 2012; Tsohu *et al.*, 2019). But these different theories do not outline, which technologies are more efficient for the service and do not differentiate between different consumer demographics.

Another problem is that the literature does not focus a lot on the fashion retail industry and on empirical studies (Arnold *et al.*, 1978). Therefore, this dissertation will fulfil this gap by doing a generalized study.

Finally, the study will be helpful for the fashion retail companies to improve the service with technology efficiently to give the customer a better shopping experience. Therefore, the study will help to increase the turnover and frequency of the fashion retailers and make the change in the traditional retail clear by focusing on different consumers e.g. gender and age.

1.4 Research Aim and Objectives

After the issues and the justification of the topic are pointed out the overall aim of the dissertation is to improve the consumer service in German fashion retail shops to meet the ever more demanding consumer`s expectations in the digital age. This aim will be achieved by pursuing the following research objectives and questions, which are mention in the table 1.

Table 1 Research Objectives and Questions

	Objectives	Questions
1	Since retailers have difficulties to identify the right technology tools, the focus will be on an effective implementation of instore technologies into the fashion retail store by referring to the influences of customer behaviour to improve the service (Bray, 2008; Quinn *et al.*, 2013a; Hagberg, Sundström, *et al.*, 2016; Grewal *et al.*, 2020).	What instore technologies tools are efficient to optimize the consumer service? Is there a difference in the use of technology tools according to the size of retail and consumer demographics? How does technology influence the consumer behaviour and service?
2	A recommendation to develop an effective Omni channel in the fashion retail in Germany will be pointed out since the future of the retail will be a balance of online and offline activities. This objective	Does consumer use different channels before and after the lockdown? What Omni channel activities are more for younger and which one for older consumer?

	points also the change of the traditional retail out by the influence of Covid 19 (McKinsey, 2020).	What Omni channel activities can smaller retailers do and what larger?

1.5 Methodology

To answer the research question "How can German fashion retailers improve their consumer service to meet the ever more demanding consumer`s expectations in the digital age?" data will be collected through literature and a quantitative survey.

The literature research in the field of consumer behaviour, consumer service, digitalization tools for the retail stores, Omni channel, retail and fashion are analysed and applied throughout the dissertation. The review of consumer behaviour frameworks will be helpful to identify variables that influence the consumers. Therefore, the consumer service literature will be used to outline the influences and outputs of it. The focus on digitalization will be useful in order to identify tools to improve the service and to outline how digitalization influences the consumer behaviour and fashion retail as well. Furthermore, the literature review will be helpful to frame the hypothesis and questions for the quantitative primary research (Collis and Hussey, 2013b). Therefore, the main research paradigm in this study is the positivism with a deductive approach (Hunt, 1991; Knox, 2004).

The primary research will be conducted by doing a quantitative survey, which will include a sample size of German consumers, who shop in offline fashion retail shops. The goal of the primary research is to get deeper insights into the preferred digital consumer service activities and Omni channel activities by the influence of consumer demographics and retail sizes. Moreover, the questionnaire will test different conceptual frameworks e.g. instore technology infusion, to find out what kind of technology the consumer prefer to optimize the service according to the objectives.

The overall purpose of the primary research is a mix of explanatory and predictive. Explanatory means how and why something happens (Collis and Hussey, 2013b). The predictive approach refers to a future outlook (Collis and Hussey, 2013a). Therefore, the research identifies a change in the consumer behaviour and the traditional retail according to the implementation of digitalization and the Omni channel, which includes a forecast by doing a survey. The collection of the data will be through the online tool survey monkey by

defining the sample size, which are German consumers, who shop in fashion retail shops and evaluate the hypothesis through the anova test and cross tables in SPSS.

1.6 Structure of the study

The dissertation will include five chapters. After the introduction, an extensive literature review will be outlined.

The literature review includes conceptual peer reviewed studies with the focus on consumer behaviour, consumer service, digitalization tools, Covid 19 and Omni channel. Contextual and empirical studies will be concentrate on retail, fashion and apparel. The literature review will be used to create a conceptual framework, which shows the influences of digitalization, Omni channel and Covid 19 on the consumer behaviour and consumer service. Therefore, the relationships of different variables according to those concepts will be explained in the conceptual framework.

Afterwards the research methodology will be explained in more detail, which is positivistic with a deductive approach. Therefore, the research methodology has the purpose of explanatory and predictive (Collis and Hussey, 2013b). Then the overall research strategy will be introduced, which includes the collection of primary data. Therefore, the hypothesis and research questions will be framed and the approach to data analysis will be explained.

The fourth chapter will present the collection of primary data and the findings will be analysed. Finally, the dissertation will end with a conclusion, which includes recommendations as the chapter 1.4 pointed out, findings and limitations.

2 Literature Review

2.1 Overview

The dissertation will achieve the objectives and answer the research questions by firstly looking on the conceptual, empirical and contextual literature. The literature review, is necessary to find the gap in the literature to meet the objectives and create a conceptual framework to point out hypothesis for the primary research. Starting off, the importance of the terms fashion retail, consumer behaviour, consumer service, instore technology, Omni channel and specific cases of Germany will be used in the dissertation.

The chapter 2.2 refers to studies about the fashion retail. The search terms as fashion retail, offline apparel retail, and online fashion shop will be used to find fashion retail models. Different sources suggest the future of the offline fashion retail will be a combination of online and offline (Montagna and Figueiredo, 2020). The literature is important to know how the fashion retail store differentiate to match the different service activities and technologies. In the chapter 2.3 consumer behaviour theories will be identified. The search terms as consumer behaviour, consumer purchase process, shopping behaviour, consumer decision making, and consumer model/theory will be used. These are important to know the influences and outputs of the consumer behaviour. Therefore, the frameworks will be helpful to identify variables according to the primary survey since digitalization, Covid 19, Omni channel and customer service influences the consumer behaviour (Newman and Foxall, 2003; Nam *et al.*, 2007; Bray, 2008; Attri and Jain, 2018; Dorie Amy and Loranger David, 2020).
The next chapter 2.4 introduces research on consumer service models. Search terms as consumer service, costumer experience, instore experience, sales service, customer service and customer journey will be used. The literature points out mainly what is consumer service, how it influence the behaviour and the retail stores and what is the output (Parikh, 2006; Tanwar, 2015). This is necessary to improve the service with digitalization in the right way (Paul *et al.*, 2009). But there is a lack of how the consumer service changes, which alludes to the objectives.

Another conceptual oriented research will be instore technology according to the chapter 2.5. The search terms as digitalization, technology, innovation in the fashion retail will be used to find out what is it, why is it important, what influences has it since it is necessary for retail stores to survive (Oh and Polidan, 2018). The literature points out mainly what digitalization tools are used to support the consumer (Mangiaracina *et al.*, 2012; Tsohu *et al.*, 2019). Different frameworks explain the change of digitalization in the mind of the consumer and retail and the importance of different instore technologies that impacts the consumer journey (Hagberg, Sundstrom, *et al.*, 2016; Grewal *et al.*, 2020). But the frameworks do not describe which technology tools are more efficient in the fashion retail and service area in detail, which alludes to the need of the research question again. Moreover, another question occurs also as which technologies different consumer prefer according to the demographics in different retail stores.

Another important literature will be about Omni channel, which will be pointed out in chapter 2.6. The search terms Omni channel and multichannel in the fashion retail will be used to find out the implementation of it. Moreover, the literature area is important, to know the change of the behaviour and new service settings to develop the Omni channel activities right to meet the different consumer expectations.

The chapter 2.7 outlines another research area, which will be about the change of the traditional retail settings before and after the Covid 19 pandemic (Santoso, 2020). This involves the change of consumer behaviour and fashion retail (Kim, 2020; Sheth, 2020).

Specific cases of Germany according to the different areas above will be searched in chapter 2.8. The literature review point out that there is a need to search after the preferred technologies and Omni channel activities in Germany since there is not much literature written about. Moreover, the literature defines four different target groups in the use of multichannel but not in the use of technologies (Patten *et al.*, 2020).

After the different theories are outlined the conceptual framework will be formed. Consequently, research hypothesis and objectives will be conducted out of the literature review to outline the additional research field in section 2.9. Finally the literature review will be concluded.

2.2 Fashion Retail

2.2.1 Offline Fashion Retail

The contextual literature about the offline fashion retail outlines that the fashion retail formats can be divided into three different types. The lower tier includes fashion discounts stores and stores who offering price out products. Another type is the middle tier, which include mass and fast fashion stores offering at budget levels. The middle tier refers to department stores, which have a range of moderate, contemporary and broad products. The last type is defined as high tier, which offer luxury, designer and haute couture products (Lee and Leonas, 2020).

The conceptual retail evolution model points out that consumer has different store preferences and each type has different function, which has to be considered in the choice of products, store design, service and choice of innovation (Kim and Kincade, 2009). The offline fashion retail provides the consumer a store atmosphere, which can be influenced by the lighting, merchandising, layout and service (Montagna and Figueiredo, 2020). The consumer can feel and touch the products (Brynjolfsson *et al.*, 2013). The fashion retail elements are price, image, advertising, product range, store layout, logistics, information, customer relationship and product design (McCormick *et al.*, 2014).

The journal about the retail life cycle describes four stages of the development of retail shops to be successful, which includes innovation (start-ups), development (sales/growth), maturity (moderate profitability, entry competition) and decline (no growth, other types of retailing according to competition) (Curhan *et al.*, 1977). This literature shows the problem of the retail right now as the industry in general is on the decline stage. Therefore, the retail can be solved only with digitalization and new retail formats. The decline of the offline fashion retail results in a lack of innovation in the retail (Quinn *et al.*, 2013b). The knowledge of the fashion retail is slow but the environment changes fast by the influence of macro and micro economic (MC Arthur *et al.*, 2016).

The offline retail shops are influenced by the size, season and personal preferences. The fashion stores can create value by meeting the preferred preferences of the target groups, which include the right service and revenue models. Therefore, they can create value by new innovations, which no competitor does (Jin and Shin, 2020). The unique value proposition

includes collaborative consumptions, which means that the traditional consume of consumer changes and also the ownership since consumer can rent clothes for a specific time, which are usually refer to specific categories shop as e.g. luxury shop. But the consumer can own a fashion product still through swapping, donating and purchasing (Jin and Shin, 2020).

Another literature outlines that the retail formats changes because of the different store options and consumer perception. Retailers have to meet the different needs and types of consumer with their benefits by analysing the data (Basu, 2015). This explanation will be used to explain different retail formats and the consumer behaviour.

Therefore, the fashion stores differentiate by products and service. But there is always a gap between products and the instore experience. This source points out the influence of service is defined as intention to purchase (Hasan, 2018). The instore experience have to match with the target audience. Therefore, the store layout is responsible for the experience of the consumer (Newman and Foxall, 2003). It is important to use this literature to understand the instore behaviour of the consumer to improve the service in the right way.

One future fashion retail model are born digital start-ups, who create value for their customer by having an offline shop formed as a showroom. Therefore, the store concept has a minimum number of styles, fewer sells people since the customer find the right size in person (Jin and Shin, 2020). Moreover, retail shops can survive by having high quality products to a low price and provide information for the consumer (Brynjolfsson *et al.*, 2013).

An empirical study points out that the size of retail stores influences the consumer behaviour since the smaller sized shops respond more to the local community. Larger retailers should exchange norms to be able to make a social relationship with consumers. The study outlines that relationships are more important than prices to the consumer (Green *et al.,* 2018). The source is important to use since it outlines a variable as size of retail, which influences the consumer behaviour. The study defines the size of retailers as flagship versus regular (Caro *et al.,* 2020). Therefore, the following question occurs: which service elements and instore technologies are more efficient in larger retail stores and smaller retail stores?!

2.2.2 Online Fashion Retail

The online fashion retail is defined as E- Commerce (Kaushik *et al.*, 2020). The consumer can purchase on the website, on social media, through the mobile phone and tablet, which differentiate by the target group (Dorie Amy and Loranger David, 2020). The online shop provides a wider product range than retailers to lower prices (Brynjolfsson *et al.*, 2013). The success of the online shop and the satisfaction level of the customer depends on the website design, the service and the returning. The online shop has to provide support purchase tasks as multiple delivery options and different payment opportunities to increase the repurchase rate of the customers. Since the online shop does not provide the advantage of the offline retail to feel and touch the product, the website has to include images of the product and garments and show a broad information of the fashion piece. Nowadays 3D models are also used often. Moreover, the online shopping experience is influenced by the availability, quality and the broad product range (Kaushik *et al.*, 2020). Other advantages of the E-Commerce are to shop 24h and get information immediately from different location. Nevertheless, there are also disadvantages of the online channel as lack of security, store atmosphere and feeling of the products. To improve the disadvantages one future online store is a hybrid model, which includes a virtual store atmosphere online (Montagna and Figueiredo, 2020). Consumer expect from an online shop to be able to read personalized recommendations, quick transactions, product reviews, a wide selection of merchandising and convenience (Thompson, 2020). Moreover, consumers especially Generation Y buy more online or do so called impulse buying when the online shop offer free shipping and return, a low price and have advertising as only available now. Consumer spend on average 2-3 hours a day to 2-3 hours a month shopping online. Moreover, on average they spend 100 to 200 Euros for impulse buying online (Sündström *et al.*, 2018). Therefore, the study is important to know what generates additional sales, which the consumer does not actually need.

However, the main advantage of online fashion retailers is that they have easy access to data of their consumer. If they use the data in the right way as analyse the style size and price preferences and create an algorithm, they will create value. Moreover, online retailers can analyse the consumer behaviour as consumer purchase, interests, decision process and the

competition as prices, campaigners to optimize the assortment for the consumer (Caro *et al.*, 2020). For example Stich Fix process the big data and include preference photographic and textual data in the customer profiles. The company analysis every feedback and clicks of the customer to meet their preferences and send to them five created items with a 25% discount (Jin and Shin, 2020). Therefore, offline retailers should use also online activities to get to know the customer better and meet the preferences (Montagna and Figueiredo, 2020).

Since online and offline fashion retailers have advantages and disadvantages the future will be a combination to get the customer attention and meet the customer needs (Montagna and Figueiredo, 2020). There are already fashion companies, who sell their products online and offline. The Krebs system combines those sectors to meet the consumer preferences. The tool is a recommendation system, which filter online information through an algorithm about the colour, brand, and quality. Since a consumer shop seasonal, the preference have to be included in the algorithm. Therefore, the offline data and online data, which includes click history, purchase histories, gender type, and sales type can be useful to know the customer and to improve the advisory service online. Moreover, the online information about the consumer are also helpful for offline activities (Hyunwoo *et al.*, 2016). The company Bonbon uses this online advantage already. The company started with an online shop and added later offline shops with the one to one styling service. Therefore, the customers pay offline but get a home delivery (Jin and Shin, 2020). The future of the fashion retail will be excited since there are a lot of new models, which analyse the data in the store, online and combine them to make more individually prices and flexible assortments for the consumer according to the data (Caro *et al.*, 2020).

2.3 Consumer behaviour in the fashion retail

An empirical study points out that consumer behaviour in the fashion retail differentiate by the target group, who can be defined as Baby boomers (1943-1960), Generation X (1961-1981) and Millennials (1982-2004). Each target group has different shopping preferences. The retailers has to know the influence of the age, pricing and personalised service to meet the consumer expectation and provide a unique shopping experience. The generations differ

in the context that they use different channels to purchase fashion goods in offline retail stores and online through the web, mobile app, tablet or social media. Therefore, baby boomers are more likely to shop offline, Millennials like to shop online and the Generation X shop mostly through social media (Dorie Amy and Loranger David, 2020). The question is if the difference can be mentioned in the use of instore technology.

The qualitative study about the women consumer behaviour in the fashion retail points out that this target group is more interested in the social interaction as fashion advisory, fashion shows, fashion clubs and tours than in the actual product. They feel younger than they are and want to dress that way. The most important things are soft materials, adequate isolation in the store and fullness of facilities (Nam *et al.*, 2007). However, is it the same for men? The study mentioned that the future will be electronic stores (Nam *et al.*, 2007). This is necessary since the younger the customer, the less they are buying in the offline retail (Boardman *et al.*, 2020).

Different studies identify conceptual frameworks about consumer behaviour, which vary by contrasting influences and outputs. The theories are important according to this dissertation to understand the change of the consumer purchase behaviour in the traditional retail and to improve the consumer service by the influence of the service activities. Bray (2008) pointed out that the consumer behaviour is impacted by different factors as information, time, relationships and external influences. The purchase process can have different outputs as the consumer evaluate alternatives, build purchase intention and does consumption. The main goal of the consumer is always to satisfy the needs (Bray, 2008).
One of the earliest models is the cognitive framework, which is called stimuli respond model. The theory outlines the mental structure of a consumer, which is influenced by external factors as the environmental and social stimuli (Bray, 2008). In the case of the fashion industry the information search of the consumer refers to the stimuli and it is easier today because of the digitalization since they are online all the time available. The availability of information has an influence on the consumer behaviour as well (Bray, 2008; Oh and Polidan, 2018). Therefore, the framework is useful to identify the factors that influence the behaviour, which alludes to different variables according to the conceptual framework.

The analytical framework points out that factors as social, psychological and marketing influence the information process of the consumer (Bray, 2008).

The theory of buyer behaviour outlines that stimuli refer to products and brands that the buyer has been experienced. Moreover, the social stimuli is defined as groups for example families and friends that affect the consumer behaviour (Bray, 2008).

Another consumer behaviour theory is the conceptual vs. perceptual learning theory, which explains how consumer can control the information, how the information process changes due to past experienced and how consumer filter information. This model outlines also that the consumer use information for future purchases and act different from brand to brand. The factor intention influences the consumer also. Moreover, the output has not always to be the purchase. This can be the comprehension or attitude as well (Bray, 2008).

The consumer decision model points out that the consumer needs to recognize firstly the brand, product or store. Then the consumer has to research information, evaluate those, take action and deliberate the decision. This behaviour influences the experience and the environment (Bray, 2008).

The consumer behaviour theory defines the environment as culture, social class and the individual influences as consumer resource and involvement (Bray, 2008).

The model of goal directed behaviour explains that past experience, emotions, and new variables for example desire refers to the intention of the behaviour (Bray, 2008).

Another study outlines that marketing, quality, price, time, money, availability, brand, merchandising, emotions of the consumer and store ambient, influences the decision. These factors are divided into external stimuli, perceptions, buying behaviour and demographic variables (Attri and Jain, 2018). The theory of reasoned action outlines that consumer behaviour equals the consumer's intention (Bray, 2008).

The operand classification of consumer behaviour disagrees and argues that the consumer behaviour models do not fit to the actual behaviour (Newman and Foxall, 2003). Therefore, there is an uncertainty in the literature. This uncertainty needs to be pointed out that the consumer behaviour process changes all the time because the fashion industry is a fast changing market. The change of the consumer behaviour can be also identified by the influence of digitalization (Newman and Foxall, 2003). Therefore, the research objective to

improve the consumer service with digital tools by considering the influences of consumer behaviour is necessary.

The above consumer behaviour models are necessary in the thesis to understand the consumer behaviour in the retail. Most of them outline what influence their behaviour and what are the outputs, which will define different variables according to the conceptual framework.

The contextual literature according to consumer behaviour in retail points out that the instore behaviour is not clear defined. As it is outlined in the theories above, the behaviour is influenced by different factors as situation and characteristics, physical and social environment, impulse buying, store layouts, time, mobile shoppers, and gender, which will be used as variables in the conceptual framework and survey. But the consumer needs are ignored, which the retail has to meet (Newman and Foxall, 2003). Nevertheless, this literature is necessary to outline the consumer behaviour in the retail. But since it points out that the consumer behaviour is influenced by different factors and also new factors, the study will influence the improvement of consumer service by referring to the consumer behaviour.

The influences and outputs of the consumer behaviour are summarized in the following table.

Table 2 Consumer Behaviour

Consumer behaviour	Influences	Output
Multigenerational study (Dorie Amy and Loranger David, 2020)	• Age: Baby boomers, Millennials, Generation X • Price • service	• Decision of channel to purchase goods as offline, web, mobile app, social media
The fashion-conscious behaviours of mature female consumers (Nam *et al.*, 2007)	• Materials • Insolation's • Fullness of facilitate • Social interaction	
Cognitive framework (Bray, 2008)	• Environment: Society • Information	
Analytical framework (Bray, 2008)	• Social • Marketing	

	• Psychology • Information	
Theory of buyer behaviour (Bray, 2008)	• Experience of product and brands • Information • Intention	
Conceptual vs. perceptual learning theory (Bray, 2008)	• Environment: Culture, social class	• Intention to purchase Attitude • Purchase • Comprehension
Consumer decision model (Bray, 2008)	• Brand • Product • Store • Information	• Decision making
Theory of reasoned action (Bray, 2008)	• Intention	
A Study of Factors Affecting Customer Shopping Behaviour (Attri and Jain, 2018)	• Marketing • Quality • Price • Time • Money • Availability • Brand • Merchandising • Emotions of the consumer • Store ambient • Music • Customer demographics e.g. age and education	

Instore Behaviour (Newman and Foxall, 2003)	• Situation and characteristics • Physical and social environment • Store layouts • Time • Mobile phone • Gender • Impulse • Income	

Finally, the table two shows that the literature answer the question what influences the behaviour. The main point is the consumer demographics, which will be used in the primary research to analyse the different behaviour between them.

2.4 Consumer Service

Consumer service can encourage the customer journey and is influenced by the price, promotion, fulfilment and design (Patten *et al.*, 2020). The conceptual literature about consumer service alludes to different inputs and outputs. The mends-end theory outlines the customer service makes repeat purchasing behaviour possible. The customer knowledge connects with cognitive factors as service relationship attributes, relationship driving benefits and motivational value to buy again (Paul *et al.*, 2009). This theory explains what factors influences the service. Therefore, the theory is important to improve the service. The IT-based service degradation decision theory (ITSD Decision Theory) points out that the satisfaction level of the consumer is influenced by the consumer service. The study shows how consumers react when the service fails (Tsohu *et al.*, 2019). In the context of the objective to improve the service it is important to know which factors influence the service. The SEVQUAL model measures service activities based on a seven score scale low to high. Consumers have to rank different services in the traditional retail according to their expectations. If the expectations of the consumer is not fulfilled, the service activities of the

retail will have a negative influence on the decision making of the consumer (Patten *et al.*, 2020).

Other contextual literatures refer also to the consumer service. Consumer service can be a competitive advantage, which is a possible output of it. A consumer defines a good service by internal comparison of performance. These include factors as physical aspects, reliability, personal interaction and problem solving policy (Parikh, 2006). According to the objective improve the consumer service, it is important to know how consumer measures good service to be able to improve it. The literature outlines the influences and outputs of the service, which will be considered in the conceptual framework.

A lot of literature points out what is consumer service, which include modern equipment, availability, attractive facilities, visual merchandising, clean area, easy access, fulfilling promises, knowledgeable staff, confident staff, attention to consumer, parking spots, business hour, high level service. These factors makes consumer more loyal, which is defined as an possible output of the consumer service (Tanwar, 2015). This literature is important to understand what factors are necessary to improve the consumer service.

Another study answer the question why service differentiate. The reason for this are beneficial elements as store location, price deals, guarantee policies, staff knowledge and merchandising (Hasan, 2018). These elements will be used to know what factors are necessary for a good service to improve it.

Another contextual retail literature differs between the influence factors service and price guarantee on informed and uninformed consumers (Sridhaar and Zhang, 2006). On the one side, this literature helps to understand that consumers do not focus on the price guarantee when they have a good service. On the other side, this literature points out that the consumer behaviour depends on the consumer service (Green *et al.*, 2018).

The study about service quality outlines that consumer service can be influenced by physical stimulation, which include store design, visual merchandising and haptic. Other points are Affiliation, which refer to human relations, status and advice. The value, which alludes to appreciation, honesty, trust, friendliness and empathy, is also an important service influence. These factors will improve the shopping experience, if the retailer target the right consumer (Patten *et al.*, 2020).

An empirical study outlines that the Generation Z is not satisfied with the convenience instore behaviour as speed, location product and discount. Product availability and discounts are other points that needs to be optimized (Thompson, 2020). Moreover, loyalty programs are also part of the consumer service, which increase the satisfaction level (Stathopoulou and Balabanis, 2016). This study is necessary to point out an additional service.

Finally, the different sources of consumer service are necessary to identify the influences and outputs of it to improve the service in the right way, which are summarized in the table 3.

Table 3 Consumer Service

Consumer Service	Influences	Output
Mends end theory (Paul *et al.*, 2009)	• Cognitive factors • Service relationships • Motivation	• Repeat purchasing
ITSD Decision Theory (Tsohu *et al.*, 2019)	• Price	• Higher satisfaction level
(Parikh, 2006)	Comparison of performance: • Physical aspects • Reliability • Personal interaction • Problem solving policy	• Competitive advantage
(Tanwar, 2015)	• Modern equipment • Availability • Attractive facilities • Visual merchandising • Clean area • Easy access • Fulfilling promises • Knowledgeable staff • Confident staff • Attention to consumer	• Loyal customer

	• Parking spots • Business hour	
(Hasan, 2018**)**	• Price deals • Guarantee policies • Staff knowledge • Merchandising	
Service Quality (Patten *et al.*, 2020).	• Physical stimulation • Affiliation • Value	• Improve shopping experience
(Stathopoulos and Balabanis, 2016)	• Loyalty programs	• Higher satisfaction level

2.5 Adoption of disruptive Technology by fashion retailer

The instore technology for fashion retailers gets more important since innovation provides the benefit to purchase products in a more accessible and convenient way. It can solve dissatisfaction levels of the consumers as speed, service and instore shopping experience. Therefore, instore technology can help to meet the consumer expectations (Lee and Leonas, 2020). Moreover, the different electronic devises can improve the service quality online and offline, which depends on the location and information (Patten *et al.*, 2020). Different technology tools make the store atmosphere more as a web room and showroom to interact with the customer (Sharma and Dutta, 2020). Since the expectation of each customer differ, technologies makes problems according to the integration (Patten *et al.*, 2020).

The first conceptual literature in the context of digitalization is about a framework of digitalization in retailing:

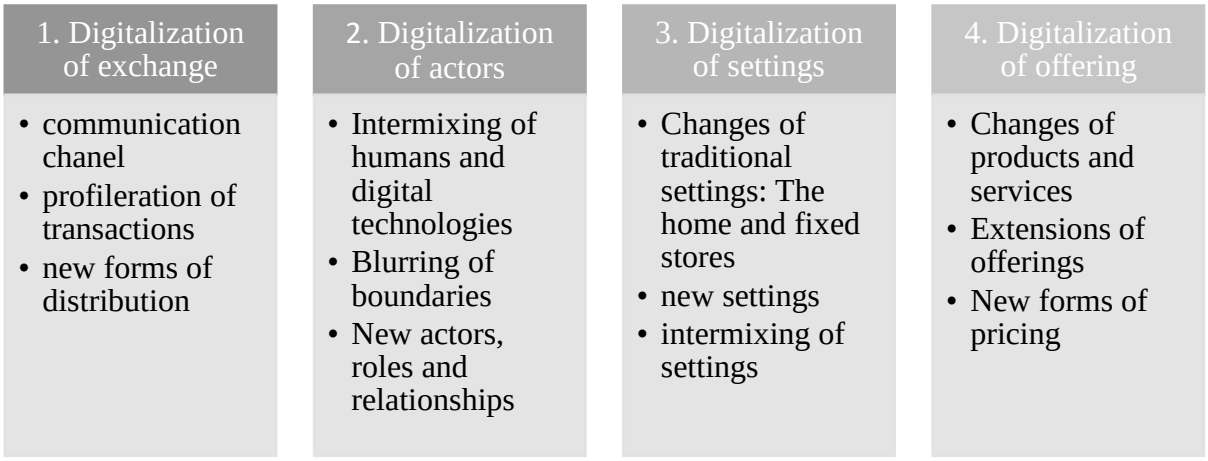


Figure 1 Digitalization in retailing (Hagberg et al., 2016)

The first element is the digitalization of exchange. This outlines that the communication channels of customers and retailers change by using for example e- coupons. Another part of this element is proliferation of transactions, which outlines that ordering is integrated in the digital retail process as click and collect. Moreover, retail stores use new distribution channels as home delivery through click and drive (Hagberg, Sundstrom, *et al.*, 2016). The first element is useful to understand the change in the service by using technology and to improve the service with digital tools. The question occurs, which elements are more important to the customers?

The second element called digitalization of actors. The intermixing of humans and digital technologies defines that technology is used to analyse the consumer. Moreover, the next point blurring of boundaries explains different ways to include customers in the value creation process, which will be helpful to discover the influence of technology to the consumer behaviour. The third factor describes the role changing of the consumer since they have more power because of the digitalization and therefore the relationship of the consumer and retailer can change also (Hagberg, Sundstrom, *et al.*, 2016). The second element will be helpful to identify the change of consumer behaviour by the influence of technology to identify the right actions according to the objectives.

The next element is the change of traditional settings and the retail. Product and services will focus more on digital features. The combination of online and offline retail by using technology makes a new service possible (Hagberg, Sundstrom, *et al.*, 2016). The question

is what kind of service? Another point is that individual pricing can occur, which is a point of service (Hagberg, Sundstrom, *et al.*, 2016).

The last element is digitalization of offering. The literature outlines the change of digitalization in the retail and focuses on how digitalization influences the retail and with it the consumer behaviour since they use more mobile devices, which are directly connected with the retail service (Hagberg, Sundstrom, *et al.*, 2016).

Therefore, the framework will be useful to answer the objective how to implement digitalization in retail. The literature will be helpful to point out different technologies, which influence the service and behaviour. The following question occurs: Is every method according to the digital tools effective and is it the same for the fashion retail, which can be answered in a primary research.

Another important conceptual model is the instore technology infusion:

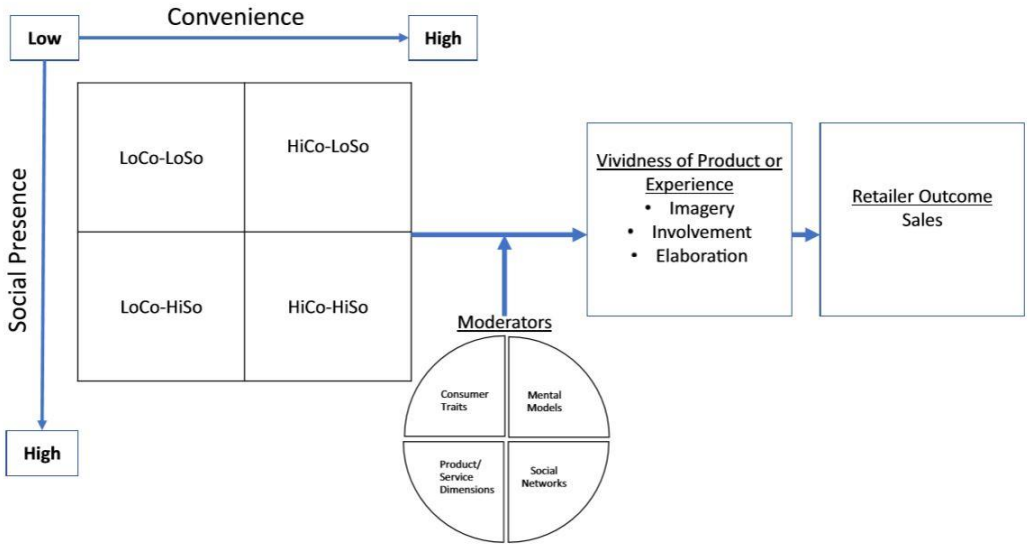


Figure 2 Conceptual Framework of instore technology infusion (Grewal et al., 2020)

The main claim of the model is that high social presence and high convenience in store technology impacts the customer journey the most. Moderate effects influence the customer journey as consumer traits (demographics), technology readiness (ability to use new technology), product/ service dimension (technology has higher impact on hedonic products/fun products), mental models (higher impact of technology on consumer with high process information/imagery), social network (influence customer and tie strength), tie

strength (technology higher impact on consumer with stronger ties/transfer information) (Grewal *et al.*, 2020).

The different technology tools, which the theory outlines, are explained in the table four.

Table 4 Technology

Technology	Explanation
Augmented Reality	E.g. share pictures on social media from customers (Grewal *et al.*, 2020)
Smart Mirrors	E.g. adjust the lighting and contact in sales associates to obtain other desired products. Consumers can also see the items they are trying on in different colours or accessorized with various items to create unique looks (Grewal *et al.*, 2020)
Virtual Reality	E.g. design individual product
Robots	E.g. Alexa is used in stores to give customers more information about the product (Grewal *et al.*, 2020)
Click-and-Flick Smart Windows	E.g. scan a piece, which is in the window to use your phone to look it up online (Grewal *et al.*, 2020)
Smart Displays	E.g. I pads to show the whole collection, which is not available in the store (Grewal *et al.*, 2020)

Since the article backed this up by real examples, which refer to retail stores, literature and interviews, the framework will be useful to have a good knowledge of different instore technologies, which influence consumer service and behaviour. This will be helpful to help to answer the research objective how to improve the customer service and how to implement digitalization in the fashion retail to create an efficient service.

According to virtual reality, the tool will be more important in online and offline retailing to meet the changing demographics. The investment is very high but it has the benefit to increase observability of results, uncovering opportunities, increase broadband penetration, product versatility, sustaining market relevance, more access for price points, thirst of innovation and gaining competitive advantage (Vecchi, 2017). Virtual reality is especially used for the Generation Z and can create an additional showroom or put the product into

another background. Augmented reality can be used also to put artificial objects into a real environment (Lee and Leonas, 2018).

The mobile phone and Wi-Fi is getting a more important technology tool in the retail store. It provides the consumer information with QR code scanning to see products online, UPC codes to see the availability of the products in the store. Different APPS as Loopt and Doot can provide virtual loyalty cards for the consumer for different locations or let a message for a friend at the store (Brynjolfsson *et al.*, 2013).

Other contextual literature of digitalization outlines the following facts:

The implementation of digital service is important to create value in the business and for the customer by setting up a retail store (Häiko and Koivumäki, 2016). This article is useful to know how to implement digital service in a retail store and how the consumer interact with the digital service.

Other sources outline that innovation solutions are necessary in the retail to survive. The digitalization makes the environment more complex because companies have to analyse the data of their consumers to understand their behaviour. Therefore, the instore process is more complex since data have to be provided for every employee to deal with the customers in the right way (Oh and Polidan, 2018). Since the fashion retail is influenced by the season and cannot meet the consumer demand on time because the production is finished before the season different retailers look for a shorter lead time, which includes artificial intelligence (Jin and Shin, 2020).

Self-checkout is another technology tool, which is an instore full device or can be used through a mobile app. This tool is efficient to be competitive with the online shop since it provides a faster checkout, higher control, enjoyment for the consumer and no need for human interaction (Lee and Leonas, 2020). Nevertheless, the question is if every consumer prefer it as the study focuses on millennials mainly and if it useful in every type of fashion retail.

Another technology tool that offline retailers use is click stream data to predict offline orders and to forecast short-term demand within a flash sales campaign (Caro *et al.*, 2020).

Another useful instore technology tool is virtual fitting rooms, which can be divided into 3d body scanner, 3D avatar, 3D customer model, robot mannequin, augmented and virtual

reality rooms. All different models benefit the customer in terms of utalian and hedonic. They differentiate in accuracy, attractiveness and interactivity (Lee and Xu, 2020). Another source outlines that virtual reality, augmented reality, virtual fitting rooms and sales people improve the shopping experience and entertainment of the consumer in the store (Lee and Leonas, 2018). Nevertheless, the source says that each technology differentiate by the target group but not how.

The following table five summarized the influence of the digitalization on the consumer behaviour and consumer service.

Table 5 Digitalization

Digitalization	Consumer Behaviour	Consumer Service
E-Coupons (Hagberg, Sundström, *et al.*, 2016)	Change of communication between retail and consumer	Combination of online and offline activities
Click and collect and home delivery (Hagberg, Sundström, *et al.*, 2016)	Change of shopping behaviour	Change of ordering and distribution channel
Data (Oh and Polidan, 2018)	Include customer in the value creation process and change of relationship between retail and consum.er	Individual Service according to the information of the customer, which includes the customer demographics. Therefore, Individual pricing is possible.
Artificial Intelligence (Jin and Shin, 2020).	Meet consumer demand in time	Shorter lead time for new product designs
Self-Checkout (Lee and Leonas, 2020)		Faster check out and consumer can control it
Technologies as Smart Mirrors, Virtual reality, Robots, Click and Flick Smart Windows, Smart	Include customer in the value creation process Change of communication	More information availability for consumer Time saving Broader choice

Displays (Grewal *et al.*, 2020)		More information Change of customer advisory
Virtual fitting rooms (Lee and Xu, 2020)	Utalian and hedonic benefits for consumer	Influences interactivity, attractiveness and accuracy
Wi-Fi and Mobile Phone (Brynjolfsson *et al.*, 2013)	Makes the consumer more loyal and more provides more interaction	Provide more Consumers information

2.6 Fashion Retail Omni channel Strategy

The fashion retail Omni channel is defined as the ultimate stage of multichannel within full customer interaction and channel integration activities across online and offline. Consumer switches between offline and online channels during their purchase, which is defined as cross channel behaviour (Patten *et al.*, 2020; Boardman *et al.*, 2020). The choice of channel depends from generation (Piotrowicz and Cuthbertson, 2014). Therefore, retailers should integrate their service in the right way in all channels to satisfy the consumer since consumer compare prices and quality more (Patten *et al.*, 2020). But the integration of channels includes problems as intra cannibalization (online and offline) effects and inter competition (manufacturer and retailer) since the sales decline (Sharma and Dutta, 2020). The advantage of Omni channel activities is that consumers can switch between flexible different channels, the company has more data to analyse, provides the consumer a personal service and increases the satisfaction level of the consumer (Mirsch *et al.*, 2015).

One theory outlines that the Omni channel develops new stages in the decision making of the consumer. Therefore, the pre purchase stage includes inspiration, research and comparison, which reduces the risk for the consumer. The purchase stage includes buying the product and searching after discounts. The next stage is the post purchase, which is defined as delivery, return, show and share. A consumer orders multiple sizes to reduce the risk. Each stage has different function and is influenced by positive and negative emotions, which can be reduced if the retailer meets the expectation.

Social media is a channel where consumer search after inspiration and also like to get feedback. The online website is used for inspiration, research and comparison. The fashion store has multiple function as physical utilization, purchase, delivery, return (Lynch and Barnes, 2020). The mobile phone is the device, which the consumer has all the time with them to search also in the store. This device should be included in every touchpoint (Sharma and Dutta, 2020; Lynch and Barnes, 2020). However, each step is influenced by positive or negative emotions (Lynch and Barnes, 2020).

The conceptual Omni channel framework about consumer experience in the Omni channel outlines that well developed integrated, flexible, personalised, consistency and connective touchpoints lower the risk of the consumer (Shi *et al.*, 2020). Another theory outlines again the importance of the integration of the Omni channel in the fashion retail, which is limited by the focus on the UK (McCormick *et al.*, 2014).

A qualitative study points the influence factors of consumers out to choose between offline retailers, online stores and Omni channel retailing. These include, product satisfaction, shopping experience satisfaction, product category, personal privacy protection, after sales service, staff attitude, store atmosphere, prices, merchandising, knowledge of sales team, buying the product (Gao and Yang, 2015). This study is necessary to know the influence factor but also limited since the interviews focuses mainly on the knowledge of the retailers. The acceptance of Omni channel and technologies of consumer is influenced by social, expectations, habit, motivation, personal innovation, security and experiences. This will be useful to match the consumer behaviour with digital tools (Juaneda-Ayensa *et al.*, 2016). The integration of Omni channel in the retail depends on the channel integration, mobile solutions, role of social media, changing of the role of retail stores, customer requirements, personalization and supply chain (Piotrowicz and Cuthbertson, 2014). It answers the question what influences the consumer according to the use of technology. Another study outlines the gender difference in the use of instore technology, mobile phones and fitting rooms. Therefore, men use more instore technology to get discounts, women use more fitting rooms to look for different sizes, colour and outfits. The smartphones are used to compare prices (Mosquera *et al.*, 2018). The study is useful to know that there is a difference in the behaviour in the use of technology. But it is limited since it focuses only on three technologies.

The role of the offline fashion retail, which has the benefit of product experience, is not clear according to the new model Omni channel since it is the most complex channel (Caro *et al.*, 2020). Offline and online will be combined according to the logistics since deliveries will be uberaized service, which means that the product can be delivered by the store, logistic centre of the online store or by a competitor, which makes the distribution service more complex (Caro *et al.*, 2020). The offline retail can be used as showroom and the consumer can buy online. Another way is that the consumer search only online and buy the product in the store (Boardman *et al.*, 2020). Retailing will be price, data and consumer focused to be successful in the switching of the channels. Each channel have to provide a high quality to make the customer satisfied (Cai and Lo, 2020).

To test the preferred channels and technologies for consumer the factor electronic stimulation, which include web design, content and haptic, are important. Other points are the outcome of the use of different channel, which can be defined as convenience, efficiency, savings and goodwill. The choice of optimization is for the consumer also an important point to use different channels, which includes effort, availability, price and support (Patten *et al.*, 2020). The consumers want free delivery, easy transaction, returns in every channel without entering the personal data and consistency over all channels, which include for example that the shopping window has the same theme as on the website (Lynch and Barnes, 2020).

There are different analytic models out, which analyse the purchase behaviour in the store and online to make more personalized service as pricing, assortments possible (Caro *et al.*, 2020).

Finally, the literature answer the questions which channels are possible to create an Omni channel, what are the benefits of the Omni channel and how it influences the consumer behaviour. The literature mentions that there is a different use of Omni channel in the context of customer demographics but it does not answer the question how each target group behave, which will be pointed out in this dissertation.

2.7 Covid 19 Pandemic

The contextual literature about the Covid 19 Pandemic points the change of the consumer behaviour and the shift of traditional retail settings to Omni channel out. Therefore, the Covid

19 affects the economy globally. According to the clothing sector the demand and supply is influenced negatively since factories are closed. Moreover, people buy less essential goods as apparel and luxury goods to save money. Nevertheless, the prices fall e.g. discounts. People have less money to spend money for shopping because the income is reduced or people lost their jobs (Barua, 2020). During the pandemic consumers went from buying in offline retail shop to shop online with the credit card. The difference in the behaviour is that people, which have a higher risk move less and buy less at retailers than younger people (Baker *et al.*, 2020). The question is, is it the same in Germany since the study focus on America? Another study points out that the lockdown during the Covid 19 introduced less sales and profit for fashion companies. The recovery option for fashion retailers is an online shop and more Omni channel touchpoints (Shaikh and Ahmad, 2020). The question is if consumer will use them more than before the pandemic? Moreover, the e-commerce connected people during the pandemic. Therefore, the future will provide more online shops, which are price sensitive since consumer compare prices a lot online, and buy less in brick and mortal shops, which will have the function as showroom in the future (Santoso, 2020).This study is important to point the change of the traditional retail out during the pandemic.

