The effect of augmented reality on consumers' reactions to mobile marketing

Master Thesis submitted in fulfilment of the Degree

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AFFIDAVIT

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ABSTRACT

Smartphones have become part of our daily life and it is hard to imagine not to take them anywhere with us. Also, day by day there are new features or new mobile applications that consumers can try and benefit from various useful features. As besides the constant growth in the number of smartphone users also new technologies are developed, businesses and especially marketing managers should pay attention to the most recent trends. Thus, the main focus should be on creating marketing content for mobile devices, in order to be able to interact and engage with consumers anywhere, any time. Marketers should also put a high emphasis on augmented reality, that is an emerging technology offering plentiful opportunities as a mobile marketing tool.

Recent research has already dealt with the topic of augmented reality in the context of marketing, however because of the innovative nature of AR there is a research gap in specific aspects, such as there is no framework for designing AR campaigns or guidelines on the implementation of AR into a firm's strategy or no research focusing on consumers' reaction specifically to mobile marketing content with AR. Therefore, the study aims to reveal consumers' response to mobile AR marketing content as well as to investigate the effect of AR on predefined aspects, such as perceived ease of use, perceived usefulness, interactivity and anticipated emotions.

For this purpose, an experimental research design was applied, whereby an online experiment was conducted within a sample representative of the Austrian population. To both groups of the online experiment a video was presented about one of IKEA's mobile application. The experimental group was exposed by a stimulus, namely by the AR feature of IKEA Place, while for the control group the traditional app of IKEA was displayed.

The findings of the online experiment indicate that AR has a positive influence on most of the measured constructs, except perceived ease of use, as in this case no significant results were found. These constructs contribute to the increase of attitude towards use and consequently, behavioural intention is positively influenced by attitude towards use. The study also reveals that AR apps are perceived by consumers to be more useful, more interactive as well as they anticipate more positive emotions from using an AR app. Overall, it can be concluded, that AR provides various valuable opportunities for marketing purposes, thus businesses should aim to implement this technology and make use of it in order to create extraordinary experience and increase customer engagement.

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LIST OF ABBREVIATIONS

AE – Anticipated emotions

AR – Augmented reality

ATT – Attitude towards use

BI – Behavioural intention

B2B – Business-to-business

CRM – Customer relationship management

GPS – Global positioning system

IMC – Integrated marketing communications

IN – Interactivity

KPI – Key performance indicator

MAR – Mobile augmented reality

MR- Mixed reality

NFC – Near field communication

PE – Perceived enjoyment

PEOU – Perceived ease of use

PI – Perceived informativeness

PU – Perceived usefulness

TAM – Technology acceptance model

UI – Usage intention

VR – Virtual reality

1 INTRODUCTION

1.1 Context and previous research

What were headlines telling about smartphones and emerging technologies ten years ago? The New York Times reported, that "Cellphones Now Used More for Data Than for Calls" and CNN's news in 2010 were about the rapidly growing sales number of iPads and Samsung Galaxy tablets, people downloading applications to entertain themselves, launching the Xbox 360 Kinect, and about the new iPhone 4 feature, FaceTime (Gross, 2010; Wortham, 2010). Moreover, the Mobile World Congress in 2010 also revealed future trends as well as gave insights for companies how they should drive their businesses in order to stay relevant in consumers' eyes (Kolodny, 2010). The most important outcome of the congress was: "Web sites are old school, and mobile is a growing requirement for every industry and business", implicating that firms should put a high emphasis on turning their websites mobile responsive, developing new web page features that increase the customer experience also on mobile phones and on developing mobile applications (Kolodny, 2010). Finally, the Mobile World Congress also introduced technologies, for instance augmented reality, that were expected to become basic functions in the future (Kolodny, 2010).