The conceptual framework about the consumer behaviour change during the pandemic points out that consumer improvising at home as doing more creative activities and practice new innovations. Moreover, pent up is a new trend, which describes the activities that cannot be done during the lock down but will be done in the future (Sheth, 2020). Will people shop again in offline retail shops after the lockdown? Another factor is the higher usage of digital technology. Therefore, people meet through zoom, shop online and use social media more (Sheth, 2020). Moreover, the study outlines the question if people go back to old habits as shop offline after the lockdown. The future will be for sure that consumers will still use the option shopping from home and get a delivery (Sheth, 2020). Therefore, offline retailers should provide an online shop to meet the needs. The location of buying and the usage of technology influences single and family households differently (Sheth, 2020). Finally, the study outlines that the future of offline retailers is not sure.

Since consumer are scared to be in crowds according to Covid 19, 40% to 50% of sales will be online. Retailers should reinvest in technologies to attract Millennials and Generation Z.

The home and athleisure sector will grow faster than other apparel industries. Therefore, seamless interaction as pricing, presentation, availability and Omni channel activities will be necessary to survive (Cohen and Karabus, 2020). Finally, the study is necessary to show that digitalization is the solution for retailers to survive after the pandemic. Another study about the local commerce in America of online and offline retailers during the pandemic points out that the consumption differs in the income. Moreover, people buy more online than offline. But both channels in the clothing sector decreased during the pandemic (online=-27%, offline=-67%) (Relihan *et al.*, 2020).

A study about the consumer behaviour during the Covid 19 pointed out that most of the different Generations (Baby boomers, Generation Z, Millennials and Generation X) purchased already before the lockdown through e-commerce. Nevertheless, 20% of the Generation Z and 33% of the Baby Boomers never did online shopping before. The conceptual theory points out that the Covid 19 let people buy more online. Other points are the visual illustration of information about delivery options as music and interactive content. Moreover, retailers can build trust with good reviews and consumer insights. Consequently, the digital sales will increase and the company has more information about the consumer, which will affect the sales after Covid 19 (Kim, 2020).

2.8 Specific case of Germany

The literature outlines that the service is influenced by the cultural norms and values and it differentiate in countries (Patten *et al.*, 2020).

Another literature outlines the difference of German and UK consumer behaviour and retail formats, which will be important to use since the thesis will be focused on Germany (Lane and Probert, 2004). Moreover, German consumer desire up to date styles and pre-existing interest in clothing increases receptivity to apparel products (Nam *et al.*, 2007). German customer can be divided into four different consumer types according to the use of multichannel service activities, which is a lower case stage of Omni channel since it only coordinates different distribution channel. These four types are hedonic, connoisseur, smart shoppers and phlegmatic shoppers (Patten *et al.*, 2020). The table six explains each of the types in detail.

Table 6 German Consumers (Patten *et al.*, 2020)

German Consumer	Explanation
Hedonist	• Largest consumer group • Normative social influence • Influenced by beliefs, attitudes, behaviour • Younger • Experienced driven • Search inspiration through Instagram ➔ Need high quality fashion products with a good price
Connoisseur	• Normative social influenced • High/medium income (€60000-€90000) • Indulgence driven • Know what they want to shop • Loyal consumer online and offline ➔ Need social advise and exclusive sales advice
Smart shopper	• Low/medium budget (€30000-€60000) • Informational social influenced • Look for price and want to save money ➔ Retailers should discount prices for them to make them loyal
Phlegmatic shopper	• Low/high income (€60000-€90000) • Informational social influenced • Driven by convenience • loyal ➔ high expectation of service ➔ retailers should have channel integration to

However, each retailer has a different target group and should specify them (Patten *et al.*, 2020). The question is, which technologies would they prefer since the study differ only between online and offline channel. Moreover, the integration of Omni channel activities is

possible in Germany since every household, which has internet access, owns five devices (Beck and Rygl, 2015).

An empirical study about German customer points out that German customer are interested to use beacon service, which is defined as Bluetooth technology to send different messages. This provides additional service as Mobile payment or E-Coupons. Therefore, smart phones can be used to get additional information, use additional channel, improve the customer journey with personal service and increase the satisfaction level. But German customers are scared about the data privacy (Thamm *et al.*, 2016). Consequently, the question occurs if German consumer would accept different technologies.

2.9 Conceptual Framework

A conceptual framework identifies the variables of the research question, the relationships between them and the contextual factors. Based on the literature review the dissertation focuses on the following frameworks to achieve the research objectives in the study, which are already explained in the chapter 1.4. These frameworks are topic based and can be matched in a clear order to identify later the dependent and independent variables according to a quantitative survey.

The literature review about the fashion retail outlines that the offline and online Retail Channel changes to an Omni channel to survive (Montagna and Figueiredo, 2020). The literature points the advantages of this change out, which tools are necessary and how to use data in the right way to benefit from the online and offline channel to meet the different target groups. Nevertheless, the literature does not point out, which target group uses the different kind of retailers.

Different consumer behaviour models as stimulus-organism response model of decision making, analytical framework, the theory of buyer behaviour, conceptual vs. perceptual learning theory, consumer decision model, consumer behaviour theory, theory of reasoned action, operand classification of consumer behaviour, model of goal oriented behaviour, multigenerational study, the fashion-conscious behaviours of mature female consumers, a study of factors affecting customer shopping behaviour are pointed out in the literature

review (Newman and Foxall, 2003; Nam *et al.*, 2007; Bray, 2008; Attri and Jain, 2018; Dorie Amy and Loranger David, 2020). These frameworks are important to identify the variables that influence the consumer behaviour and how people act in their shopping behaviour. This is helpful to find out the change in the behaviour by the influence of digitalization to improve the service. Moreover, the literature points out what influences the shopping behaviour and that different age groups use the Omni channel differently.

The frameworks about the consumer service as the mends-end theory, the IT-based service degradation decision theory and SEVQUAL model explain the variables that influence the consumer service (Paul *et al.*, 2016; Tsohu *et al.*, 2019; Patten *et al.*, 2020). The concepts helps to understand what is important in the consumer service for the consumer. It is to say that the service differentiate by consumers and retailers.

The concepts about the instore technologies as digitalization in retailing, instore technology infusion, advanced fashion technology, retail apps, self-checkout and virtual fitting rooms are important to understand the digitalization in the retail sector (Hagberg, Sundström, *et al.*, 2016; Vecchi, 2017; Grewal *et al.*, 2020; Lee and Xu, 2020; Xue *et al.*, 2020; Lee and Leonas, 2020). They outline the influence on the consumer behaviour and service to know what kind of technology tools are important and to answer the objectives as how to implement digitalization in the retail and improve the customer service.

The Omni channel frameworks as fashion digital society, competing in the age of Omni channel retailing, Omni-channel management in the new retailing era, consumers' decision: fashion Omni-channel retailing, Omni channel customer behaviour: key drivers of technology acceptance and use and their effects on purchase intention, consumer experiences, the key to surviving in an Omni-channel environment: Use of virtual technology, Omni channel fashion retailing: examining the customer decision-making journey, The role of technology in an Omni channel physical store: assessing the moderating effect of gender, special issue information technology in retail: toward Omni channel retailing, technology in Omni channel retailing: exploring agenda for future research and conceptualization of Omni channel are important according to the research questions of this dissertation (Brynjolfsson

et al., 2013; Piotrowicz and Cuthbertson, 2014; Gao and Yang, 2015; Juaneda-Ayensa *et al.*, 2016; Mosquera *et al.*, 2018; Shi *et al.*, 2020; Sharma and Dutta, 2020; Lynch and Barnes, 2020; Boardman *et al.*, 2020; Lee and Leonas, 2020; Cai and Lo, 2020).The literature of the Omni channel shows, the possible implementation tools for retailers, the change of consumer behaviour and how consumer and retailers benefit from it. The research outlines new service possibilities. Nevertheless, retailers have difficulties to implement this in the right way according to the target group (Sharma and Dutta, 2020). Therefore, the dissertation will focus, which new tools the different consumer will use.

The literature about the Covid 19 points out that there is a shift in the retail. Therefore, people buy more online clothes (Barua, 2020). The pandemic points the future of the retail as Omni channel again out (Shaikh and Ahmad, 2020). Moreover, the question occurs if people will go back to buy offline after the pandemic (Sheth, 2020). The future of Omni channel retailing includes also the visualise of different delivery methods and reviews to increase the sales after the pandemic (Kim, 2020). Consequently, the literature points out that there is a need to questionnaire the change of the consumer shopping during the Covid 19.

The literature about specific cases in Germany points out that German customers are interested in new technology but the acceptance cannot be identified (Thamm *et al.*, 2016). The framework service quality in multichannel fashion retailing is important for specific cases in Germany (Patten *et al.*, 2020). As the literature points out, there are not a lot of sources on the specific case in Germany. Therefore, there is a need to observe the service, digital tools and Omni channel behaviour in Germany. Patten (2020) points out that the use of Omni channel differentiate by four target groups. The younger people mainly use more Omni channel touch points than the older. Since the study does not focus on different service technologies, the dissertation will show the use of technologies by consumers in Germany.

These frameworks are summarized in a figure below with the influence of other sources of the literature review. Firstly, the Covid 19 is on the left side of the conceptual framework with an arrow to fashion retail since it influences the fashion retail fast according to the change to Omni channel (Barua, 2020; Shaikh and Ahmad, 2020). It is to say that the

consumer and fashion retail are at the top since all activities as digitalization tools, the use of Omni channel activities, consumer behaviour and consumer service are influenced by those. The digitalization models are at the left side top since digitalization influences the consumer behaviour, service and Omni channel (Curhan *et al.*, 1977; Hagberg, Sundström, *et al.*, 2016).The digitalization models are well developed (Grewal *et al.*, 2020, Hagberg *et al.*, 2016). The author will especially test the instore technology to know what the consumer preference is according to service optimization and effective digitalisation (Grewal *et al.*, 2020).The Omni channel is on the right side since it influences the service and consumer behaviour as well. The new service activities will be tested according to different retail formats and target group to know which the customer will prefer which tool. Moreover, the consumer behaviour models and consumer service models are combined in the table. As the literature review pointed out the consumer behaviour depends on the information, demographics and store preference, which have an influence on the preferred service and digitalisations and Omni channel as the arrows in the framework shows (Green *et al.*, 1974; Newman and Foxall, 2003; Bray, 2008; Kim and Kincade, 2009).

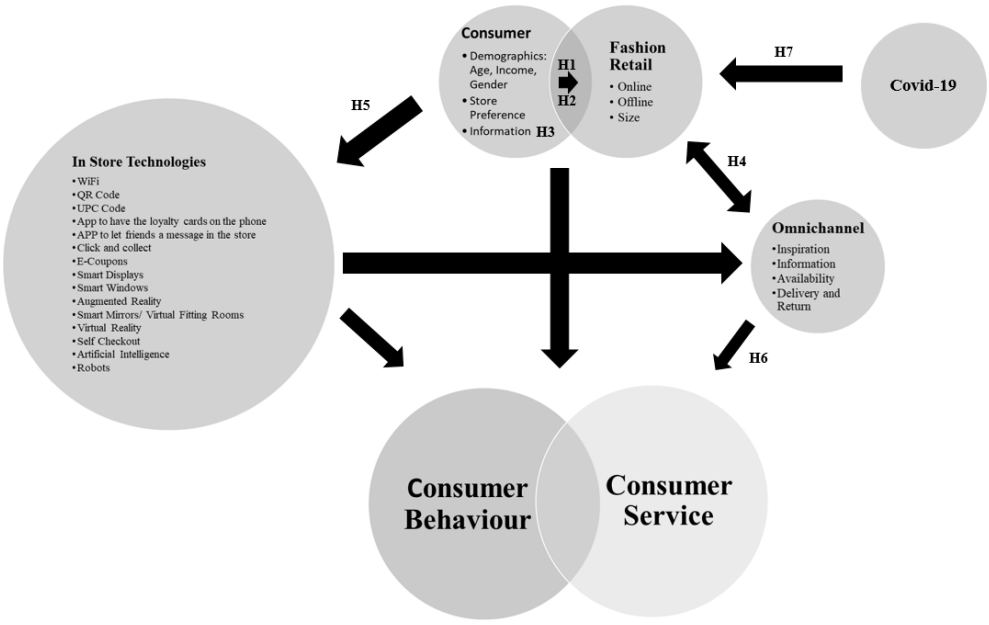


Figure 3 Conceptual Framework

The following table shows the definition of each factor of the conceptual framework.

Table 7 Definition Conceptual Framework

Factors	Definition
Covid 19	The Covid 19 influences the rapid change of offline retail settings and the change to online shopping and Omni channel activities since the consumers do not have another opportunity during the lockdown (Barua, 2020; Santoso, 2020; Kim, 2020; Baker *et al.*, 2020; Sheth, 2020).
Consumer	The consumer is the person, who buys goods in the retail. The consumers distinguishes by demographics as gender, age, nationality, income and store preferences, which includes size and kind of the retail (Newman and Foxall, 2003; Bray, 2008; Kim and Kincade, 2009; Green *et al.*, 2018).
Fashion retail	The fashion retail differ by service and product (Hasan, 2018). Moreover, the size plays an important role in the decision making (Green *et al.*, 2018). The technologies tools, which can be used differ from the kind of retail (Hagberg, Sundström, *et al.*, 2016). Moreover, the size of the retail has also an influence on the consumer service and behaviour (Green *et al.*, 2018).
In store technologies	Two author defines technologies as click and collect, home delivery, E-coupons, connection between online shop and retail shop, augmented reality (E.g. share pictures on social media from customers), smart mirrors (e.g. adjust the lighting and contact in sales associates to obtain other desired products. Consumers can also see the items they are trying on in different colours or accessorized with various items to create unique looks), virtual reality, robots (e.g. Alexa is used in stores to give customers more information about the product), click-and-flick smart windows (e.g. scan a piece, which is in the window to use your phone to look it up online), smart displays (e.g. I pads to show the whole collection, which is not available in the store), which influences the retail, the consumer behaviour and service (Hagberg, Sundström, *et al.*, 2016; Grewal *et al.*, 2020).
Omni channel	The Omni channel makes new touchpoints in different channels with the consumer possible. Therefore, different service settings as inspiration, information, delivery, return and availability of the product are possible

	(Lynch and Barnes, 2020). Technologies tools influences the seamless experience in the offline and online channels as well (Piotrowicz and Cuthbertson, 2014). Moreover, the Omni channel creates a new consumer behaviour and service (Lynch and Barnes, 2020). The implementation of the Omni channel activities differentiate by retailers and customer demographics (Piotrowicz and Cuthbertson, 2014; Patten *et al.*, 2020; Boardman *et al.*, 2020).
Consumer Behaviour	The consumer behaviours are influenced by different factors. These influences depend on the outputs of the shopping behaviour in the store (Newman and Foxall, 2003; Bray, 2008). The behaviour can be influenced by the digitalization, the consumer and kind of retail as well (Hagberg, Sundström, *et al.*, 2016; Green *et al.*, 2018).
Consumer Service	The consumer service can be influenced by the technologies. (Hagberg, Sundström, *et al.*, 2016) Moreover the different consumers and the kind of retail defines good service in different ways (Bray, 2008; Hasan, 2018; Green *et al.*, 2018). The consumer service is influenced by different factors (Sridhaar and Zhang, 2006; Parikh, 2006; Paul *et al.*, 2009; Tanwar, 2015; Tsohu *et al.*, 2019).

Out of this framework the following hypothesis can be created:

H1) There is a difference between men and women and age to use different channel for shopping.

This hypothesis points out that it is necessary to achieve the objective what Omni channel activities are effective by referring to different target groups.

H2) There is a difference between men and women and age to use different retail shops for shopping.

This hypothesis will identify different target groups by using four different shop option as outlet, fast fashion, department and luxury shops. This is necessary to give recommendations for different implementation of technologies, improving the service and to develop the right Omni channel activities,

H3) There is a difference between men and women and age where to search after information.
Therefore, this hypothesis alludes to a difference in information search by differentiating between demographics and the usage of channels to improve the service and Omni channel activities in the right way by referring to the target audience.
H4) There is a difference between men and women and age where to search for inspiration.
Therefore, this hypothesis alludes to a difference in the information search by differentiating between demographics and the usage of channels to improve the service and Omni channel activities in the right way by referring to the target audience.
H5) There is a difference in the use of technology preferences between men and women and age groups.
This hypothesis refers to the dependent variable technologies. Therefore, the researcher will find out the preferred instore technologies of the independent variable to reach the objective to implement the digitalisations in the right way.
H6) There is a difference in the use of new service opportunities of the Omni channel by differentiate between customer demographics and different fashion shops.
This hypothesis will identify the usage of new service activities by differentiate between customer demographics and fashion shops to meet the objective to develop the right Omni channel activities.
H7) There is a difference in the use of channels before and after the lockdown of Covid 19.
This hypothesis will identify the change of the shopping behaviour by differentiate between customer demographics to meet the research question if the behaviour changes after the lockdown according to the Omni channel objective.

2.10 Conclusion

Finally, the literature review pointed different influences and possible outcomes of the consumer behaviour and consumer service out. The connection between online and offline channels creates new touchpoints with the consumer and a seamless service (Montagna and Figueiredo, 2020). The use of technology can influence those elements and changes the service and the retail business as well (Hagberg, Sundström, *et al.*, 2016). Different kinds of digitalization tools are mentioned (Grewal *et al.*, 2020). The literature mentions a difference in the terms of implementing Omni channel and digital tools to improve the service (Gao and

Yang, 2015; Lynch and Barnes, 2020). But the literature does not point out, which technology and Omni channel tools are more efficient in terms of customer demographics and retail size. Moreover, the literature points out that the pandemic influences the change of traditional retail settings to online and Omni channel activities fast (Barua, 2020; Santoso, 2020; Kim, 2020; Baker *et al.*, 2020; Sheth, 2020). The question occurs if the consumer will still shop offline after the pandemic.

The literature does not mention how the consumer behaviour differentiate according to those two variables. Since the models do not refer exactly to the German fashion industry, the dissertation will outline which technologies are more important to improve the service in this business and also by the influence of size and customer demographics. The reason for this is that different literature points out that these factors influence always the consumer but not how. The study about Germany focuses only on the use of different channels, where younger customer are more aware of online channel tools. But the research does not focus on different technologies (Patten *et al.*, 2020).

As it is described above there is a gap in the literature, which is mentioned in the conceptual framework. Therefore, the Covid 19 influences the fashion retail, consumer demographics and retail stores influences the choice of technologies and Omni channel activities. Moreover, the digitalization and combination of offline and online touchpoints changes the consumer behaviour and consumer service. Therefore, the dissertation will match different technology tools and Omni channel activities with the consumer demographics and different kind of retail to meet the objectives in chapter 1.4.

3. Methodology and Research Design

3.1 Overview

After the gap in the literature review is described in chapter 2, the dissertation will focus on the methodology and research design of the primary research. Firstly the philosophy, which refers to a positivism paradigm, will be pointed out in chapter 3.2 (Hunt, 1991). The chapter 3.3 refers to the research design, which includes the purpose and research strategy. The chapter 3.4 outlines the research method, which explains the sources of data, the access and ethical issues. The questions for the German consumers will be formed to close the gap in the literature according to the hypothesis and different variables of the conceptual framework. Then the technique for data analysing and potential outcome will be pointed out in the chapter 3.5. The chapter methodology and research design will end with a conclusion.

3.2 Research Philosophy and Approach

The research philosophy outlines the relationship between the view, knowledge and interpretation. The following figure is the research onion, which identifies the different approaches according to the primary research (Saunders, 2016).

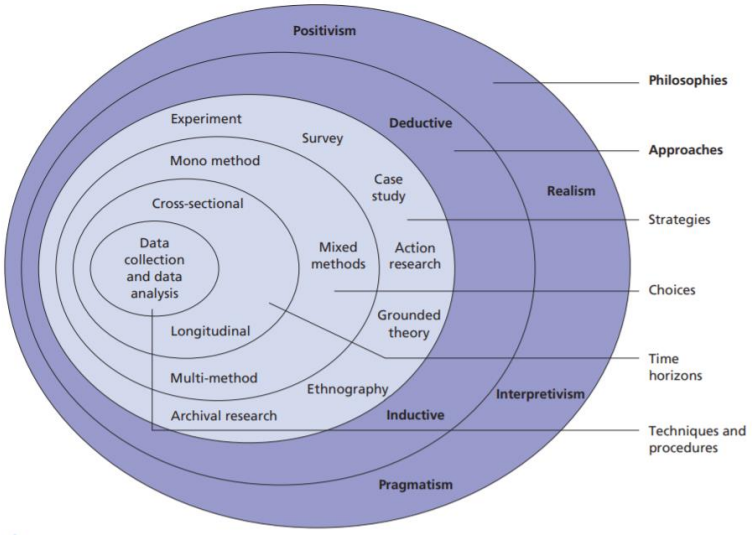


Figure 4 The research onion (Saunders, 2016)

The main research paradigm in this study is the positivism according to a quantitative primary research (Hunt, 1991). The positivism paradigm guides the dissertation to conduct research. It includes the philosophical, social and technical methods. Firstly, the positivism describes a knowledgeable predictable world. The research should be empirical based. Another point is that the researcher is independent. The knowledge and reality exists outside of the human mind (Collis and Hussey, 2013b). A positivism approach has a logical reasoning and depends on concepts, which are capable. The study will be hypothesis driven by strong variables in a big sized sample, which can be generalized on the population. Therefore, the reliability, which alludes to the findings, is high and the validity is low (Collis and Hussey, 2013a).

The quantitative research goes along with the philosophical assumption. Therefore, the quantitative research has one reality, which is measurable, independent and value free. These three factors refer also to the Ontological, Epistemological and Axiological assumption as the table eight shows (Collis and Hussey, 2013a).

Table 8 Philosophical assumption (Collis and Hussey, 2013a)

Philosophical assumption	Definition	Quantitative
Ontological	Reality	One reality
Epistemological	Relationship between variables	Measureable, independent knowledge
Axiological	Role of value	Value free, independent from research

The positivism approach goes along with the deductive methodology. This means how the hypothesis and questions are formed (Saunders, 2016). The research, which will include a quantitative survey, is hypothesis driven. The hypothesis refer to different concepts that are tested. Moreover, relationships between different variables can be identified (Knox, 2004). This includes different steps as forming hypothesis, measure hypothesis, testing the hypothesis and identify a result, which can change the conceptual framework. The deductive approach includes a control of the tests, a structured methodology, measurable facts and a

generalization, which will be explained in more detail in the research design chapter 3.3 (Saunders, 2016).

After the general explanation of the positivism philosophical approach and deductive methodology, a justification of this decision will be outlined. Therefore, a quantitative survey will be done, which includes a sample size of German consumers, who shop in offline retail shops. The variables of the conceptual frameworks will be tested to find out what kind of technology the consumer prefer to optimize the service according to the objectives. New service activities of the Omni cannel will be tested to develop the Omni channel in different retail shops in the right way according to different target groups. This can be generalized because of the sample size. The hypothesis drive the survey. The result of this survey is empirical based and the reliability will be high (Collis and Hussey, 2013a).

3.3 Research Design

3.3.1 Research Purpose

The overall purpose on this study will focus on the mix of explanatory and predictive since these factors go along with the positivism. Explanatory means the discovery of how and why something is happening. The predictive approach points the forecast of the likelihood of something happening out (Collis and Hussey, 2013a).
The testing of the conceptual frameworks to find the objective out, as which technology is more efficient, alludes to the explanatory purpose. The reason for this is that the primary research will find out how digitalization can improve the service. The predictive approach is also important since the questionnaire will identify a change in the consumer behaviour according to the implementation of digitalization and Omni channel activities, which includes a forecast.

3.3.2 Research Strategy and Time Horizon

According to the chapter 3.2, a positivistic and deductive approach were identified, the overall primary research refers to a quantitative study. Therefore, the research strategy will be a survey with the goal to analyse it statistically. This can be made since the theories are well developed (Collis and Hussey, 2013a). The survey will be an internet questionnaire by using survey monkey to collect a large number of opinions (Saunders, 2016). Therefore, independent and dependent variables need to be identified according to the literature review and conceptual frameworks to form closed question (Collis and Hussey, 2013a). A sample group has to be identified to receive the right answers. This dissertation will include as a sample group German customer, who purchase fashion in retail stores to reach the objectives. The survey will help to understand the relationships between digitalization, Omni channel, consumer service and consumer behaviour to have a generalized result to reach the goals as improve the consumer service with a recommendation of efficient digitalization tools and a development of the right Omni channel. Consequently, the research strategy is a mono method, which means that the dissertation uses only one source as primary research as it mentioned above (Saunders, 2016).

The time horizon refers to a cross sectional study since the survey has to be conducted in 3 month, which outlines only a snapshot of research (Saunders, 2016). Moreover, the dissertation identifies the relationship of the customer demographics, kind of retailers in order to identify the different behaviours of the use of technology in fashion retailers.

The findings of the research design should be credible, which means that everything should be done to reduce the possibility to get the wrong answers. Moreover, the research design should be validity and reliable. In the case of rehabilitee the primary research has to be equal with other sources. Moreover, the data has to be transparent according to the results. Consequently, the questions has to be justified with the literature. Validity explains the causal relationship between the variables. Therefore, participants of the survey can be influenced by experiences and can cancel the participants of the survey. The analysis of the survey needs to be logical and transparent as well (Saunders, 2016).

3.4 Research Method

3.4.1 Sources of Data

The collection of primary data will be done through a questionnaire online survey, which includes closed question between the 30th of June 2020 and 22st of July 2020. Therefore, it will be a self-administration questionnaire. Consequently, the questionnaire will be influenced by the characteristics of the respondents, size of sampling and types of question (Saunders, 2016).

The most important thing to do a questionnaire is the sampling (Collis and Hussey, 2013a). Therefore, the selection of the sample size includes a representative number of the population. Since the survey is sent out through the internet and people can answer it randomly, it refers to non-probability (Saunders, 2016). The first step is to identify the suitable sample number, which will be German customers, who purchase in the fashion retail.

- Geographic Area=Germany
- Lifestyle=purchase fashion in retail stores

The sample size includes 45,8 million people out of 80 million citizens according to apparel purchasing in Germany (Statista, 2020). Therefore, 385 participants have to do the online survey to have a high certainty and generality as the figure "sample size" shows (Qualtrics, 2020).

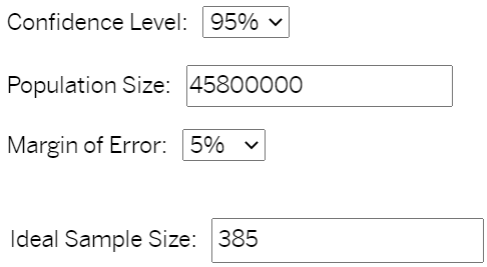


Figure 5 Sample Size (Qualtrics, 2020)

The figure 5 shows that the margin of error will be five. Consequently the confidential level is 95% (Saunders, 2016).

The questionnaire will be shared on different online channels as Facebook, LinkedIn, Xing and Instagram to reach the people, which will not cost any money and the data can be collected automatically. Closed question will be asked to analyse the difference of the participants. The benefit of an online questionnaire is that the data will be collected fast. The internet reaches a high population and the response rate is fast (Saunders, 2016). Other advantages are appearance, flexibility, functionality and usability. The cons are coverage errors, sampling errors, non-response errors, and measurement errors. The last two points can be solved by the design of the survey (Cook, 2019).

Before a questionnaire can start, the literature have to be red in detail to gain knowledge form a conceptual framework with clear identified independent and dependent variables to justify hypothesis and questions for the survey. The variables can be divided into opinion, behavioural or attribute (Saunders, 2016). The hypothesis in chapter 2.9 are fact based and define an expectation about the outcome (Keogan, 2009). Out of that the relationship based question will be formed, data collected and analysed. These include to identify independent variables, which do not depend on other as gender and age. These are also the nominal and ordinal data. The dependent variables depend on them as service influences, consumer influences and kind of technology and use of Omni channel activities tools according to the conceptual framework. Therefore, a test between the groups will be made. The inferential test will include a multivariate system (Keogan, 2009). The following table shows the variable, which will be tested.

Table 9 Variables

Variable	Type	Nominal	Explanation
Gender (attribute)	Independent	non-parametric	The gender and age refer to the consumer demographics, which influence the income levels and influence the retail, the use of technology, the consumer behaviour and consumer service (Newman and Foxall, 2003; Bray, 2008).
Age (attribute)	Independent	non-parametric	
Income (attribute)	Dependent	non-parametric	

Retail Size (attribute)	Dependent	non-parametric	The retail size and kind of retail as outlet, fast fashion stores, department and luxury stores is an dependent variable since they depend on the target group (Kim and Kincade, 2009; Green *et al.*, 2018).
Kind of Retail (attribute)	Dependent	non-parametric	
Channel (behaviour)	Dependent	non-parametric	The choice of the different channels as Offline Retail, Online shop through Website, Mobile App and Social media is a dependent variable since it depends on the customer demographics (Piotrowicz and Cuthbertson, 2014).
Information (behaviour)	Dependent	non-parametric	Information is a depended variable since it influence the consumer and the behaviour (Bray, 2008).
Inspiration (behaviour)	Dependent	non-parametric	The tool to search after inspiration differ by the customer demographics. This is an important variable to find out how the Omni channel changes the search for inspiration to develop the Omni channel in the right way (Lynch and Barnes, 2020).
Omni channel Service activities (behaviour)	Dependent	non-parametric	The Omni channel activities as delivery and return differentiate by the customer demographics and retailers (Lynch and Barnes, 2020).
Technologies (behaviour)	Dependent	non-parametric	The technologies are as well a dependent variable since the consumer and the retail influence that (Hagberg, Sundström, *et al.*, 2016; Grewal *et al.*, 2020).

After the variables are identified, the research design is necessary to point out. The survey has to include appropriate and clear defined closed questions to collect the data (Bryman *et al.*, 2008). Therefore, the structure, validity, reliability design and translations plays an important role. The validity will outline, if the findings represent the measurable factors. It can be divided into the content validity, where questions are justified with the literature. The criterion related validity measures the future behaviour of the participants (Saunders, 2016). The topic of this dissertation points a mix of both out. Since the author measures the behaviour according to the technology and knowledge of the literature. The rehabilitee refers to the interpretation of the participants. Therefore, the internal consistency test will reduce the rehabilitee in the survey since the responses of the participants will be compared. The survey will include close questions, which can be ask through ranking, category, and rating. The questions are formulated in an easy way that the participants can understand it and can look up vocabularies (Saunders, 2016).

Table 10 Survey

Nr.	Investigative question	Variables required	Details in which data should be measured	Design	Sources
1	Gender	Gender	• Male • Female	Multiple Choice	(Nam *et al.*, 2007; Piotrowicz and Cuthbertson, 2014; Mosquera *et al.*, 2018; Attri and Jain, 2018; Oh and Polidan, 2018;

					Grewal *et al.*, 2020)
2	When were you born?	Age	• Between 1943 and 1960 • Between 1961 and 1981 • Between 1982 and 2004	Quantity Question	(Bray, 2008; Attri and Jain, 2018; Oh and Polidan, 2018; Kim, 2020; Baker *et al.*, 2020; Dorie Amy and Loranger David, 2020)
3	What is your annual salary brutto?	Income	• Under €29.000 • Between €30.000 and €60.000 • Between €60.000 and €90.000 • Above €91.000	Quantity Question	(Attri and Jain, 2018; Grewal *et al.*, 2020; Patten *et al.*, 2020)
4	Where did you shop the most before the lockdown according to Covid 19?	Channel	• Online Shop • Offline Retail Shop • Online and Offline	Multiple Choice	(Mirsch *et al.*, 2015; Shaikh and Ahmad, 2020; Kim, 2020; Jin and Shin, 2020; Montagna

					and Figueiredo, 2020; Sheth, 2020)
5	Where do you shop more after the lockdown according to Covid 19?	Channel	• Online Shop • Offline Retail Shop • Online and Offline	Multiple Choice	(Mirsch *et al.*, 2015; Shaikh and Ahmad, 2020; Kim, 2020; Jin and Shin, 2020; Montagna and Figueiredo, 2020; Sheth, 2020)
6	Where do you shop clothes in the offline retail? (More than one answer is possible)	Kind of Retail	• Outlet and Discount Stores e.g. TK Maxx • Fast Fashion Stores and Monolabel Stores e.g. Zara/H&M • Department and Multilabel stores e.g. P&C • Premium and Luxury Stores e.g. Hugo Boss	Closed Question	(Kim and Kincade, 2009; Lee and Leonas, 2020)

7	Which size of offline fashion retail stores do you prefer?	Retail Size	• Small • Medium • Larger	Multiple Choice	(Green *et al.*, 2018; Caro *et al.*, 2020; Jin and Shin, 2020)
8	Which tool do you use to shop online? (More than one answer is possible)	Channel	• Website • Mobile APP • Social Media	Closed Question	(Sharma and Dutta, 2020; Dorie Amy and Loranger David, 2020; Lynch and Barnes, 2020)
9	Are you searching for Information before your shopping?	Information	• Always • Usually • Sometimes • Rarely • Never	Rating Question (Frequency)	(Bray, 2008)
10	Where do you search for information? (More than one answer is possible)	Information	• Marketing • Websites • Social Media • Recommendations of Friends and Family	Closed Question	(Bray, 2008; Sharma and Dutta, 2020; Lynch and Barnes, 2020)
11	Where do you search for outfit inspiration?	Inspiration	• In the store • Social Media • Website of a brand	Closed Question	(Lynch and Barnes, 2020)

	(More than one answer is possible)				
12	Which delivery option would you use, if you have the choice? (More than one answer in possible)	Omni channel	• Buy the product in the store and have it directly • Buy in the retail store and have also a home delivery service • Buy online and deliver the product in the store • Buy online and deliver home	Closed Question	(Lee and Leonas, 2018; Caro *et al.*, 2020; Lynch and Barnes, 2020; Boardman *et al.*, 2020; Sheth, 2020)
13	How is your likelihood to use WI-FI in the Store?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Brynjolfsson *et al.*, 2013)
14	Why would you use Wi-Fi in the store? (More than one answer is possible)	Technologies	• Compare prices online • Find a voucher online • Text with friends	Closed Question	(Brynjolfsson *et al.*, 2013)

15	How is your likelihood to scan a QR code of a product in the store to get more information?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely	Rating (Likelihood)	(Brynjolfsson *et al.*, 2013)
16	How is your likelihood to scan a QR code to see the availability of the product in the store?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Brynjolfsson *et al.*, 2013)
17	How is your likelihood to have your loyalty card in a mobile version?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Brynjolfsson *et al.*, 2013)
18	How is your likelihood to use E-Coupons as discounts on the mobile phone?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Hagberg, Sundström, *et al.*, 2016)
19	How is your likelihood to use self-checkout	Technologies	• Very likely • Likely • Neither likely not unlikely	Rating (Likelihood)	(Lee and Leonas, 2020)

	option in the fashion retail, e.g. mobile app or full device?		• Unlikely • Very unlikely		
20	Would you let the staff show you the additional collection virtual, if a shop does not have the whole collection in the store, e.g. on an I pad?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Sharma and Dutta, 2020; Grewal *et al.*, 2020)
21	How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Grewal *et al.*, 2020)
22	Would you agree that retail stores can share a picture of your purchase on social	Technologies	• Strongly Agree • Agree • Neither agree not disagree • Disagree	Rating (Agreement)	(Grewal *et al.*, 2020)

	media, if you get a discount?		• Strongly Disagree		
23	How is your likelihood to put your product that you are wearing into another virtually location, e.g. wearing an outdoor jacket and have the feeling to be in the mountains?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Vecchi, 2017; Grewal *et al.*, 2020; Lee and Leonas, 2020)
24	How is your likelihood to see product recommendation from other customers in the store as you can see this in online shops?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Brynjolfsson *et al.*, 2013)
25	How is your likelihood to use virtual fitting rooms to see different sizes, colours	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Grewal *et al.*, 2020; Lee and Xu, 2020)

	or outfits on your body without spending time to try the product on?				
26	How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you information?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Grewal *et al.*, 2020)
27	Do you have experience with in store technology as a customer service?	Technologies	• Yes • No • Not sure	Rating	(Hagberg, Sundström, *et al.*, 2016; Mosquera *et al.*, 2018; Sharma and Dutta, 2020; Grewal *et al.*, 2020; Patten *et al.*, 2020; Lee

					and Leonas, 2020)
28	Would you be interested in more technology experience provided by the stores in order to make your shopping experience faster and beneficial?	Technologies	• Very likely • Likely • Neither likely not unlikely • Unlikely • Very unlikely	Rating (Likelihood)	(Hagberg, Sundström, *et al.*, 2016; Shaikh and Ahmad, 2020; Cohen and Karabus, 2020; Grewal *et al.*, 2020; Patten *et al.*, 2020; Lee and Leonas, 2020)

After, the questions are identified, the following table shows to which variable and hypothesis each question refer.

Table 11 Explanation Survey

Question	Conceptual Framework	Variable	Hypothesis
1	Consumer	Independent gender	H1, H2,H3,H4, H5, H6, H7
2	Consumer	Independent age	H1, H2,H3,H4, H5, H6, H7
3	Consumer	Dependent Income	H1, H2,H3,H4, H5, H6, H7
4/5	Fashion Retail	Dependent Channel	H1, H7

6/7	Fashion Retail	Dependent Retail	H1, H2,H3,H4, H5, H6, H7
8	Channel	Dependent Online Channel	H1
9	Consumer	Dependent information	H3
10/11	Omni Channel	Dependent Inspiration	H4
12	Omni channel	Dependent Omni channel activities	H6
13-28	Technologies	Dependent technologies	H5

3.4.2 Access and Ethical Issues

The access to reach the right sample group is important since otherwise the result will not be efficient. Therefore, strategy to entry the sample group has to be clear defined. In this case it will be 385 German customers, who shop in fashion retail shops (Qualtrics, 2020). On the one hand personal contacts will be used since the researcher is German. Moreover, the survey will be shared on social media to reach more people. The survey will ensure familiarity with the target group and time. Therefore, the survey takes only 7 minutes for participants. Moreover, the target group is broader. Consequently the right people can be easier identified. The introduction of the survey will describe the requirements to be a participant in the survey and identifies benefits for them as the content form in the appendix show (Saunders, 2016).

Ethical issues can happen in a quantitative research on different stages according to the collection of data. The most important ethical issues, which has to be keep in mind is anonymity of the participants. The first ethical issue that needs to be mentioned is at the formulating the research topic stage is the design. Therefore, the justification has to refer to existing knowledge (Saunders, 2016). During the research design stage the access and sample size needs to be identified to get efficient results. In terms of sampling the size can be too large, which involves wasting time and unnecessary involvement of people. If a sample is

too small, the study will not be useful since it cannot be generalized (Simons and Usher, 2000). According to the collection of data, the participants will do the survey voluntary and can be deleted all the time (Saunders, 2016). The anonymity will be ensured according to the IP address. But since the participants do not enter the names, the problem will be solved. The participants are through the plain language statement and informed consent form aware of the process and have to agree by a confirmation button. The time and second language as English according to the German participants will be another ethical issue. Therefore, the participants can always look up vocabularies. The participants are informed that the survey will be done in 7 minutes and the language problems is calculated with in this time. The next stage is the storing of the data according to data privacy. Therefore, the participants have the right as it is mention in the informed consent form for anonymity and withdraw for the survey (Saunders, 2016). The data will be deleted after the defence of the master thesis in October to do not harm anybody. Another ethical issue will be the misuse of data since the change of data to have a better result is unethical. In other words how should the researcher deal with outliers? (Simons and Usher, 2000) Therefore, during the analysis each step has to be explained. If less observation were done, the analysis can lead to ethical issues. If the decision making of dependent and independent variables is not clear defined, the correlation will be wrong (Simons and Usher, 2000). The interpretation and presentation of data has to be transparent otherwise further research will be wrong, which will be unethical. (Simons and Usher, 2000)

3.5 Approach to Data Analysis

Quantitative studies use multiple tests to find out relationships of difference (Fitzgerald and Rumrill, 2005). The tools Excel and SPPS are used to test the hypothesis. The tests that will be used depend on the numbers of variables, types of measurement and characteristics of data (Keogan, 2009). Since the survey will test the difference of the usage of different technologies, consumer purchase behaviour and Omni channel activities between groups by focusing on customer demographics according to the different independent and dependent variables, the anova test will be useful. Therefore, the general linear models and universal method will be clicked in SPSS. The fixed factors are the independent customer

demographics variable and the dependent variable vary from question to question. The levene test shows if the groups are homogeny to test. The normality test outlines the normal distribution and the test of power the effect size. The means table explains the deviation for each combination of the groups and the test between subjects shows if there is a difference between the groups. Since the groups are unequal the turkey test will be useful to show the difference in the groups if there is a difference (Lund Research Ltd., 2018). Therefore, 10 participants are needed for each group. If there are less participants, the power and assumption is also less (Cairns, 2019). Since the questionnaire has questions with multiple answer, the dichotomy will be useful in the coding. Moreover, the multiple answers will be tested with a cross tables to know which answer each target group clicked the most. The overview of the customer demographics will be done with cross tables.

The outcome of the survey depends on the hypothesis (Keogan, 2009). Therefore, the test will show, if there is a difference or not. The result of the survey will be helpful to achieve the objectives as the following table shows:

Table 12 Potential Outcome

Hypothesis	Explanation	Sources
H1 There is a difference between men and women and age to use different channels for shopping.	This hypothesis refers to different shopping behaviour of different consumers. The hypothesis is important to point the different usage of Omni channel out.	(Newman and Foxall, 2003; Nam *et al.*, 2007; Kim *et al.*, 2007; Brynjolfsson *et al.*, 2013; Caro *et al.*, 2020; Dorie Amy and Loranger David, 2020; Patten *et al.*, 2020; Boardman *et al.*, 2020; Lee and Leonas, 2020)
H2 There is a difference between men and women and age to use different retail shops for shopping.	This hypothesis has the goal to create different target groups to match the consumer service, instore technologies improvements and Omni channel activities with them	(Newman and Foxall, 2003; Nam *et al.*, 2007; Kim *et al.*, 2007; Brynjolfsson *et al.*, 2013; Green *et al.*, 2018; Caro *et al.*, 2020; Dorie Amy and Loranger David, 2020; Patten

		et al., 2020; Lee and Leonas, 2020)
H3 There is a difference between men and women and age to search after information	The goal of this hypothesis is to find out if the search after information depend on demographics to achieve the objective to improve the service in the right way by referring to the target audience.	(Nam *et al.*, 2007; Bray, 2008; Dorie Amy and Loranger David, 2020; Patten *et al.*, 2020; Lynch and Barnes, 2020)
H4 There is a difference between men and women and age to search after inspiration.	The hypothesis refer to the implementation of the Omni channel and new service activities, which will be improved. Therefore the hypothesis will be helpful to give a recommendation of useful Omni channel tools, new service activities for different target groups.	(Nam *et al.*, 2007; Dorie Amy and Loranger David, 2020; Patten *et al.*, 2020; Lynch and Barnes, 2020)
H5 There is a difference in the use of technology preferences between men and women and age groups and kind of shops.	The goal of this hypothesis is to find out which instore technologies the independent variables as gender, age and size of retail prefer to reach the objective to implement the digitalisations in the right way. Therefore, the testing of this hypothesis will be useful to answer the research	(Brynjolfsson *et al.*, 2013; Hagberg, Sundström, *et al.*, 2016; Oh and Polidan, 2018; Grewal *et al.*, 2020; Lee and Xu, 2020; Jin and Shin, 2020; Lee and Leonas, 2020)

	questions, what instore technologies are efficient.	
H6 There is a difference in the use of new service opportunities of the Omni channel by differentiate between customer demographics and different fashion shops.	This hypothesis will help to answer the question what Omni channel activities can different retailers do to develop efficient Omni channel activities.	(Brynjolfsson *et al.*, 2013; Piotrowicz and Cuthbertson, 2014; Gao and Yang, 2015; Juaneda-Ayensa *et al.*, 2016; Mosquera *et al.*, 2018; Shi *et al.*, 2020; Sharma and Dutta, 2020; Lynch and Barnes, 2020; Boardman *et al.*, 2020; Lee and Leonas, 2020; Cai and Lo, 2020)
H7 There is a difference in the use of channels before and after the lockdown of Covid 19.	This hypothesis will help to answer the question in relation to Omni channel if the shopping behaviour in the usage of channels changed before and after the lockdown.	(Baker *et al.*, 2020; Barua, 2020; Cohen and Karabus, 2020; Kim, 2020; Relihan *et al.*, 2020; Santoso, 2020; Shaikh and Ahmad, 2020; Sheth, 2020)

Finally, the tests will show which digitalization is useful to implement in which kind of retail according to the relationship of the customer demographics. This will result in a recommendation how to improve the service efficient with digital tools in different retail shops according to the target group

3.6 Conclusion

Finally, the chapter 3 outlines the research methodology, which will be positivistic with a deductive approach since the primary research will be done through a customer survey with 385 German participants, who shop in German fashion retail stores (Collis and Hussey, 2013a). Since the variables of the conceptual framework are well defined, the primary research can be done statistically (Collis and Hussey, 2013a). Therefore, the chapter outlines

the seven hypothesis and twenty eight questions, which will be tested in a survey to answer the objectives and to understand the relationship between the different fashion retailers, the use of technology and different channels and the change of the usage of channel through Covid 19 according to the conceptual framework. The ethical issues, which are mentioned in chapter 3.4.2, will be written down in the introduction of the survey to the consumers as well. The analysis of the data will be done through a descriptive analysis and the anova test, which will be useful to test the hypothesis and difference between the groups to answer the research objectives. Chapter 4 will present and discuss the findings of the research.

4. Presentation and discussion of the findings

4.1 Overview

In the following the primary research, which includes a quantitative survey with 429 participants, where 385 completed and confirmed the study ethical. Therefore, the study can be generalized according to the German consumer behaviour in the fashion retail sector. Firstly, the customer demographics about the age groups, income groups and gender groups will be analysed descriptive to have a good overview about the participants and to know which target group has which income. In the next step the shopping behaviour before and after corona will be outlined descriptively to meet the objective is there a difference before and after the lockdown. Then the shopping behaviour of offline retail shopping and online shopping tools will be analysed with a cross table. Afterwards the Omni channel activities as inspiration, information and delivery tools will be pointed out to meet the objective if there is a difference in the Omni channel behaviour between the target groups and which tools are more effective. Finally, the difference between the target groups according to the instore technologies as WIFI, QR codes, loyalty cards, e-coupons, self-checkouts, social media, virtual location, virtual fitting rooms, showroom, smart windows, robots and digital recommendation will be tested with an Anova. Then the findings of the results of the survey will be discussed and the conclusion will be formed, which includes the answering of the two objectives as a recommendation for efficient Omni channel activities and an effective implementation of in store technologies by focusing on each target group and retailer.

4.2 Presentation of findings

4.2.1 Customer demographics

In the following the customer demographics will be analysed by doing a frequency- and cross table since the goal is to analyse the shopping behaviour and the use of instore technology and Omni channel activities of different target groups. According to the general demographic overview out of 385 participants 40% (N=154) were males and 60% (N=231) were females as the following graph shows.

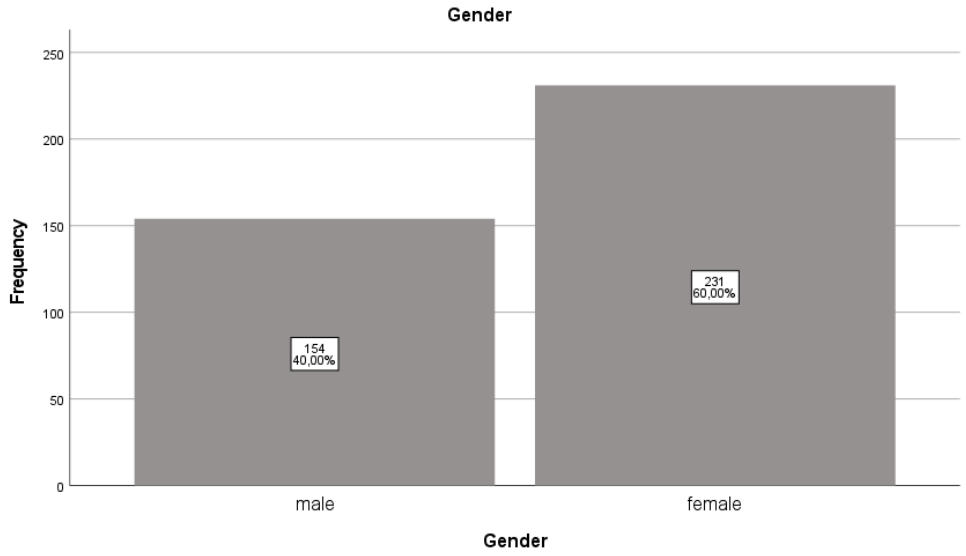


Figure 6 Gender

Moreover, the age groups have also different sizes: The baby boomers (1943 to 1960) participate with 14% (N=54). The Generation x participate with 37% (N=144) and the millennials have the highest number with 187, which equals 49%.

Figure 7 Age

The income is another demographic tool, which is used to differ between the target groups. Therefore, 26% (N=100) of the participants have an income of under €29,000, 32% (N=124) have an income between €30,000 and €60,000, 22% (N=83) have an income between

€61,000 and €90,000 and 78 people or 20% have an income of over €90,000 as the following figure shows.

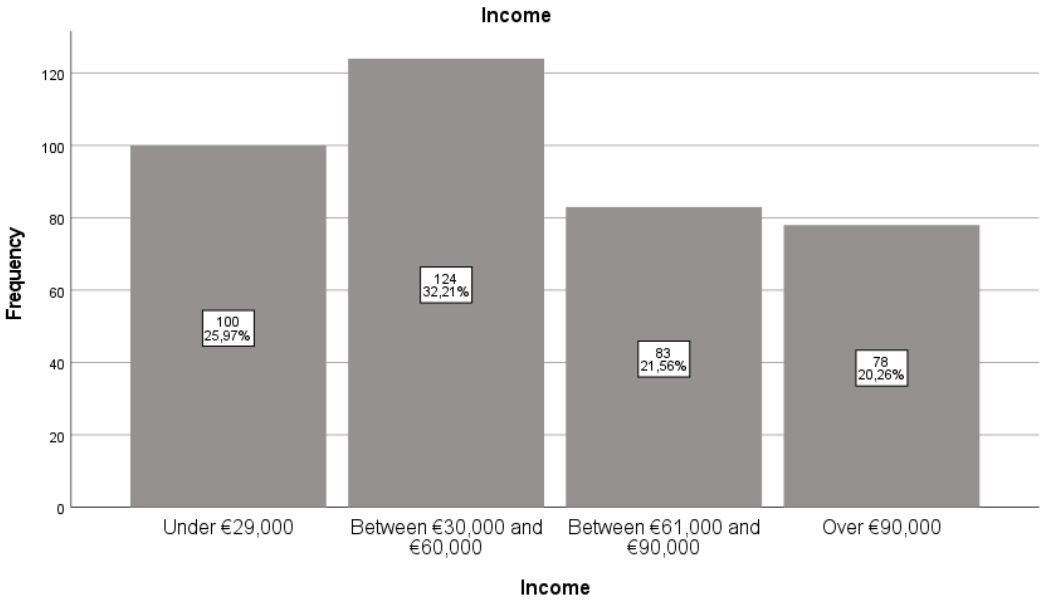


Figure 8 Income

The following cross table shows the 12 different groups according to the participants.

Table 13 Cross table Customer Demographics

Age * Income * Gender Crosstabulation

Count

Gender			Income				
			Under €29,000	Between €30,000 and €60,000	Between €61,000 and €90,000	Over €90,000	Total
male	Age	Between 1943 and 1960	0	6	15	15	36
		Between 1961 and 1980	0	16	11	31	58
		Between 1981 and 2004	15	21	22	2	60
	Total		15	43	48	48	154
female	Age	Between 1943 and 1960	3	6	6	3	18
		Between 1961 and 1980	12	35	16	23	86
		Between 1981 and 2004	70	40	13	4	127
	Total		85	81	35	30	231
Total	Age	Between 1943 and 1960	3	12	21	18	54
		Between 1961 and 1980	12	51	27	54	144
		Between 1981 and 2004	85	61	35	6	187
	Total		100	124	83	78	385

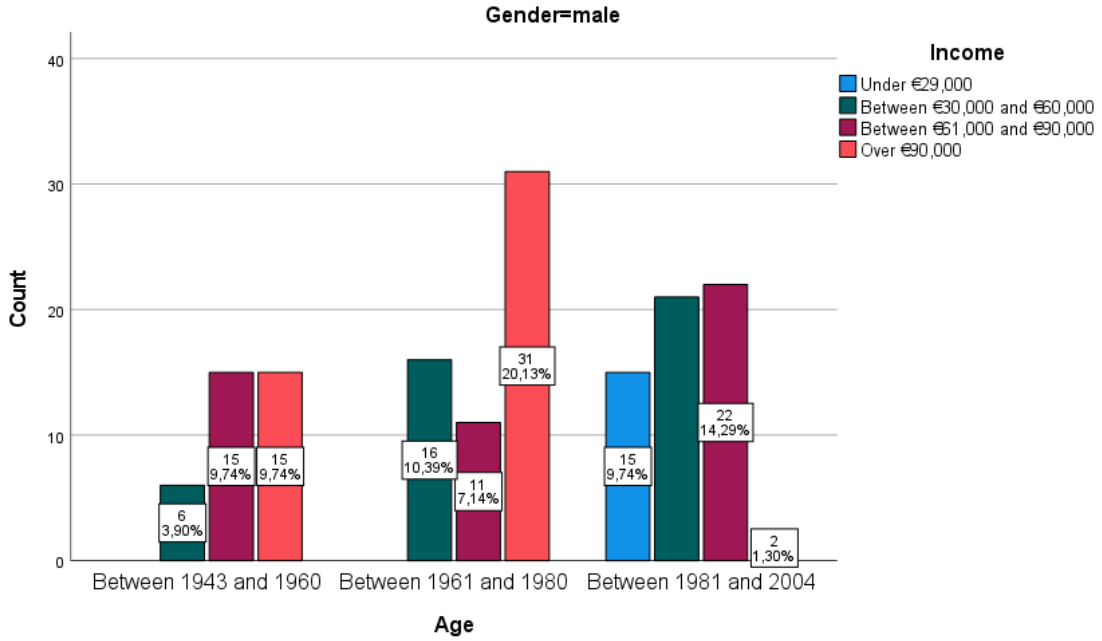
As the table shows especially the baby boomers (between 1943 and 1960) were difficult to reach since the older generation does not use social media a lot (Leung, 2013).

Moreover, the older the generation, the higher is the income and the younger the less is the income (Heinze and Naegele, 2009; Statista, 2018). A cross table of the survey underlines these assumption. Therefore, male baby boomers (1943 to 1960) have a higher income since 41.7% have an income of €61,000 to €90,000 and 41.7% have an income of over €90,000 compared to the age group. Moreover, the female baby boomers have less income since 33.3% have an income of between €30,000 and €60,000 or €61,000 to €90,000.

The men of the Generation x (1961 to 1980) have more income than the male baby boomers. 53.4% have an income of over €90,000. In the same generation the majority of the women have an income in the range of €30,000 and €60,000 (40.7%). Therefore, they earn less money than the men and less than the generation before compared to the females.

36.7% of the men earn €61,000 to €90,000 and 35% earn €30,000 to €60,000 according to the millennials (1981 to 2004). Therefore, this generation earn less money than the generation before. But the majority (55.1%) of women of this generation have an income of under €29,000.

Finally the analysis shows that men have a higher income than women. Moreover, the most generations by the difference of male and female show that the older, the higher is the income. Only the men of the Generation x have a higher income than the previous generation. The two graphs show the difference of the groups according to the total number of participants.



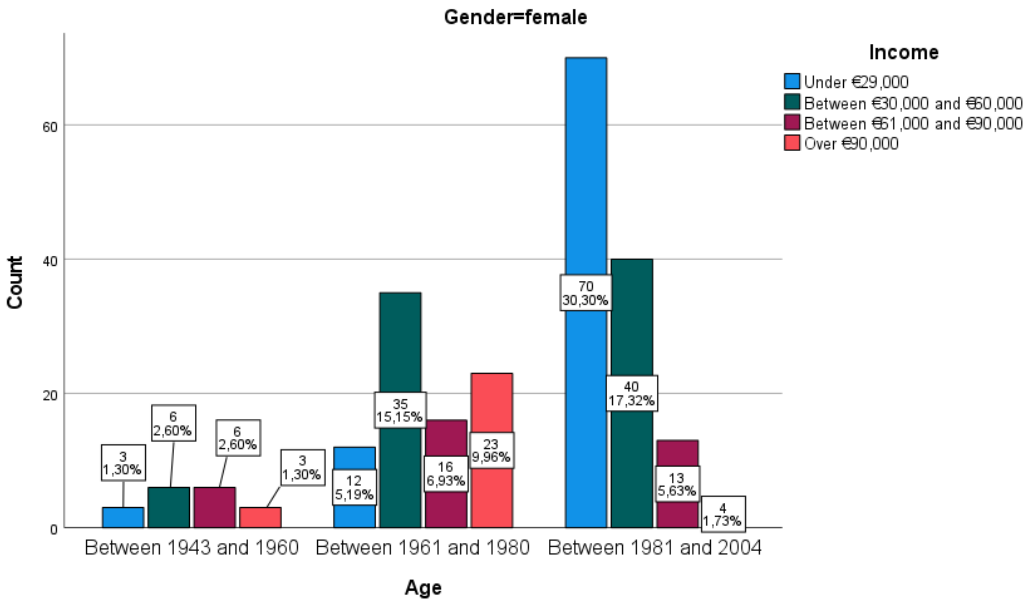


Figure 9 Customer demographics

Since the groups have to less participants of at least 10 according to do an Anova, the following analysis will be done on the focus of gender and age and not anymore on the different income levels (Cairns, 2019). Therefore, six target groups will be analysed as the following table shows.

Table 14 Age and Gender

Gender * Age Crosstabulation

			Age			
			Between 1943 and 1960	Between 1961 and 1980	Between 1981 and 2004	Total
Gender	male	Count	36	58	60	154
		% within Gender	23,4%	37,7%	39,0%	100,0%
		% of Total	9,4%	15,1%	15,6%	40,0%
	female	Count	18	86	127	231
		% within Gender	7,8%	37,2%	55,0%	100,0%
		% of Total	4,7%	22,3%	33,0%	60,0%
Total		Count	54	144	187	385
		% within Gender	14,0%	37,4%	48,6%	100,0%
		% of Total	14,0%	37,4%	48,6%	100,0%

4.2.2 Assumptions Anova

Different Anovas will be done to test the difference of the target groups according to the different instore technologies as WIFI, QR code information, QR code availability, loyalty cards, E-Coupons, self-checkouts, showroom, smart window, social media, virtual location, digital recommendation, virtual fitting rooms, robots, more in store technologies as well as information search. The Anova needs some requirements. The likelihood (1=very likely, 5=very unlikely) to use these tools will be tested, which is a dependent scale variable. The two gender groups, which are female and male and three age groups, are the independent variables. The age groups are ordinal and the gender groups nominal variables. Therefore, the variables are fulfilled to do a 2*3 Anova for each hypothesis.

Another requirement is the normality test. Before each question the normal distribution will be analysed in detail for gender and age, where the skewness and kurtosis should be ideally 0.

Table 15 Skewness and Kurtosis

Statistics

		Gender	Age
N	Valid	385	385
	Missing	0	0
Skewness		-,410	-,615
Std. Error of Skewness		,124	,124
Kurtosis		-1,842	-,837
Std. Error of Kurtosis		,248	,248

As the table shows the skewness is for both independent variables negative, which means that the distribution is on the right side steep. The kurtosis is positive, which means that it has a peakness of distribution in general. Therefore, younger people answered the survey more and also more females.

The Shapiro wilk and Kogmorov smirnov test shows for every tool, which is listed above, that the normal distribution is below 0.05. Therefore, the sample size is not normal distributed. Since the sample size is above 100, the Anova can be done (Ghasemi and Zahediasl, 2012).

The Levene test needs to be done to test the homogeneity of the groups. Since the based on median shows for the likelihood to search after information, usage of QR code scanning for information and availability, loyalty cards, E-coupons, self-checkouts, showroom, smart windows, social media, virtual location and robots a significance of below 0.05, the overall variance is unequal. Nevertheless, the test of the hypothesis there is a difference of the likelihood between the age groups and genders can be done since the sample size is large enough (Gastwirth *et al.*, 2009). The other tools as WIFI, digital recommendation, virtual fitting rooms and more instore technologies have a homogeneity, which will be outlined in each chapter.

Another requirement is the test of outliers with boxplot graphs to do not falsify the result. The tools as WIFI, QR code information and availability, showroom, smart windows, interaction of social media, digital recommendation and virtual fitting rooms do not have any outliers. Therefore, the Anova can continue. The tools as information search, loyalty cards, E-coupons, self-checkouts, virtual location, robots and instore technologies have outliers, which needs to be deleted before the Anova can continue. This will be outlined in each chapter in more detail.

4.2.3 Shopping Behaviour

In the following the shopping behaviour and Omni channel activities will be analysed to reach the objectives to give effective recommendation for Omni channel activities for each target group and retailer.

4.2.3.1 Covid 19

In this chapter the shopping behaviour before the Covid 19 lockdown and after the Covid 19 lockdown will be analysed with a cross table according to the age and gender groups to find out the preferred touchpoints, which alludes to the hypothesis 7. This is important to know if there is a change during the pandemic and to match the Omni channel activities with the different target groups.

The following table shows the shopping behaviour before Covid 19.

Table 16 Shopping behaviour before lockdown

Age * Where did you shop the most before the lockdown according to Covid-19? * Gender Crosstabulation

Gender				Where did you shop the most before the lockdown according to Covid-19?			
				Offline Retail Shops	Online Shops	Offline and Online Shops	Total
male	Age	Between 1943 and 1960	Count	30	0	6	36
			% within Age	83,3%	0,0%	16,7%	100,0%
		Between 1961 and 1980	Count	16	9	33	58
			% within Age	27,6%	15,5%	56,9%	100,0%
		Between 1981 and 2004	Count	20	17	23	60
			% within Age	33,3%	28,3%	38,3%	100,0%
	Total		Count	66	26	62	154
			% within Age	42,9%	16,9%	40,3%	100,0%
female	Age	Between 1943 and 1960	Count	3	3	12	18
			% within Age	16,7%	16,7%	66,7%	100,0%
		Between 1961 and 1980	Count	28	6	52	86
			% within Age	32,6%	7,0%	60,5%	100,0%
		Between 1981 and 2004	Count	41	19	67	127
			% within Age	32,3%	15,0%	52,8%	100,0%
	Total		Count	72	28	131	231
			% within Age	31,2%	12,1%	56,7%	100,0%
Total	Age	Between 1943 and 1960	Count	33	3	18	54
			% within Age	61,1%	5,6%	33,3%	100,0%
		Between 1961 and 1980	Count	44	15	85	144
			% within Age	30,6%	10,4%	59,0%	100,0%
		Between 1981 and 2004	Count	61	36	90	187
			% within Age	32,6%	19,3%	48,1%	100,0%
	Total		Count	138	54	193	385
			% within Age	35,8%	14,0%	50,1%	100,0%

The table above outlines that 50.1% of the 385 German consumer shopped already online and offline before the lockdown. This means they used different channels. 35.8% of them shopped offline. The minority shopped only online with 14%. The total age group between 1943 and 1960 shopped offline with 61%. It is interesting that the men of this age group do that with 83% also in contrast to the women, who like to shop offline and online with 66.7%. 59% of the generation between 1961 and 1980 like to shop offline and online. The same result shows also the males and females of this age group. The majority of the youngest age group likes to shop offline and online with 48%. The male of the generation between 1981 and 2004 took different decisions than the women since 33.3% like to shop offline and 38% like to shop offline and online. The majority of the female millennials (52.8%) like to shop offline and online.

The following table shows the shopping behaviour of the age and gender groups after the lockdown.

Table 17 Shopping after lockdown

Age * Where will you shop more after the lockdown according to Covid-19? * Gender Crosstabulation

Gender				Where will you shop more after the lockdown according to Covid-19?			
				Offline Retail Shops	Online Shops	Offline and Online Shops	Total
male	Age	Between 1943 and 1960	Count	12	3	21	36
			% within Age	33,3%	8,3%	58,3%	100,0%
		Between 1961 and 1980	Count	14	13	31	58
			% within Age	24,1%	22,4%	53,4%	100,0%
		Between 1981 and 2004	Count	12	22	26	60
			% within Age	20,0%	36,7%	43,3%	100,0%
	Total		Count	38	38	78	154
			% within Age	24,7%	24,7%	50,6%	100,0%
female	Age	Between 1943 and 1960	Count	6	6	6	18
			% within Age	33,3%	33,3%	33,3%	100,0%
		Between 1961 and 1980	Count	25	23	38	86
			% within Age	29,1%	26,7%	44,2%	100,0%
		Between 1981 and 2004	Count	34	35	58	127
			% within Age	26,8%	27,6%	45,7%	100,0%
	Total		Count	65	64	102	231
			% within Age	28,1%	27,7%	44,2%	100,0%
Total	Age	Between 1943 and 1960	Count	18	9	27	54
			% within Age	33,3%	16,7%	50,0%	100,0%
		Between 1961 and 1980	Count	39	36	69	144
			% within Age	27,1%	25,0%	47,9%	100,0%
		Between 1981 and 2004	Count	46	57	84	187
			% within Age	24,6%	30,5%	44,9%	100,0%
	Total		Count	103	102	180	385
			% within Age	26,8%	26,5%	46,8%	100,0%

Firstly, it is to say that the majority (46.8%) of 385 participants like to shop still online and offline after the lockdown. The total result shows that 26.8% are in favour to shop offline and 26.5% like to shop online. The most people of every age and gender group like to shop offline and online after the lockdown. Only the female age group 1943 to 1960 chooses every channel on the same percentage (33%), which means that they shop offline, online and offline and online.

The following table shows the comparison of the shopping behaviour before and after the lockdown.

Table 18 Comparison shopping behaviour before and after the lockdown

Age * Where did you shop the most according to Covid-19? * Gender						
				Difference before and after lockdown		
Gender				Offline Retail Shops	Online Shops	Offline and Online Shops
male	Age	Between 1943 and 1960	Count	-18	3	15
			% within Age	-50,0%	8,3%	41,7%
		Between 1961 and 1980	Count	-2	4	-2
			% within Age	-3,4%	6,9%	-3,4%
		Between 1981 and 2004	Count	-8	5	3
			% within Age	-13,3%	8,3%	5,0%
	Total		Count	-28	12	16
			% within Age	-18,2%	7,8%	10,4%
female	Age	Between 1943 and 1960	Count	3	3	-6
			% within Age	16,7%	16,7%	-33,3%
		Between 1961 and 1980	Count	-3	17	-14
			% within Age	-3,5%	19,8%	-16,3%
		Between 1981 and 2004	Count	-7	16	-9
			% within Age	-5,5%	12,6%	-7,1%
	Total		Count	-7	36	-29
			% within Age	-3,0%	15,6%	-12,6%
Total	Age	Between 1943 and 1960	Count	-15	6	9
			% within Age	-27,8%	11,1%	16,7%
		Between 1961 and 1980	Count	-5	21	-16
			% within Age	-3,5%	14,6%	-11,1%
		Between 1981 and 2004	Count	-15	21	-6
			% within Age	-8,0%	11,2%	-3,2%
	Total		Count	-35	48	-13
			% within Age	-9,1%	12,5%	-3,4%

The comparison of this table between the shopping behaviour before and after the lockdown outlines that 12% of the people tend to shop more online than before and 9% shop less offline than before. Moreover, 3.4% shop less online and offline. A similar development shows the youngest age group. The generation between 1961 and 1980 outlines that 11.1% shop less online and offline and 3.5% less offline. Therefore, 14.6% shop more online. The oldest generation outlines that 28% shop less offline, 11% more online and 16% more offline and online. The genders show also a different development. According to the men 18% shop less offline, 7.8% more online and 10% more online and offline. The main reason for this is that in every generation of the man, they shop less offline especially the oldest age group. In contrast 15% of the women shop more online since 12.6% shop less online and offline and 3% less offline. The same development shows also the age group between 1981 and 2004 as

well as 1961 to 1980. The oldest age group of the women shows a different development than the men. Therefore, 33% shop less offline and online and 16% shop more online and offline.

Finally, the analysis shows that there is a difference in the shopping behaviour before and after the lockdown as well as between the generation and age groups. Therefore, the majority before the lockdown uses already multichannel retailing as well as after the lockdown. Before the lockdown there was a difference in the shopping behaviour of men and women according to the generation baby boomers as well as millennials as it is described above. The majority of the women and men like to shop offline and online. It is obvious that no generation and no gender is in favour to shop only online. After the lockdown every generation is in favour to shop online and offline except the baby boomers of the women, who shop offline, online and offline and online. The comparison shows that the people shop more online and less offline as well as offline and online after the lockdown. This development shows every age group except the baby boomers men, who shop more online and offline and online as well as the women, who shop more online and offline. Another difference in contrast to the total development outlines the youngest generation of men, who shop more online as well as online and offline. Moreover, the retailers should be aware of the development of the change in the shopping behaviour to develop the right channels to meet the target groups.

4.2.3.2 Place to shop offline

In the following the place to shop offline will be analysed between the 385 German consumers with a cross table to test the hypothesis there is a difference between men and women and age groups to use different kinds of retail shops. Therefore, four different shops as outlet fast fashion, department and luxury will be compared to know which target groups prefer which one to implement the right Omni channel activities and instore technologies.

Since it were more than one answer possible 718 responses of the 385 were made. In total the fast fashion and multilabel store were with 28% and 35% in favour. The women have a similar likelihood. The man prefer to shop in multilabel shops with 40%: The youngest age

group prefers with 40% to shop in fast fashion stores and the baby boomers and millennials prefers to shop with 45% and 40% to shop in multilabel shops. The following table shows the difference of the age and gender groups in more detail.

Table 19 Offline Shop

Q2_Age*$Offline_Shop*Q1_Gender Crosstabulation

Gender				Offline_Shop[a]				
				Where do you buy clothes in offline retail shops_Outlet ?	Where do you buy clothes in offline retail shops_Fast Fahion?	Where do you buy clothes in offline retail shops_Premium?	Where do you buy clothes in offline retail shops_Multilabel?	Total
male	Total	Between 1943 and 1960		6	3	24	36	69
			% within Q2_Age	8,7%	4,3%	34,8%	52,2%	
		Between 1961 and 1980		18	13	28	46	105
			% within Q2_Age	17,1%	12,4%	26,7%	43,8%	
		Between 1981 and 2004		23	34	23	39	119
			% within Q2_Age	19,3%	28,6%	19,3%	32,8%	
female	Total	Between 1943 and 1960		3	9	9	9	30
			% within Q2_Age	10,0%	30,0%	30,0%	30,0%	
		Between 1961 and 1980		28	39	35	64	166
			% within Q2_Age	16,9%	23,5%	21,1%	38,6%	
		Between 1981 and 2004		37	108	22	62	229
			% within Q2_Age	16,2%	47,2%	9,6%	27,1%	

Percentages and totals are based on responses.

a. Dichotomy group tabulated at value 1.

The table above shows that the preference of the type of retail shops differs by the age and gender groups. Therefore, the oldest age group of the men prefers multilabel stores in contrast to the generation of the women, who likes fast fashion, premium as well as multilabel the same. The men generation between 1961 and 1980 prefers multilabel shops with 43.8% next to premium stores. In contrast the women of the age group 1961 to 1980 like to shop with 38% in multilabel stores and with 23% in fast fashion shops. The youngest generation of women is more in favour to shop in fast fashion stores with 47% than man, where 28% like to shop in fast fashion stores and 32% in multilabel stores. Moreover, the people do not like a lot to go to outlets since the minority vote this.

Finally, the people tend to like to shop the most in multilabel retailers and fast fashion stores. There is a difference in the preference of the different target groups to choose between them as the analysis above points out.

4.2.3.3 Retail Size

In the following the retail size for the different target groups will be analysed to test the hypothesis there is a difference between men and women and age to use different retail sizes for shopping. This is necessary to give the right recommendations for Omni channel activities and instore technologies for each target group. The following cross table shows the shopping behaviour of the 385 participants by focusing on each target group.

Table 20 Size Retail

Age * Which size of offline fashion retail stores do you prefer? * Gender Crosstabulation

Gender				Which size of offline fashion retail stores do you prefer? Small	Medium	Large	Total
male	Age	Between 1943 and 1960	Count	9	21	6	36
			% within Age	25,0%	58,3%	16,7%	100,0%
		Between 1961 and 1980	Count	7	28	23	58
			% within Age	12,1%	48,3%	39,7%	100,0%
		Between 1981 and 2004	Count	5	41	14	60
			% within Age	8,3%	68,3%	23,3%	100,0%
	Total		Count	21	90	43	154
			% within Age	13,6%	58,4%	27,9%	100,0%
female	Age	Between 1943 and 1960	Count	6	6	6	18
			% within Age	33,3%	33,3%	33,3%	100,0%
		Between 1961 and 1980	Count	26	43	17	86
			% within Age	30,2%	50,0%	19,8%	100,0%
		Between 1981 and 2004	Count	31	76	20	127
			% within Age	24,4%	59,8%	15,7%	100,0%
	Total		Count	63	125	43	231
			% within Age	27,3%	54,1%	18,6%	100,0%
Total	Age	Between 1943 and 1960	Count	15	27	12	54
			% within Age	27,8%	50,0%	22,2%	100,0%
		Between 1961 and 1980	Count	33	71	40	144
			% within Age	22,9%	49,3%	27,8%	100,0%
		Between 1981 and 2004	Count	36	117	34	187
			% within Age	19,3%	62,6%	18,2%	100,0%
	Total		Count	84	215	86	385
			% within Age	21,8%	55,8%	22,3%	100,0%

The table above shows that 55.8% of the total participants prefers medium sized retailers. Every gender and age group is in favour with this as well. Only the female generation between 1943 and 1990 likes every size with 33.33% the same. The preference of large and small retailers is very close with 21% or 22% in total.

In the following the comparison of the second and third place of preference, which is small and large, will be compared. The females prefer with 27.3% the smaller retailers more than the larger one, which has a percentage rate of 18.6%. The men prefers by comparison of small and large more larger retailers with 27.9% and they voted the smaller ones with 13.6%.

According to the age groups the youngest and oldest age group prefers in total smaller retailers in contrast to the generation 1961 to 1990, who prefers larger stores more.

Finally, there is a difference in the preference of the retail sizes since the female baby boomers like every retail size the same in contrast to the majority of the age groups, who prefer medium sized retailers. Moreover, the likelihood of small and large retailers differ by the genders and age groups.

4.2.3.4 Tools for online shopping

In the following the preference of the preferred online shopping tools will be analysed according to the different target groups. This is necessary to evaluate the hypothesis there is a difference in the use of the shop preference. The analysis will be helpful to achieve the objective to implement the right instore and Omni channel activities according to each target group.

Since the question was a multiple answer question 537 responses were taken. 62% prefer to shop online through a website, 32% through the mobile shop and 4% through social media. The millennials (39%) and Generation x (28%) like to shop more through mobile phones than the baby boomers (10%). The following table shows this development for each target group in more detail as well.

Table 21 Online tools

Q2_Age*$Tool_Online*Q1_Gender Crosstabulation

Gender				Tool_Online[a] Which tool do you use to shop online_Website?	Which tool do you use to shop online_Mobile Phone?	Which tool do you use to shop online_Social Media?	Total
male	Age	Between 1943 and 1960		36	0	0	36
			% within Q2_Age	100,0%	0,0%	0,0%	
		Between 1961 and 1980		54	18	4	76
			% within Q2_Age	71,1%	23,7%	5,3%	
		Between 1981 and 2004		55	36	1	92
			% within Q2_Age	59,8%	39,1%	1,1%	
female	Age	Between 1943 and 1960		15	6	0	21
			% within Q2_Age	71,4%	28,6%	0,0%	
		Between 1961 and 1980		74	37	5	116
			% within Q2_Age	63,8%	31,9%	4,3%	
		Between 1981 and 2004		100	77	19	196
			% within Q2_Age	51,0%	39,3%	9,7%	

Percentages and totals are based on responses.

a. Dichotomy group tabulated at value 1.

Finally, it is to say that every group like to shop the most through a website online. The millennials and Generation x shop also through mobile phones. Therefore, there is no difference between the generations in the online shopping behaviour. Therefore, retailers should focus on the websites when they are selling through online shops.

4.2.3.5 Information Search

In the following the hypothesis H3 there is a difference between men, women and age groups where to search for information regarding the question of the survey `how often do you search for information before your shopping" will be analysed to find out which target group searches for information before they shop and which not. This is necessary to achieve the objective to improve the Omni channel activities of retailers to know the right way to reach each consumer. As it is described in the chapter assumptions a 2*3 Anova will be done. The requirements for this as the definition of the variables and the normality test as well as Levene test were accomplished, which mentioned a significance below 0.05. Because of the large sample size the analysis can continue (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012). The boxplot graph shows that there are four outliers in the age group between 1961 and 1980 since they voted 5 in terms of the information search. This means that they search never after information. Moreover, the boxplot of this age group is from 1 to 4 only. These four outliers needs to be deleted otherwise it would falsify the average of the search terms of the information as the following graph shows.

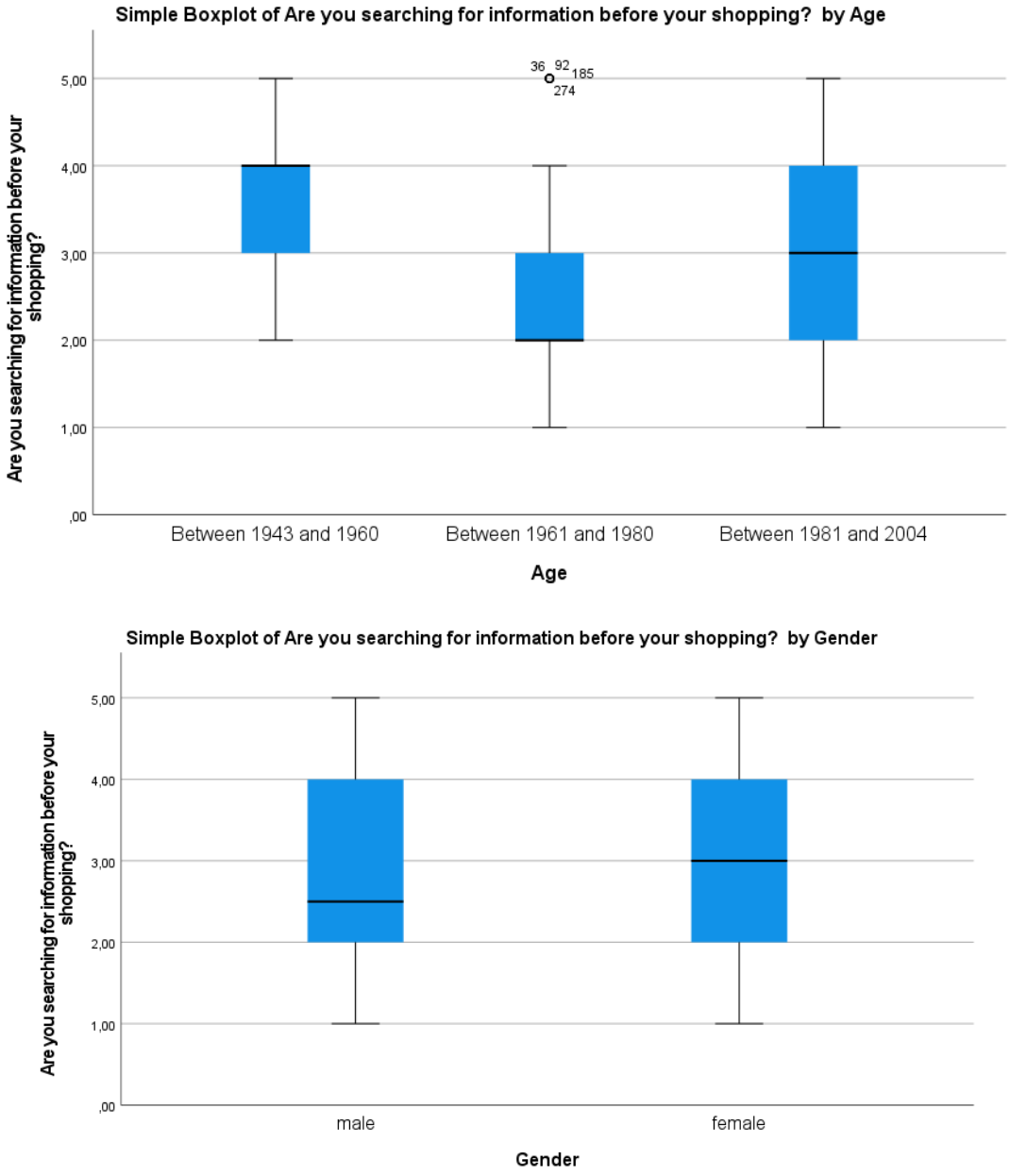


Figure 10 Outliers information

After the requirements are justified the Anova test can be done. The following descriptive statistics table shows that the six groups are unequal in terms of the size. But it will give a good overview about the average mean to search for information.

Table 22 Descriptive statistics information search

Descriptive Statistics

Dependent Variable: Are you searching for information before your shopping?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,5833	,76997	36
	Between 1961 and 1980	2,3393	,92002	56
	Between 1981 and 2004	2,5667	1,29362	60
	Total	2,7237	1,15774	152
female	Between 1943 and 1960	3,5000	,51450	18
	Between 1961 and 1980	2,6190	,90387	84
	Between 1981 and 2004	2,9449	1,04127	127
	Total	2,8690	,98691	229
Total	Between 1943 and 1960	3,5556	,69137	54
	Between 1961 and 1980	2,5071	,91743	140
	Between 1981 and 2004	2,8235	1,13870	187
	Total	2,8110	1,05929	381

It is to say that the overall mean to search for information is 2.8, which means that the sample size tend to search sometimes after information. The female average is 2.8 and the men average is 2.7. Therefore, both genders tend to search sometimes for information. The different age groups show that the generation between 1943 and 1960 tend to sometimes to rarely to search for information since the mean is 3.56. Moreover, the age group between 1961 and 1980 is with an average of 2.5 between the terms usually and sometimes to search for information. The generation 1981 and 2004 tend to search sometimes for information since the average is 2.8. Therefore, the age group 1961 to 1980 tend to search the most for information compared to other generation. These development shows also the generation of men and women. In the generation between 1961 and 1980 tend the men to search usually (2.3) for information and women sometimes (2.6). This is visualised in the following graph.

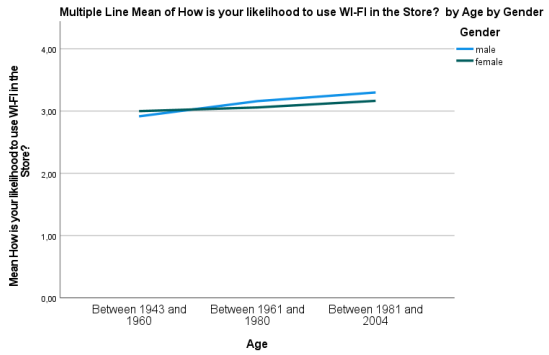


Figure 11 Multiple line information search

The test between subjects outlines that there is a significance difference between the groups as the following table shows.

Table 23 Test between subjects information

Tests of Between-Subjects Effects

Dependent Variable: Are you searching for information before your shopping?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	45,656[a]	5	9,131	8,658	,000	,103	43,291	1,000
Intercept	2291,168	1	2291,168	2172,482	,000	,851	2172,482	1,000
Q1_Gender	2,119	1	2,119	2,009	,157	,005	2,009	,293
Q2_Age	35,095	2	17,548	16,639	,000	,081	33,277	1,000
Q1_Gender * Q2_Age	1,993	2	,997	,945	,390	,005	1,890	,214
Error	399,705	379	1,055					
Total	3537,000	385						
Corrected Total	445,361	384						

a. R Squared = ,103 (Adjusted R Squared = ,091)

b. Computed using alpha = ,05

As the table shows the different age groups outline with a high power of 1 a difference F(2.375)=16.639, p=0.000, power=1.0 (Cohen, 2013). The gender do not outline a statistically difference with a small power of 0.339 F(1.375)=2.009, p=0.122, power=0.339 (Cohen, 2013). The same result has the interaction between gender and age group F(2.375)=0.945, p=0.373, power=0.2.

Since the groups are unequal the Turkey-Kramer test can be used to analyse the difference of the gender groups as the following table shows (StatsDirect Limited, 2020).

Table 24 Multiple comparison information search

Multiple Comparisons

Dependent Variable: Are you searching for information before your shopping?