How did all these technologies change in the last decade and have the mentioned trends really emerged? According to several studies, smartphones are used even more than ten years before, as there are more than 4,68 billion mobile owners, meaning that approximately 63% of the world's populations owns a mobile phone (Mobile phone users worldwide 2015-2020, 2018). People are using their smartphones for various activities, "4 out 5 consumers use smartphones to shop", 75% of people look at their emails on their phone, and almost two third of younger generations manage financial matters via mobile banking (Szmigiera, 2018; van Rijn, 2020; Warden, n.d.). However, smartphones would not have become part of the daily life without the advancement of essential technologies. Developments of smartphone features, such as camera, GPS, touchscreens, fingerprint scanners or displays enable the high-level of experience customers are encountering nowadays while using a mobile phone. Further, the improvement of mobile data technologies, such as 4G/LTE or 5G, that allow high-speed data usage, also contribute to the growth of smartphone users (Gold, 2017).

As technologies were and are developing and trends are constantly changing in today's word, so is the behaviour of consumers transforming. Therefore, firms should always look for new ways of marketing and assess which technologies, tools and methods meet best their customers' expectations (Kanuganti, 2019). The number of smartphone users is constantly growing since 2015 and this amount is forecasted to grow at least until 2022 by almost 1% each year (O'Dea, 2018). This continuous expansion of consumers using smartphones implies, that one of the main focus of marketers should be on mobile marketing (Irshad & Awang, 2016). Furthermore, recent

years showed, that augmented reality can be applied in numerous ways, and there is a lot of potential in implementing this technology (Kanuganti, 2019). The amount of users is forecasted to reach 1 billion by the end of the year and keep growing at least for the next five years by "a compound annual growth rate of 151,93%" (Kanuganti, 2019). It also has to be mentioned that the business of augmented reality together with virtual reality is projected to reach a market value of $ 80 billion until the end of 2025 and be present in most of the leading industries (Kanuganti, 2019).

In the recent years, numerous researchers dealt with the topic of augmented reality in connection with consumer behaviour (Pantano et al., 2016). Some of these articles focused on studying the acceptance of the technology and which factors influence the adoption of AR as well as how do consumers perceive it as a marketing tool (Irshad & Awang 2016; Kumar et al., 2016; O'Mahony, 2015; Rese et al., 2016). Other researches approached AR from a different perspective and investigated its characteristics and their influence on consumer behaviour, for instance Javornik (2016) examined AR by the six characteristics of interactive technologies. In addition to interactivity, Yim et al. (2017) studied vividness, and further, aesthetic quality, response time and quality of information was explored as an attribute of AR by Pantano et al. (2017).

Further studies revealed not only how consumers react to AR as a tool for marketing purposes but also investigated whether augmented reality enhance customer engagement and whether it strengthens consumers' relationship to the brand (McLean & Wilson, 2019; Rauschnabel et al., 2019; Scholz & Smith, 2016).

However, there is no comprehensive research on how to design augmented reality campaigns in order to maximize consumer engagement, how to implement AR as a marketing technique into a firm's strategy and it has not been assessed how consumers react specifically to mobile marketing content with augmented reality (Qin et al., 2020; Scholz & Duffy, 2018; Scholz & Smith, 2016).

1.2 Research aims and objectives

The study gives an overview about mobile marketing and augmented reality, as well as it presents existing studies, that deal with the topic of AR as a marketing tool. The main aim of the study is to reveal consumers' response to mobile AR marketing content as well as investigate the effect of AR on specific aspects, such as ease of use or usefulness, that contribute to the acceptance using a mobile app as well as additional attributes, for instance interactivity, that are essential for increasing the engagement with an application. Thus, the research question of this study can be formulated as follows:

RQ: How do consumers react to mobile augmented reality marketing?

In order to be able to assess consumers' reaction to the use of augmented reality for marketing purposes on mobile devices, an online experiment will be conducted. One group of the online experiment will be exposed to a mobile app with AR features, while the other group will be exposed to a simple mobile app. Both apps will be presented through a video highlighting the most important features of the app. Moreover, by conducting an experiment with a sample that is representative to Austria's population, a further goal of the thesis is to present results that can be generalized and thus conclude findings, that can be applied to Austria.