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	1,0484*	,16018	,000	,6715	1,4253
	Between 1981 and 2004	,7320*	,15448	,000	,3685	1,0955
Between 1961 and 1980	Between 1943 and 1960	-1,0484*	,16018	,000	-1,4253	-,6715
	Between 1981 and 2004	-,3164*	,11175	,014	-,5794	-,0534
Between 1981 and 2004	Between 1943 and 1960	-,7320*	,15448	,000	-1,0955	-,3685
	Between 1961 and 1980	,3164*	,11175	,014	,0534	,5794

Based on observed means.
The error term is Mean Square(Error) = 1,000.

*. The mean difference is significant at the ,05 level.

Therefore, there is a difference between every age group of the six. The reason for this is that the significance is below 0.000. The age group between 1943 and 1960 has a mean of 3.5, which means that they are between sometimes to rarely to search for information before they shop. The age group between 1961 and 1980 has a mean of 2.4, which means that they tend to search usually for information. The youngest generation between 1981 and 2004 tend to search sometimes for information since the average is at 2.7. The overall mean is 2.9, which means that the genders tend to search sometimes for information.

Finally, it is to say that there is a difference between genders and ages in terms of information search. Therefore, retailers should know that the Generation x search usually for information and should use this in the customer advisory or marketing actions as well as for Omni channel activities. In contrast to the millennials, who search sometimes and baby boomers, who search sometimes or rarely.

4.2.3.6 Place Information Search

After the chapter 4.2.3.5 pointed out that the Generation x searches for information it will be good to know where each target group search for information. This will be analysed with a cross table according to the hypothesis H4 there is a difference in the use of the place to search for information. This is necessary to know where to inform the target groups about different activities in order to reach them in the right way.

Since four multiple answer as website, friends, social media and marketing were possible the result was 705 responses. In this case 45% prefers to look information on the website up, 40% get information by friends, 15% through social media and 9% through marketing. The majority of male and women as well as the age groups separately prefer also the website next to the friends. The youngest generation uses with 25% social media to get information, which is much more than the other generations. Moreover, the females uses 13% more social media than the men. This development shows the following table in more detail.

Table 25 Place information

Q2_Age*$Information_Place*Q1_Gender Crosstabulation

Gender				Information_Place[a] Where do you search for information_ Marketing?	Where do you search for information_S ocial Media?	Where do you search for information_ Website?	Where do you search for information_F riends?	Total
male	Age	Between 1943 and 1960	Count	6	0	24	27	57
			% within Q2_Age	10,5%	0,0%	42,1%	47,4%	
		Between 1961 and 1980	Count	18	3	52	33	106
			% within Q2_Age	17,0%	2,8%	49,1%	31,1%	
		Between 1981 and 2004	Count	10	16	51	30	107
			% within Q2_Age	9,3%	15,0%	47,7%	28,0%	
	Total		Count	34	19	127	90	270
female	Age	Between 1943 and 1960	Count	3	3	18	6	30
			% within Q2_Age	10,0%	10,0%	60,0%	20,0%	
		Between 1961 and 1980	Count	13	20	78	48	159
			% within Q2_Age	8,2%	12,6%	49,1%	30,2%	
		Between 1981 and 2004	Count	16	66	96	68	246
			% within Q2_Age	6,5%	26,8%	39,0%	27,6%	
	Total		Count	32	89	192	122	435

Percentages and totals are based on responses.

a. Dichotomy group tabulated at value 1.

The table shows that the most established tool to search for information is for every generation the website. Only the generation male between 1943 and 1980 likes more recommendations by friends. The same generation prefers searching on websites with 60%. The generation 1961 to 1980 of men and women get information through the websites followed by friends. The youngest generation of men has the same development. The youngest generation of women prefers websites with 39% followed by friends with 27% and then social media with 26%. The marketing is also used by the different target groups but not a lot. The reason for this can be that it is a more unconscious tool.

Finally, as the analysis shows there is a difference in the overall preference of the information search. According to the digital age and Omni channel the website is a useful tool to get information out. The recommendation of friends is especially important for the men of the baby boomers. Moreover, as the Generation x searches usually for information, the retailers should put enough information on the website to reach this target group. This is also necessary for the other generations because it is the most established tool. Since the Generation x as well as the male baby boomers listen a lot to friends, the retailers should always be nice to every customer to reach the friends of them as well. If they have the target group female millennials, they should additional use their social media channel to reach them.

4.2.3.7 Outfit Inspiration

In the following the tool to search for inspiration will be analysed by the difference of the customer demographics. This will test the hypothesis H4 to improve the service and Omni channel activities.

The survey outlines 528 different answers out of 385 participants and three answer possibilities, which are store, social media and website, in a cross table. Therefore, the overall preference is the store with 46% next to the website (27%) and social media (26%). The gender and age groups show a different development. Therefore, the women prefer with 40.5% the most stores next to social media with 33% and the websites with 26%. The men prefers also the inspiration search in the store with 55% next to the website (29%) followed by social media (15%). The development of the generation between 1943 and 1960 as well as 1961 and 1980 is the same as the male. Only the youngest generation has a high preference in terms of the inspiration search with social media with 38% next to the store with 35%. The following table shows the preference of each target group in more detail.

Table 26 Inspiration outfit

Q2_Age*$Outfit_Inspiration*Q1_Gender Crosstabulation

Gender				Outfit_Inspiration[a]			
				Where do you search for outfit inspiration_Store?	Where do you search for outfit inspiration_Social Media?	Where do you search for outfit inspiration_Website?	Total
male	Age	Between 1943 and 1960	Count	30	0	9	39
			% within Q2_Age	76,9%	0,0%	23,1%	
		Between 1961 and 1980	Count	47	7	19	73
			% within Q2_Age	64,4%	9,6%	26,0%	
		Between 1981 and 2004	Count	34	24	32	90
			% within Q2_Age	37,8%	26,7%	35,6%	
	Total		Count	111	31	60	202
female	Age	Between 1943 and 1960	Count	9	6	6	21
			% within Q2_Age	42,9%	28,6%	28,6%	
		Between 1961 and 1980	Count	59	21	41	121
			% within Q2_Age	48,8%	17,4%	33,9%	
		Between 1981 and 2004	Count	64	81	39	184
			% within Q2_Age	34,8%	44,0%	21,2%	
	Total		Count	132	108	86	326

Percentages and totals are based on responses.

a. Dichotomy group tabulated at value 1.

The male age group between 1943 and 1960 prefers only the store for inspiration search with 77% as well as the generation between 1961 and 1980 with 64%. The youngest generation of men prefers the store with 37% and website with 35%. Moreover, the female generation

1943 to 1960 prefers to look for inspiration in the store with 42.9% next to social media (28%) and website (28%). The generation between 1961 and 1980 prefers the store (48%) as well followed by the website (34%).The youngest female generation prefers to shop with 44% through social media for inspiration followed by stores with 34%.

Finally, there is a difference in the preference of inspiration search for outfit by the focus on the six target groups. Therefore, the younger age groups are more digital than the older ones. But the millennials still like to go also in the store. Therefore, retailers should have multichannel touchpoints especially for this generation to reach them through social media as well as in the store.

4.2.3.8 Omni channel delivery

In the following the four different Omni channel delivery options will be analysed to know how to optimize the multichannel activities according to each target group. This refers to the hypothesis H6.

The 655 responses out of 385 participants points out the most favourable delivery option is to buy the clothes in the store and have it directly (47%) followed by the traditional online order (39%). 8% like the option click and collect and 6% home delivery. The following cross table shows this development for each target group in more detail.

Table 27 Omni channel delivery

Q2_Age*$Omnichannel_delivery*Q1_Gender Crosstabulation

Gender				Omnichannel_delivery[a]				
				Which delivery option would you use, if you have the choice_Store?	Which delivery option would you use, if you have the choice_Store_Home?	Which delivery option would you use, if you have the choice_Online?	Which delivery option would you use, if you have the choice_Click and Collect?	Total
male	Age	Between 1943 and 1960	Count	36	6	15	3	60
			% within Q2_Age	60,0%	10,0%	25,0%	5,0%	
		Between 1961 and 1980	Count	49	10	39	3	101
			% within Q2_Age	48,5%	9,9%	38,6%	3,0%	
		Between 1981 and 2004	Count	48	12	40	7	107
			% within Q2_Age	44,9%	11,2%	37,4%	6,5%	
	Total		Count	133	28	94	13	268
female	Age	Between 1943 and 1960	Count	12	0	9	0	21
			% within Q2_Age	57,1%	0,0%	42,9%	0,0%	
		Between 1961 and 1980	Count	74	8	62	12	156
			% within Q2_Age	47,4%	5,1%	39,7%	7,7%	
		Between 1981 and 2004	Count	94	17	90	15	216
			% within Q2_Age	43,5%	7,9%	41,7%	6,9%	
	Total		Count	180	25	161	27	393

Percentages and totals are based on responses.

a. Dichotomy group tabulated at value 1.

Finally, the analysis of the different service opportunities of the delivery options points out that there is not a difference between the target groups since every target group like the most to buy the product in the store and have it directly followed by buy the clothes online and get it shipped. The groups do not prefer the other two option as home collection and click and collect. Therefore, retailers do not have to implement those tools yet since they will not use it a lot.

4.2.4 Instore technology

In the following chapter the hypothesis H5 there is a difference in the use of technology preferences between men and women and age groups will be tested to achieve the objective which instore technology is more efficient and which target group prefers which technology.

4.2.4.1 WIFI

One question of the survey was `how is the likelihood to use WIFI in the store` to reach the goal which kind of customer would use it. As it is described in the chapter assumptions to do a 2*3 Anova, the requirements of the variables are defined and the normality test were accomplished, which mentioned a significance below 0.05. Because of the large sample size the analysis can continue (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012).
Since there is no normal distribution, the Levene test needs to be done to test the homogeneity of variance. The following table shows that the significance based on mean is 0.148. Therefore, the groups are homogeneous and no difference is between them. This means that the variance is equal.

Table 28 Levene WIFI

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to use WI-FI in the Store?	Based on Mean	1,642	5	379	,148
	Based on Median	1,445	5	379	,207
	Based on Median and with adjusted df	1,445	5	362,233	,207
	Based on trimmed mean	1,664	5	379	,142

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to use WI-FI in the Store?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

The outlier test was as well conducted, which did not show any outliers.

After the assumption are defined the analysis can continue. Therefore, the following graph shows that the likelihood of each gender to use WIFI is less with the age since the lower the number, the higher is the likelihood. Therefore, the graph shows that there is no interaction between genders since the graphs are very close. Moreover, the steep of each graph is the same. Therefore, it could be that there is a difference between the age groups.

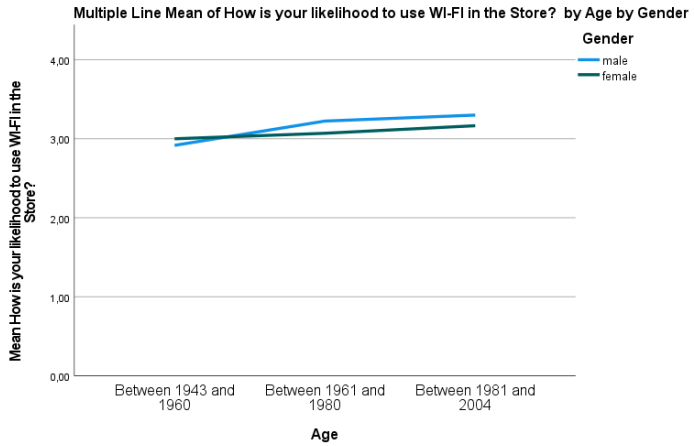


Figure 12 Likelihood WIFI

The descriptive analysis of the likelihood to use WIFI points out that the six groups are unequal as the following table (N) outlines.

Table 29 Descriptive WIFI

Descriptive Statistics

Dependent Variable: How is your likelihood to use WI-FI in the Store?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	2,9167	1,27335	36
	Between 1961 and 1980	3,2241	1,33828	58
	Between 1981 and 2004	3,3000	1,38148	60
	Total	3,1818	1,34044	154
female	Between 1943 and 1960	3,0000	,84017	18
	Between 1961 and 1980	3,0698	1,31767	86
	Between 1981 and 2004	3,1654	1,28954	127
	Total	3,1169	1,26808	231
Total	Between 1943 and 1960	2,9444	1,13962	54
	Between 1961 and 1980	3,1319	1,32352	144
	Between 1981 and 2004	3,2086	1,31751	187
	Total	3,1429	1,29617	385

Therefore, the mean average of man is 3.18 and of women 3.14. This means that the average of the gender to use WIFI in the store is neither likely not unlikely. Moreover, the men 1943 to 1960 are the only age group that have a more favourable mean with 2.91 than the other groups.

The estimated margin shows that the mean between the different groups is around three, which means that the likelihood to use WIFI is neither likely not unlikely. The age group 1961 to 1980 of the men are the less likely group with 3.224 and the men of the age group between 1943 and 1960 are the more favourable group with a mean of 2.917.

Table 30 Estimated Margin of Mean

4. Gender * Age

Dependent Variable: How is your likelihood to use WI-FI in the Store?

Gender	Age	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
male	Between 1943 and 1960	2,917	,217	2,491	3,343
	Between 1961 and 1980	3,224	,171	2,888	3,560
	Between 1981 and 2004	3,300	,168	2,970	3,630
female	Between 1943 and 1960	3,000	,306	2,398	3,602
	Between 1961 and 1980	3,070	,140	2,794	3,345
	Between 1981 and 2004	3,165	,115	2,939	3,392

The test between subjects outlines that there is no difference including a small effect between the females and men according to the likelihood since F=(1.379)=0.183, p=0.669, power=0.071. The same result has the age groups F=(2.379)=0.839, p=0.433, power=0.194 and the interaction between gender and income F=(2.379)=0.160, p=0.852, power=0.075. The difference of the statistics between gender, age and the likelihood to use WIFI in the store did not reach a statistical significance with a small power as the following table shows (Cohen, 2013).

Table 31 Test of Between Subjects

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to use WI-FI in the Store?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	4,598[a]	5	,920	,544	,743	,007	2,720	,201
Intercept	2550,693	1	2550,693	1509,203	,000	,799	1509,203	1,000
Q1_Gender	,309	1	,309	,183	,669	,000	,183	,071
Q2_Age	2,836	2	1,418	,839	,433	,004	1,678	,194
Q1_Gender * Q2_Age	,541	2	,270	,160	,852	,001	,320	,075
Error	640,545	379	1,690					
Total	4448,000	385						
Corrected Total	645,143	384						

a. R Squared = ,007 (Adjusted R Squared = -,006)

b. Computed using alpha = ,05

Since there is no difference, the overall mean of the groups is 3.149, which alludes to the point that the WIFI is neither likely not likely to use in the store. Therefore, the tool will not

make a significant difference in the retail store for the customer and it will not be an efficient tool.

4.2.4.2 Reason WIFI

Also if the people neither like not dislike to have WIFI in the store, it will be interesting to know why they would use it to have the best service opportunities in the store to improve the Omni channel activities. A cross table with 512 responses out of 385 participants will help to reach this goal and answer the hypothesis H5.

The cross table points out that 54% of the women like to use WIFI to text with friends and 51% of the men like to use it for price comparison. This development shows also the different age groups of the genders in the table below.

Table 32 WIFI reason

Q2_Age*$Reason_WIFI*Q1_Gender Crosstabulation

Gender				Reason_WIFI[a]			
				Why would you use Wi-Fi in the store_Pricces?	Why would you use Wi-Fi in the store_Voucher?	Why would you use Wi-Fi in the store_Text?	Total
male	Age	Between 1943 and 1960	Count	27	0	9	36
			% within Q2_Age	75,0%	0,0%	25,0%	
		Between 1961 and 1980	Count	39	12	21	72
			% within Q2_Age	54,2%	16,7%	29,2%	
		Between 1981 and 2004	Count	44	16	34	94
			% within Q2_Age	46,8%	17,0%	36,2%	
	Total		Count	110	28	64	202
female	Age	Between 1943 and 1960	Count	3	3	12	18
			% within Q2_Age	16,7%	16,7%	66,7%	
		Between 1961 and 1980	Count	45	19	49	113
			% within Q2_Age	39,8%	16,8%	43,4%	
		Between 1981 and 2004	Count	47	36	96	179
			% within Q2_Age	26,3%	20,1%	53,6%	
	Total		Count	95	58	157	310

Percentages and totals are based on responses.

a. Dichotomy group tabulated at value 1.

Finally, there is a difference in the target groups in the use of WIFI. The man like to use it for comparing prices. Therefore, the store should always be aware and maybe match the price individually to other prices to do not lose those consumer. Moreover, the women text with friends to get more recommendations. Therefore, retailers can have a photo box in the store that people can directly send the outfits to friends.

4.2.4.3 QR Code Information

In the following the likelihood to scan QR codes in order to get more information will be analysed, which includes the hypothesis there is a difference between gender and age to find out which instore technology is more efficient in fashion retail stores and which target group prefers which technology. To be able to do a 2*3 Anova, the assumptions were defined in the previous chapter. The normality and Levene test were conducted, which showed a significance below 0.05. Nevertheless, the analysis can continue since the sample size is above 100 and therefore large enough (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012).The outlier test did not show any outliers.

After the assumptions are done the analysis can continue. The descriptive analysis gives a good overview about the average of the likelihood to use QR codes between the six unequal groups as the following table shows.

Table 33 Descriptive statistics QR codes information

Descriptive Statistics

Dependent Variable: How is your likelihood to scan a QR code of a product in the store to get more information?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	4,7500	1,50000	36
	Between 1961 and 1980	4,0690	1,89053	58
	Between 1981 and 2004	4,5167	2,11926	60
	Total	4,4026	1,91150	154
female	Between 1943 and 1960	5,6667	,48507	18
	Between 1961 and 1980	5,0349	1,81139	86
	Between 1981 and 2004	4,6299	1,92231	127
	Total	4,8615	1,82919	231
Total	Between 1943 and 1960	5,0556	1,32347	54
	Between 1961 and 1980	4,6458	1,89762	144
	Between 1981 and 2004	4,5936	1,98260	187
	Total	4,6779	1,87365	385

The table shows that the overall mean is 4.67, which means that they tend to somewhat unlike to scan QR codes to get more information about the product in a fashion retail store. The oldest age group tend to unlike this tool with a mean of 5 next to the generation between 1961 and 1980, who has an average of 4.6. The youngest generation has an average of 4.5, which is between neither likely not unlikely to somewhat unlikely. The male tend to neither like not

unlike this tool since the average is 4.4. In contrast the women tend to somewhat unlike this tool since the average is 4.8. The development of the age groups of man and women is different. The reason for this is that the oldest age group of the women tend to very unlike this tool with an average of 5.67 and the male of the same generation tend to unlike this tool with an average of 4.7. Moreover, the generation between 1961 and 1980 of the men tend to neither like not dislike this technology with an average of 4.0 in contrast to the younger generation, who are less likely to use it with an average of 4.5. The women of the generation 1961 to 1980 has an average of 5, which means that they unlike it and the youngest generation has a mean of 4.6. This development is visualised in the following graph.

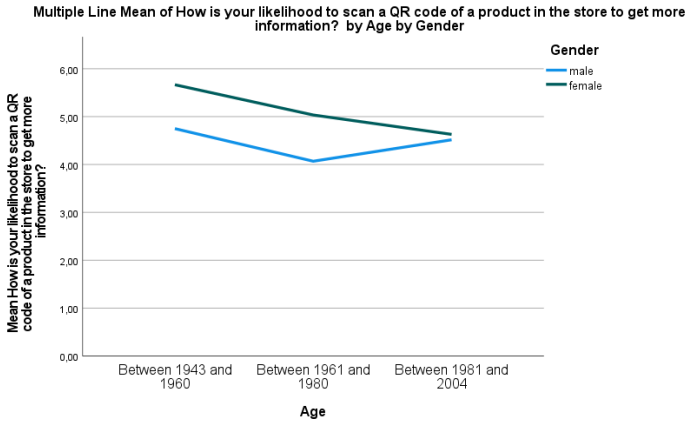


Figure 13 Multiple line QR code information

The following table shows if there is a significance difference in the likelihood to scan QR codes to get more information or not.

Table 34 Test of between subjects effects

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to scan a QR code of a product in the store to get more information?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	52,103[a]	5	10,421	3,047	,010	,039	15,237	,867
Intercept	6009,822	1	6009,822	1757,557	,000	,823	1757,557	1,000
Q1_Gender	29,130	1	29,130	8,519	,004	,022	8,519	,829
Q2_Age	17,254	2	8,627	2,523	,082	,013	5,046	,504
Q1_Gender * Q2_Age	15,366	2	7,683	2,247	,107	,012	4,494	,457
Error	1295,959	379	3,419					
Total	9773,000	385						
Corrected Total	1348,062	384						

a. R Squared = ,039 (Adjusted R Squared = ,026)

b. Computed using alpha = ,05

The table shows that the gender outlines a difference with a high power F(1.379)=8.519, p=0.004, power=0.829 (Cohen, 2013). There is no difference between the age groups since the significance is above 0.05 F(2.379)=2.523, p=0.082, power=0.504. The same result has the interaction between gender and age F(2.379)=2.247, p=0.107, power=0.457.

The estimated margin of mean outlines that the overall mean according to the likelihood to scan QR codes to get more information is 4.778, which means that the German consumer with a confidence of 95% are somewhat unlikely to use this tool. The man have an average of 4.4, which outlines that they neither like not unlike this tool. The women have an average of 5.1, which means that they are somewhat unlikely to use this tool.

Finally, the hypothesis there is a difference between genders according to the likelihood to scan QR codes to get more information in fashion retail stores is true. Nevertheless, this tool will not be efficient for any target group and retail store in Germany since the participants are somewhat unlikely to use it.

4.2.4.4 QR Code Availability

In the following the likelihood to scan QR codes to look up the availability will be analysed, which includes the hypothesis there is a difference between gender and age, to find out which instore technology is more efficient in fashion retail stores and which target groups prefer which technology. The different assumptions for a two way Anova were defined in the previous chapter. The normality and Levene test were conducted, which showed a significance of below 0.05. Nevertheless, the analysis can continue since the sample size is above 100 and therefore large enough (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012).The outlier test did not show any outliers.

After the requirements are clear, the descriptive analysis gives a good overview about the average of the likelihood to use QR codes between the six unequal sized groups as the following table shows.

Table 35 QR code availability descriptive

Descriptive Statistics

Dependent Variable: How is your likelihood to scan a QR code to see the availability of the product in the store?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,5833	,87423	36
	Between 1961 and 1980	2,9655	1,21346	58
	Between 1981 and 2004	2,9000	1,42258	60
	Total	3,0844	1,25740	154
female	Between 1943 and 1960	3,6667	,48507	18
	Between 1961 and 1980	3,3953	1,39982	86
	Between 1981 and 2004	2,8110	1,42390	127
	Total	3,0952	1,39861	231
Total	Between 1943 and 1960	3,6111	,76273	54
	Between 1961 and 1980	3,2222	1,34031	144
	Between 1981 and 2004	2,8396	1,42026	187
	Total	3,0909	1,34224	385

The overall likelihood is 3, which means that the 385 participants neither like not unlike to scan QR codes to see the availability of the item. The youngest age group has an average of 2.8, which means that they tend to neither like not unlike this tool. The generation between 1961 and 1980 tend to neither like not unlike this tool since the average is 3.2. The oldest generation tend to dislike the use of this tool since the average is 3.6. The development of the generation divided by men and women is similar since the overall average of likelihood of man is 3 as well as for women, which is also 3. Therefore, both genders tend to neither like not dislike this tool. The following graph visualize these facts.

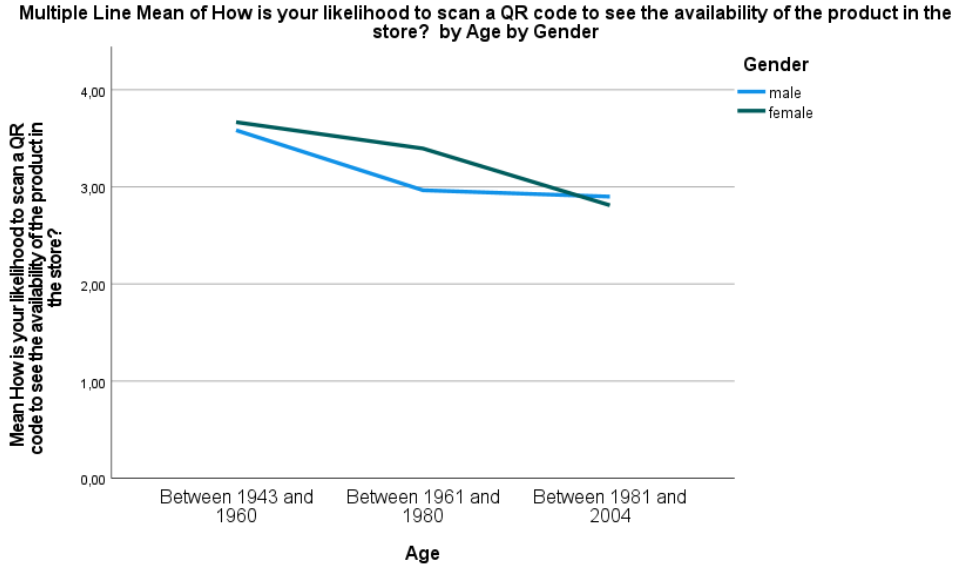


Figure 14 Multiple line QR code availability

The following table shows if there is a significance difference in the likelihood to scan QR codes to know the availability of a fashion item or not.

Table 36 Tests of between QR code availability

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to scan a QR code to see the availability of the product in the store?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	35,714[a]	5	7,143	4,126	,001	,052	20,631	,956
Intercept	2730,192	1	2730,192	1577,102	,000	,806	1577,102	1,000
Q1_Gender	1,316	1	1,316	,760	,384	,002	,760	,140
Q2_Age	23,834	2	11,917	6,884	,001	,035	13,768	,922
Q1_Gender * Q2_Age	5,085	2	2,542	1,469	,232	,008	2,937	,313
Error	656,104	379	1,731					
Total	4370,000	385						
Corrected Total	691,818	384						

a. R Squared = ,052 (Adjusted R Squared = ,039)

b. Computed using alpha = ,05

The table above shows that there is no difference between men and women including a small power effect F(1.379)=0.760, p=0.384, power=0.140. There is a difference between the three age groups with a high power F(2.379)=6.884, p=0.001, power=0.922. But there is no statistically difference between the interaction of gender and age F(2.379)=1.459, p=0.232, power=0.313.

The Turkey test will be useful to find out where the difference between the age groups is since the groups are unequal as the following table shows.

Table 37 Multiple comparison QR code availability

Multiple Comparisons

Dependent Variable: How is your likelihood to scan a QR code to see the availability of the product in the store?

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	,3889	,20995	,154	-,1051	,8829
	Between 1981 and 2004	,7715*	,20326	,001	,2933	1,2498
Between 1961 and 1980	Between 1943 and 1960	-,3889	,20995	,154	-,8829	,1051
	Between 1981 and 2004	,3827*	,14587	,025	,0394	,7259
Between 1981 and 2004	Between 1943 and 1960	-,7715*	,20326	,001	-1,2498	-,2933
	Between 1961 and 1980	-,3827*	,14587	,025	-,7259	-,0394

Based on observed means.
The error term is Mean Square(Error) = 1,731.

*. The mean difference is significant at the ,05 level.

As the table points out there is with a 95% confidence a difference between the age groups 1981 to 2004 and 1943 to 1960 as well as 1981 to 2004 and 1943 to 1960 since the

significance is below 0.05. The table points out that there is not a difference between the age groups 1961 to 1980 and 1943 to 1960 since the significance is 0.154.

The youngest age group has with a confidence level of 95% according to the estimated margin of mean a likelihood of 2.8, which means that they neither like not unlike to scan QR codes to know the availability. The generation 1961 to 1980 has a mean of 3.1, which means that they tend to neither like not dislike this tool. The oldest generation 1943 to 1960 has an average of 3.6, which means that they dislike to use this instore technology. The overall mean is 3.2, which means that with 95% the German consumers neither like not dislike the use of the QR code to look up the availability of fashion items. Finally, the tool is not very useful to implement it in fashion retailers since the German consumers neither like not dislike it and especially not for the baby boomers.

4.2.4.5 Loyalty Card

The requirement as the definition of variable to do a two way Anova are already described in the chapter assumptions. To test the difference between the target groups and likelihood to use a digital loyalty card, the Levene and normality test were conducted, which showed an unequal variance and was not normal distributed. Nevertheless, the analysis can continue because of the large sample size (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012).

The outlier test outlines that the men have four outliers, which needs to be deleted to do not distort the result as the following graph shows. These outliers point out that their likelihood to use Wi-Fi is very unlikely (5) and will be deleted.

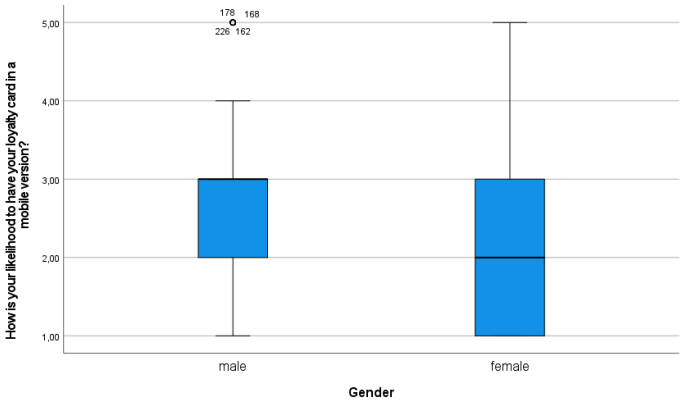


Figure 15 Gender loyalty card

The median of the men to use a loyalty card is 3 (neither likely not unlikely). 50% of the women have a likelihood to use a loyalty card in a mobile version above 2 (likely to neither likely not unlikely) and 50% below likely which means that they tend to very like this technology.

According to the age groups there are no outliers. In the age group between 1943 and 1960 they have a median of 3. In the age between 1961 and 1980 the median is 2, which means that 50% like digital loyalty cards. In the age group between 1981 and 2004 the median is 2 as well as the graph below shows.

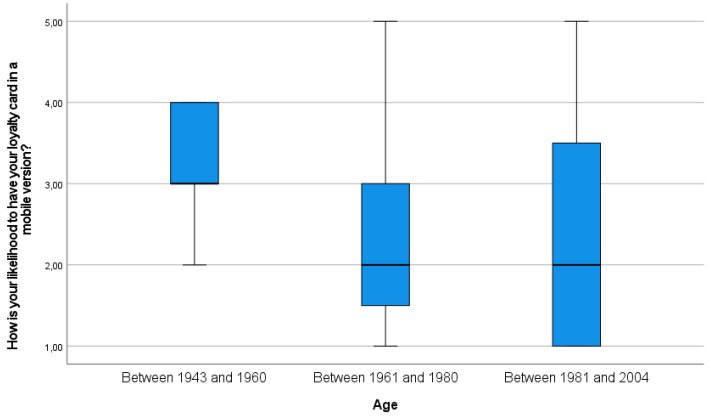


Figure 16 Outliers age loyalty card

After the outliers are deleted and the requirements are clear, the total number of participants is 381. The following graph shows that there could be an interaction between age and the likelihood to use a loyalty card since the steep is the same. There will not be an interaction probably between the genders since the two graphs are too close together.

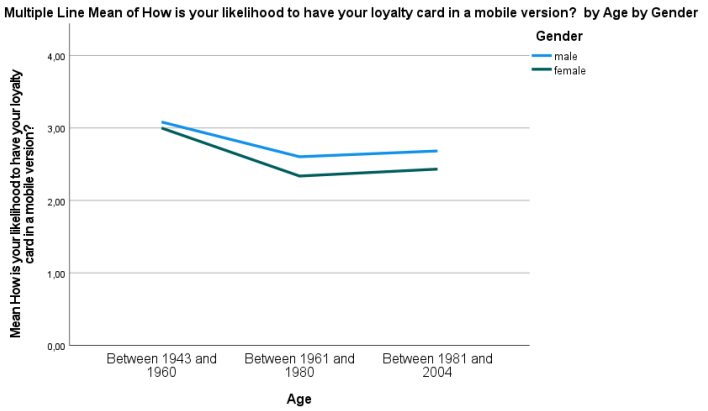


Table 38 Multiple line loyalty card

The descriptive analysis of the likelihood to use digital loyalty cards points out that the six groups are unequal as the following table shows.

Table 39 Descriptive statistics loyalty card

Descriptive Statistics

Dependent Variable: How is your likelihood to have your loyalty card in a mobile

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,0833	,64918	36
	Between 1961 and 1980	2,5179	1,06158	56
	Between 1981 and 2004	2,6034	1,32373	58
	Total	2,6867	1,11209	150
female	Between 1943 and 1960	3,0000	,84017	18
	Between 1961 and 1980	2,3372	1,27980	86
	Between 1981 and 2004	2,4331	1,34277	127
	Total	2,4416	1,29373	231
Total	Between 1943 and 1960	3,0556	,71154	54
	Between 1961 and 1980	2,4085	1,19784	142
	Between 1981 and 2004	2,4865	1,33558	185
	Total	2,5381	1,22978	381

Therefore, the mean average of man is 2.68 and of women 2.4. This means that the average of the gender to use digital loyalty cards tend to be more likely. The age groups 1943 to 1960 of men and women have a mean of 3, which means that they neither likely not unlike the usage of digital loyalty cards. The women of the Generation x next to the women of the millennials are the more favourable groups to use this tool with a mean of 2.33 or 2.43, which means that they tend to like to use this. The men of these two age groups tend to like to neither like not dislike it since the average is 2.51 or 2.6.

The tests of between subject's effects shows that there is a difference between the age groups with a medium effect since the significance is 0.010 and below 0.05 F=(2.375)=4.658, p=0.010, power=0.782 (Cohen, 2013). There is no difference between the gender F=(1.375)=0.924, p=0.337, power=0.160. The same result has the interaction between gender and age F=(2.385)=0.030, p=0.970, power=0.054. Therefore, statistically there is a difference in the age groups to use loyalty cards online.

Table 40 Tests of between subjects loyalty card

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to have your loyalty card in a mobile version?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	19,685[a]	5	3,937	2,660	,022	,034	13,300	,810
Intercept	1850,149	1	1850,149	1250,070	,000	,769	1250,070	1,000
Q1_Gender	1,368	1	1,368	,924	,337	,002	,924	,160
Q2_Age	13,788	2	6,894	4,658	,010	,024	9,316	,782
Q1_Gender * Q2_Age	,089	2	,044	,030	,970	,000	,060	,054
Error	555,013	375	1,480					
Total	3029,000	381						
Corrected Total	574,698	380						

a. R Squared = ,034 (Adjusted R Squared = ,021)

b. Computed using alpha = ,05

The multiple comparison according to the age groups show where the difference is. Therefore, the baby boomers have a significance difference in the likelihood to use digital loyalty cards with the millennials and Generation x since the significance is below 0.05.

The age groups of 1961 to 1980 as well as the age groups between 1981 and 2004 have no difference in the likelihood as the following table shows.

Table 41 Multiple comparison loyalty card

Multiple Comparisons

Dependent Variable: How is your likelihood to have your loyalty card in a mobile version?

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	,6471*	,19450	,003	,1894	1,1048
	Between 1981 and 2004	,5691*	,18817	,007	,1263	1,0118
Between 1961 and 1980	Between 1943 and 1960	-,6471*	,19450	,003	-1,1048	-,1894
	Between 1981 and 2004	-,0780	,13573	,834	-,3974	,2413
Between 1981 and 2004	Between 1943 and 1960	-,5691*	,18817	,007	-1,0118	-,1263
	Between 1961 and 1980	,0780	,13573	,834	-,2413	,3974

Based on observed means.
The error term is Mean Square(Error) = 1,480.

*. The mean difference is significant at the ,05 level.

Since the groups are unequal the Turkey-Kramer test can be used to analyse the difference as the following table shows (StatsDirect Limited, 2020). Therefore, the Turkey test shows that the millennials and Generation x tend to more like to use the digital loyalty cards because the mean is 2.4. The age group 1943 to 1960 has an average of 3.0556, which means that they neither like nor like to use digital loyalty card.

Table 42 Turkey loyalty card

How is your likelihood to have your loyalty card in a mobile version?

Tukey HSD[a,b,c]

Age	N	Subset 1	Subset 2
Between 1961 and 1980	142	2,4085	
Between 1981 and 2004	185	2,4865	
Between 1943 and 1960	54		3,0556
Sig.		,896	1,000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 1,480.

a. Uses Harmonic Mean Sample Size = 96,880.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c. Alpha = ,05.

Finally, there is a difference between the age groups. The tool would be good to implement it in fashion retail stores for the target groups millennials and Generation x since they like it. But the tool will not make a difference for retailers, who have the target group baby boomers.

4.2.4.6 E-Coupon

Another question of the survey were `how is your likelihood to use E-coupons for example for discounts? `. The Anova will be used to analyse the likelihood between the age and gender groups statistically to answer the questions regarding to the objectives. How does technology influence the consumer behaviour and service? What instore technology tools are efficient to optimize the consumer service? Is there a difference in the use of technology tools according to consumer demographics? The requirements for a 2*3 way Anova were already defined in the chapter assumptions. The variables are defined and the Levene as well as normality test conducted, which did not mention an equal variance as well as normal distribution. This can happen because of the large sample size. However, the analysis can continue (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012).

The outliers need to be tested to make sure that there is nobody in the line, who has another opinion than the average. The graph shows that the median of the age group differ but the genders do not so. According to the age groups the median average of the baby boomers is 3 (neither likely not likely) and of the millennials and Generation x is 2 (likely). It is to say that

the men has four outliers, which needs to be deleted to do not have a mistake in the result. Moreover, the median average line results in 2 according to male as well female, which show that the average of 50% of both genders tend to like to use E-coupons.

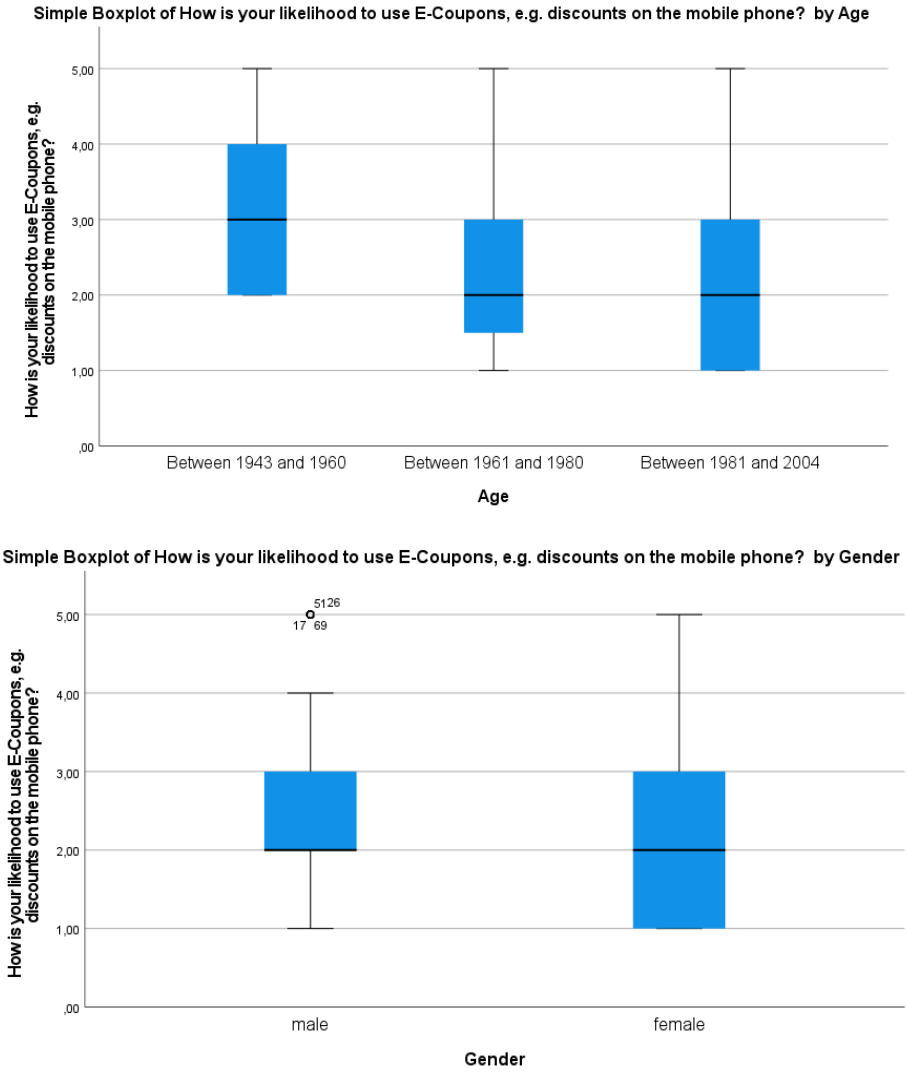


Figure 17 Outliers E-Coupons

After the assumptions are clear, the following graph shows that the likelihood to use E-Coupons of each gender is less the older the people are since the numbers are lower.

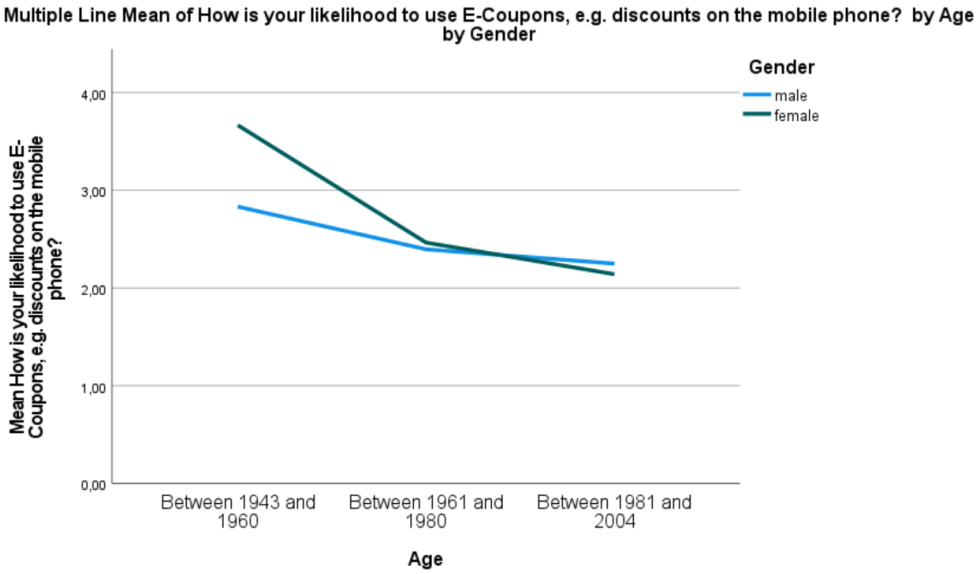


Figure 18 Likelihood E-Coupons

The descriptive analysis of the likelihood to use E-Coupons points out that the six groups are unequal as the following table shows.