Finally, the research does not only focuses on understanding consumers' behaviour, but it also aims to deliver additional insights on differences between different groups of consumers, such as age or preferred way of purchasing a product. Exploring such differences and recognizing possible patterns can support marketers with the creation of marketing content for a brand as well as when it comes to segmenting their customers and targeting them in the right way.

1.3 Structure of thesis

The following paragraph describes the structure of the thesis, that consists of five main chapters. After introducing the topic and objectives of the thesis, the literature review section will give an overview about the essential subtopics. These are: mobile marketing, augmented reality, augmented reality as a mobile marketing tool and finally, the technology acceptance model will be described in greater detail.

The next chapter, methodology, will present the study design, the research model and all constructs that will be measured in order to be able to answer the research question. Further, the participants of the study will be presented as well as the procedure of the online experiment and the process of data collection will be specified. The last subchapter of the methodology section explains how the collected data will be analysed.

This will be followed by the chapter results and discussion, where the outcome of the online experiment will be presented with the help of descriptive and inferential statistics. In the final chapter of the thesis, along summarizing the results, the research question will be answered, potential limitations to the study will be discussed, as well as managerial implications will be given. Finally, areas for further research will be proposed.

2 LITERATURE REVIEW

In order to be able to interpret customers' reaction to augmented reality as a mobile marketing activity, it is fundamental to define what can be understood under the term of mobile marketing, what its advantages are and how it should be incorporated into the integrated marketing communication (IMC) strategy of a business. Another essential topic that has to be introduced is augmented reality, how this technology works, what its different types are, as well as how users and firms can benefit from it. It will also be highlighted what kind of challenges and risks can arise when implementing this technology. Furthermore, the two above mentioned topics will be connected and augmented reality will be introduced as a marketing tool. Finally, the technology acceptance model will close this chapter. In order to be able to understand the response of consumers to a mobile marketing content with the use of augmented reality, it is crucial to introduce a model that provides theoretical background on this issue.

2.1 Theoretical framework

2.1.1 Mobile marketing

As the thesis deals with augmented reality in a mobile marketing context, firstly it is crucial to understand what the definition of mobile marketing is and what kind of marketing activities are involved under this term. Further, it will be introduced how mobile marketing should be integrated into a firm's integrated marketing communications strategy as well as how a mobile marketing campaign should be planned and implemented. To complete the overview about mobile marketing, also the benefits and the challenges of its implementation will be highlighted.

Mobile marketing became a daily topic in businesses in recent years, however recalling marketing departments from ten years ago this term and the tasks that are in association with it were only evolving (Kim & Lee, 2019; Shankar & Balasubramanian, 2009). Also, in the beginning of the mobile era there was no commonly accepted definition for the term mobile marketing. However, as the concept of mobile marketing was developing, the consensus on its meaning was increasing (Leppäniemi & Karjaluoto, 2008). The most often used definition was defined by Shankar & Balasubramanian (2009), who explained mobile marketing as follows: "Mobile marketing refers to the two-or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device, or technology" (p.118). Also the Mobile Marketing Association provides an explanation for the term: "Mobile Marketing is a set of practices that enables organizations to communicate and engage with their audience in an interactive and relevant manner through and with any mobile device or network" (MMA Updates Definition of Mobile Marketing, n.d.). This explanation is more detailed as the association also specifies what activities are considered within the concept of mobile marketing beyond communication and promotion (MMA Updates Definition of Mobile Marketing, n.d.).

For instance, these are "advertising and media, direct response, promotions, relationship management, CRM, customer services, loyalty, social marketing, and all the many faces and facets of marketing" (MMA Updates Definition of Mobile Marketing, n.d.).