Table 43 Descriptive Statistics E-Coupons

Descriptive Statistics

Dependent Variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	2,7059	,87141	34
	Between 1961 and 1980	2,3509	,99087	57
	Between 1981 and 2004	2,2034	1,12617	59
	Total	2,3733	1,03332	150
female	Between 1943 and 1960	3,6667	,48507	18
	Between 1961 and 1980	2,4651	1,36078	86
	Between 1981 and 2004	2,1417	1,21971	127
	Total	2,3810	1,29628	231
Total	Between 1943 and 1960	3,0385	,88476	52
	Between 1961 and 1980	2,4196	1,22424	143
	Between 1981 and 2004	2,1613	1,18814	186
	Total	2,3780	1,19822	381

The mean average of the man is 2.37 and of women 2.38, which means that they tend to like to use this technology because 2 is defined as likely. The total average of the age groups has also a mean of 2.37, which results in the same. The age group between 1943 and 1960 has a mean of 3.0, which means that they neither like not dislike E-coupons. Moreover, especially the women of the baby boomers tend to more dislike the tool with an average of 3.667. The man of the same age group achieves a mean of 2.7, which means that they tend to more neither like not dislike the tool. The millennials and generation x in both age groups ranked the likelihood around 2. Therefore, the age group between 1981 and 2004 tend to like the tool, with an average of 2.16. Especially the women have the most likely average with 2.14

next to the man of this age group with 2.2. The men of the Generation x like the E-coupons more with a mean of 2.35 than the women with a mean of 2.46.

The tests of between subjects shows the difference between the different groups according to the likelihood to use E-Coupons. There is a difference between females and males with a medium effect F(1.375)=5.515, p=0.019, power=0.649. The same result has the different age groups F(2.375)=13.973, p=0.000, power=0.998 with a high effect. The interaction between gender and age has also a significance difference including a medium power F(2.375)=3.577, p=0.029, power= 0.662 as the following table shows.

Table 44 Test of between subjects E-Coupons

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	43,130[a]	5	8,626	6,438	,000	,079	32,190	,997
Intercept	1736,405	1	1736,405	1295,967	,000	,776	1295,967	1,000
Q1_Gender	7,390	1	7,390	5,515	,019	,014	5,515	,649
Q2_Age	37,442	2	18,721	13,973	,000	,069	27,945	,998
Q1_Gender * Q2_Age	9,585	2	4,792	3,577	,029	,019	7,154	,662
Error	502,445	375	1,340					
Total	2700,000	381						
Corrected Total	545,575	380						

a. R Squared = ,079 (Adjusted R Squared = ,067)

b. Computed using alpha = ,05

Finally, the difference of the groups between gender and age according to the likelihood to use E-Coupons is statistically significant.

The estimated margin shows that the overall mean is 2.589, which is the middle of like to use E-Coupons to neither like not dislike. The females have a mean of 2.7, which means that they tend to more neither like not dislike the tools. The men have an average of 2.4. Therefore, the men like to use more the tool than the women. The age group 1943 to 1960 has a mean of 3.186, which means that they neither like not dislike to use e-coupons. Moreover, the group between 1961 and 1980 has a mean of 2.4 and the youngest generation of 2.1. Therefore, the millennials like to use this tool the most. The interaction between the gender and age will be shown in the following table.

Table 45 Estimated Margin E- Coupons

4. Gender * Age

Dependent Variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phoı

Gender	Age	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
male	Between 1943 and 1960	2,706	,199	2,316	3,096
	Between 1961 and 1980	2,351	,153	2,049	2,652
	Between 1981 and 2004	2,203	,151	1,907	2,500
female	Between 1943 and 1960	3,667	,273	3,130	4,203
	Between 1961 and 1980	2,465	,125	2,220	2,711
	Between 1981 and 2004	2,142	,103	1,940	2,344

As it is already described in the descriptive analysis the women of the generation 1981 to 2004 like the most to use e-coupons with a mean of 2.142 next to the man of this generation (2.2). In the age between 1961 and 1980 the man (2.351) tend to like to use this tool more than the women (2.365). The same result shows the oldest generation, where the men have an average of 2.7 and the women of 3.6.

The multiple comparison table shows where the significance difference is according to the subjects of difference. The significance difference is between the baby boomers and millennials as well as baby boomers and Generation x since the significance is below 0.05. There is no difference between the millennials and Generation x as the following table shows.

Table 46 Multiple Comparison E-Coupons

Multiple Comparisons

Dependent Variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	,6189*	,18745	,003	,1778	1,0600
	Between 1981 and 2004	,8772*	,18158	,000	,4499	1,3044
Between 1961 and 1980	Between 1943 and 1960	-,6189*	,18745	,003	-1,0600	-,1778
	Between 1981 and 2004	,2583	,12874	,112	-,0446	,5612
Between 1981 and 2004	Between 1943 and 1960	-,8772*	,18158	,000	-1,3044	-,4499
	Between 1961 and 1980	-,2583	,12874	,112	-,5612	,0446

Based on observed means.
The error term is Mean Square(Error) = 1,340.

*. The mean difference is significant at the ,05 level.

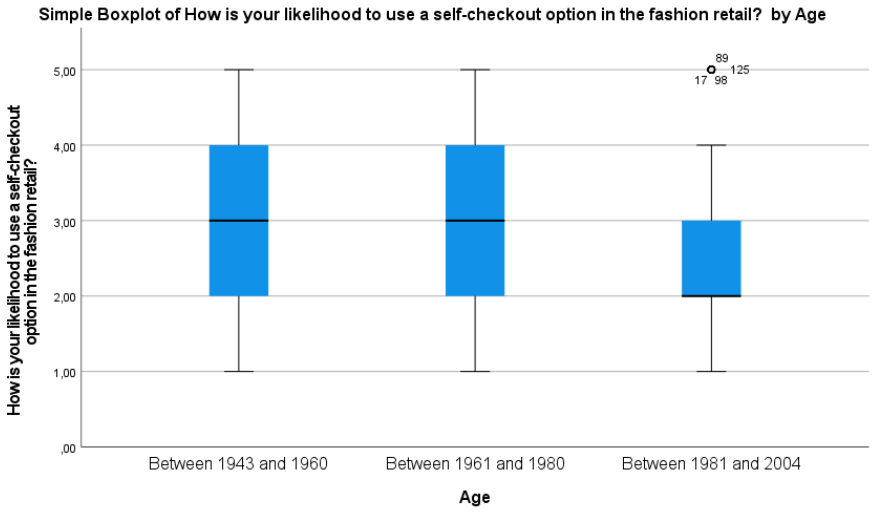
Finally, there is a significance difference between the genders males=2.4 and females=2.7. The significance difference is also between the age groups baby boomers (3.186) and

millennials (2.1) as well as baby boomers and Generation x (2.4). According to this the interaction between both is significant. Therefore, the men like to use the tool more than women. The older the generation the less is the likelihood to use E-coupons. The implementation of this tool will be useful for the millennials and Generation x for men as well as women since they like it. The tool will not make a difference for the baby boomers women but for the man. Therefore, it will be an efficient tool for the groups, who like it, to improve the service in the digital age.

4.2.4.7 Self Checkouts

In the following the difference between the gender and age according to the likelihood to use self-checkouts in German fashion retailers will be analysed to achieve the objective, which instore technology is more beneficial for each target group. The requirements for a 2*3 Anova, which includes the definition of the variables, the Levene and normality test are already described in the chapter assumptions.

The outliers need to be identified to have an equal result. Therefore, the outliers of the age groups show four outliers, which need to be delete. The median for the two older age groups as well as for the women is 3, which means that 50% of these groups tend to neither like not dislike the usage of the technology self-checkout. The youngest generation 1981 to 2004 and men have an average median line of 2, which means that 50% of them tend to like to use this technology. This mentions the two graphs below.



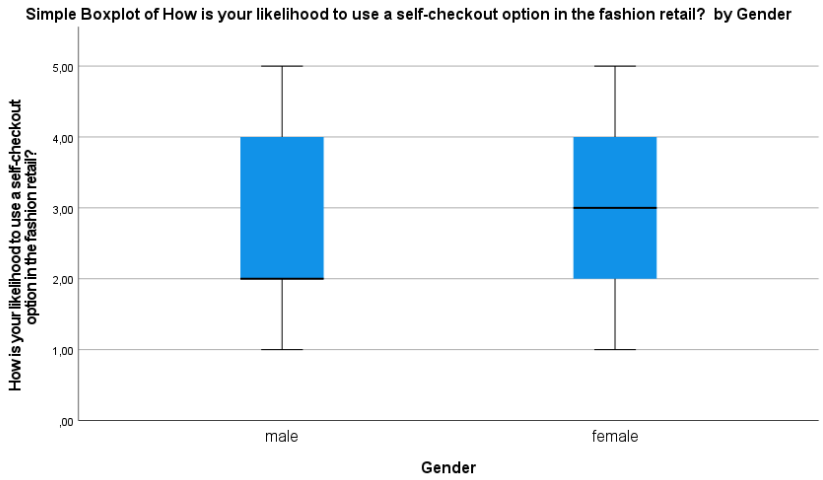


Figure 19 Outliers self-checkout

After the requirements for an Anova are clear, the following graph shows that the likelihood to use self-checkouts in German fashion retailers is higher for the younger target group. The reason for this is that the smaller the number, the higher is the likelihood. Moreover, the steeps of each graph is the same. Therefore, it could be that there is a difference between the age groups.

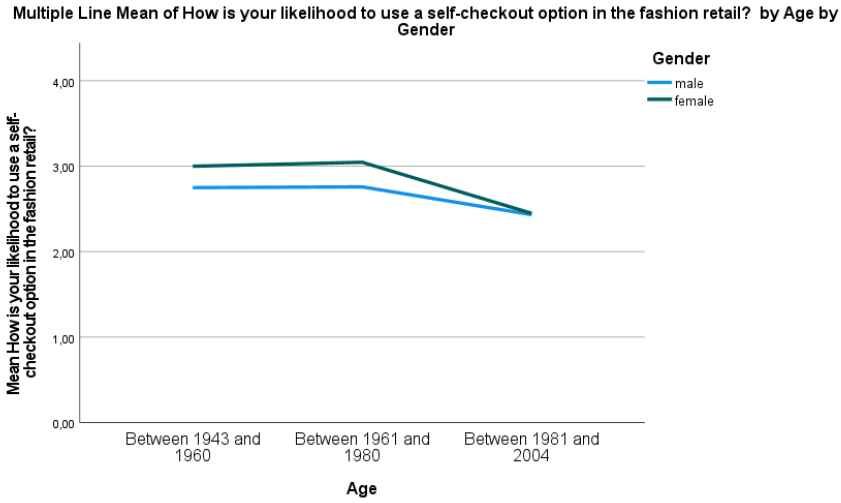


Figure 20 Multiple line self-checkout

The descriptive analysis shows the likelihood to use the self-checkout in German fashion retail stores between the six unequal groups.

Table 47 Descriptive statistics self-checkout

Descriptive Statistics

Dependent Variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	2,8333	1,00000	36
	Between 1961 and 1980	2,3966	1,04192	58
	Between 1981 and 2004	2,1552	1,07282	58
	Total	2,4079	1,06948	152
female	Between 1943 and 1960	3,6667	,48507	18
	Between 1961 and 1980	2,4651	1,36078	86
	Between 1981 and 2004	2,0960	1,17380	125
	Total	2,3581	1,27843	229
Total	Between 1943 and 1960	3,1111	,94503	54
	Between 1961 and 1980	2,4375	1,23876	144
	Between 1981 and 2004	2,1148	1,14015	183
	Total	2,3780	1,19822	381

The table above mentions that the total average of the age groups is 2.3, which means that they tend to like the use of self-checkouts. Moreover, the man like to use the tool a little bit less with an average of 2.4 than the women with 2.35. The age group between 1943 and 1960 neither like not unlike to use self-checkouts since the mean is 3.111. In this age group the man like it more with an average of 2.8 than the women. Since the women of the baby boomers have an average of 3.664, they tend to dislike to use self-checkouts. Moreover, in the age group between 1961 and 1990 the man (2.39) tend to like it more than the women (2.46). The youngest age group likes the most to use self-checkouts with an average of 2.1. Therefore, women (2.0) like it more than men (2.1) in the age group of the millennials.

The test of between subjects shows that there is not a difference between the genders including low power F(1.375)=1.872, p=0.172, power=0.276 (Cohen, 2013). The age groups show a difference with a high power F(2.375)=8.231, p=0.000, power=0.960 (Cohen, 2013). The interaction between gender and age does not shows a difference with a low effect F(2.375)=0.357, p=0.700, power=0.107 (Cohen, 2013).

Table 48 Tests of between subjects self-checkout

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to use a self-checkout option in the fashion retail?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	29,478[a]	5	5,896	4,199	,001	,053	20,996	,959
Intercept	1934,967	1	1934,967	1378,234	,000	,786	1378,234	1,000
Q1_Gender	2,629	1	2,629	1,872	,172	,005	1,872	,276
Q2_Age	23,113	2	11,556	8,231	,000	,042	16,463	,960
Q1_Gender * Q2_Age	1,003	2	,501	,357	,700	,002	,714	,107
Error	526,480	375	1,404					
Total	3244,000	381						
Corrected Total	555,958	380						

a. R Squared = ,053 (Adjusted R Squared = ,040)

b. Computed using alpha = .05

The estimated margin shows the mean between the different groups. The overall mean is 2.6, which is between likely and neither likely not unlikely to use the self-checkout. According to the gender the male have a mean of 2.4 and the women of 2.7. Therefore, the man tend to like to use this tool more than the women. Finally, the age groups show that the millennials tend to like the self-checkout with a mean of 2.1. The Generation x like it also with 2.4 and the baby boomers neither like not dislike it with an average of 3.250.

The multiple comparison shows where the difference is in the age groups. Therefore, between every age group is a significance difference since it is below 0.05.

Table 49 Multiple comparison self-checkout

Multiple Comparisons

Dependent Variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	,6736*	,18328	,001	,2423	1,1049
	Between 1981 and 2004	,9964*	,17788	,000	,5778	1,4149
Between 1961 and 1980	Between 1943 and 1960	-,6736*	,18328	,001	-1,1049	-,2423
	Between 1981 and 2004	,3227*	,12795	,032	,0217	,6238
Between 1981 and 2004	Between 1943 and 1960	-,9964*	,17788	,000	-1,4149	-,5778
	Between 1961 and 1980	-,3227*	,12795	,032	-,6238	-,0217

Based on observed means.
The error term is Mean Square(Error) = 1,319.

*. The mean difference is significant at the ,05 level.

Finally, it is to say that there is a significance difference between the age groups. Moreover, the millennials like to use the tool the most next to the Generation x. The baby boomers neither like not dislike to use self-checkouts in fashion retailers. The retailers should implement the tool for the generation millennials and Generation x since these groups like it. The baby boomers and women neither like it and therefore it will not make a difference for retailers to implement the technology for this target group.

4.2.4.8 Showroom

This chapter is about the analysis of the likelihood to have a showroom effect in the store, which means that the retail shop does not have every size or colour in the store but show it to the people online. Therefore, a 2*3 Anova will be done to reach the goal, which instore

technologies are more efficient or is there a difference between different target groups in the likelihood of it. The assumption for the Anova are already in the previous chapter defined. Therefore, the variables were defined and the normality test as well as Levene test were conducted, which did not show a normal distribution and homogeneity. Because of the large sample size the analysis can continue (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012). Moreover, the boxplot did not show any outliers.

After the requirements are outlined the analysis can continue. The following graph shows that the males and females have a different scope. According to the men the younger they are the more they tend to neither like to not dislike the use of the showroom effect. According to the women it is the other way around. But the two graphs are around the average scale of the end of two to three, which means that all groups tend to neither like not dislike to show the additional collection virtual.

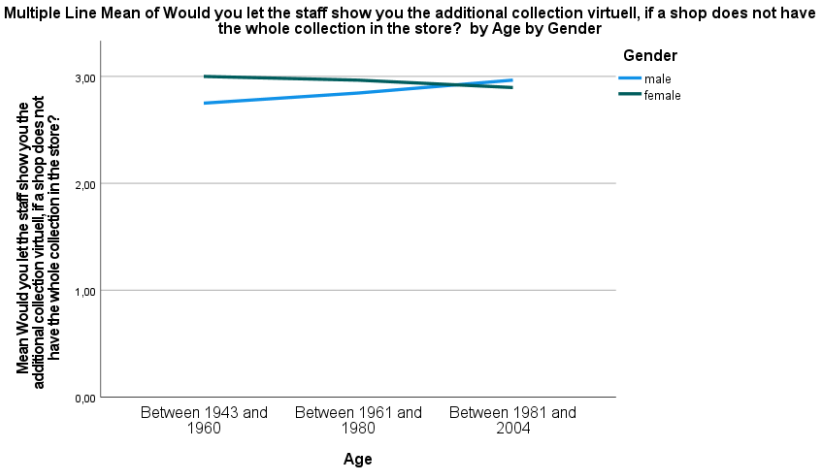


Figure 21 Graph showroom

In the following the descriptive statistics will give a good overview about the means of each group. As the first graph shows already the means of the six different groups, which have an unequal size, are around the end of 2 to 3, which outlines that every group tend to neither like not dislike to use the digital tool showroom. It is very interesting that the age groups according to the male outlines the older they are, the more they tend to like it since the generation between 1943 and 1960 has a mean of 2.7, the age group between 1961 and 1980 has a mean of 2.8 and the youngest male generation an average of 3.0. The female baby boomers have an average of 3, the Generation x has a mean of 2.96 and the millennials of

2.89. The age groups and genders have a very close mean but still the fact that man and women have a different voting according to the age groups this is important to know.

Table 50 Descriptive statistics showroom

Descriptive Statistics

Dependent Variable: Would you let the staff show you the additional collection virtuell, if a shop does not have the whole collection in the store?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	2,7500	,93732	36
	Between 1961 and 1980	2,8448	,98767	58
	Between 1981 and 2004	3,0333	1,28837	60
	Total	2,8961	1,10358	154
female	Between 1943 and 1960	3,0000	,84017	18
	Between 1961 and 1980	2,9651	1,21217	86
	Between 1981 and 2004	2,8976	1,14666	127
	Total	2,9307	1,14757	231
Total	Between 1943 and 1960	2,8333	,90596	54
	Between 1961 and 1980	2,9167	1,12505	144
	Between 1981 and 2004	2,9412	1,19216	187
	Total	2,9169	1,12886	385

The test of between subjects shows that there is no difference according to the gender, the age groups and the interaction between gender and age since the significance is above 0.05. There is no difference between man and women since F(1.379)=0.313, p=0.576, power=0.086. The three age groups do not have a significance difference as well since F(2.379)=0.170, p=0.844, power=0.076. The interaction between gender and age does not show a significance F(2.379)=0.767, p=0.465, power=0.180. The result shows that these groups have a small power since the effect is below 0.2 (Cohen, 2013).

Table 51 Tests of between subjects showroom

Tests of Between-Subjects Effects

Dependent Variable: Would you let the staff show you the additional collection virtuell, if a shop does not have the whole collection in the store?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	2,489[a]	5	,498	,387	,857	,005	1,937	,151
Intercept	2237,273	1	2237,273	1741,654	,000	,821	1741,654	1,000
Q1_Gender	,402	1	,402	,313	,576	,001	,313	,086
Q2_Age	,437	2	,218	,170	,844	,001	,340	,076
Q1_Gender * Q2_Age	1,971	2	,985	,767	,465	,004	1,534	,180
Error	486,851	379	1,285					
Total	3765,000	385						
Corrected Total	489,340	384						

a. R Squared = ,005 (Adjusted R Squared = -,008)

b. Computed using alpha = ,05

The estimated margin summarizes the means of each group again, which were described in the descriptive statistics already. The overall mean is 2.91, which means that the likelihood to show the additional collection online, if the item is not in the store available tend to neither likely not unlikely. The male achieved a mean of 2.87 and the women of 2.95, which means

that both tend to neither like not dislike the showroom effect in the retail store. The age group between 1941 and 1960 tend to like it the most with a mean of 2.75. This alludes also to the point that the group tend to neither like not dislike the tool. The age group between 1961 and 1980 have a mean of 2.9 and the youngest age group of 2.9. Therefore, every group tend to neither like not dislike this tool. The interaction between the groups show the same effect that everyone tend to neither like not dislike the tool. The interesting thing is also if it is only a minor point that the younger the women the more they like it and the men show the other way around as the following table mentions.

Table 52 Estimated margin showroom

4. Gender * Age

Dependent Variable: Would you let the staff show you the additional collection virtuell, if a shop does not have the whole collection in the store?

Gender	Age	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
male	Between 1943 and 1960	2,750	,189	2,379	3,121
	Between 1961 and 1980	2,845	,149	2,552	3,137
	Between 1981 and 2004	3,033	,146	2,746	3,321
female	Between 1943 and 1960	3,000	,267	2,475	3,525
	Between 1961 and 1980	2,965	,122	2,725	3,205
	Between 1981 and 2004	2,898	,101	2,700	3,095

Finally, it is to say that the likelihood to show additionally collection virtual in the store is neither likely not unlikely. Therefore, the tool will not make a difference for people if the store has one.

4.2.4.9 Smart Window

In the following the likelihood to scan an article, which a person can see in the shopping window to look it up online, will be analysed by the influence of the independent variables gender and age. The difference between the groups and the dependent variable likelihood to use smart windows will be analysed with a 2*3 Anova to achieve the goals which instore technology is more efficient. The requirements as the definition of the variables, normality test and Levene test are already described in the assumption chapter. Therefore, the normal distribution as well as homogeneity is not given. Since the sample size is above 100, a the

analysis can continue (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012). The outlier test did not show any outliers.

After the assumptions are identified, the following graph shows that the younger the men the more they like to use the smart window. It is to say that the mean is between 3.5 and 2.9, which alludes to the fact that this group tend to neither like not dislike this tool. The women has the same scope from the age group between 1943 and 1960 to between 1961 and 1980, where the line goes from 3.5 to 2.9 down and then is on the same line at the age between 1981 and 2004. Therefore, the overall likelihood of this instore technology tend to neither like not unlike as the following graph shows.

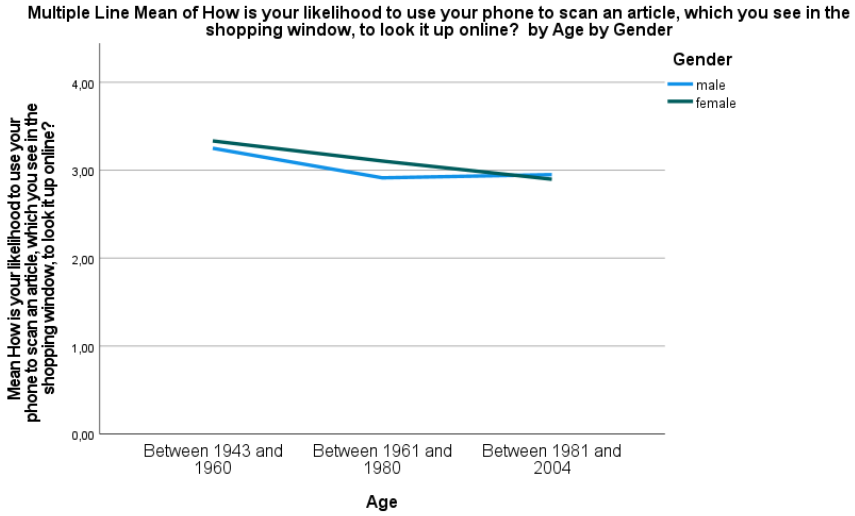


Figure 22 Multiple line smart window

The descriptive statistics of the likelihood to use smart windows shows that the six groups are unequal as the following table mentions with N=participants.

Table 53 Descriptive statistics smart windows

Descriptive Statistics

Dependent Variable: How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,2500	,93732	36
	Between 1961 and 1980	2,9138	1,06433	58
	Between 1981 and 2004	2,9500	1,25448	60
	Total	3,0065	1,11728	154
female	Between 1943 and 1960	3,3333	,76696	18
	Between 1961 and 1980	3,1047	1,19832	86
	Between 1981 and 2004	2,8976	1,27139	127
	Total	3,0087	1,21581	231
Total	Between 1943 and 1960	3,2778	,87775	54
	Between 1961 and 1980	3,0278	1,14626	144
	Between 1981 and 2004	2,9144	1,26285	187
	Total	3,0078	1,17590	385

The table above shows that the total average according to male, female and age is totally around 3, which means that they tend to neither like not dislike to scan articles in a shopping window. Therefore, the baby boomers have a mean of 3.27, which means that this group tend to neither like not dislike. This shows also the difference between man (3.25) and women (3.33). The men generation between 1961 and 1980 tend to more like to use the tool with 0.362 points difference than the younger generation. The average of the generation 1961 to 1980 show that they tend to more dislike the tool with an average of 3.1 than the men of this generation and also the generation between 1981 and 2004 according to women. Finally, the descriptive analysis shows that every group tend to neither like not dislike the smart window technology.

In the following the tests of between will be done to evaluate the difference between the groups. Therefore, the genders do not show a difference since $F(1.379)=0.260$, $p=0.610$, power=0.08. The age groups do not have a difference neither $F(2.379)=1.815$, $p=0.164$, partial=0.379. The interaction between gender and age does not show are difference $F(2.379)=0.403$, $p=0.669$, power=0.115. The power of every group is low (Cohen, 2013). This mentions the following table as well.

Table 54 Tests of between smart windows

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	7,080[a]	5	1,416	1,024	,403	,013	5,122	,366
Intercept	2489,196	1	2489,196	1800,748	,000	,826	1800,748	1,000
Q1_Gender	,360	1	,360	,260	,610	,001	,260	,080
Q2_Age	5,018	2	2,509	1,815	,164	,009	3,630	,379
Q1_Gender * Q2_Age	1,114	2	,557	,403	,669	,002	,806	,115
Error	523,896	379	1,382					
Total	4014,000	385						
Corrected Total	530,977	384						

a. R Squared = ,013 (Adjusted R Squared = ,000)

b. Computed using alpha = ,05

Finally, there is no difference between the groups to use the in store technology smart window.

The estimated margin shows the average of the likelihood to use smart windows of each group. Therefore, it is to say that as it is in the descriptive analysis mentioned that every group tend to neither like not dislike the opportunity to scan an article in the shopping window to see it online. Therefore, it will not make a difference if retailers implement the tool or not. Finally, it is to say that the likelihood to use smart windows is neither likely not unlikely according to the different target groups.

4.2.4.10 Interaction Social Media

In the following an analysis will be conducted to find the agreement out to share a pictures on social media to get a discount. The requirements for an Anova as the definition of variables, Levene test and normality test were conducted in the chapter assumption. There is no equal variance as well as normal distribution. The analysis can continue because of the large sample size (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012). The boxplot did not outline any outliers as well.

After the assumptions are identified, the following graph outlines two graphs, which show the agreement of the age groups between man and women to share pictures of a product of a fashion retailer to get a discount. It is to say that both graphs are between 3 and 4 according

to the agreement, which means that the participants neither agree not disagree to disagree to share a pictures on social media. Nevertheless, the graphs of men and women have different shapes. Therefore, the younger the men, the more they are favourable in the range of disagree to neither disagree not agree to share a picture to get a discount. According to the women in the age group between 1943 and 1960 they are in the range around 3.5, which is the middle of neither agree not disagree and disagree. The female age group 1961 to 1980 disagree to share a picture on social media to get a discount and the youngest age group neither agree not disagree.

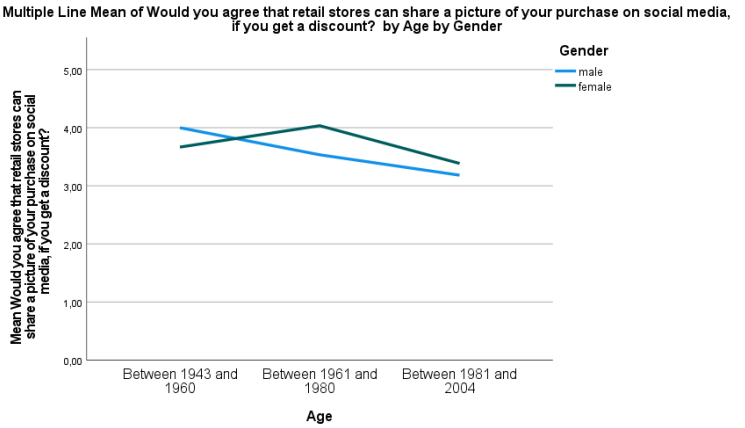


Figure 23 Multiple line social media

The descriptive statistics of the agreement to share pictures on social media point out that the groups (N) are unequal.

Table 55 Descriptive social media

Descriptive Statistics

Dependent Variable: Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	4,0000	,92582	36
	Between 1961 and 1980	3,5345	1,28712	58
	Between 1981 and 2004	3,1833	1,52373	60
	Total	3,5065	1,34430	154
female	Between 1943 and 1960	3,6667	1,28338	18
	Between 1961 and 1980	4,0349	1,10024	86
	Between 1981 and 2004	3,3858	1,17546	127
	Total	3,6494	1,19163	231
Total	Between 1943 and 1960	3,8889	1,05806	54
	Between 1961 and 1980	3,8333	1,20023	144
	Between 1981 and 2004	3,3209	1,29671	187
	Total	3,5922	1,25517	385

The table above shows that the average of men are 3.5, of women 3.64 and of the age groups 3.59. Therefore, every average is in the middle of neither like not dislike to dislike to share a picture on social media. The women like it on average 0.14 points less than man. The youngest age group in both gender groups agrees more favourable than the other age groups with an overall mean of 3.32, which means that they neither agree not disagree to share a picture on social media to get a discount. Another observation is that the men age group between 1943 and 1960 dislike (4) to share the pictures on social media. The women of the age group between 1961 and 1980 have an average of 4.0, which means they disagree with that. Therefore, the genders on the different age groups differ a little bit in the development of the agreement.

The test between subjects shows the statistically significant difference between the age and gender groups according to the agreement to share a picture on social media as the following table shows.

Table 56 Test of between subjects social media

Tests of Between-Subjects Effects

Dependent Variable: Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	38,572[a]	5	7,714	5,162	,000	,064	25,810	,986
Intercept	3477,073	1	3477,073	2326,626	,000	,860	2326,626	1,000
Q1_Gender	,999	1	,999	,668	,414	,002	,668	,129
Q2_Age	22,944	2	11,472	7,676	,001	,039	15,352	,947
Q1_Gender * Q2_Age	6,346	2	3,173	2,123	,121	,011	4,247	,435
Error	566,404	379	1,494					
Total	5573,000	385						
Corrected Total	604,977	384						

a. R Squared = ,064 (Adjusted R Squared = ,051)

b. Computed using alpha = ,05

Therefore, the genders do not show a significance difference with a low power F(1.379)=0.668, p=0.414, power=0.129 (Cohen, 2013). The same result has the interaction between gender and age F(2.379)=2.123, p=0.121, power=0.435. The three different age groups mention a difference with a high effect F(2.379)=7.676, p=0.001, power=0.947 Cohen, 2013).

The following table shows where the difference between the age groups is.

Table 57 Multiple comparison social media

Multiple Comparisons

Dependent Variable: Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	,0556	,19507	,956	-,4034	,5146
	Between 1981 and 2004	,5680*	,18886	,008	,1237	1,0124
Between 1961 and 1980	Between 1943 and 1960	-,0556	,19507	,956	-,5146	,4034
	Between 1981 and 2004	,5125*	,13554	,001	,1936	,8314
Between 1981 and 2004	Between 1943 and 1960	-,5680*	,18886	,008	-1,0124	-,1237
	Between 1961 and 1980	-,5125*	,13554	,001	-,8314	-,1936

Based on observed means.
The error term is Mean Square(Error) = 1,494.

*. The mean difference is significant at the ,05 level.

Since the significance is below 0.05 there is a statistically difference between the age groups 1943 to 1960 and 1981 to 2004 (p=0.008). Another difference shows the age groups 1961 to 1980 with 1981 to 2004 (p=0.001). There is no difference between 1943 to 1960 and 1961 to 1980 (p=0.956).

The estimated margin of means summerizes the average of the agreement to share pictures on social media in order to get a discount. According to the statistically difference the babyboomers have a mean of 3.8 and the Generation x of 3.7, which means that they tend more to dislike to share pictures of a fashion piece than millenials. The millenials have an average of 3.2 according to the agreement, which means that they tend to neither agree not disagree to use this in store technology. Finally, it can be said that this tool is not very useful for every generation since nobody agrees totally to use it. If a fashion company wants to use it, they should more focus on the millenials than the older generations.

4.2.4.11 Virtual Location

In the following the question `how is your likelihood to put your product that you are wearing into another virtual location? ` will be analysed with an Anova test. This will be useful to test the difference between the independent variable age and gender and the dependent scale variable the likelihood to use this artificial instore technology. This will be helpful to find out, which technology is useful in a German fashion retailer and which target group like it the most. The requirements for a 2*3 Anova are the definition of the variables, the normality test and Levene test, which outlined the previous chapter assumption. Therefore, there is no

normal distribution as well as homogeneity. Nevertheless, the analysis can continue because of the large sample size(Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012).

The outliers need to be identified to get an equal average of each group. Therefore, the different age groups do not outline any outliers. The reason for this is that every participant of the generation between 1943 and 1960 voted between 2 and 5. The other two generation voted between 1 and 5. Moreover, the average median line is of every generation 4. The genders mention outliers. Therefore, the females have 4 since they voted 1, which means that they have a very high likelihood to use this tool. The reason for this is that the majority of the women ranked the tool between 2 and 5. In contrast the men do not have any outliers since there were enough people on every ranking of likelihood. However, the average median line of the genders is 4, which means that 50% of the groups tend to dislike this technology.

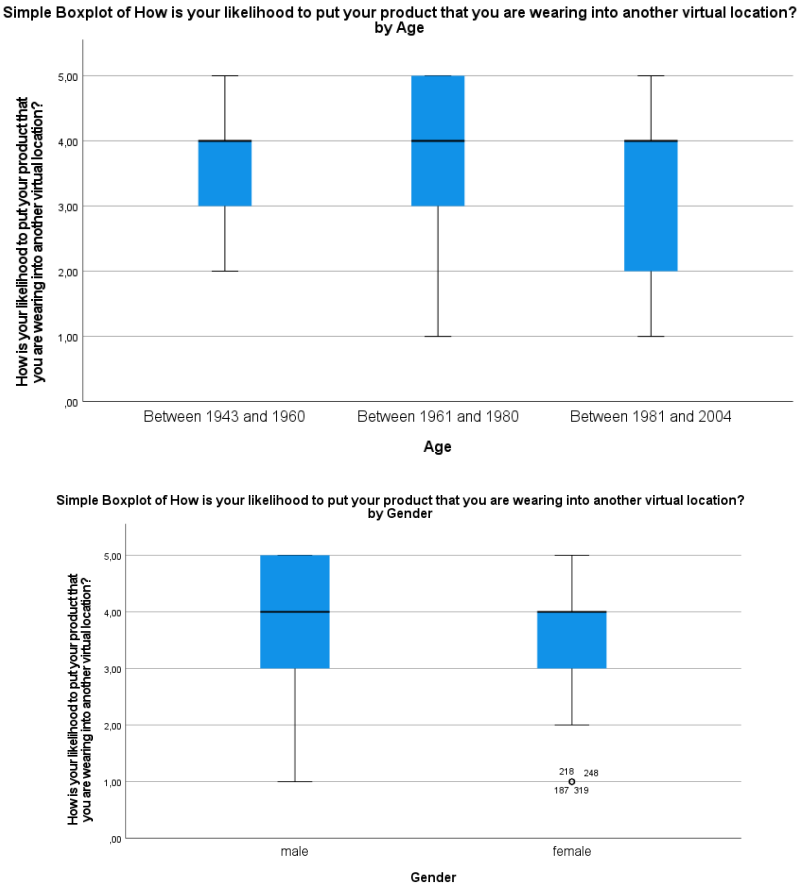


Figure 24 Outliers virtual location

After the assumptions are identified, the analysis can continue. To give a good overview about the findings of this question the following graph will be useful. Therefore, both genders

are on average in every age group between 4 and 3, which means that they dislike or neither like not dislike to use this tool. Moreover, the male graph is more or less on the same average of the likelihood according to each age group. In contrast the female graph is of the generation between 1943 and 1960 as well as between 1961 and 1980 at the end of the mean 3, which means that they tend to dislike this tool. The youngest generation of the women (between 1981 and 2004) are in the middle of 3 and 4, which means that they tend to more neither like not dislike the tool.

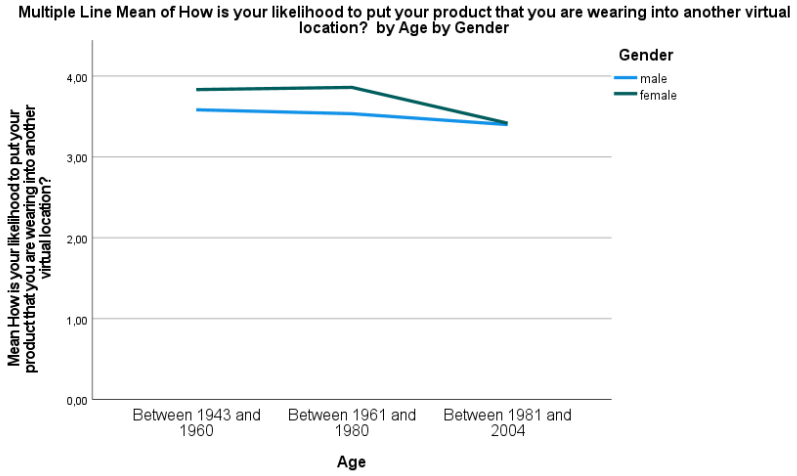


Figure 25 Multiple line virtual location

The following descriptive statistics points out that the size of the six groups is unequal.

Table 58 Descriptive statistics virtual location

Descriptive Statistics

Dependent Variable: How is your likelihood to put your product that you are wearing into another virtual location?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,5833	,96732	36
	Between 1961 and 1980	3,5345	1,23140	58
	Between 1981 and 2004	3,4000	1,41661	60
	Total	3,4935	1,24851	154
female	Between 1943 and 1960	3,8333	1,09813	18
	Between 1961 and 1980	3,8941	1,00028	85
	Between 1981 and 2004	3,4758	1,04736	124
	Total	3,6608	1,04940	227
Total	Between 1943 and 1960	3,6667	1,00939	54
	Between 1961 and 1980	3,7483	1,10993	143
	Between 1981 and 2004	3,4511	1,17710	184
	Total	3,5932	1,13548	381

The table above shows that the total average of the likelihood to put the product into another virtual location is 3.59, which means that it is in the middle of neither likely not dislike to dislike. The male tend to more neither like not dislike with a total average of 3.49. In contrast the women tend to more dislike this tool according to an average of 3.66. It is to say that the older the age groups the more they tend to dislike this instore technology. The age group

between 1943 and 1960 has an average of 3.67, the generation between 1961 and 1980 has a likelihood of 3.7 and the youngest generation of 3.4. The women of the generation between 1961 and 1980 dislike (3.89) the tool more than the baby boomers (3.83). The different generation of the men have a linear development. The older the generation, the more they dislike the tool. Since every group has an average of the likelihood between 3 and 4, this instore technology will not be very useful.

In the next step the tests of between subjects will be done to know the significant difference between the groups as the following table shows.

Table 59 Tests of between virtual location

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to put your product that you are wearing into another virtual location?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	12,887[a]	5	2,577	2,026	,074	,026	10,130	,677
Intercept	3442,059	1	3442,059	2705,706	,000	,878	2705,706	1,000
Q1_Gender	3,428	1	3,428	2,694	,102	,007	2,694	,374
Q2_Age	6,535	2	3,268	2,569	,078	,014	5,137	,512
Q1_Gender * Q2_Age	1,519	2	,759	,597	,551	,003	1,194	,149
Error	477,056	375	1,272					
Total	5409,000	381						
Corrected Total	489,942	380						

a. R Squared = ,026 (Adjusted R Squared = ,013)

b. Computed using alpha = ,05

Therefore, the genders, age groups and the interaction between gender and age do not show a significant difference. The reason for this is that the significance of each variable is above 0.05. The gender equals F(1.375)=2.694, p=0.102, power=0.375. Moreover, the age groups outlines F(2.375)=2.569, p=0.078, power=0.512 and the interaction between gender and age shows a result of F(2.375)=0.597, p=0.551, power=0.149. Finally, there is no difference between the groups. The test of power outlines that the age group (0.512) have a medium effect. The effect of the gender is with 0.374 low as well as the interaction with 0.149 (Cohen, 2013).

Finally, the estimated margin of means summarizes the average of the likelihood to put a product into another virtual location, which is 3.62, which means that they tend to dislike this instore technology. This fact can be adapted to every group since there is no difference between them. Moreover, the older generation has a mean of 3.7 and the youngest of 3.4.

Therefore, the Generation x tends to dislike this tool and the millennials neither like not dislike this in store technology. Finally, the analysis shows that the in store technology to put clothes into another location will not be efficient since the people tend to dislike this tool.

4.2.4.12 Digital Recommendation

In the following the question `how is your likelihood to see product recommendation from other customers in the store` will be analysed to achieve the objective, which instore technology is more efficient and which target group prefers this technology. As it is defined in the chapter assumption the requirements for a 2*3 Anova are the definition of variables and normality test. In this case the Kolmogorov smirnov and the Shapiro wilk test points for the gender as well as for the age group a significance of 0.000 out, which means that there is not a normal distribution. Since the sample size is above 100, the analysis can be conducted (Ghasemi and Zahediasl, 2012). Moreover, the boxplot graph did not show any outliers, which need to be deleted. Another requirement is the Levene test, which tests the homogeneity of the groups. In this case the overall based on mean is 0.000, which means that there is an unequal variance. The homogeneity of female and male is equal since the significance is with 0.309 above 0.05.

Table 60 Homogeneity digital recommendation gender

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
How is your likelihood to see product recommendations from other customers in the store as you can see this in online shops?	Based on Mean	1,036	1	383	,309
	Based on Median	1,176	1	383	,279
	Based on Median and with adjusted df	1,176	1	382,585	,279
	Based on trimmed mean	1,014	1	383	,315

The variance of the age groups is also unequal since the significance is 0.000. However, the larger the sample size, the smaller is the homogeneity. Since the sample size is large enough, the analysis can continue (Gastwirth *et al.*, 2009).

After the assumptions are identified, the analysis can continue. The descriptive analysis will be done to give a short overview about the answers of this question.