Considering the implementation of mobile marketing, a top-down approach should be followed by businesses (Leppanäiemi & Karjaluoto, 2008). The top-down strategy means that firstly, the vision and goals of the firm are developed in the higher hierarchy of the firm and after setting corporate objectives, the strategy, and implementation process is defined (Brady & Walsh, 2008). In the case of mobile marketing this means, firstly, the corporate goals of a firm are defined, and depending on those objectives, the overall aim of marketing communications should be designed, that will be achieved by following a strategical marketing plan. This is composed by two elements: integrated marketing communications and customer relationship management (Leppäniemi & Karjaluoto, 2008). To build up the whole strategy, firstly, the target group for communications has to be determined. This is accomplished with the help of CRM systems, so that the right message to the right person is sent, as well as it is personalized and also it fits the expectations and interests of the customers (Peltier et al., 2003 as cited in Leppäniemi & Karjaluoto, 2008). During the process of planning further aspects have to be taken into consideration, such as the status quo on the market, including information about competitors, products and consumers. After choosing the target audience, that can be either customers or prospects, the execution and tactics for the IMC strategy has to be specified (Leppäniemi & Karjaluoto, 2008).

The IMC strategy of a firm indicates through which communication channels what kind of message will be communicated and to whom which content will be delivered (Leppäniemi & Karjaluoto, 2008). The main purpose of IMC is to combine communication channels and tools in the best possible way to reach the firm's overall goals (Holland, 2010). Additionally, it also has to be defined at what point of the customer lifecycle through which touchpoints will be the communication planned (Kitchen et al., 2004 as cited in Leppäniemi & Karjaluoto, 2008). The next aspect that has to be considered is, that "the objectives and strategies of all the individual marketing communications elements (and the tactics which follow from them) are integrated and contribute to the achievement of the total marketing communications objectives" (Broderick & Pickton, 2005 as cited in Leppäniemi & Karjaluoto, 2008, p.1181). Finally, resources and budget should be allocated in an adequate way to be able to reach the defined goals (Leppäniemi & Karjaluoto, 2008).

Figure 1 illustrates the above described process of strategy planning and reveals the relationship between the essential aspects on a strategic level.

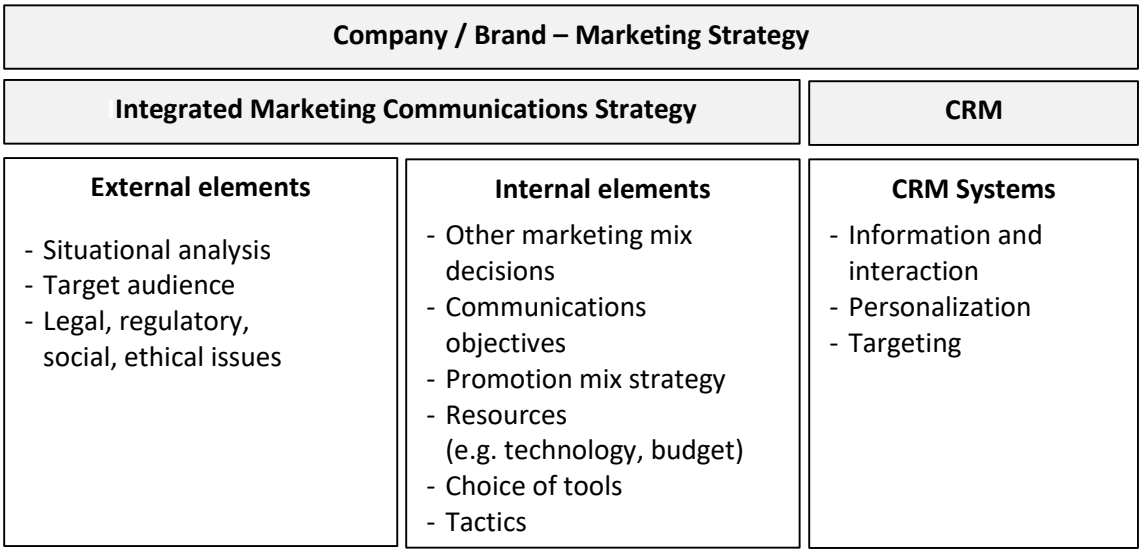


FIGURE 1 – STRATEGIC LEVEL OF MARKETING COMMUNICATIONS (LEPPÄNIEMI & KARJALUOTO, 2008)

When it comes to the implementation of mobile marketing it is crucial that marketers do not deal with this element only separately but they view it as part of the whole strategy. Therefore, mobile marketing actions and the message delivered should fit and harmonize with the communication within the entire firm (Leppäniemi & Karjaluoto, 2008). When planning the detailed mobile marketing communications plan, according to Leppäniemi & Karjaluoto (2008), three elements of the communications mix, advertising, promotion and direct marketing should be considered. Even though CRM is not classified as a promotion tool, it also plays an essential role in mobile marketing (Leppäniemi & Karjaluoto, 2008).

Figure 2 summarizes the structure of mobile marketing and lists all activities that can be associated with its elements.

Mobile marketing communications			
Advertising	**Promotions**	**Direct marketing**	**CRM**
- Web - Broadcast - Narrowcast - Physical browsing - Other	- Branded content - Competitions - Other	- Messaging	- Customer services - Mobile commerce - Market research - Mobile community - Corporate services

FIGURE 2 - MOBILE MARKETING COMMUNICATIONS (LEPPÄNIEMI & KARJALUOTO, 2008)

Before describing the above mentioned categories in detail, also the two methods of mobile marketing communications should be defined. It can be distinguished between pull and push practices. In the case of the pull approach a branded content is presented to consumers during they are actively doing something, for instance browsing the web, on their mobile devices (Grewal et al., 2016). If a purchase is made, in the most cases it was already planned by the consumer in advance (Andrews et al., 2016). In contrast to the pull-method, push messages target consumers directly and therefore they are contacted proactively by a firm, often resulting in impulse purchases (Andrews et al., 2016; Jelassi & Enders, 2004).

As it was mentioned above, mobile marketing communications can be applied for advertising purposes (Leppäniemi & Karjaluoto 2008). According to Leppäniemi & Karjaluoto (2008), it can be distinguished between numerous types of advertising, such as web, broadcast, narrowcast, physical browsing or any other form of ads on a mobile device.

Firstly, mobile ads can be placed in various forms on the web either in a browser or in an app (Leppäniemi & Karjaluoto 2008). An advertisement can appear not only on a company's own webpage or mobile application but also on "third-party website or app (e.g., search engine, social network, news website)" (Grewal et al., 2016, p.6; Leppäniemi & Karjaluoto 2008). Advertisements usually take the form of a banner or of an interstitial whereby marketers have three options varying between different levels of their richness, such as static, dynamic or interactive (Grewal et al., 2016). Moreover, according to Leppäniemi & Karjaluoto (2008), the content always should be designed to be mobile responsive. Further, also Shankar et al. (2010) highlighted the importance of designing and maintaining websites separately for the mobile

channel, as brands whose webpage can be reached via mobile phones can have benefits against its competitors in terms of customer satisfaction or return on marketing investments.

Advertisements can be placed also during broadcasting a radio, a TV channel or providing streaming services that are available on mobile devices. In the narrowcast category, two forms of media can be possible transmitters of mobile ads, such as mobilecasting and bluecasting. The next type of advertising can appear through physical browsing (Leppäniemi & Karjaluoto 2008). It incorporates various activities such as "touching, pointing, and scanning" content enabled by hyper tags, barcode or radio-frequency identification (Leppäniemi & Karjaluoto 2008, p.1183). Finally, every form of advertising on mobile phones that cannot be assigned to any of the above mentioned categories, falls into the last group. These can be in-game advertising, visual content through radio and music streaming services (Leppäniemi & Karjaluoto 2008).

Moreover, also promotions can be carried out on mobile devices. Through branded content companies have the opportunity to provide informational or entertaining value by any kind of material that can be downloaded, such as visual elements, mobile applications and games (Leppäniemi & Karjaluoto 2008). Another format, where trademarks of a company can appear is sponsored brand content on mobile news, sports results as well as weather forecast pages. Brands can further invite consumers to take part in interactive activities, such as competitions, raffles, quizzes and polls. Companies also can create the opportunity for consumers to order samples or brochures of their products (Leppäniemi & Karjaluoto 2008). Finally, also financial value can be delivered to consumers through mobile promotions (Andrews et al., 2016). Marketers have various possibilities to do that via coupons with price discounts, via vouchers offering a free sample of a product, giving away a product as a gift in the case of a purchase or via "buy one get one free" coupons (Andrews et al., 2016, p.16).