Table 61 Descriptive statistics digital recommendation

Descriptive Statistics

Dependent Variable: How is your likelihood to see product recommendations fr

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,6667	,86189	36
	Between 1961 and 1980	3,1207	1,07732	58
	Between 1981 and 2004	3,0000	1,39004	60
	Total	3,2013	1,19026	154
female	Between 1943 and 1960	3,1667	,70711	18
	Between 1961 and 1980	3,1744	1,21937	86
	Between 1981 and 2004	2,9528	1,16058	127
	Total	3,0519	1,15604	231
Total	Between 1943 and 1960	3,5000	,84116	54
	Between 1961 and 1980	3,1528	1,16066	144
	Between 1981 and 2004	2,9679	1,23525	187
	Total	3,1117	1,17060	385

The table shows that the total average is 3.1, which means that the likelihood to see digital product recommendation is neither likely not unlikely. Moreover, the age group between 1943 and 1960 tends to dislike the technology with an average of 3.5, which means they ranked the tool in the middle of neither likely nor unlikely and dislike. The generation between 1961 and 1980 ranked this instore technology on an average of 3.1, which means that they neither like nor dislike this tool. Moreover, the youngest generation have an average of 2.9, which means that they neither like nor dislike this tool. The female like this tool more than the man since the average differ by 0.1494. But both genders tend to neither like nor dislike this tool. The development of the age groups by the division of the genders shows that the generation of men have a similar development than the total. Moreover, the women of the age group between 1961 and 1980 have an average of 3.17 and the older generation of the women have an average of 3.16. They are very close and dislike the tool. This analysis is visualized in the following graph as well.

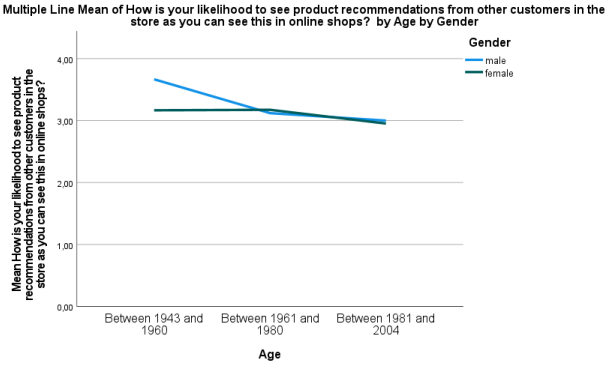


Figure 26 Multiple line digital recommendation

The test of between subject's effects outlines that there is no significant difference according to gender, age and the interaction between gender and age as the following table shows.

Table 62 Tests of between digital recommendations

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to see product recommendations from other customers in the store as you can see this in online shops?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	15,442[a]	5	3,088	2,292	,045	,029	11,459	,739
Intercept	2662,595	1	2662,595	1975,747	,000	,839	1975,747	1,000
Q1_Gender	1,781	1	1,781	1,322	,251	,003	1,322	,209
Q2_Age	7,610	2	3,805	2,823	,061	,015	5,647	,553
Q1_Gender * Q2_Age	2,770	2	1,385	1,028	,359	,005	2,056	,229
Error	510,755	379	1,348					
Total	4254,000	385						
Corrected Total	526,197	384						

a. R Squared = ,029 (Adjusted R Squared = ,017)

b. Computed using alpha = ,05

As the table shows each group does not outline a significance difference as gender F(1.379)=1.322, p=0.251, power=0.209. The same result has the variable age F(2.379)=2.823, p=0.061, power=0.553 and the interaction between gender and age F(2.379)=1.028, p=0.359, power=0.229. The test of power outlines that the effect of the age group is medium with 0.553. The effect of the gender is with 0.09 low as well as of the interaction with 0.229 (Cohen, 2013).

The estimated margin of means summarize that the mean average is 3.17 on a confidence level of 95%. The overall likelihood of this instore technology is neither likely not unlikely, which can apply to every group since there is no difference between them. Finally, it can be said that it does not matter if fashion retailers would implement digital recommendation in the store since the participants neither like not dislike this tool.

4.2.4.13 Virtual Fitting Room

In the following the likelihood to use virtual fitting rooms to try different colours and outfits virtually in a store on will be analysed by doing a 2*3 Anova to test the difference between the target groups. This is necessary to achieve the objective, which instore technology is more efficient and how the likelihood according to the target groups differentiate. As it is written in the assumption, the variables are defined and the normal distribution is not given. Since the sample size is above 100, the analysis can continue (Gastwirth *et al.*, 2009). Moreover, the boxplot graphs do not show any outliers. The Levene test mentions a significance based

on mean of 0.098 and therefore above 0.05, which means that the variance of the groups are equal as the following table shows.

Table 63 Levene`s Test virtual fitting room

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?	Based on Mean	1,871	5	379	,098
	Based on Median	1,314	5	379	,257
	Based on Median and with adjusted df	1,314	5	328,085	,258
	Based on trimmed mean	1,915	5	379	,091

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

After the assumptions are identified, the descriptive statistics table outlines that the groups are unequal.

Table 64 Descriptive analysis virtual fitting rooms

Descriptive Statistics

Dependent Variable: How is your likelihood to use virtual fitting rooms to see dif

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,2500	,93732	36
	Between 1961 and 1980	3,1379	1,33046	58
	Between 1981 and 2004	2,5833	1,23908	60
	Total	2,9481	1,24087	154
female	Between 1943 and 1960	2,8333	1,38267	18
	Between 1961 and 1980	3,1512	1,28811	86
	Between 1981 and 2004	2,7795	1,25302	127
	Total	2,9221	1,28299	231
Total	Between 1943 and 1960	3,1111	1,11027	54
	Between 1961 and 1980	3,1458	1,30072	144
	Between 1981 and 2004	2,7166	1,24861	187
	Total	2,9325	1,26475	385

Therefore, the table above points out that the overall mean of the likelihood to use virtual fitting rooms is 2.93, which means that the 385 participants neither like not dislike this instore technology. According to the different age groups, the generation between 1943 and 1960 are very close with an average of .311 and 3.14. The age group between 1981 and 2004 has a mean of 2.7, which means that they like it more than the other generation but still tend to neither like not dislike the use of virtual fitting rooms. The table does not show a difference according to the total mean between female and male, which is at 2.9. There is an interesting observation between the different generations according to the division of male and female. In both cases the youngest generation (1981 to 2004) tend to like the tool the most with a mean of 2.5 according to man and an average of 2.7 of the women. The female generation between 1943 and 1960 tend to like the tool with an average of 2.8 more than the generation between 1961 and 1980. Moreover, the oldest generation of the men with an average of 3.25

like it less than the baby boomers of the women. Therefore, the following graph visualize this description.

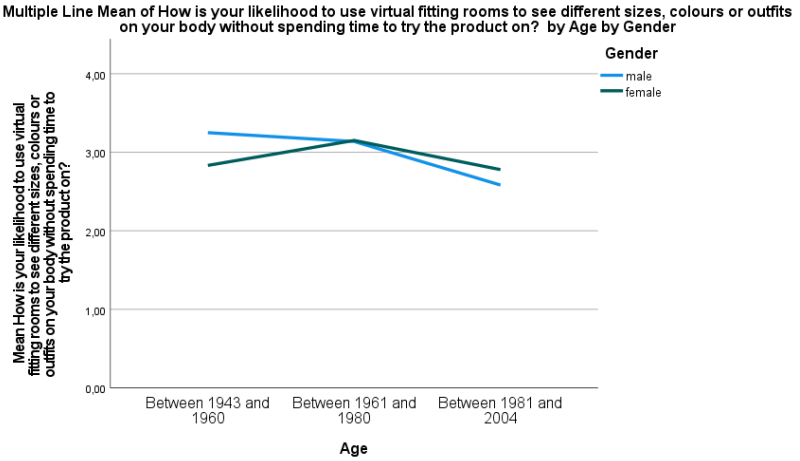


Figure 27 Multiple line virtual fitting rooms

In the following table the statistically difference between the groups will be outlined according to the likelihood to use virtual fitting rooms to see different sizes, colours or outfits digitally on the body.

Table 65 Test of between virtual fitting rooms

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	20,653[a]	5	4,131	2,637	,023	,034	13,186	,806
Intercept	2300,226	1	2300,226	1468,662	,000	,795	1468,662	1,000
Q1_Gender	,314	1	,314	,201	,655	,001	,201	,073
Q2_Age	16,963	2	8,481	5,415	,005	,028	10,831	,844
Q1_Gender * Q2_Age	3,521	2	1,761	1,124	,326	,006	2,248	,248
Error	593,592	379	1,566					
Total	3925,000	385						
Corrected Total	614,244	384						

a. R Squared = ,034 (Adjusted R Squared = ,021)

b. Computed using alpha = ,05

The interaction between gender and age does not show a difference since the significance is above 0.05, which means F(2.379)=1.124, p=0.326, power=0.248. The same result has also the variable gender F(1.379)=0.201, p=0.655, power=0.073. The three age groups outline a significance difference according to the likelihood to use virtual fitting rooms in retail stores. F(2.379)=5.415, p=0.005, power=0.844. The test of power outlines that the effect of the age group is high with 0.8. The effect of the gender is with 0.073 low as well as the interaction with 0.248 (Cohen, 2013).

The following post hoc test shows where the difference lies according to the age groups.

Table 66 Multiple comparison virtual fitting rooms

Multiple Comparisons

Dependent Variable: How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	-,0347	,19970	,983	-,5046	,4352
	Between 1981 and 2004	,3945	,19334	,104	-,0604	,8494
Between 1961 and 1980	Between 1943 and 1960	,0347	,19970	,983	-,4352	,5046
	Between 1981 and 2004	,4293*	,13875	,006	,1028	,7557
Between 1981 and 2004	Between 1943 and 1960	-,3945	,19334	,104	-,8494	,0604
	Between 1961 and 1980	-,4293*	,13875	,006	-,7557	-,1028

Based on observed means.
The error term is Mean Square(Error) = 1,566.

*. The mean difference is significant at the ,05 level.

As the table above points out the difference according to the age groups is between the generation 1961 to1980 and 1981 to 2004 with a confidence level of 95% and p value of 0.006.

Therefore, the estimated margin of means points out that the Generation x has an average of likelihood of 3.145 and the millennials of 2.681. Therefore, the younger age group tend to like this tool more. Nevertheless, both age groups as well as the baby boomers with an average of 3.145 neither like not dislike the tool. Finally, the overall average is 2.9, which means also that the gender and the interaction between genders and age neither like not dislike this instore technology since these groups do not have a significance difference. Finally, the tool is not very useful to implement it in fashion retailers in Germany since the target groups neither like not dislike virtual fitting rooms. The significant difference between millennials and Generation x outlines, retailers should focus on the youngest generation in Germany for the implementation of this tool.

4.2.4.14 Robots

In the following an analysis about the likelihood to get information of robots in a fashion retail store in Germany will be done. This is necessary to achieve the objectives, which instore technology is more efficient and which target groups prefer which technologies. The requirements are already defined in the chapter assumptions. Therefore, the normal distribution and homogeneity is not given. Since the sample size is large enough, the analysis can continue (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012).

The outliers need to be pointed out to do not falsify the result. In this case the women has four outliers, since they voted the likelihood to use robots with 1, which means that they like to get information from robots in the store a lot. This ranking is not in the area of the boxplot, which is from 2 to 5 according to the females. Moreover, the other age groups and males do not have any outliers. Every average line of these groups are at 4, which means that they tend to dislike the use of this instore technology as the following graph shows.

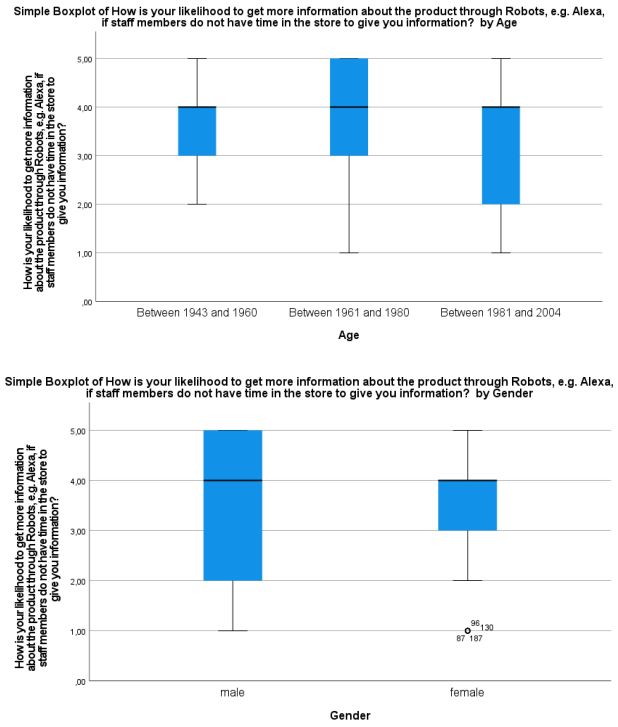


Figure 28 Outliers robots

After the outliers are deleted and the assumptions are tested, the descriptive analysis will give an overview about the likelihood to use this tool according to the six unequal different sized groups as the following table outlines.

Table 67 Descriptive statistics robots

Descriptive Statistics

Dependent Variable: How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you information?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	3,8333	1,08233	36
	Between 1961 and 1980	3,7069	1,32465	58
	Between 1981 and 2004	3,0667	1,31312	60
	Total	3,4870	1,30478	154
female	Between 1943 and 1960	3,8333	,38348	18
	Between 1961 and 1980	3,8941	1,09135	85
	Between 1981 and 2004	3,4516	1,15720	124
	Total	3,6476	1,10871	227
Total	Between 1943 and 1960	3,8333	,90596	54
	Between 1961 and 1980	3,8182	1,19055	143
	Between 1981 and 2004	3,3261	1,22013	184
	Total	3,5827	1,19279	381

As the table above outlines the total mean of the 381 participants is 3.58, which means that they rank the likelihood to use robots in the store to get additional information is between neither likely not unlikely to unlikely. The youngest age group like this tool with an average of 3.32 the most compared to the other age groups. The age group between 1961 and 1980 has a similar likelihood (3.81) as the generation between 1943 and 1960 (3.83). The males like this tool more with an average of 3.4 than the women with 3.6. Therefore, the men tend to neither like not unlike the use of robots in contrast to the women, who tend to dislike this tool. The development of the generation between man and women differentiates a little bit. The youngest group is more in favour than the older generation. But the generation between 1961 and 1980 tend to dislike the tool more with an average of 3.89 than the older generation (3.83) and the same generation of the man (3.7). Nevertheless, the baby boomers as well as the Generation x according to both genders tend to dislike this tool as well as the youngest generation of the women. The youngest generation of the men tend to neither like not dislike the use of robots in the store. This development is also visualised in the following graph.

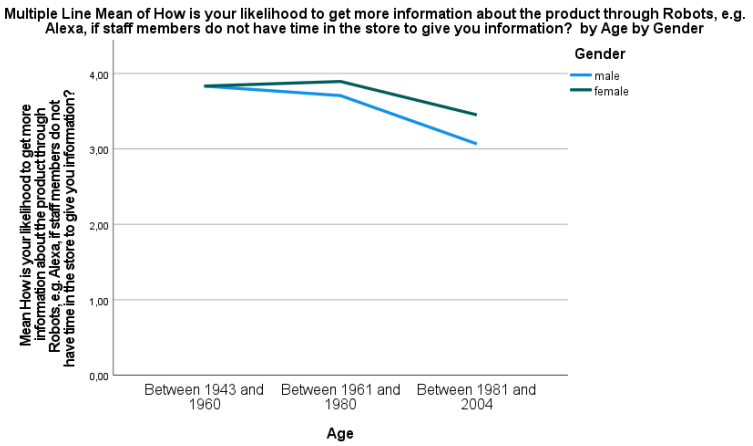


Figure 29 Multiple line robots

In the following the tests of between subjects effects outlines if the different groups as gender, age and the interaction of gender and age outline a statistically difference according to the likelihood to use robots.

Table 68 Tests of between robots

Tests of Between-Subjects Effects

Dependent Variable: How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you information?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	30,638[a]	5	6,128	4,506	,001	,057	22,528	,971
Intercept	3462,654	1	3462,654	2546,033	,000	,872	2546,033	1,000
Q1_Gender	2,388	1	2,388	1,756	,186	,005	1,756	,262
Q2_Age	26,187	2	13,093	9,627	,000	,049	19,255	,981
Q1_Gender * Q2_Age	1,621	2	,811	,596	,552	,003	1,192	,149
Error	510,007	375	1,360					
Total	5431,000	381						
Corrected Total	540,646	380						

a. R Squared = ,057 (Adjusted R Squared = ,044)

b. Computed using alpha = ,05

The table above shows that the gender as female and male do not show a statistically difference in the term of the likelihood to use robots F(1.375)=1.756, p=0.186, power=0.262. The same result has the interaction between gender and age F(2.375)=0.596, p=0.552, power=0.149. The three different age groups show a significant difference according to the likelihood to use robots F(2.375)=9.627, p=0.000, power=0.981. The test of power outlines that the effect of the age group is high with 0.9. The effect of the gender is with 0.262 low as well as of the interaction with 0.149 (Cohen, 2013).

The following post hoc test shows where the difference between the age group is.

Table 69 Multiple comparison robots

Multiple Comparisons

Dependent Variable: How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members d

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	,0152	,18627	,996	-,4232	,4535
	Between 1981 and 2004	,5072*	,18049	,014	,0825	,9320
Between 1961 and 1980	Between 1943 and 1960	-,0152	,18627	,996	-,4535	,4232
	Between 1981 and 2004	,4921*	,13001	,001	,1862	,7980
Between 1981 and 2004	Between 1943 and 1960	-,5072*	,18049	,014	-,9320	-,0825
	Between 1961 and 1980	-,4921*	,13001	,001	-,7980	-,1862

Based on observed means.
The error term is Mean Square(Error) = 1,360.

*. The mean difference is significant at the ,05 level.

The table above outlines that the statistically difference between the age group is between the generation 1943 and 1960 and the age group between 1981 and 2004 since the significant value is 0.014. Moreover, there is also a significance difference between the age groups 1961 to 1980 and 1981 to 2004 with p=0.001.

Finally, the estimated margin shows that the overall mean is 3.632 according to the likelihood to use the instore technology robot to get additional information in a fashion retail store in Germany. This means that the people tend to dislike the tool with a confidence level of 95%. The statistically difference of the age groups outline that the average of the youngest generation is 3.2, which means that they neither like not dislike this tool. In contrast the oldest generation has an average of 3.80 and the age group between 1961 and1980, who has an average of 3.83, which means that they tend to dislike to use this instore technology.
In conclusion, the analysis shows that the overall likelihood to use robots as an instore technology in a fashion retail stores is not high. If a fashion retailer wants to implement this tool to give customers additional information, they should focus on millennials since this group neither like not dislike this tool. Because of the lower likelihood it can be assumed that this tool will not be efficient.

4.2.4.15 Experience Instore technology

In the following the experience of the instore technologies will be analysed to know the difference between the target groups. The result will point out how the implementation of the technologies in German fashion retailers goes.

Out of 385 participants 55% said that they do not have experience with in store technologies, 23% say that they have and 22% said that they are not sure. The same development shows the majority of every target group as the following table points out.

Table 70 Experience instore experience

Age * Do you have experience with in-store technology as customer service? * Gender Crosstabulation

Gender				Do you have experience with in-store technology as customer service? ,00	Yes	No	Not sure	Total
male	Age	Between 1943 and 1960	Count	9	18	9		36
			% within Age	25,0%	50,0%	25,0%		100,0%
		Between 1961 and 1980	Count	12	8	38		58
			% within Age	20,7%	13,8%	65,5%		100,0%
		Between 1981 and 2004	Count	11	19	30		60
			% within Age	18,3%	31,7%	50,0%		100,0%
	Total		Count	32	45	77		154
			% within Age	20,8%	29,2%	50,0%		100,0%
female	Age	Between 1943 and 1960	Count	3	0	15	0	18
			% within Age	16,7%	0,0%	83,3%	0,0%	100,0%
		Between 1961 and 1980	Count	18	20	48	0	86
			% within Age	20,9%	23,3%	55,8%	0,0%	100,0%
		Between 1981 and 2004	Count	30	23	73	1	127
			% within Age	23,6%	18,1%	57,5%	0,8%	100,0%
	Total		Count	51	43	136	1	231
			% within Age	22,1%	18,6%	58,9%	0,4%	100,0%
Total	Age	Between 1943 and 1960	Count	12	18	24	0	54
			% within Age	22,2%	33,3%	44,4%	0,0%	100,0%
		Between 1961 and 1980	Count	30	28	86	0	144
			% within Age	20,8%	19,4%	59,7%	0,0%	100,0%
		Between 1981 and 2004	Count	41	42	103	1	187
			% within Age	21,9%	22,5%	55,1%	0,5%	100,0%
	Total		Count	83	88	213	1	385
			% within Age	21,6%	22,9%	55,3%	0,3%	100,0%

Only the oldest target group of the men has with 50% experience with in store technologies in contrast to the other target groups. This could be because of the low participants.

Finally, there is a difference between the target groups in the experience of instore technologies. The majority do not have experience only the men of the age group 1943 to 1960 have some. But since the majority does not have experience with instore experience, it explains why a lot of the tools are ranked neither likely not unlikely. The reason for this could be that the German fashion retailers do not have implement a lot of instore technologies.

4.2.4.16 More Instore technology

In the following the overall likelihood to have more in store technologies in German fashion retailers will be analysed by focusing on the opinions of the two genders and the different age groups. The 2*3 Anova is useful to reach the objectives is there a difference between the target groups in the use of instore technologies. This question can be also connected with the objective to develop efficient Omni channel tools. The requirements for the Anova as definition of variables and normality test, which does not outline a normal distribution, are already mention in the chapter assumption. However, the analysis can continue because of the large sample size (Ghasemi and Zahediasl, 2012).

In the next step the homogeneity of the groups needs to be tested. The Levene test shows that in the case of female and male the significance based on mean is 0.381 and with it above 0,05. Therefore, the variance of the genders is equal.

Table 71 Homogeneity technologies gender

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Would you be interested in more technology experience provided by the stores in order to make your shopping faster and beneficial?	Based on Mean	,762	1	379	,383
	Based on Median	1,649	1	379	,200
	Based on Median and with adjusted df	1,649	1	378,561	,200
	Based on trimmed mean	1,254	1	379	,264

In the case of the age groups as well as the interaction between gender and age groups the significance is below 0.05. This means that the variance based on means is not equal. But since the sample size is large enough the Anova can be conducted (Gastwirth *et al.*, 2009). The outliers need to be also deleted to do not falsify the average of the result. The following boxplot graph for the genders and age groups mention four outliers in total.

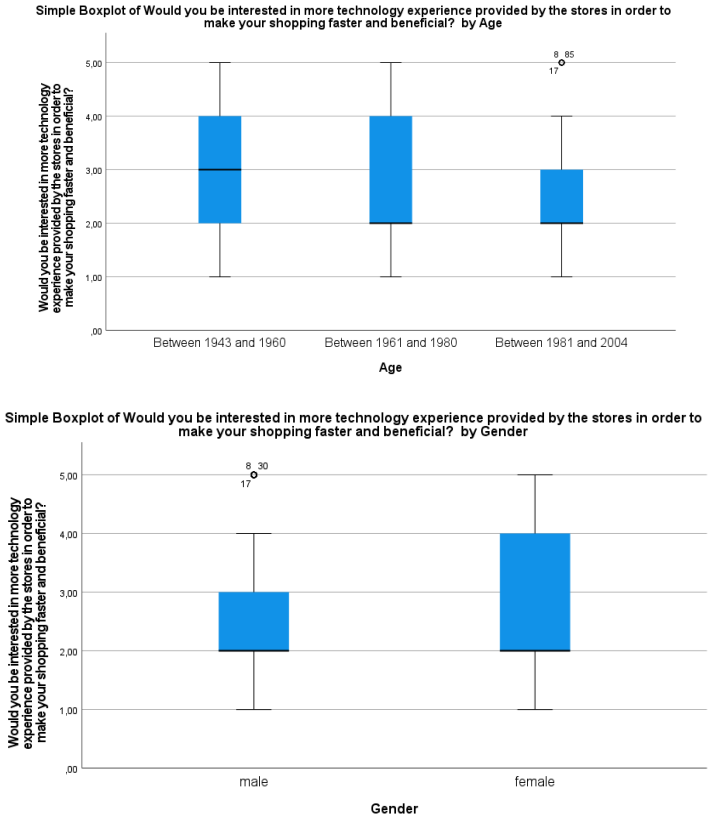


Figure 30 Outliers technology

The graph above shows that the three outliers of the age groups between 1981 and 2004 are the same as for the males since they ranked the likelihood to have more in store technologies with five, which means that they do not like it. This is not within the boxplot since it goes from 1 to 4 only. The boxplot of the other groups as females and the generation between 1961 and 1980 as well as the age group between 1943 and 1960 goes from 1 to 5. Moreover, the average median line of every group except the oldest age group between 1943 and 1960 is 2, which means that they tend to like to have more in store technologies. The oldest age group has an average median of 3, which means that 50% tend to neither like not dislike this tool.

After the assumptions are identified, the following descriptive analysis table gives a good overview about the likelihood to have more instore technologies of the six unequal sized groups.

Table 72 Descriptive statistics technology

Descriptive Statistics

Dependent Variable: Would you be interested in more technology experience provided by the stores in order to make your shopping faster and beneficial?

Gender	Age	Mean	Std. Deviation	N
male	Between 1943 and 1960	2,7500	1,18019	36
	Between 1961 and 1980	2,5088	1,05429	57
	Between 1981 and 2004	1,9828	1,10010	58
	Total	2,3642	1,14008	151
female	Between 1943 and 1960	3,6667	,48507	18
	Between 1961 and 1980	2,8721	1,23476	86
	Between 1981 and 2004	2,3492	,99854	126
	Total	2,6478	1,13012	230
Total	Between 1943 and 1960	3,0556	1,08882	54
	Between 1961 and 1980	2,7273	1,17594	143
	Between 1981 and 2004	2,2337	1,04267	184
	Total	2,5354	1,14107	381

The table above outlines that the total average of the 381 participants is 2.5, which means that the German fashion consumers voted between neither likely not unlikely and likely. The age groups alone outline the older they are, the more they unlike to have instore technologies in the stores. The reason for this is that the generation between 1943 and 1960 ranked this with an average of 3.0, which means that they neither like not dislike more in store technologies. The generation between 1961 and 1980 voted 2.7, which means that they tend to neither like not dislike more instore technologies. The youngest generation tend to like more in store technologies since they have a mean of 2.2. The same development is between the generations of male and female. Therefore, the male tend to like to have more in store technologies with a mean of 2.3 in contrast to the women. The women have an average of

2.6, which means that they neither like not dislike to have more in store technologies. The oldest generation of women dislike with a mean of 3.6 to have more instore technologies. The same generation of the men voted 2.7, which means that they neither like not dislike to have more in store technologies. This development shows also the following graph.

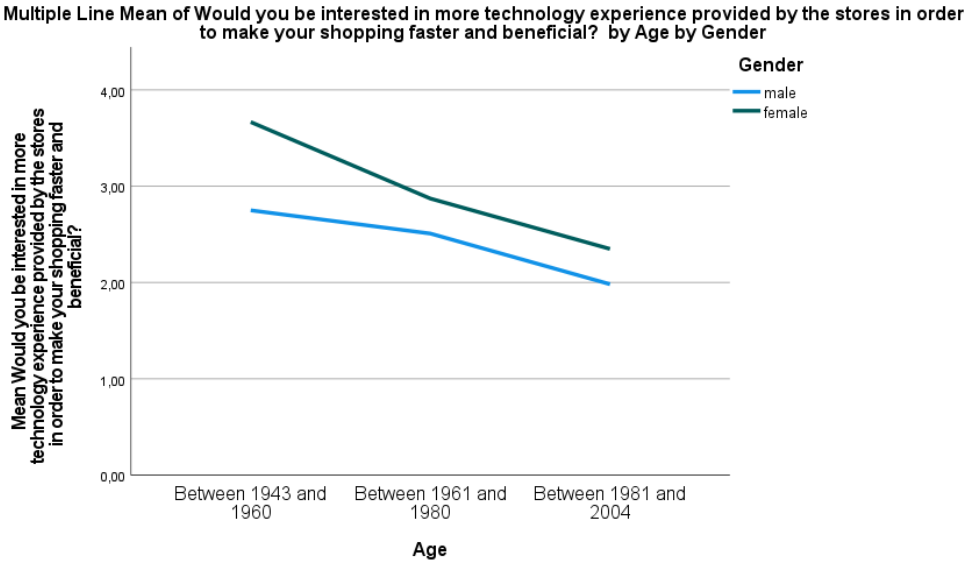


Figure 31 Multiple line technology

The test of between subject's shows if there is a significance difference according to the likelihood to have more in store technologies in fashion retailers between the genders, ages and the interaction of gender and age as the following table shows.

Table 73 Tests of between technologies

Tests of Between-Subjects Effects

Dependent Variable: Would you be interested in more technology experience provided by the stores in order to make your shopping faster and beneficial?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	56,565[a]	5	11,313	9,681	,000	,114	48,406	1,000
Intercept	1889,563	1	1889,563	1617,015	,000	,812	1617,015	1,000
Q1_Gender	19,688	1	19,688	16,849	,000	,043	16,849	,984
Q2_Age	46,636	2	23,318	19,955	,000	,096	39,909	1,000
Q1_Gender * Q2_Age	3,143	2	1,571	1,345	,262	,007	2,689	,290
Error	438,206	375	1,169					
Total	2944,000	381						
Corrected Total	494,772	380						

a. R Squared = ,114 (Adjusted R Squared = ,103)

b. Computed using alpha = ,05

Therefore, there is a statistically difference between men and women F(1.375)=16.849, p=0.000, power=0.984. The same result has the different age groups F(2.375)=19.955,

p=0.000, power=1.0. But there is no difference between the interaction of gender and age F(2.375)=1.345, p=0.262, power=0.290. The test of power outlines that the effect of the gender (0.984) and age group (1.0) is high with 0.9. The effect of the interaction between gender and age is with 0.290 low (Cohen, 2013).

It is clear that the difference of gender is between men and women but the multiple comparison points out where the difference between the age groups is as the following table shows.

Table 74 Multiple Comparisons technology

Multiple Comparisons

Dependent Variable: Would you be interested in more technology experience provided by the stores in order to make your shopping

Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Between 1943 and 1960	Between 1961 and 1980	,3283	,17266	,140	-,0780	,7346
	Between 1981 and 2004	,8219*	,16730	,000	,4282	1,2155
Between 1961 and 1980	Between 1943 and 1960	-,3283	,17266	,140	-,7346	,0780
	Between 1981 and 2004	,4936*	,12051	,000	,2100	,7771
Between 1981 and 2004	Between 1943 and 1960	-,8219*	,16730	,000	-1,2155	-,4282
	Between 1961 and 1980	-,4936*	,12051	,000	-,7771	-,2100

Based on observed means.
The error term is Mean Square(Error) = 1,169.

*. The mean difference is significant at the ,05 level.

The table shows that the statistically difference is between the generation 1981 to 2004 and 1943 to 1960 as well as 1981 to 2004 and 1961 to 1980 since the significance is below 0.05. Moreover, there is no statistically difference in the likelihood to use more in store technologies between the groups 1943 to 1960 and 1961 to 1980.

Finally, the estimated margin of means shows that the male have a likelihood of 2.4, which means that they tend to like to have more instore technologies in fashion retail stores. In contrast to the women, who have an average of 2.9, which means that they tend to neither like not unlike to have more instore experiences.

According to the difference of the age groups the millennials, which is the youngest age group, tend to like to have more in store technologies with an average of 2.1. In contrast the generation between 1943 and 1960 have an average of 3.2 and the generation 1961 to 1980 have an average of 2.6. Therefore, both generation tend to neither like not unlike to have more instore technologies in German fashion retailers.

The overall likelihood to have more instore technologies is 2.6, which means that they tend to neither like not dislike more instore technologies. Finally, it is to say that fashion retailers

should implement more instore technologies for men and millennials since they tend to like it in contrast to females and the other generations, who neither like not dislike more technologies.
Finally, the two tables in the appendix results summarizes the findings of the quantitative research.

4.3 Discussion

After the results of the analysis are outlined, they will be discussed by comparing the outcome with the hypothesis and literature.

4.3.1 Instore technology

The first objective was to give a recommendation for fashion retailers in Germany to implement instore technologies effective by the influence of the customer behaviour to improve the service. The hypothesis H5 answers this question. In this case there was a difference in the likelihood of the different instore technologies as well as between the six target groups.

Since the majority of the survey shop in medium sized multilabel and fast fashion stores those retailers should focus on the implementation of instore technologies. Moreover, if a retailer has the target group female baby boomers, they can implement those instore technologies in small, medium and large sized stores. Moreover, the baby boomers and Generation x of the men like to shop also in premium retail shops. For this target group, the implementation in premium retail shops can be also useful. This result underlines the conceptual retail evolution model, which says that consumers have different store preferences (Kim and Kincade, 2009). Moreover, since the people shop in medium sized retailers they want to have a combination of social relationships and local community since a theory about the retail size outlined that people who shop in smaller sized retailers respond to the local community and people, who shop in larger want to create a relationship with the staff (Green *et al.*, 2018). But the survey add, which target group prefers which kind of store. After the implementation for the size

and type of retail shop for each target group is clear, the technologies will be discussed to create value and meet the needs of each consumer (Basu, 2015; Jin and Shin, 2020).

The analysis showed that the most people do not have experience with instore experience. Moreover, the men would like to have more instore technologies as well as the millennials, which underlines the literature that the digital service in retail is getting more important (Häiko and Koivumäki, 2016). It will improve the shopping experience with higher service quality (Patten *et al.,* 2020). In contrast to that the women, the Generation x and baby boomers neither like not dislike to have more instore technologies. The reason for this could be that they do not have experience with that as the survey pointed out. Another fact is that each consumer have different needs, therefore the consumer behaviour with the focus on instore technologies differentiate between the target groups (Basu, 2015). These facts allude to the point that instore technologies changes the service for millennials as well as for the man. Another point is that 12% like to shop more online and 10% less offline after the lockdown, which alludes also to the literature that the retail is on the decline stage (Curhan *et al.*, 1977). But since online and offline stores has advantages and disadvantages the people want to have both as the research shows where 46% shop online and offline (Caro *et al.*, 2020; Montagna and Figueiredo, 2020). Moreover, as the following analysis will point out the target groups have different shopping preferences according to the use of instore technologies (Dorie Amy and Loranger David, 2020). The new findings are that especially the millennials and men need instore technologies. Therefore, the retailer can survive and create new value for them with innovations (Jin and Shin, 2020).

As the literature points out the Wi-Fi is getting a more important tool in retail stores, which makes consumer more loyal (Brynjolfsson *et al.*, 2013). But the survey outlines that the German consumer neither like not dislike this tool. This could be because they have already volume of data on their phone. There is also no difference between the target groups. The men would use Wi-Fi to compare prices and the women to text with friends. Therefore, the women are more influenced by social expectations in the consumer behaviour (Juaneda-Ayensa *et al.,* 2016). The literature outlines that with different apps people can let a message for friends in the store (Brynjolfsson *et al.,* 2013). This theory can be specify since it will be

only useful for women as the survey pointed out. Moreover, the reason of man to use WIFI underlines the theory that they use additional channels to get information, which improves their consumer service (Thamm *et al.*, 2016). Moreover, this alludes to the point that especially man wants individual pricing, which can be add to the concept digitalization in retailing (Hagberg, Sundstrom, *et al.*, 2016). Another point is according to the use of smartphone that men use the smart phones more to compare prices (Mosquera *et al.*, 2018). A theory about German consumers point out that people, who compare prices are smart shoppers and people, who are social influenced are connoisseur shoppers (Patten *et al.*, 2020). The behaviour of the use of Wi-Fi points out that women are more connoisseur shoppers and man more smart shoppers. Nevertheless, the tool will not make a high difference to implement it in the store other than the literature pointed out.

The theory outlines that QR code scan with mobile phones can provide additional information and can show the consumers the availability of the product, which is getting a more important technology tool for retailers. It can be also used to see digital recommendation of people in the store (Brynjolfsson *et al.*, 2013). It will make the customer more loyal (Tanwar, 2015). The survey pointed out that the people tend to neither like not dislike or dislike the tool, which means that it will not be efficient to implement it in retail stores in contrast to the theory. Moreover, there was a difference between the target groups. Therefore, the man neither like not dislike and the women are somewhat unlikely to use QR codes for the information scan. The QR code scan of availability pointed out that the millennials neither like not unlike as well as the Generation x and the baby boomers unlike this tool. But there was not a significance difference to see digital recommendation from other consumers, which goes a long with the question to see more information about the product by scanning a QR code. In this case the people neither like not dislike to see more recommendation of the people. Therefore, the younger generation tend to like it more than the older one. Moreover, this analysis add to the literature that the QR codes are not efficient and differentiate by the target groups.

The hypothesis there is a difference between the customer demographics to use mobile loyalty cards is true since there is one between the age groups. Therefore, the baby boomers

neither like not dislike the tool, the Generation x like it as well as the millennials. Therefore, the younger the generations, the more they like the tool. The theory pointed out that loyalty programs improves the satisfaction level of the customer (Stathopoulou and Balabanis, 2016). Moreover, the mobile phone is a more important technology tool to provide virtual loyalty cards (Brynjolfsson *et al.*, 2013) Since every retailer has a different target group, digital loyalty cards can improve the service quality for the Generation x and the millennials (Patten *et al.*, 2020). Finally, the new finding is that virtual loyalty cards are only useful for the Generation x and the millennials and not for the baby boomers.

The theories outline that e-coupons makes the customer more loyal and the tool makes a change in the communication of service possible (Hagberg, Sundstrom, *et al.*, 2016). Moreover, a consumer said that German consumers are more interested in this kind of technology to improve the customer journey (Thamm *et al.*, 2016). As the analysis outlined every target groups except the baby boomers of the women, who neither like not dislike to use E-coupons, like this tool, which underlines this theory. Moreover, it can be add to the theory that this tool is very useful to implement but nor for the generation baby boomers of the women. Moreover, the target groups except the female baby boomers like the combination of online and offline activities (Hagberg, Sundstrom, *et al.*, 2016).

The hypothesis there is a difference between the target groups to use self-checkouts underlines the results of the quantitative research. Therefore, the baby boomers neither like not dislike the use of it, the Generation x likes it as well as the men of the millennials. The women of the millennials neither like not dislike it. The theory outlines that self-checkout are useful for faster purchasing (Lee and Leonas, 2020). As each retailer has different target groups, this result add which target group prefers this tool (Patten *et al.*, 2020). Therefore, the retailers, who have the target group man and women of Generation x as well as the men of the millennials, should implement this technology.

The result of the analysis is that there is not a difference between the target groups to let the staff show the additional collection virtual, if the shop does not have the whole collection resulted in no difference. The overall opinion is that the German consumer neither like not

dislike this tool. The theories outline that the showroom effect will be a useful future model to create value. So retailers can survive (Jin and Shin, 2020). But the quantitative research shows that it will not make a difference yet. Therefore, retailers can implement it but the German consumers are not ready to use it.

The analysis about the likelihood to use smart windows shows that there is no difference between the target groups, which is the contrast of the literature. Moreover, the overall likelihood is neither like not dislike to use this technology. The theory about instore technology infusion outlines that this technology has a high convenience and high social presence, which impacts the customer journey in a positive way since it saves time and the consumer have more information available. But this can differentiate by the consumer demographics (Grewal et al., 2020). Therefore, the result of this dissertation points out that there is not a difference in the use of smart windows. Since this theory alludes only to convenience and social presence it can be said that it will not make a difference to implement it in fashion retailers since the likelihood is neither likely not unlikely.

The result of the hypothesis there is a difference between the customer demographics and the likelihood to use augmented technology as share a picture on social media to get a discount is true. Since the result shows that the age group differentiate as the baby boomers and Generation x tend to dislike this tool and the millennials neither like not dislike this technology. The literature pointed out that this tool is also a high convenience and high social presence tool, which improves the customer journey and changes the way of communication. This can differentiate by the customer demographics (Grewal *et al.*, 2020). In this case the primary research underlines that it differentiate between customer demographics but that the customer does not think that it will improve the customer journey since the likelihood is not very high. This can happen because they do not have any experience with instore technologies as the primary survey shows. It can be assumed that if German retailers implement it more that maybe the consumer tend to like it more than now. Another source outlines that digital service creates value for the consumer (Häiko and Koivumäki, 2016). In this case the augmented reality will probably not create value since the consumers do not like it a lot.

The result of the analysis of virtual reality points out that there is no statistically difference between the target groups. The millennials tend to neither like not dislike it in contrast to the Generation x and the baby boomers. A source outlines that virtual reality can create additional showroom and can put the product into another location to gain a competitive advantage (Vecchi, 2017). Lee and Leonas (2018) outline that this tool is especially for the millennials. It can be said that they like it more than the other generations but still do not like it a lot. Therefore, retailers should not implement it yet since the likelihood is not very high.

Moreover, the likelihood to use virtual fitting rooms to see different sizes, colours or outfits on the body without spending time to try on products was also analysed. The result was there is a significance difference between the age groups. Therefore, every generation tend to neither like not dislike it since they voted between the means of 2.6 to 3.4. Nevertheless, the millennials are more in favour in this ranking than the other generations. The theory outlines that smart mirrors are used as high social and high convenience technology tools, which impact the customer journey in a positive way since they save time. The tool can differentiate by customer demographics, which it does statistically in this case (Grewal *et al.*, 2020). Another source outlines that women use more virtual fitting rooms than men (Mosquera *et al.*, 2018).This fact does not show the result of this study since both neither like not dislike this tool. Nevertheless, it will not make a difference in the creation of value since the likelihood is not very high (Häiko and Koivumäki, 2016).

The last instore technology tool is the likelihood of robots to get more information about the product. In this case there is a difference between the age groups. The overall German consumer tend to dislike it. But there is a difference in the likelihood between the age groups. Therefore, the millennials neither like not dislike it, the Generation x dislike it as well as the baby boomers. In contrast the literature says that this tool is useful to impact the customer journey in a positive way since it has a high social presence as well as high convenience effect (Grewal et al., 2020). The same literature says as well that there is a difference between the target groups but not where, which can be add to this dissertation. Finally, the outcome of this quantitative research shows that the implementation of this tool will not be useful for the retailer since the likelihood of the consumer is low.

Finally, the analysis show that there is a difference between the target groups in the use of in store technologies as QR codes, loyalty cars, e-coupons, self-checkouts, social media, virtual fitting rooms and the general likelihood to have more instore technologies, which underlines the general assumption that target groups behave differently (Dorie Amy and Loranger David, 2020). The analysis shows also that the instore technologies change the consumer behaviour as well as consumer service.