Another form of mobile communications is direct messaging, that is targeting customers with personalized content on their mobile phones via emails, text messages, MMS or push messages based on their customer profile and preferences (Leppäniemi & Karjaluoto 2008). When it comes to the design of the content, marketers have to focus on various aspects, such as "statement, language, wording, presentation, organization and structure" (Shareef et al., 2017, p.265). Further, the message also has to meet consumers' expectations in order to successfully attract their attention. Other important factors that can contribute to the success of a communication are the right timing and location (Shareef et al., 2017). It also has to be mentioned, that these types of messages can be sent only to consumers who granted companies the permission to contact via the above mentioned channels. The challenges of getting consumers to opt-in for marketing content will be discussed later in this chapter (Leppäniemi & Karjaluoto 2008).

The last element of mobile marketing activities is customer relationship management (CRM). Mobile CRM enables firms to "build and maintain relationships between the consumers and the

company" and supports one-to-one marketing that targets consumers on an individual basis with personalized content (Leppäniemi & Karjaluoto 2008; San-Martín et al., 2015, p.20). CRM can and should be applied at various points or phases of a customer journey, in order to benefit as much as possible from a customer relationship and build loyalty to extend the customer lifecycle (San-Martín et al., 2015). According to Leppäniemi & Karjaluoto (2008) CRM activities can be categorized into five groups. The first mobile CRM tool is customer services, that involves a wide range of assistance and supporting solutions (Leppäniemi & Karjaluoto 2008). For example, appointment reminders, mobile ticketing, check-in services fall into this group (Leppäniemi & Karjaluoto 2008). Mobile commerce can be identified as another type of customer relationship management tool on mobile devices (Leppäniemi & Karjaluoto 2008). Companies can create their own platforms to enable their customers to support them for example in the administration of banking or bill payment etc. through their mobile phones. Additionally, brands have the possibility to collect feedback and conduct market research by requesting customers to fill out a survey on their phones either via text messages or other solutions such as landing pages. A further use case within the mobile CRM context is the building of communities, where users can follow a brand's activities either through a blog or a magazine, or by signing up for receiving regular updates of different events and occasions of the company. Finally, the last mobile CRM tool is specialized for offering B2B services. For instance, it can be a service that provides support for creating a mobile working environment or the development of M2M solutions (Leppäniemi & Karjaluoto 2008).

As far as the execution of mobile marketing campaigns is concerned, companies have several possibilities for planning the campaigns, creating the content, carrying out the campaign or for setting up the evaluation process. Marketing departments and other teams who should be involved in the realization of a campaign can choose to allocate tasks based on their resources and expertise either internally or they can outsource them to agencies, such as advertising agencies, media agencies and mobile ad agencies. Before setting up a mobile marketing campaign, companies should identify what kind of resources and technologies are available and what kind of know-how and techniques can be sourced from external partners. After analysing the possibilities, the basic attributes of the campaign should be determined (Leppäniemi & Karjaluoto 2008).

Firstly, the main goal, the target group and duration of the campaign should be determined as well as whether it is a stand-alone campaign or only an element of a cross-media communication. Moreover, it is also crucial to specify the time plan, and the timing of other campaigns as well as the available budget that can be dedicated for the campaign (Leppäniemi & Karjaluoto 2008). Holland (2010) also highlighted that it is important to understand the media characteristics of the marketing tools. For a successful mobile marketing content, the benefits of this media type should be leveraged (Holland, 2010). According to Berman (2016) there are three such advantages. Firstly, mobile devices are always carried by consumers, they are always

on as well as connected. Therefore, marketers are able to create content based on recent happenings, react quickly to the competitors' actions or even evaluate the effectiveness of a campaign by immediately reaching consumers. Further, campaigns can be created for special events, different times of the day and even to promote short-term offers. Another benefit marketers can profit from is the possibility to design content for specific locations or geographical areas. Finally, as a mobile device belongs normally to one person, messages can be personalized based on a customer's personal data, purchase history and behavioural data on different platforms. Marketers are also able to build audiences and target different groups with the most fitting offer (Berman, 2016). However, not only the media characteristics should fit the purpose of the communication but also the attributes of the product as well as the resources of the firm (Russell & Lane, 2002 as cited in Holland, 2010).