4.3.2 Omni channel

In the next step the objective to give a recommendation for effective Omni channel activities will be discussed by firstly looking on the changing of behaviour before and after the lockdown because of Covid 19. It is to say that the total majority shop before and after the lockdown offline and online since 50% shopped before offline and online and afterwards 46.8%. Before the lockdown 14% shopped only online and 35% only offline. In contrast to the development afterwards where 26% shopped only offline and 26% only online. Therefore, the lockdown influenced the behaviour that more people shop online and less people only offline. A similar development were mention in every other target group. Only the majority of target group baby boomers man shopped before the lookdown only offline with 59% and afterwards 50% of them shopped less only offline. Therefore, 8% shopped more only online and 42% online and offline. Moreover, the majority of the female baby boomers like to shop before the lookdown mainly online and offline and after the lookdown they like to shop online, offline as well as online and offline with 33% on each place. There is a different development between the target groups according to the baby boomers compared to the Generation x and millennials. But in general it can be said that every target group is more in favour to shop online. The literature underlines that Covid 19 let people shop more online and therefore digital sales will increase. This source said as well that the consumer behaviour differentiate during Covid 19, which this primary research shows as well (Kim, 2020). Moreover, people who have a high risk move less (Baker *et al.*, 2020). This is the reason why the shift of the baby boomers of the men was so high from offline to online and offline. Since the majority shop now online and offline retailers should implement Omni channel activities to survive as the literature outlines as well (Shaikh and Ahmad, 2020).

Moreover, another theory points out that people switches between online and offline channel, which the result of this dissertation shows as well (Patten *et al.*, 2020; Boardman *et al.*, 2020). Therefore, retailing will be price, data and consumer focused to be successful in the switching of the channels. Each channel have to provide a high quality to make the customer satisfied (Cai and Lo, 2020). The literature pointed out that retailers should reinvest in technologies for the millennials to attract them for offline retail (Cohen and Karabus, 2020). This is not true since only three instore technology, which are e-coupons, self-checkouts and digital loyalty cards, like the German consumers in contrast to other. Finally, it can be said that the new findings of this research question is the fact how the behaviour of female and male baby boomers differentiate in the use of channel before and after the lockdown.

After it is clear that Omni channel activities are necessary in the future it will be analysed which offline retailers should implement those and which online shopping tools should be used according to the target groups. The analysis of the offline retail stores show that the majority shopped in medium (55.8%) sized multilabel (28%) and fast fashion stores (35%). Therefore, those retailers should focus on the implementation of Omni channel activities. Moreover, if a retailer has the target group female baby boomers they can implement those Omni channel activities in small, medium and large sized stores since they like each touchpoint with 33.3%. Moreover, the baby boomers (34%) and Generation x (26.7%) of the men like to shop also in premium retail shops. For this target groups, the implementation in premium retail shops can be also useful. This result underlines the conceptual retail evolution model, which says that consumers have different store preferences (Kim and Kincade, 2009).

According to the online shopping behaviour, the majority of the target groups in every generation like to shop through the website with 62% in total. This tool is followed by mobile phones (32%) and social media (4%). The Generation x and millennials of men and women likes the tool mobile phone more than the baby boomers. Therefore, if the retailers provide more online shops after the lockdown, they should focus on websites for every generation and for the Generation x as well as millennials also on mobile app. The people are not in favour to shop through social media. Moreover, the literature outlines that the millennials shop mostly through social media (Dorie Amy and Loranger David, 2020). Since 10% of the

female millennials like to shop through social media it can be said that females are more in favour than men and other generations. Another point is that the mobile device should be implemented in every touch point since the consumer has it always with them (Lynch and Barnes, 2020). In this case the mobile phone should be integrated for online shopping for the Generation x and the millennials. The integration of Omni channel depends on the role of each channel (Piotrowicz and Cuthbertson, 2014). Therefore, social media has not the role for every generation to be an online shop. Finally, the new findings are that the tool, which is for the German consumer in favour to purchase online is the website. The Generation x as well as millennials uses also the mobile phone. Therefore, retailers, who have the target group millennials and Generation x should additional to the website develop a mobile shopping app.

In contrast to the fact that social media is not a useful tool to purchase, it has the role to search for inspiration (Lynch and Barnes, 2020). The analysis about the inspiration search stage points out that the majority uses the store for inspiration search with 46% next to website with 27% and social media 26%. Moreover, the literature points out that social media, website and store is used for the inspiration search or so called pre purchase stage (Lynch and Barnes, 2020). Since the literature does not point out which tool is preferred the most the question outlines this. Therefore, the baby boomers male need only to go to the store to look for inspiration with 77%. 23.1% like to look it up also on the website. But they do not need the Omni channel tool social media. This alludes also to the fact of the survey that this group tend from only to shop offline to shop online and offline after the lockdown. The development of the Generation x of men and women is similar where the most important tool is the store followed by the website and the minority uses social media. According to the millennials the majority of the women uses social media with 44% followed by the store with 34% and website with 21%. The men of the millennials uses the store with 37% and the website with 35% on a similar likelihood. Therefore, the store is for the generation baby boomers as well as x the most important tool. The millennials differ where for the women it is social media and for the man store and website. The new finding is according to Omni channel activities which target groups prefer which channel for the inspiration stage. This

can retailers use to reach each target group in the right way on each channel as it is described above.

The pre purchase stage includes also information search (Lynch and Barnes, 2020). Bray (2008) pointed out that the information influences the consumer behaviour since consumer use it for future processes. Consumer can inform themselves through the website, friends, social media and marketing. Therefore, different channels are used on this stage (Lynch and Barnes, 2020). Since the literature does not show, which channel is the most important one for each target group because they can differentiate between them, in the following the hypothesis there is a difference according to the information search of consumer will be analysed (Piotrowicz and Cuthbertson, 2014). The result was that there is a statistically difference between the baby boomers, who rarely look for information, the Generation x, who look usually, and the generation millennials, who look sometimes for information. Therefore, there is a difference in the frequency of information search. Another question was where the target groups search for information. Moreover, the website is with 45% the tool that everyone prefers the most next to the friends with 40% followed by social media with 15% and 9% use marketing. The development is of every generation except the male baby boomers and the female millennials the same. The male baby boomers listen with 47% more to friends to get information. The reason for this is that they shopped more offline before the lockdown and listen to more offline activities to get more information. Only the female millennials are more in favour to use social media for information. Therefore, they like to get information on the website with 39%, followed by the friends with 27% and social media with 26%. This generation were already more in favour to use social media also for inspiration. The analysis shows that there is a difference between the generation to use different channels for information search as the literature points out as well (Piotrowicz and Cuthbertson, 2014). The new findings are where exactly the difference is and which tool each target group prefers the most. Therefore, the retailers can meet the likelihood of each target group in their channels. Finally, the website is not only the most likely tool for shopping, the majority search also for inspiration as well as information on it as the literature points out (Lynch and Barnes, 2020).

In the next step the hypothesis there is a difference in the use of Omni channel activities according to the different delivery and return options will be discussed. The literature shows that this belongs to the post purchase stage (Lynch and Barnes, 2020). The literature points out that the delivery options because of the Omni channel experience is getting more complex. Therefore, it can be done by the store, the people can buy it online and receive it in the store or the general methods as buy it directly in the store or get a delivery home by the online shop (Caro *et al.*, 2020). Hagberg and Sundstrom (2016) point out that retail stores use new distribution channels as home delivery and click and collect. Since the literature only says there is a difference between the target group and the importance of these options, the new finding will be where the difference lays (Piotrowicz and Cuthbertson, 2014). In contrast to the literature the analysis pointed out that there is no difference between the groups since the majority (47%) of every target group buy directly in store followed by the online ordering (39%). The minority likes to use the new options as home delivery (6%) and click and collect (8%). This result is a contrast to the general expectation that the delivery will be urbanized and combined to have a more complex service (Caro *et al.*, 2020). The reason for this can be that the use of Omni channel experience is not only influenced by the customer demographics and also by the customer requirements as social, expectations, habit, motivation, personal innovation, security and experiences (Piotrowicz and Cuthbertson, 2014; Juaneda-Ayensa *et al.*, 2016). This analysis does not provide the fact that offline retail can be used as showroom and the consumer can buy it online since the home delivery (8%) and click and collect (6%) is not the preferred method (Boardman *et al.*, 2020). Another way of distribution is that the consumer search only online and buy the product in the store (Boardman *et al.*, 2020). Since the majority like to buy the product in the store (47%) and the majority search for inspiration (46%) in the store this is not an efficient way of a new distribution. The most important thing is that the delivery is free and the people can easily change between the channels (Lynch and Barnes, 2020). The new findings are in contrast to the literature there is no difference between the target groups according to the preferred delivery option. Also if the people do not use a lot the home delivery as well as click and collect these option will be probably in the future more important to have well developed integrated touch points (Shi *et al.*, 2020).

Finally, according to both research questions as how did the purchase behaviour changes before and after the Covid 19 it can be said that the new findings of this research question is the fact how the behaviour of female and male baby boomers differentiate in the use of channel before and after the lockdown.

The other research question as which Omni channel activity is more efficient for each target group as well as retailer can be answered as well. The retailers should focus according to the information search on the Generation x, who search usually on websites followed by the recommendation of friends. According to the inspiration search the store followed by the website is for most of the target groups the best option. Nevertheless, there is a difference in the likelihood of each channel for the inspiration, which is also a new finding. Moreover, the different delivery method does not show a difference between the target groups in contrast to the literature. Therefore, every group prefers the buying in the store. Nevertheless, a future model for the retail as searching for inspiration online and buy it in the store cannot be realized yet since the majority look for inspiration in the store and buy it in the store as well. But since the shift of the likelihood to buy online and offline this can change in the future (Boardman *et al.*, 2020). Another reason is that the place to search for inspiration is the website or social media, which alludes to this model as well.

4.4 Conclusion

The new findings of this discussion about instore technology were, which target group prefers which technology and which not. According to the first objective to the implementation of effective in store technology for each target group and retailer it can be said that the only effective technologies will be e-coupons for the baby boomers men, the males and females of the Generation x and the millennials since they like this tool. Another instore technology to improve the service will be loyalty cards in a mobile version for the millennials and Generation x since they like it. Self-checkouts will be useful for the Generation x and the male millennials. Therefore, these three technologies are necessary that retailers survive (Oh and Polidan, 2018).

Since the likelihood of virtual reality and likelihood of the other technologies as scan QR codes for more information for women, scan QR codes to see the availability for the generation baby boomers, robots for the generation baby boomers as well as Generation x

and virtual reality were dislike, those technologies should not be implemented in the fashion retail. These tools underlines that technologies can make problems (Patten *et al.*, 2020).
The other technologies as WIFI, smart windows, see digital product recommendation, virtual fitting rooms neither liked not dislike the consumers. Therefore, it will not make a difference for retailers to implement them according to the preferred retail shops.
Another research question was in which kind and size of German fashion retail implement the technologies by focusing on each target group. Therefore, retailers, who are medium sized and a multilabel or fashion retailer should implement it since the target group are in favour with those. If a retailer has the target group female baby boomers they can implement those instore technologies in small, medium and large sized stores. The baby boomers and Generation x of the men like to shop also in premium retail shops. For this target group, the implementation in premium retail shops can be also useful.

According to the objective to give a recommendation of effective Omni channel activities the following points were found. The research question does the consumer use different channels before and after the lockdown outlined that the retailers should develop their online shops since more people buy online. Moreover, the overall likelihood is to buy online and offline, which alludes to the importance of the development of Omni channel activities for every target group. Therefore, the new findings were, which target group shop where before and after the lockdown the most.
According to the research question what Omni channel activities are more for larger and which for smaller retailers, it can be said that the majority of the survey preferred medium sized multilabel and fast fashion retailers. Therefore, retailers, who are medium sized and a multilabel or fast fashion retailer should implement it since the target group are in favour with those. Moreover, if a retailer has the target group female baby boomers they can implement Omni channel activities in small, medium and large sized stores. Moreover, the baby boomers and generation x of the men like to shop also in premium retail shops. For this target group, the implementation in premium retail shops can be also useful. Outlets should not implement Omni channel activities since only a minority of the German consumers shop there. According to the online shops, there was no difference between the generation in the likeliness since the website is the preferred tool for every target group followed by the mobile

shops for the younger generations as millennials and Generation x. The Generations do not prefer the shopping through social media. Another result is that the retailers should focus on the Generation x according to the information search, who search usually on websites followed by the recommendation of friends and not on the millennials or baby boomers since they do not search a lot for information. According to the inspiration search the website is for most of the target groups the best option. Nevertheless, there is a difference in the likelihood of each channel according to the inspiration stage, which is also the new finding. Therefore, retailers should focus on the store followed by the website for every generation except the baby boomers women, who like to search more in the store followed by social media and the website. The preference of the women millennials differ as well since they look for inspiration in the store followed by social media. Therefore, the preference of each target group is the same but the second and third place differentiate. Moreover, the different delivery methods do not show a difference between the target groups in contrast to the literature. Therefore, every group prefers the buying in the store.

Finally, the two objectives answer the overall dissertation question `how can German fashion retailers improve their consumer service to meet the ever more demanding consumer`s expectations in the digital age? `, which will be explained in the next chapter in more detail

5 Concluding thoughts on the contribution of this research, its limitations and suggestions for further research

5.1 Theoretical Contributions

The research question `how can German fashion retailers improve their consumer service to meet the ever more demanding consumer`s expectations in the digital age? `is answered in this dissertation by using the literature and a quantitative research. Since the literature pointed already out that digitalization is for the service in the retail sector important, the dissertation tested different technologies to find out the different preferences of each target group. Therefore, new insights were found that encompass store technologies and Omni channel activities that are more efficient for the German fashion retail to capture each target group.

According to the first objective effective implementation of instore technologies into the fashion retail store by referring to the influences of customer behaviour to improve the service, the main findings of the theoretical literature identified which technologies are on the market already useful (Bray, 2008; Quinn *et al.*, 2013a; Hagberg, Sundström, *et al.*, 2016; Grewal *et al.*, 2020). Moreover, the literature pointed out that the instore technologies are necessary for retailers to survive to improve the service and give the consumer a unique customer experience (Newman and Foxall, 2003; Oh and Polidan, 2018). Another finding of the literature review was that there is a difference between the target groups in the use of it but not where, which alludes to the more important findings of the primary research (Dorie Amy and Loranger David, 2020).

The main findings of the primary research was that effective instore technologies for German fashion retailers are e-coupons especially for the following target groups as baby boomers men, the men and women of the Generation x and the millennials to improve the service and consumer expectations in the digital age. Another instore technology to improve the service will be loyalty cards in a mobile version for the millennials and Generation x. Self-checkouts will be useful for the Generation x and the male millennials. The analysis pointed out as a new finding that not every technology is efficient such as scan QR codes for more information for women, scanning QR codes to see the availability for the Generation of baby

boomers, robots for the generation of baby boomers as well as Generation x and virtual reality.

According to the second objective, which is a recommendation of effective Omni channel activities in the German fashion retail, the literature as well as the primary research played an important role. The main findings of the secondary research were that Omni channel will improve the personal service and makes the consumer more loyal to let the retail survive (Patten *et al.*, 2020).The literature stated that the choice of channel depends from Generation, which alludes to the findings of the primary research (Piotrowicz and Cuthbertson, 2014).
The primary research outlined as the literature said that more people shop after the lockdown because of Covid 19 online (Cohen and Karabus, 2020). But the new findings are which target group shop where most before and after the lockdown.
The different Omni channel activities outline as a new finding that there is no difference between the generation in the likeliness of the online shopping tool since the website is the preferred tool for every target group followed by the mobile shops for the younger generations such as millennials and Generation x. A further new finding is also that only the Generation x likes to search for information and usually uses the website followed by recommendations of friends. The inspiration search revealed as a new finding that retailers should focus on the store followed by the website for every generation with the exception of the baby boomers women, who like to search more in the store followed by social media and the website. Moreover, the different delivery method does not show a difference between the target groups in contrast to the literature. Therefore, every group prefers to buy in the store.
Another new finding is which retailer can implement those technologies and Omni channel activities. Therefore, retailers, who are medium sized and a multilabel or fashion retailer should implement it since the target groups are in favour with those. If a retailer has the target group female baby boomers, they can implement those instore technologies in small, medium and large sized stores. The baby boomers and Generation x of the men like to shop also in premium retail shops. For this target group, the implementation in premium retail shops can be useful as well.

Finally, the new findings are which in store technologies and Omni channel activities for each target group in German fashion retailers are more efficient.

The findings are summarized in the table below.

Table 75 Contribution

Hypothesis	Explanation for Objective	Hypothesis confirmed or rejected	Findings	Sources
H1 There is a difference between men and women and age to use different channels for shopping.	This hypothesis refers to different shopping behaviour of different consumers. The hypothesis is important to point the different usage of Omni channel out.	Rejected	The analysis outlines that there is no difference in the online shopping tool. The majority uses the website. Therefore, the new finding is, which target group prefers which channel: Millennials and Generation x majority website next to mobile phones	(Newman and Foxall, 2003; Nam *et al.*, 2007; Kim *et al.*, 2007; Brynjolfsson *et al.*, 2013; Caro *et al.*, 2020; Dorie Amy and Loranger David, 2020; Patten *et al.*, 2020; Boardman *et al.*, 2020; Lee and Leonas, 2020)
H2 There is a difference between men and women	This hypothesis has the goal to create different target groups to match the	Confirmed	The analysis points out that there is a difference. The new findings are which	(Newman and Foxall, 2003; Nam *et al.*, 2007; Kim *et al.*,

and age to use different retail shops for shopping.	consumer service, instore technologies improvements and Omni channel activities with them		target group prefers which type of retail. Multilabel fast fashion stores in a medium sized are preferred the most of the target groups. The female babyboomers like small, medium and large. According to the different types the findings are the in the following described: Baby boomers: men= store, women= store followed by social media and website; Generation x: men=store followed by website, women= store followed by website; Millennials: men=store and website, women= store followed by social media	2007; Brynjolfsson *et al.*, 2013; Green *et al.*, 2018; Caro *et al.*, 2020; Dorie Amy and Loranger David, 2020; Patten *et al.*, 2020; Lee and Leonas, 2020)
H3 There is a difference between men	The goal of this hypothesis is to find out if the search after	Rejected	The information search, where the majority prefers the website, outlines that	(Nam *et al.*, 2007; Bray, 2008; Dorie Amy and

and women and age to search after information	information depend on demographics to achieve the objective to improve the service in the right way by referring to the target audience.		there is a statistically difference. The new findings are which target group shops how often and with which tools. Time: Babyboomer=rarely, Generation x=usually, Millenials=Sometimes Place: Baby boomers: men= website and friends, women= website; Generation x: men=website followed by friends, women= website followed by friends; Millennials: men=website followed by friends, women= website followed by friends and social media	Loranger David, 2020; Patten *et al.*, 2020; Lynch and Barnes, 2020)
H4 There is a difference between men and women and age to	The hypothesis refer to the implementation of the Omni channel and new service	Confirmed	The analysis outlines that there is a difference. The majority prefers the store. The new finding is which target group	(Nam *et al.*, 2007; Dorie Amy and Loranger David, 2020; Patten *et al.*,

search for inspiration.	activities, which will be improved. Therefore the hypothesis will be helpful to give a recommendation of useful Omni channel tools, new service activities for different target groups.		prefers which type of inspiration search. Baby boomers: men= store, women= store followed by social media and website; Generation x: men=store followed by website, women= store followed by website; Millennials: men=store and website, women= store followed by social media	2020; Lynch and Barnes, 2020)
H5 There is a difference in the use of technology preferences between men and women and age groups and kind of shops.	The goal of this hypothesis is to find out which instore technologies the independent variables as gender, age and size of retail prefer to reach the objective to implement the digitalisations in the right way. Therefore, the	Confirmed	The analysis shows that there is a difference between the groups and the likelihood for each technology. The new findings according to the literature can add which technologies should be implement for each target group. The efficient technologies are E-coupons for the baby boomers men, the men	(Brynjolfsson *et al.*, 2013; Hagberg, Sundström, *et al.*, 2016; Oh and Polidan, 2018; Grewal *et al.*, 2020; Lee and Xu, 2020; Jin and Shin, 2020; Lee and Leonas, 2020)

	testing of this hypothesis will be useful to answer the research questions, what instore technologies are efficient.		and women of the Generation x and the millennials. Another instore technology to improve the service will be loyalty cards in a mobile version for the millennials and Generation x. self-checkouts are for the Generation x and millennials men efficient. The other ones are not that efficient.	
H6 There is a difference in the use of new service opportunities of the Omni channel by differentiate between customer demographics and different fashion shops.	This hypothesis will help to answer the question what Omni channel activities can different retailers do to develop efficient Omni channel activities.	Rejected	In contrast to the literature there is no difference between the target groups. Everyone prefers to buy directly in the store followed by online ordering.	(Brynjolfsson *et al.*, 2013; Piotrowicz and Cuthbertson, 2014; Gao and Yang, 2015; Juaneda-Ayensa *et al.*, 2016; Mosquera *et al.*, 2018; Shi *et al.*, 2020; Sharma and Dutta, 2020;

				Lynch and Barnes, 2020; Boardman *et al.*, 2020; Lee and Leonas, 2020; Cai and Lo, 2020)
H7 There is a difference in the use of channels before and after the lockdown of Covid 19.	This hypothesis will help to answer the question in relation to Omni channel if the shopping behaviour in the usage of channels changed before and after the lockdown.	confirmed	There is a difference. Therefore, the majority likes to shop before and after the lockdown offline and online. Moreover, the people shop more online after the Covid 19 lockdown. The new findings are which target group has which preference before and after the lockdown. Before. Baby boomers offline, Millennials and Generation x offline and online After: Baby boomers female compared to the other majority offline, online, offline and online.	(Baker *et al.*, 2020; Barua, 2020; Cohen and Karabus, 2020; Kim, 2020; Relihan *et al.*, 2020; Santoso, 2020; Shaikh and Ahmad, 2020; Sheth, 2020)

5.2 Managerial Contribution

The literature as well as the survey outline that German fashion retailers should implement more technologies to improve the service since the target groups want this. This study can be used by retailers to determine which age groups and gender groups prefer which instore technology and Omni channel activities to reach them in the right way. These refers to fashion retail, who have medium sized and a multilabel or fast fashion retailer. If a retailer has the target group female baby boomers they can implement those instore technologies and Omni channel activities in small, medium and large sized stores. The baby boomers and Generation x of the men like to shop also in premium retail shops. For this target group, the implementation in premium retail shops can be useful.

Since the study outlines that different target groups want to have more instore technologies, retailers should do this to improve the service and survive. This includes an implementation of e-coupons for the baby boomers men, the men and women of the Generation x and the millennials. Loyalty cards in a mobile version are also useful for the millennials and Generation x since they like it. Self-checkouts should be implemented for the Generation x and for the men of the millennials.

Moreover, the retailers should develop their online shops through a website since more people buy online. The retailers should have a lot of information on the website for the Generation x because this is the only target group, who search usually for information. According to the inspiration search retailers should focus on the store followed by the website for every generation except the baby boomers women, who like to search more in the store followed by social media and the website. The preference of the women millennials differs as well since they look for inspiration in the store followed by social media.

German fashion retailers should focus on in-store shopping, followed by online purchases and home delivery, according to the various Omni-Channel activities.

The issues for the managers of the retailers are that they have to first identify their target groups to do the right actions. Moreover, technologies include high costs for the implementation, which has the retailer to invest. Moreover, the managers need to teach the staff the usage of e-coupons, loyalty cards and self-checkouts in the store, which includes also costs.

5.3 Limitations of the research and future research

The dissertation points out a large theoretical literature review about fashion retail, consumer behaviour, consumer service, digitalization, Covid 19, Omni channel and cases in Germany. However, there is every time more literature out that can always influence this dissertation.
In the context of the research design the survey did not show visually examples for the participants. This would be an advantage for the imagination of the technologies because they did not have many experiences with them. Since a lot of German people speaks English, the survey was created in this language. If it had been in German, it would have been easier to reach more participants. Moreover, the question regarding the size of the retail trade was not well defined in the primary research. Therefore, for each individual the definition of small, medium and large retailers varies, which includes a very superficial result.
Moreover, the analysis has the limitation that the groups of men and women and the age groups were not equal. Therefore, the homogeneity as well as normal distribution were not accessible in the statistically available analyses. The reason for this was that especially the older age group was difficult to reach through social media (Leung, 2013). However, the data is representative since in Germany live more females than males as well as more younger people than older people (Statistisches Bundesamt, 2020b; Statistisches Bundesamt, 2020a). Another point is that the general sample size is large enough (Gastwirth *et al.*, 2009; Ghasemi and Zahediasl, 2012). Furthermore, because of the time and words limitations not every hypothesis could be tested statistically, which needs to be done in the future. Moreover, the focus of the analysis was more on the target groups than retail shops. Therefore, it is only an assumption that medium retailers as fast fashion and multilabel retailers by focusing on the preferences of the different target groups should use those recommendations since the dissertation did not identify the difference between every retailer and preference of instore technology statistically. Another critique according to the analysis is that the theories of consumer behaviour and consumer service in the conceptual framework were not tested in detail. The results only referred to them.

In the future the research can include more case studies, expert interviews and more theoretical literature to have a wider view. For further research the size of each group should

be equal. Another point is that every technology could be tested statistically to every type of retailer to know for sure, which technology each retailer would prefer. Moreover, the same survey could be done in five years' time to know if the retailers in Germany are developing more instore technologies and Omni channel activities. This should be then in the language German and the survey should include a video about the technologies from the beginning. There are also a lot of other instore technologies as mobile paying method out there that can be tested to give additional recommendation for retailers. According to the limitation, the future research should include a statistically test referring to the different types of fashion retailers and the technologies. Moreover, the test of instore technologies and Omni channel activities cannot only be done for the fashion industry. It can be done also for other industries as grocery to know how to improve their retail.

5.4 Final Conclusion and Reflection

This dissertation and methodology approach allowed to take a deep look into the change of German fashion retailers before and after the Covid 19 pandemic, the consumer shopping behaviour and the importance of service activities. Therefore, the change points out that Omni channel as well as instore technologies are more important to survive. It was learned the individual preference of each target group differ. Moreover, the different instore technologies and Omni channel activities differ in the efficiency. Nevertheless, those tools have a high potential to let the fashion retail grow.

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Appendix

Appendix A Questions Customer Survey

Agreement Forms (Plain Language and Informed Consent)

Dear Participants,

Welcome to the survey regarding the topic "How can German fashion retailers improve their consumer service to meet the ever more demanding consumer`s expectations in the digital age?" The research is conducted by Juliane Klar, a MSc. International Business Management student at the Graduate Business School of the Griffith College Dublin. If you have any questions, please feel free to contact Juliane Klar through juliane.klar@student.griffith.ie.

Purpose of the research

The research will involve a **7 minutes online questionnaire** in **English** for **German customers, who buy fashion.** The goal of this research is to analyse the different consumer shopping behaviours and the usage of different technology tools to improve the consumer service in different fashion retail stores. The reason of this study is the rapidly change of the traditional retail settings to a combination of offline and online by the influence of Covid 19. This has an impact on the mind-set of the consumers, the consumer purchase process and the implementation of digitalization in retail stores. Moreover, there is a lack in the literature according to the improvement of consumer service in the fashion industry to meet the different target groups. The quantitative survey is based on different conceptual frameworks in order to analyse the actual consumer shopping behaviour and usage of different service activities and technology tools in general.

Benefits of your involvement in the research study

The benefit for you as a participant in this study is that you will have a chance to get to know different instore technologies, which can effect positively your shopping experience in fashion retail stores in the future. If companies use the recommendations of the research, you will have an influence on the implementation of the technology tools in fashion retail stores.

Protect the confidentiality of data

You are asked to fulfil this online survey, which meets the legal requirements and ethical requirements. There will be no collection of your names to protect anonymity.

Advice Data will be destroyed after a minimum period

The data collection will be analysed by the principal researcher alone. The data will be destroyed one month after the researcher defends in front of the committee in September 2020.

Confirmation that involvement in the Research Study is voluntary

Your involvement is totally voluntary in this study. You can withdraw from the Research Study at any point. There will be no penalty for withdrawing before all stages of the Research Study have been completed.

Any other relevant information

The research questions will be for some of you in the second language (English). Please take the time to look up the vocabulary or ask the researcher for clarification.

If you have concerns about this study and wish to contact an independent person.

Please feel free to contact:

Dr. Garrett Ryan,

Griffith College Research Ethics Committee

South Circular Road, Dublin 8, Ireland

Mail: garrett.ryan@griffith.ie

Tel: +353 1 4163324

Please confirm the following questions before you start with the 10 min survey:

1. **I have read the above Plain Language and Informed Consent Form**
   - Yes
   - No

2. **I understand the information provided in the Plain Language Statement and Informed Consent Form.**
   - Yes
   - No

3. **I have had an opportunity to ask questions to the researcher by and discuss this study.**
   - Yes
   - No (Please contact juliane.klar@student.griffith.ie)
   - Not applicable (Please choose this if you do not have any questions)

4. **I am aware that I can withdraw from the Research Study at any point of time during the survey.**
   - Yes
   - No

5. **I am aware that I would be kept anonymous in the study.**
   - Yes
   - No

6. **I confirm that I will fulfil the 10 min survey and be part of the study.**
   - Yes
   - No

7. **Gender**
   - Male
   - Female

8. **When were you born?**
   - Before 1943
   - 1943 to 1960
   - 1961 to 1981
   - 1982 to 2004

- After 2005

9. What is your annual salary brutto?

- <€29.000
- €30.000-€60.000
- €60.000-€90.000
- >€91.000

Where did you shop the most before the lockdown according to Covid 19?

- Online Shop
- Offline Retail Shop
- Online and Offline

10. Where do you shop more after the lockdown according to Covid 19?

- Online Shop
- Offline Retail Shop
- Online and Offline

11. Where do you shop clothes in the offline retail?

(More than one answer is possible)

- Outlet and Discount stores e.g. TK Maxx
- Fast Fashion Stores and Mono Label Stores e.g. Zara/H&M
- Department and Multilabel stores e.g. P&C
- Luxury and Premium Stores e.g. Hugo Boss

12. Which size of offline fashion retail stores do you prefer?

- Small
- Medium
- Larger

13. Which tool do you use to shop online?

(More than one answer is possible)

- Website

- Mobile APP
- Social Media

14. Are you searching for Information before your shopping?

- Always
- Usually
- Sometimes
- Rarely
- Never

15. Where do you search for information?

(More than one answer is possible)

- Marketing
- Websites
- Social Media
- Recommendations of Friends and Family

16. Where do you search for outfit inspiration?

(More than one answer is possible)

- In the store
- Social Media
- Website of a brand

17. Which delivery option would you use, if you have the choice?

(More than one answer in possible)

- Buy the product in the store and have it directly
- Buy in the retail store and have also a home delivery service
- Buy online and deliver the product in the store
- Buy online and deliver home

18. How is your likelihood to use WI-FI in the Store?

- Very likely
- Likely

- Neither likely not unlikely
- Unlikely
- Very unlikely

19. Why would you use Wi-Fi in the store?
(More than one answer is possible)

- Compare prices online
- Find a voucher online
- Text with friends

20. How is your likelihood to scan a QR code of a product in the store to get more information?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

21. How is your likelihood to scan a QR code to see the availability of the product in the store?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

22. How is your likelihood to have your loyalty card in a mobile version?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

23. How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

- o Very likely
- o Likely
- o Neither likely not unlikely
- o Unlikely
- o Very unlikely

24. How is your likelihood to use the option self-checkout in the fashion retail e.g. mobile app or full device?

- o Very likely
- o Likely
- o Neither likely not unlikely
- o Unlikely
- o Very unlikely

25. Would you let the staff show you the additional collection virtual, if a shop does not have the whole collection in the store, e.g. on an I pad?

- o Very likely
- o Likely
- o Neither likely not unlikely
- o Unlikely
- o Very unlikely

26. How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?

- o Very likely
- o Likely
- o Neither likely not unlikely
- o Unlikely
- o Very unlikely

27. Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?

- Strongly Agree
- Agree
- Neither Agree not Disagree
- Disagree
- Strongly Disagree

28. How is your likelihood to put your product that you are wearing into another virtually location e.g. wearing an outdoor jacket and have the feeling to be in the mountains?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

29. How is your likelihood to see product recommendation from other customers in the store as you can see this in online shops?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

30. How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

31. How is your likelihood to get more information about the product through Robots e.g. Alexa, if staff members do not have time in the store to give you information?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

32. Do you have experience with in store technology as a customer service?

- Yes
- No
- Not sure

33. Would you be interested in more technology experience provided by the stores in order to make your shopping experience faster and beneficial?

- Very likely
- Likely
- Neither likely not unlikely
- Unlikely
- Very unlikely

Appendix B Coding

Table 76 Coding

Number Question	Answer possibilities	Variable	Variable2	Type	Categories	Coding
Q1	1 answer	Independent	Gender	Nominal	male	1
					female	2
Q2	1 answer	Independent	Age	Ordinal	Between 1943 and 1960	1
					Between1961 and 1980	2
					Between 1981 and 2004	3
Q3	1 answer	Dependent	Income	Ordinal	Under €29,000	1
					Between €30,000 and €60,000	2
					Between €61,000 and €90,000	3
					Over €90,000	4
Q4	1 answer	Dependent	Shopping before the lockdown	Nominal	Offline	1
					Online	2
					Online and Offline	3
Q5	1 answer	Dependent	Shopping after the lockdown	Nominal	Offline	1
					Online	2

					Online and Offline	3
Q6	more than one answer	Dependent	Where to shop offline	Nominal	Outlet	0 and 1
	0=not chosen				Fast Fashion	0 and 1
	1=chosen				Multilabel	0 and 1
					Premium	0 and 1
Q7	1 answer	Dependent	Retail Size	Ordinal	Small	1
					Medium	2
					Large	3
Q8	more than one answer	Dependent	Online Shopping	Nominal	Website	0 and 1
	0=not chosen				Mobile Phone	0 and 1
	1=chosen				Social Media	0 and 1
Q9	1 answer	Dependent	Searching for Information	Ordinal	Always	1
					Usually	2
					Sometimes	3
					Rarely	4
					Never	5

Q10	more than one answer	Dependent	Where to search after Information	Nominal	Marketing	0 and 1
	0=not chosen				Website	0 and1
	1=chosen				Social Media	0 and1
					Recommendation of Friends and Family	0 and1
Q11	more than one answer	Dependent	Where do you search for outfit inspiration?	Nominal	In the store	0 and 1
	0=not chosen				Social Media	0 and 1
	1=chosen				Website	0 and 1
Q12	more than one answer	Dependent	Which delivery option would you use, if you have the choice?	Nominal	Buy the product in the store and have it directly	0 and 1
	0=not chosen				Buy in the retail store and have also a home delivery service	0 and 1
	1=chosen				Buy online and deliver the product in the store	0 and 1
					Buy online and deliver home	0 and 1
Q13	1 answer	Dependent	How is your likelihood to use WI-FI in the Store?	Scale	Very likely	1

L

					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q14	More than 1 answer	Dependent	Why would you use Wi-Fi in the store?	Nominal	Compare prices online	0 and 1
	0=not chosen				Find a voucher online	0 and 1
	1=chosen				Text with friends	0 and 1
Q15	1 answer	Dependent	How is your likelihood to scan a QR code of a product in the store to get more information?	Scale	Very likely	1
					Likely	2
					Somewhat Likely	3
					Neither likely nor unlikely	4
					Somewhat unlikely	5
					Unlikely	6
					Very unlikely	7

Q16	1 answer	Dependent	How is your likelihood to scan a QR code to see the availability of the product in the store?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q17	1 answer	Dependent	How is your likelihood to have your loyalty card in a mobile version?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q18	1 answer	Dependent	How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3

					Unlikely	4
					Very unlikely	5
Q19	1 answer	Dependent	How is your likelihood to use a self-checkout option in the fashion retail, e.g. mobile app or full device?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q20	1 answer	Dependent	Would you let the staff show you the additional collection virtual, if a shop does not have the whole collection in the store, e.g. on an I pad?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5

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Q21	1 answer	Dependent	How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q22	1 answer	Dependent	Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?	Scale	Strongly agree	1
					Agree	2
					Neither agree nor disagree	3
					Disagree	4
					Strongly disagree	5
Q23	1 answer	Dependent	How is your likelihood to put your product that you are wearing into another virtual location, e.g.	Scale	Very likely	1

			wearing an outdoor jacket and have the feeling to be in the mountains?			
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q24	1 answer	Dependent	How is your likelihood to see product recommendations from other customers in the store as you can see this in online shops?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q25	1 answer	Dependent	How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your	Scale	Very likely	1

			body without spending time to try the product on?			
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q26	1 answer	Dependent	How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5
Q27	1 answer	Dependent	Do you have experience with in-store technology as customer service?	Nominal	Yes	1

					No	2
					Not sure	0
Q28	1 answer	Dependent	Would you be interested in more technology experience provided by the stores in order to make your shopping faster and beneficial?	Scale	Very likely	1
					Likely	2
					Neither likely nor unlikely	3
					Unlikely	4
					Very unlikely	5

Appendix C Analysis

Normality Test

Table 77 Normality Test information gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Are you searching for information before your shopping?	male	,241	152	,000	,892	152	,000
	female	,208	229	,000	,907	229	,000

a. Lilliefors Significance Correction

Table 78 Normality Test information age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Are you searching for information before your shopping?	Between 1943 and 1960	,295	54	,000	,821	54	,000
	Between 1961 and 1980	,260	140	,000	,878	140	,000
	Between 1981 and 2004	,172	187	,000	,915	187	,000

a. Lilliefors Significance Correction

Table 79 Normality Test WIFI and Gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use WI-FI in the Store?	male	,162	154	,000	,889	154	,000
	female	,177	231	,000	,908	231	,000

a. Lilliefors Significance Correction

Table 80 Normality Test WIFI and age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use WI-FI in the Store?	Between 1943 and 1960	,241	54	,000	,884	54	,000
	Between 1961 and 1980	,172	144	,000	,896	144	,000
	Between 1981 and 2004	,191	187	,000	,898	187	,000

a. Lilliefors Significance Correction

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Table 81 Normality QR code information gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to scan a QR code of a product in the store to get more information?	male	,194	154	,000	,906	154	,000
	female	,214	231	,000	,886	231	,000

a. Lilliefors Significance Correction

Table 82 Normality QR code information age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to scan a QR code of a product in the store to get more information?	Between 1943 and 1960	,262	54	,000	,852	54	,000
	Between 1961 and 1980	,193	144	,000	,899	144	,000
	Between 1981 and 2004	,205	187	,000	,883	187	,000

a. Lilliefors Significance Correction

Table 83 Normality QR code availability gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to scan a QR code to see the availability of the product in the store?	male	,202	154	,000	,904	154	,000
	female	,200	231	,000	,882	231	,000

a. Lilliefors Significance Correction

Table 84 Normality QR code availability age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to scan a QR code to see the availability of the product in the store?	Between 1943 and 1960	,250	54	,000	,852	54	,000
	Between 1961 and 1980	,191	144	,000	,889	144	,000
	Between 1981 and 2004	,231	187	,000	,869	187	,000

a. Lilliefors Significance Correction

Table 85 Test of normality of gender loyalty card

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Gender	Statistic	df	Sig.	Statistic	df	Sig.
How is your likelihood to have your loyalty card in a mobile version?	male	,192	150	,000	,909	150	,000
	female	,240	231	,000	,865	231	,000

a. Lilliefors Significance Correction

Table 86 Test of normality of age loyalty card

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Age	Statistic	df	Sig.	Statistic	df	Sig.
How is your likelihood to have your loyalty card in a mobile version?	Between 1943 and 1960	,253	54	,000	,807	54	,000
	Between 1961 and 1980	,246	142	,000	,875	142	,000
	Between 1981 and 2004	,237	185	,000	,862	185	,000

a. Lilliefors Significance Correction

Table 87 Test of normality E-coupons gender

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Age	Statistic	df	Sig.	Statistic	df	Sig.
How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?	Between 1943 and 1960	,227	52	,000	,819	52	,000
	Between 1961 and 1980	,256	143	,000	,868	143	,000
	Between 1981 and 2004	,296	186	,000	,808	186	,000

a. Lilliefors Significance Correction

Table 88 Test of normality E-coupons age

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Gender	Statistic	df	Sig.	Statistic	df	Sig.
How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?	male	,274	150	,000	,873	150	,000
	female	,265	231	,000	,847	231	,000

a. Lilliefors Significance Correction

Table 89 Test of normality self-checkout gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use a self-checkout option in the fashion retail?	male	,224	152	,000	,896	152	,000
	female	,205	229	,000	,903	229	,000

a. Lilliefors Significance Correction

Table 90 Test of normality self-checkout age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use a self-checkout option in the fashion retail?	Between 1943 and 1960	,172	54	,000	,905	54	,000
	Between 1961 and 1980	,181	144	,000	,910	144	,000
	Between 1981 and 2004	,252	183	,000	,877	183	,000

a. Lilliefors Significance Correction

Table 91 Test of normality showroom gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Would you let the staff show you the additional collection virtuell, if a shop does not have the whole collection in the store?	male	,227	154	,000	,896	154	,000
	female	,237	231	,000	,890	231	,000

a. Lilliefors Significance Correction

Table 92 Test of normality showroom age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Would you let the staff show you the additional collection virtuell, if a shop does not have the whole collection in the store?	Between 1943 and 1960	,210	54	,000	,858	54	,000
	Between 1961 and 1980	,258	144	,000	,874	144	,000
	Between 1981 and 2004	,224	187	,000	,896	187	,000

a. Lilliefors Significance Correction

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Table 93 Test of normality smart window gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?	male	,183	154	,000	,910	154	,000
	female	,191	231	,000	,907	231	,000

a. Lilliefors Significance Correction

Table 94 Test of normality smart window age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?	Between 1943 and 1960	,239	54	,000	,859	54	,000
	Between 1961 and 1980	,176	144	,000	,913	144	,000
	Between 1981 and 2004	,209	187	,000	,899	187	,000

a. Lilliefors Significance Correction

Table 95 Test of normality social media gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?	male	,215	154	,000	,855	154	,000
	female	,252	231	,000	,850	231	,000

a. Lilliefors Significance Correction

Table 96 Test of normality social media age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?	Between 1943 and 1960	,264	54	,000	,820	54	,000
	Between 1961 and 1980	,243	144	,000	,825	144	,000
	Between 1981 and 2004	,218	187	,000	,874	187	,000

a. Lilliefors Significance Correction

Table 97 Test of normality virtual location gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to put your product that you are wearing into another virtual location?	male	,203	154	,000	,886	154	,000
	female	,226	227	,000	,873	227	,000

a. Lilliefors Significance Correction

Table 98 Test of normality virtual location age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to put your product that you are wearing into another virtual location?	Between 1943 and 1960	,240	54	,000	,867	54	,000
	Between 1961 and 1980	,212	143	,000	,871	143	,000
	Between 1981 and 2004	,212	184	,000	,895	184	,000

a. Lilliefors Significance Correction

Table 99 Test of normality recommendation gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to see product recommendations from other customers in the store as you can see this in online shops?	male	,236	154	,000	,893	154	,000
	female	,217	231	,000	,893	231	,000

a. Lilliefors Significance Correction

Table 100 Test of normality recommendation age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to see product recommendations from other customers in the store as you can see this in online shops?	Between 1943 and 1960	,335	54	,000	,802	54	,000
	Between 1961 and 1980	,163	144	,000	,912	144	,000
	Between 1981 and 2004	,259	187	,000	,873	187	,000

a. Lilliefors Significance Correction

Table 101 Test of normality virtual fitting room's gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?	male	,206	154	,000	,901	154	,000
	female	,223	231	,000	,893	231	,000

a. Lilliefors Significance Correction

Table 102 Test of normality virtual fitting room's age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?	Between 1943 and 1960	,177	54	,000	,910	54	,001
	Between 1961 and 1980	,210	144	,000	,897	144	,000
	Between 1981 and 2004	,262	187	,000	,879	187	,000

a. Lilliefors Significance Correction

Table 103 Test of normality robots gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you information?	male	,224	154	,000	,872	154	,000
	female	,272	227	,000	,866	227	,000

a. Lilliefors Significance Correction

Table 104 Test of normality robots age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you information?	Between 1943 and 1960	,295	54	,000	,841	54	,000
	Between 1961 and 1980	,260	143	,000	,829	143	,000
	Between 1981 and 2004	,231	184	,000	,893	184	,000

a. Lilliefors Significance Correction

Table 105 Test of normality more technologies gender

Tests of Normality

	Gender	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Would you be interested in more technology experience provided by the stores in order to make your shopping faster and beneficial?	male	,268	151	,000	,860	151	,000
	female	,247	230	,000	,892	230	,000

a. Lilliefors Significance Correction

Table 106 Test of normality more technologies age

Tests of Normality

	Age	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Would you be interested in more technology experience provided by the stores in order to make your shopping faster and beneficial?	Between 1943 and 1960	,187	54	,000	,911	54	,001
	Between 1961 and 1980	,249	143	,000	,890	143	,000
	Between 1981 and 2004	,279	184	,000	,855	184	,000

a. Lilliefors Significance Correction

Levene Test

Table 107 Levene information

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Are you searching for information before your shopping?	Based on Mean	5,237	5	375	,000
	Based on Median	3,237	5	375	,007
	Based on Median and with adjusted df	3,237	5	327,917	,007
	Based on trimmed mean	5,085	5	375	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Are you searching for information before your shopping?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 108 Levene test QR information