The next step is brainstorming creative ideas and generating the whole concept as well as the definition of which communication channels should be used (Leppäniemi & Karjaluoto 2008). Marketers should not forget about "value, entertainment, informativeness, credibility and interactivity" during the designing phase. (Berman, 2016, p.434). If all of these aspects are considered consumers will accept the mobile marketing content more easily (Berman, 2016). After the message and elements of the content are finalised, it should be defined through which systems and platforms the campaign will be carried out. To make sure, that everything works as planned, also a test should be run. When everything functions and fulfils the expectations of marketers the campaign can start (Leppäniemi & Karjaluoto 2008). During the running of the campaign it is important to monitor the systems and the performance, set up a reporting process, as well as define a KPI set for the performance measurement (Leppäniemi & Karjaluoto 2008). In the case of mobile campaigns, the click-through rate, the number of clicks and page views, the conversation rate as well as the bounce rate and opt-in rate can be a useful metric to evaluate the performance (Berman, 2016). Finally, based on the results take learnings from the campaign and reflect on what worked well and what did not. The final evaluation is essential for designing more successful campaigns in the future (Leppäniemi & Karjaluoto 2008).

The following part of this subchapter deals with the advantages and challenges of mobile marketing. One of the main advantages of mobile marketing is its omnipresence. As mobile phones can be carried everywhere, mobile marketing content is always present with consumers. This leads to the next benefit which is the fact that all of the marketing messages which are sent to mobile phones can be immediately viewed. Another aspect that has to be mentioned is that locational data of users is available, therefore based on this information, consumers can be targeted with specific content (Holland, 2010). Shankar & Balasubramanian (2009) also highlighted, that even though other media types enable marketers to create messages for particular locations, these are better to send to mobile devices. The reason for that is, that in this case not only the location but also other characteristics of consumers can be taken into consideration when designing the content of a campaign (Shankar & Balasubramanian 2009).

This leads to a further advantage that should be mentioned. In contrast to other media forms, as mobile phones are individually used objects, messages can be personalized based on each user's personal information, preferences and interests (Holland, 2010).

Further, it also has to be mentioned that consumers have the control over marketing messages, and can participate interactively in a two-way or multi-way communication (Holland, 2010). Finally, two additional benefits have to be emphasized, that are the easy measurement and traceability of consumers' reaction. Sending any type of message to mobile phones can be easily tracked and response can be evaluated and reported in a clear and transparent way in contrast to mass marketing activities (Shankar & Balasubramanian 2009). To summarize, with mobile marketing the right person at the right time with right content can be targeted (Holland, 2010).

However, there are some challenges that marketers have to face when implementing mobile marketing. As it was mentioned through mobile marketing companies have to opportunity to send personalized offers and messages to their customers, but this also can lead to privacy issues. Some consumers may have a problem with invasion of their privacy due to receiving highly personal content as well as some of them also may have the feeling that they are spammed with too much content. Therefore, marketers have to pay attention to what kind of messages and how often they send it to their customers. By creating value for the customer both of these issues can be avoided (Holland, 2010). Another challenge marketers should overcome in order to be successful is getting their customers to opt-in for marketing purposes (Shankar & Balasubramanian (2009). To get users permission, companies should consider to offer some incentives that enhances consumers to opt-in. Again, to keep customers opt-in long-term, firms should put a high emphasis on the quality and relevance of the content they are creating (BusinessWeek, 2007 as cited in Shankar & Balasubramanian, 2009). Last but not least, when it comes to the technological aspect, consumers have the most varying mobile devices, such as different operating systems, browsers or screen size. Therefore, the content and mobile websites have to be developed to be compatible with every device, this sometimes can be a complex process for companies (Berman, 2016).