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to scan a QR code of a product in the store to get more information?	Based on Mean	9,849	5	379	,000
	Based on Median	6,079	5	379	,000
	Based on Median and with adjusted df	6,079	5	331,498	,000
	Based on trimmed mean	9,550	5	379	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to scan a QR code of a product in the store to get more information?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 109 Levene QR code availability

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to scan a QR code to see the availability of the product in the store?	Based on Mean	10,850	5	379	,000
	Based on Median	5,324	5	379	,000
	Based on Median and with adjusted df	5,324	5	297,478	,000
	Based on trimmed mean	10,747	5	379	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to scan a QR code to see the availability of the product in the store?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 110 Levene test loyalty card

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to have your loyalty card in a mobile version?	Based on Mean	8,050	5	375	,000
	Based on Median	3,820	5	375	,002
	Based on Median and with adjusted df	3,820	5	345,868	,002
	Based on trimmed mean	7,146	5	375	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to have your loyalty card in a mobile version?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 111 Levene`s Test E-Coupons

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?	Based on Mean	4,690	5	375	,000
	Based on Median	2,547	5	375	,028
	Based on Median and with adjusted df	2,547	5	356,612	,028
	Based on trimmed mean	4,158	5	375	,001

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 112 Levene`s test self-checkout

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?	Based on Mean	4,557	5	375	,000
	Based on Median	2,623	5	375	,024
	Based on Median and with adjusted df	2,623	5	349,337	,024
	Based on trimmed mean	4,278	5	375	,001

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to use E-Coupons, e.g. discounts on the mobile phone?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 113 Levene`s test showroom

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Would you let the staff show you the additional collection virtuell, if a shop does not have the whole collection in the store?	Based on Mean	2,842	5	379	,016
	Based on Median	2,841	5	379	,016
	Based on Median and with adjusted df	2,841	5	364,203	,016
	Based on trimmed mean	2,885	5	379	,014

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Would you let the staff show you the additional collection virtuell, if a shop does not have the whole collection in the store?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 114 Levene test smart window

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?	Based on Mean	3,196	5	379	,008
	Based on Median	3,127	5	379	,009
	Based on Median and with adjusted df	3,127	5	368,058	,009
	Based on trimmed mean	3,248	5	379	,007

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 115 Levene test social media

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?	Based on Mean	9,537	5	379	,000
	Based on Median	5,228	5	379	,000
	Based on Median and with adjusted df	5,228	5	358,028	,000
	Based on trimmed mean	9,047	5	379	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 116 Levene virtual location

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to put your product that you are wearing into another virtual location?	Based on Mean	4,300	5	375	,001
	Based on Median	3,173	5	375	,008
	Based on Median and with adjusted df	3,173	5	352,417	,008
	Based on trimmed mean	4,338	5	375	,001

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to put your product that you are wearing into another virtual location?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Table 117 Levene robots

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you information?	Based on Mean	6,345	5	375	,000
	Based on Median	4,364	5	375	,001
	Based on Median and with adjusted df	4,364	5	349,010	,001
	Based on trimmed mean	6,196	5	375	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you information?

b. Design: Intercept + Q1_Gender + Q2_Age + Q1_Gender * Q2_Age

Outlier Test

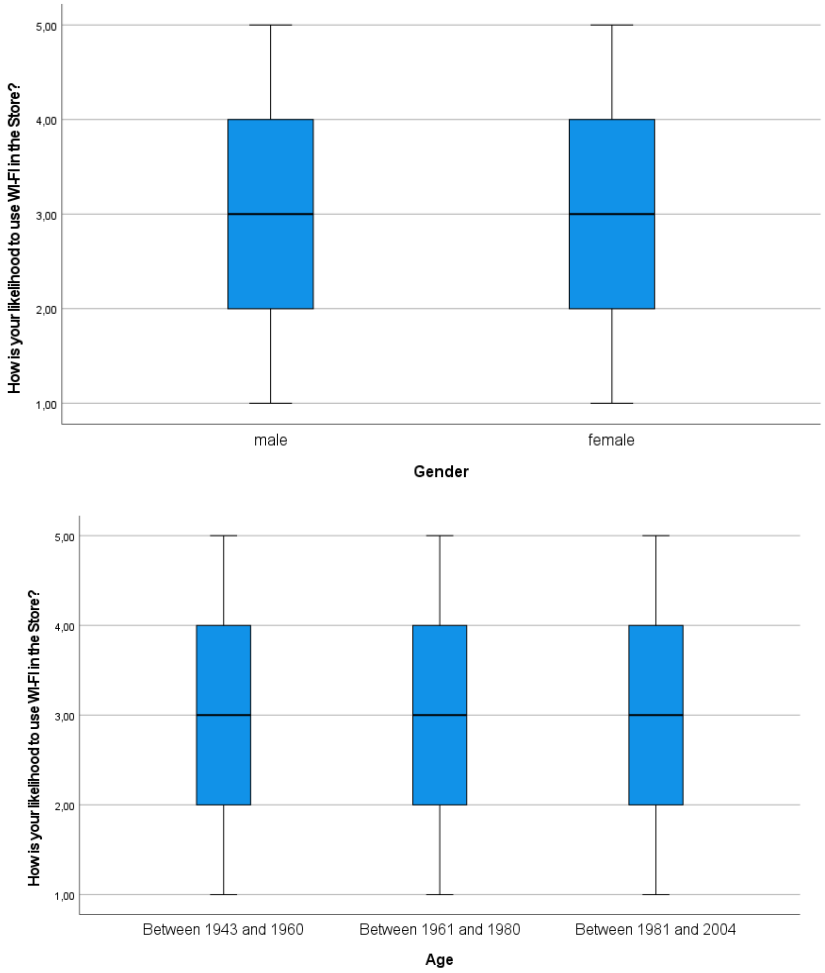
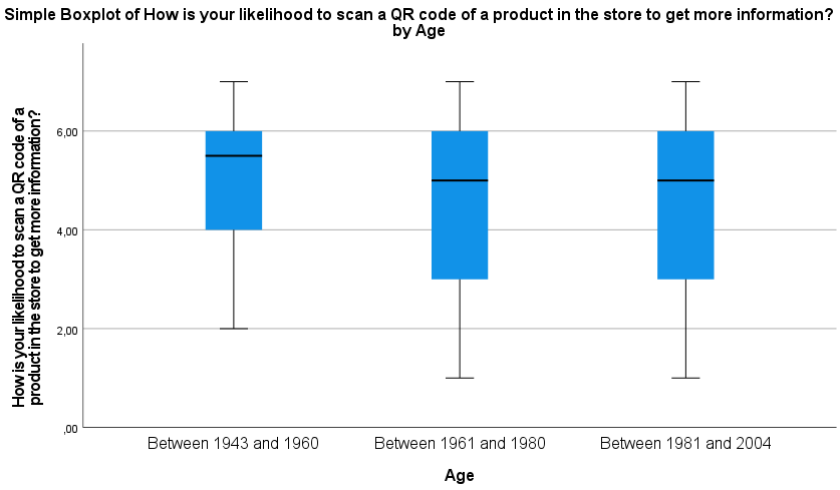


Figure 32 Outliers WIFI



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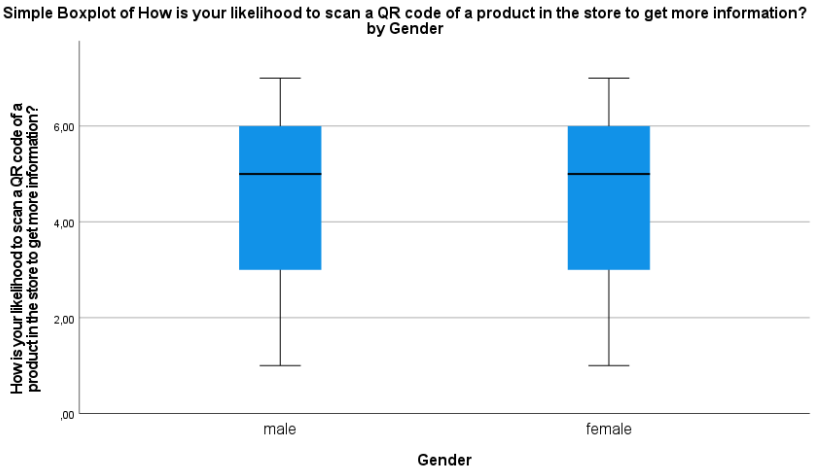
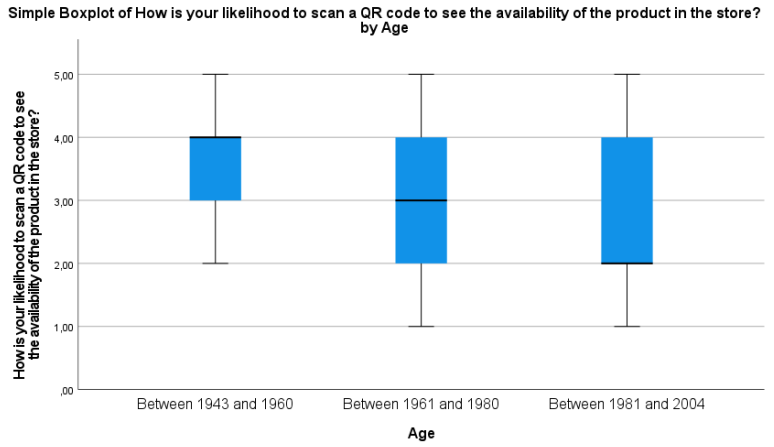


Figure 33 Outliers QR code information



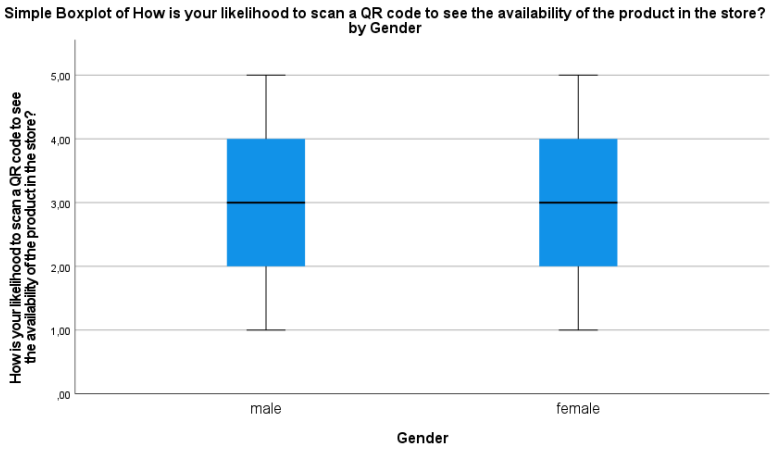


Figure 34 Outliers QR code availability

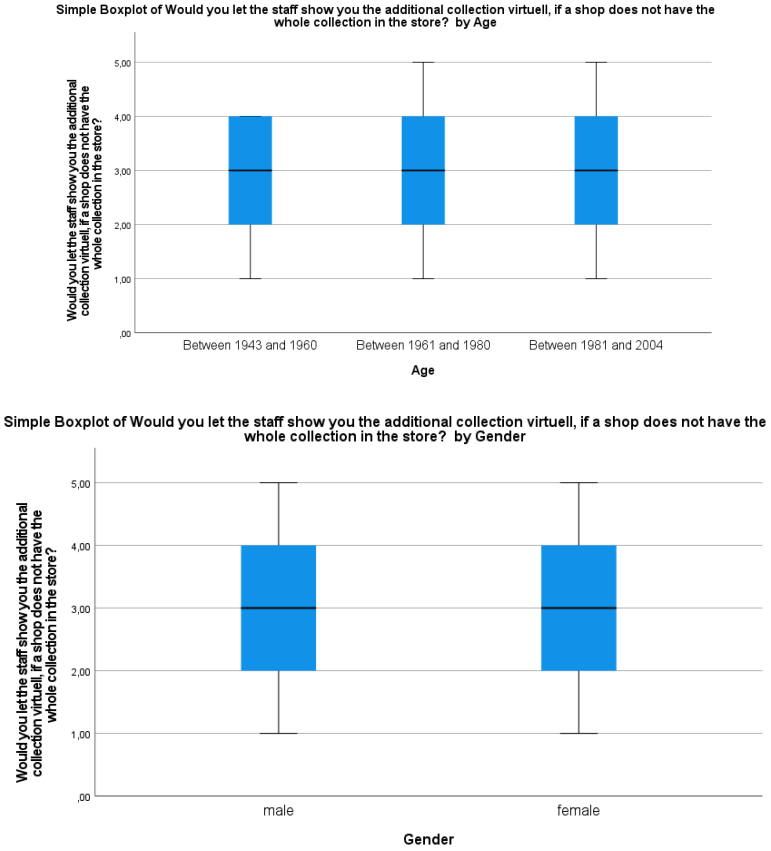
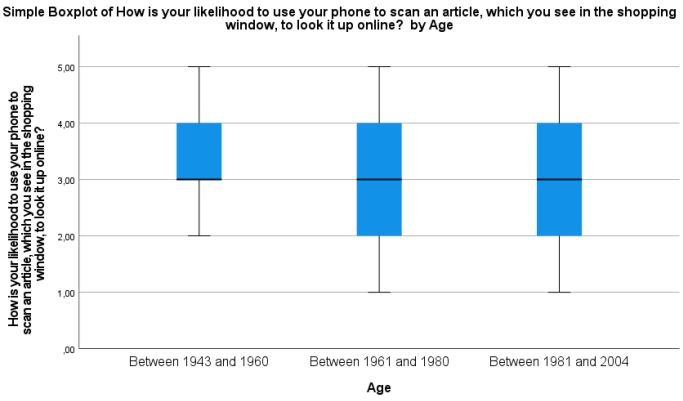


Figure 35 Outliers showroom



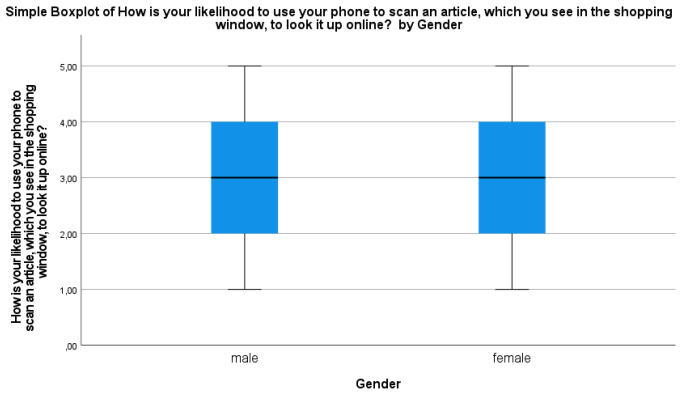
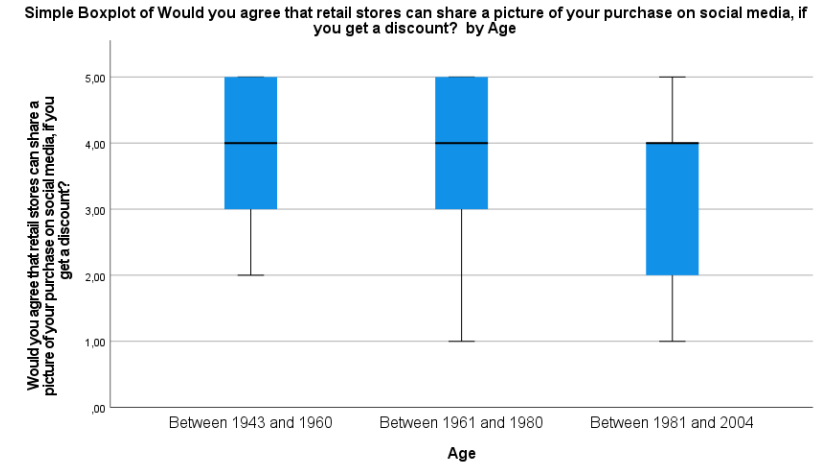


Figure 36 Outliers smart window



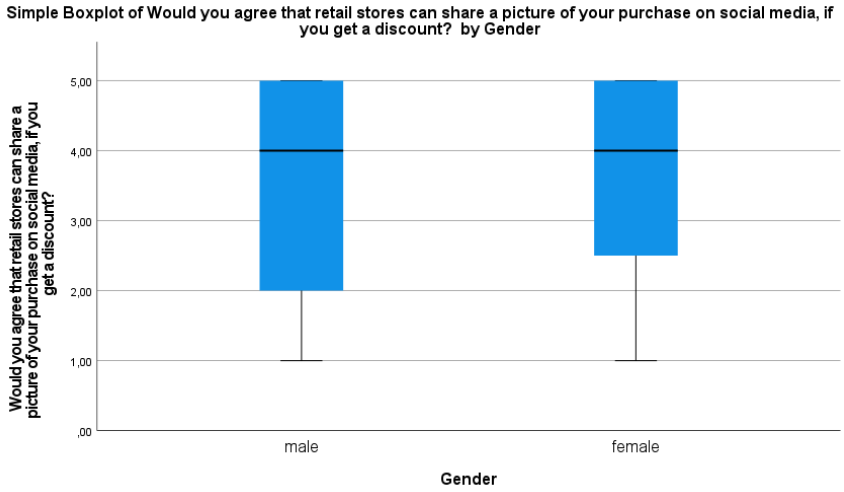


Figure 37 Outliers social media

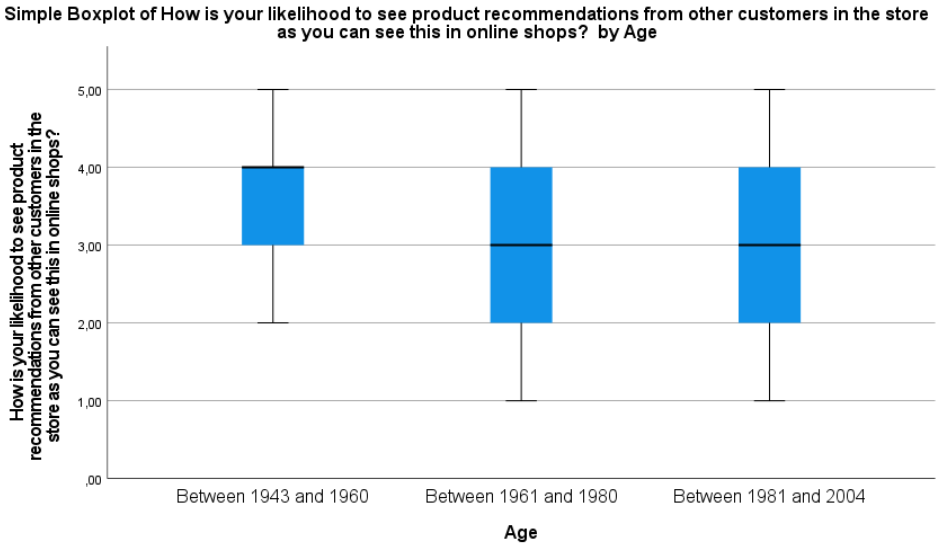
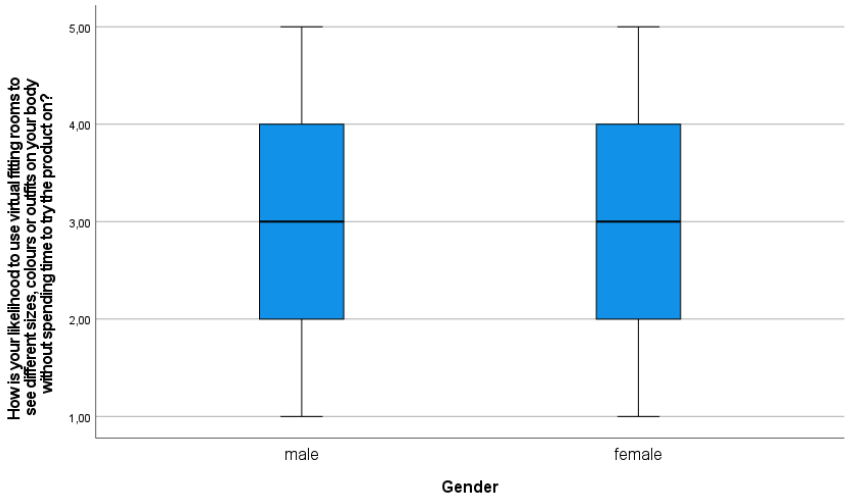


Figure 38 Outliers digital recommendation



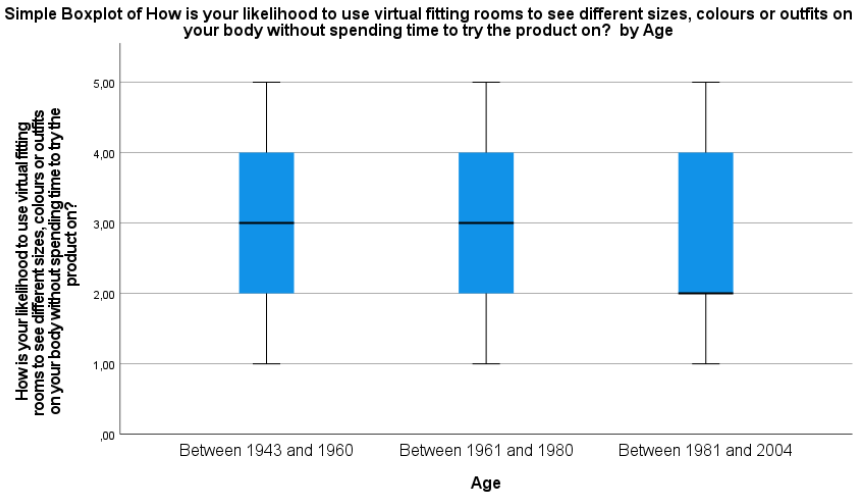


Figure 39 Outliers virtual location

Appendix E Results

Table 118 Results Analysis

Question	Hypothesis	Difference	Solution majority
Shopping before the lockdown	**H7**	Difference	**Majority shop offline and online**
			Baby boomers offline, Millennials and Generation x offline and online
			Baby boomer: male=offline, female=offline and online; Millennials: male =offline and offline and online, female= offline and online
Shopping after the lockdown		Difference	**Majority shop offline and online**
			Baby boomers female: offline, online, offline and online
Comparison after an before the lockdown		Difference	**Majority shop more online than before and less offline as well as offline and online**
			Baby boomers: men=shop more online and offline, women=online and offline; Millennials men: shop more online, online and offline
Retail Size	**H2**	Difference	**Medium is preferred**

			Baby boomers female like small, medium and large the same
Kind of retail		Difference	**Majority multilabel and fast fashion** Baby boomers: men= multilabel, women= multilabel, premium, fast fashion; Generation x: men=multilabel followed by premium, women: multilabel followed by fast fashion; Millennials: men= multilabel followed by fast fashion, women=fast fashion followed by multilabel
Online Shopping	**H1**	No Difference	**Website is preferred** Millennials and Generation x majority website next to mobile phones
Searching for Information	**H3**	Statistically difference between age groups	Baby boomers= Rarely ; Generation x= Usually; Millennials= Sometimes
Where to search after Information		Difference	**Website is preferred** Baby boomers: men= website and friends, women= website; Generation x: men=website followed by friends, women= website followed by friends;

			Millennials: men=website followed by friends, women= website followed by friends and social media
Where do you search for outfit inspiration?	**H4**	Difference	**Store is preferred** Baby boomers: men= store, women= store followed by social media and website; Generation x: men=store followed by website, women= store followed by website; Millennials: men=store and website, women= store followed by social media
Which delivery option would you use, if you have the choice?	**H6**	No Difference	Buy directly in the store followed by online ordering
How is your likelihood to use WI-FI in the Store?	**H5**	No statistically Difference	Neither like to use Wi-Fi not dislike
Why would you use Wi-Fi in the store?		Difference	women like to text with friends and man like to compare prices

How is your likelihood to scan a QR code of a product in the store to get more information?		Statistically difference between gender	women= somewhat unlikely, man=neither like not unlike
How is your likelihood to scan a QR code to see the availability of the product in the store?		Statistically difference between age groups	Millennials (neither likely not unlikely) and Generation x (neither like not dislike) as well as Millennials and Baby boomers (unlike)
How is your likelihood to have your loyalty card in a mobile version?		Statistically difference between age groups	Baby boomers women (neither likely not unlikely) and Generation x as well as Baby boomers men(likely) and Millennials (likely)
How is your likelihood to use E-Coupons, e.g.		Statistically difference between gender, age groups	Gender: men=like, female=neither like not dislike; Age: Millennials=like; Generation x=like ;Baby boomers=neither like not dislike

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discounts on the mobile phone?		and interaction between gender and age	Baby boomers: men= like= website; women=neither like not dislike; Generation x: men=likes, women= like; Millennials: men=like, women= like
How is your likelihood to use a self-checkout option in the fashion retail, e.g. mobile app or full device?		Statistically difference between interaction of gender and age groups	Baby boomers: neither like not dislike, Generation x (like), Millennials (like) as well as gender men (like), women(neither like not dislike)
Would you let the staff show you the additional collection virtual, if a shop does not have the whole collection in the store, e.g. on an I pad?		No statistically difference	Neither like not dislike the showroom effect

How is your likelihood to use your phone to scan an article, which you see in the shopping window, to look it up online?		No statistically difference	Neither like not dislike smart windows
Would you agree that retail stores can share a picture of your purchase on social media, if you get a discount?		Statistically difference between age groups (Baby boomer and Millennials as well Generation x and Millennials)	Baby boomers=dislike, Generation x=dislike, Millennials=neither like not dislike

How is your likelihood to put your product that you are wearing into another virtual location, e.g. wearing an outdoor jacket and have the feeling to be in the mountains?		No statistically difference	Dislike (Millennials= Neither like not dislike)
How is your likelihood to see product recommendations from other customers in the store as you can see this in online shops?		No statistically difference	Neither like not dislike

How is your likelihood to use virtual fitting rooms to see different sizes, colours or outfits on your body without spending time to try the product on?		Statistically difference between age groups	neither like not dislike the tool: millennials more in favour than Generation x
How is your likelihood to get more information about the product through Robots, e.g. Alexa, if staff members do not have time in the store to give you		Statistically difference between age groups	overall tend to dislike difference between age groups, Millennials (neither like not dislike) and Generation x (dislike) and Millennials and Baby boomers (dislike)

Do you have experience with in-store technology as customer service?		No Difference	Majority no
Would you be interested in more technology experience provided by the stores in order to make your shopping faster and beneficial?		Statistically difference between male and female as well as millennials and baby boomers and millennials and Generation x	Male=like, women=neither like not dislike; millennials=likely, generation x=neither like not dislike, baby boomers=neither like not dislike

Table 119 Results shopper profiles

Shopper Profiles				
Gender				
male	Age	Between 1943 and 1960		
			Income	€61,000 to over €90,000
			Shopping behaviour	
			Shopping before and after lockdown	Before offline after offline and online
			Retail Size and Kind	Medium multilabel stores
			Online Shopping	Website
			Information	Rarely website and friends
			Inspiration	Store
			Omni channel delivery	Buy in store and have it directly and online ordering

	Instore experience	
	WIFI	neither like not dislike to look up prices
	QR Code Information	neither likely not unlikely
	QR Code Availability	unlike
	Loyalty card	Likely
	E-Coupons	neither like not dislike
	Self-checkout	neither like not dislike
	Interaction Social Media	dislike
	Virtual location	neither like not dislike
	Virtual fitting room	neither like not dislike
	Showroom	neither like not dislike
	Smart window	neither like not dislike
	Robots	dislike
	Digital recommendation	dislike
	Experience instore	Yes

	More instore technology	neither like not dislike
Between 1961 and 1980	Income	Over €90,000
	Shopping behaviour	
	Shopping before and after lockdown	Before offline and online after as well
	Retail Size and Kind	Medium multilabel followed by premium stores
	Online Shopping	Website and mobile phone
	Information	Usually website next to friends
	Inspiration	Store followed by website
	Omni channel delivery	Buy in store and have it directly and online ordering
	Instore experience	
	WIFI	neither like not dislike to look up prices followed by text with friends

	QR Code Information	neither likely not unlikely
	QR Code Availability	neither likely not unlikely
	Loyalty card	likely
	E-Coupons	likely
	Self-checkout	Likely
	Interaction Social Media	dislike
	Virtual location	neither like not dislike
	Virtual fitting room	neither like not dislike
	Showroom	neither like not dislike
	Smart window	neither like not dislike
	Robots	dislike
	Digital recommendation	neither like not dislike
	Experience instore	No
	More instore technology	between likely and neither like not dislike

Between 1981 and 2004	Income	€30,000 to €90,000
	Shopping behaviour	
	Shopping before and after lockdown	Before offline and online after offline and online as well as online
	Retail Size and Kind	Medium multilabel followed by fast fashion stores
	Online Shopping	Website and mobile phone
	Information	Sometimes website followed by friends
	Inspiration	Store and website
	Omni channel delivery	Buy in store and have it directly and online ordering
	Instore experience	
	WIFI	Neither like not dislike to look up prices
	QR Code Information	Neither likely not unlikely
	QR Code Availability	Neither likely not unlikely

			Loyalty card	Likely
			E-Coupons	likely
			Self-checkout	likely
			Interaction Social Media	neither like not dislike
			Virtual location	neither like not dislike
			Virtual fitting room	neither like not dislike
			Showroom	neither like not dislike
			Smart window	neither like not dislike
			Robots	neither like not dislike
			Digital recommendation	neither like not dislike
			Experience instore	No
			More instore technology	likely
female	Age	Between 1943 and 1960	Income	€30,000 to €90,000
			Shopping behaviour	

	Shopping before and after lockdown	Before offline and online after offline, online, offline and online
	Retail Size and Kind	Small, medium and large multilabel, premium and fast fashion store
	Online Shopping	Website
	Information	Rarely website
	Inspiration	Store followed by social media and website
	Omni channel delivery	Buy in store and have it directly and online ordering
	Instore experience	
	WIFI	neither like not dislike to text with friends
	QR Code Information	somewhat unlikely
	QR Code Availability	unlike
	Loyalty card	neither likely not unlikely
	E-Coupons	neither like not dislike
	Self-checkout	dislike

	Interaction Social Media	dislike
	Virtual location	neither like not dislike
	Virtual fitting room	neither like not dislike
	Showroom	neither like not dislike
	Smart window	neither like not dislike
	Robots	dislike
	Digital recommendation	neither like not dislike
	Experience instore	No
	More instore technology	dislike
Between 1961 and 1980	Income	€30,000 to €60,000
	Shopping behaviour	
	Shopping before and after lockdown	before offline and online afterwards as well

	Retail Size and Kind	Medium multilabel followed by fast fashion stores
	Online Shopping	Website and mobile phone
	Information	Usually website followed by friends
	Inspiration	Store followed by website
	Omni channel delivery	Buy in store and have it directly and online ordering
	Instore experience	
	WIFI	neither like not dislike to text with friends followed by prices
	QR Code Information	somewhat unlikely
	QR Code Availability	neither likely not unlikely
	Loyalty card	likely
	E-Coupons	likely
	Self-checkout	neither like not dislike
	Interaction Social Media	dislike

	Virtual location	neither like not dislike
	Virtual fitting room	neither like not dislike
	Showroom	neither like not dislike
	Smart window	neither like not dislike
	Robots	dislike
	Digital recommendation	neither like not dislike
	Experience instore	No
	More instore technology	neither like not dislike
Between 1981 and 2004	Income	Under €29,000
	Shopping behaviour	
	Shopping before and after lockdown	before offline and online as well as after
	Retail Size and Kind	Medium fast fashion followed by multilabel stores
	Online Shopping	Website and Mobile Phone

	Information	Sometimes website followed by friends and social Media
	Inspiration	Social media followed by store
	Omni channel delivery	Buy in store and have it directly and online ordering
	Instore experience	
	WIFI	neither like not dislike to text with friends
	QR Code Information	somewhat unlikely
	QR Code Availability	neither likely not unlikely
	Loyalty card	likely
	E-Coupons	likely
	Self-checkout	Likely
	Interaction Social Media	neither like not dislike
	Virtual location	neither like not dislike
	Virtual fitting room	neither like not dislike
	Showroom	neither like not dislike
	Smart window	neither like not dislike

	Digital recommendation	neither like not dislike
	Robots	neither like not dislike
	Experience instore	No
	More instore technology	Likely

Appendix F Critical Analysis

Grewal, D., Noble, S., Roggeveen, A., (2020) 'The Future of In-Store Technology'. *Journal of the Academy of Marketing Science*, 48(1), pp. 96–113. DOI: 10.1007/s11747-019-00697-z.
Available at: http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=141133005&site=ehost-live (Accessed: 27 February 2020).

What review question am I asking of this text?

The journal `the future of instore technology` will help to answer the research question how to improve the service in the retail and how to implement digitalization in the retail store. The reason for this is that the text focus firstly on different instore technology by using examples from different industries, which are useful to have a broader view about different digitalization opportunities for retailers.
Since the article uses two factors (social and convenience) and creates with those a conceptual model to show the impact on the consumer, the model outlines the efficiency of digitalization tools.
Another investigation will be what influences the use of technology by the customer to improve the customer journey by referring to moderating effects. This will be helpful to know when digitalization is more useful and also to understand the customer behaviour better.

What type of literature is this?

Firstly, the journal includes conceptual literature since it creates a model:

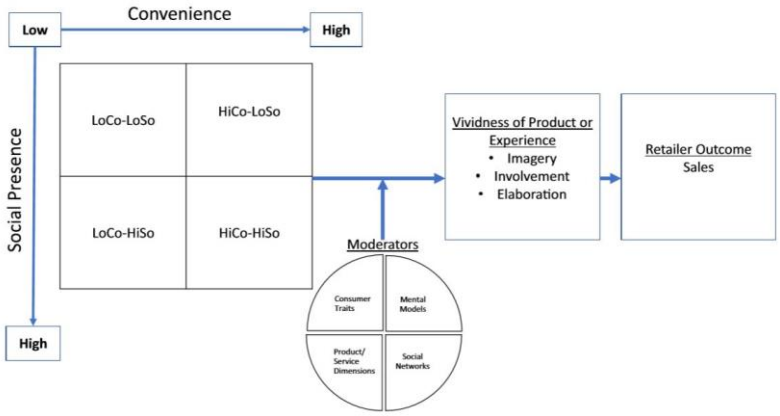

Table 120 Conceptual Framework of instore technology infusion (Grewal *et al.*, 2020)

The theory is backed up by using different literature as sources and research because the writers did seven interviews with different companies.

Another point is that the literature includes contextual literature because the text refers to the topics retail and digitalization. The author of this theory uses retail examples of instore technology of different industry but also some examples refer to the fashion retail sector.

What sort of intellectual project for study is being undertaken?

a) How clear is it which project the authors are undertaking?

The author explained step by step of why, what he will do and how he will back this up in the introduction

The examples of technology and the importance of them are always backed up with literature. Since the framework is created with the help of the interviews there were sometimes sources missing. But then the author referred by creation of the vividness (figure 2) to another theory again.

The whole framework and examples focus more on the positive side and only the consumer use and do not outline how efficient it is for the retailer itself. Nevertheless, the author outlines limited factors and future research in the conclusion, which shows a high reflective view on the research.

Another criticism is that the author does not back up this theory with numbers, which means that he outlines if the technology is high convenience or high social by narrative explanation. But there are not any numbers on how much it really influence the consumer behaviour.

b) *How does the sort of project being undertaken affect the research questions addressed?*

The goal of the research is to create a framework on the future technology from the consumer view and how instore technology impacts the customer journey. On the one side, the author answered the positive side of the objectives with a framework, which can use other in practice to develop touchpoints for the consumer. On the other side the negative sides of those are not explained, which will have also an impact in practice.

c) *How does the sort of project being undertaken affect the place of theory?*

The author created the Social Presence and Convenience by the use of interviews, research and instore technology examples. Moreover, he used the vividness theory by Nisbett and Ross to point out the vividness and product or experience to develop the new theory.

d) *How does the authors' target audience affect the reporting of research?*

It can be assumed that the target audience of the author were retail companies, who want to improve the technology and customer journey in their store. They know now which technology has a higher impact and which less on the consumer. Moreover, they can decide which one they want to use in the future (HiCo-HiSo).

Therefore, the author points out that other people can do more research on the topic as using more technology or other drivers, which alludes to the opportunity to do more research on academic knowledge.

What is being claimed?

a) *What are the main kinds of knowledge claim that the authors are making?*

The overall claim is the theoretical knowledge since it is a framework, which shows that High Social Presence and High Convenience technology impacts the customer journey the most, which is backed up with research knowledge and practical knowledge.

Moreover, moderate effects influence the customer journey as consumer traits (demographics), technology readiness (ability to use new technology), product/ service dimension (technology has higher impact on hedonic products/fun products), mental models (higher impact of technology on consumer with high process information/imagery), social network (influence customer and tie strength), tie strength (technology higher impact on consumer with stronger ties/transfer information).

b) *How clear are the authors' claims and overall argument?*

The argumentation of the author is clear since the introduction started with the explanation of the importance according to in store technology and why, how and what the author is doing. During the analysis the author explains each step of the framework and at the end the result is clear for the reader.

c) *With what degree of certainty do the authors make their claims?*

Since the author outlines limited factors and future research opportunities in the conclusion, there is a high degree of certainty.

d) *How generalized are the authors' claims – to what range of phenomena are they claimed to apply?*

The claim to a certain extend generalized since author did not focus on a specific country or culture. The claims refer to real life instore technology examples of different retailers. Therefore, the question is how efficient is which technology in each industry and differs the consumer behaviour of this model from culture to culture?

To what extent is there backing for claims?

a) *What, if any, range of sources is used to back the claims?*

The claims are backed up with 7 interviews to create the framework, which alludes to first-hand experience. Moreover, the author uses different real in store technology examples to classify them into Social Presence and Convenience. Another point is that he backed the claim with other theories as the vividness up and uses different literature to explain the use of each technology and also the different factors that impacts the customer journey.

b) *If claims are at least partly based on the authors' own research, how robust is the evidence?*

The author used 172 different sources to back the claim up, which is a large size to give enough evidence. These are mainly journals and good literature.

Nevertheless, the professional seven interviews are not summarized in the article, which makes the evidence less. Moreover, these are not a lot of interviews also. Therefore, the author did not do a consumer survey to have more data to back it up since the framework focuses on the viewpoint of customers.

To what extent are claims consistent with my experience?

Since I worked also in the retail store, in a consulting company, which is specialized on the retail sector and in the buying planning and allocation team of a fashion company, I

can tell that technology is a more important touchpoint. I can totally understand that the claim that future technology as augmented reality, virtual reality, embodied robots, disembodied robots, click and flick smart windows, avatars, smart displays, hero's (HiCo-HiSO) will have a high impact on the customer journey in the retail. On the other hand there are information missing as is it in every kind of retail industry useful.

What is my summary evaluation of the text in relation to my review question or issue?

a) How convincing are the authors' claims, and why?

The conceptual and contextual journal of the future of instore technology outlines that in store technology influences the consumer journey in a positive way and points out the influence factors for the consumer by using a framework. Since the article refers to real examples of the retail store, literature and interviews, the author can use this framework to have a good knowledge of the influence of different instore digitalization to consumer. This will be helpful to help to answer the research objective how to improve the customer service and how to implement digitalization in the fashion retail to create an efficient service.

Nevertheless, the research has some limitation: It could provide more examples of in store technology. Since the article focus on the retail in general and do not directly focus on the fashion industry, the question occur is every technology is useful for the consumer in this sector? Moreover, the author uses also only two factors as Social Presence and Compliance to back the importance of instore technology up. The question is if there are more factors that are important to the consumer? Another point is that the theory points only a limited amount on moderate factors out. Are there more drivers that influence the customer journey? This will the author discover in more detail in the thesis.

b) How, if at all, could the authors have provided stronger backing for their claims?

The author of the journey did 7 interviews and did not summarize those at the end. On the one hand the author could do more interviews and on the other hand he could do also a consumer survey to have more data. Moreover, this data could show how much these technology really impacts the consumer to do not have only professional views from the interviews