2.1.2 Augmented reality

The following subchapter defines augmented reality, introduces its historical developments up to the present. Also, other important terms, such as virtual reality will be discussed and a comparison will be made between the two concepts. Further, it will be described how augmented reality works, between what types it can be distinguished as well as the elements of AR will be introduced. Finally, benefits and challenges will be reviewed.

"Augmented reality is a technology that overlays digital information on objects or places in the real world" (Berryman, 2012, p.212). Also it can be defined as a technique that "combines real and virtual objects in a real environment", where the computer-generated content appears as a

merged view in users' eyes in real time (Azuma et al., 2001, p.34; Bonetti et al., 2018). The triggered augmentation can be layered in different forms, such as a text, a picture or even a video. Any device with a camera and/or a screen can be used to display augmented reality content as well as the size of this devices can vary and from the smallest to the largest technology (Bonetti et al.). However, Azuma et al. (2001) categorized the displays not based on their size but differentiated rather between "head worn, hand held, and projective" display types (p.35). For the purpose of an augmentation portable gadgets, such as wearables, smartphones, tablets or built-in elements such as projectors or screens can be applied (Bonetti et al., 2018). Depending on the content and type of augmentation, AR experiences can take place in private but also in public spaces (Berryman, 2012).

In general, technological advancements that enhance the customer experience started to appear in the beginning of the 21st century. These technologies focus mainly on practices that affect how customers encounter a contact with a brand (Bonetti et al., 2018). These can be "in the physical or online store, such as interactive screens, online product visualization and customization, digital signage, etc." (Bonetti et al., 2018, p.119). One of these are augmented reality and virtual reality. However, augmented reality dates back much longer than to the 2000s. Augmented reality was developed in the 1940s.The technology was used first in World War II and it helped pilots to identify other airplanes with the help of a layer on the windshield showing information from the radar (Berryman, 2012). Other developments started in the middle of the 20th century. Between 1955 and 1962 a cinematographer, named Morton Heilig developed Sensorama, that was a multimedia machine providing an immersive experience. Later, in the 1960s Ivan Sutherland built a "head-mounted display" that is acknowledged as the first real system layering an augmentation (Berryman, 2012, p.214). The expansion of the technology continued further also in the following two decades and a lot of institutions, such as the Armstrong Lab or the University of North Carolina, were conducting research in this field. The term augmented reality was however not used until 1990 (Berryman, 2012). In that year, Tom Caudell and David Mizell, employees of Boeing, launched a display that was also fixed to the head and supported workers during the manufacturing process by layering instructions over real elements showing how they should be assembled. Moreover, Caudell and Mizell named the technology augmented reality (Berryman, 2012).

Until the 21st century, AR was used rather for industrial purposes. In the 2000s the first game with augmented reality was launched and different applications, such as travel guides or medical apps were developed (Berryman, 2012). The advancements bringing more usability, mobility and quality for AR were possible only due to other technologies' evolution, such as further developments for GPS and NFC (Javornik, 2016). In 2008, augmented reality was applied for commercial purposes for the first time. Since then, a lot of various marketing campaigns appeared where augmented reality technology is involved. For instance, there are apps, where consumers can scan a specific part of products in order to get additional information, visualize

furniture into their homes, or even imitate try-ons of clothing items or accessories (Javornik, 2016).

Augmented reality is often mentioned with the term virtual reality (Milgram et al.,1995). Virtual reality is a "technology that creates a totally digital or computer created environment" (Berryman, 2012, p.212). The main difference between AR and VR is that in the case of an augmentation the physical environment is involved in the context and the content is able to interact with it in real time, while this not possible when it comes to virtual reality. Virtual reality is isolated from the physical reality and displays content in a distinct world without combining the virtual simulation with the physical environment (Javornik, 2016).

Milgram et al. (1995) proposed the reality-virtuality continuum framework to illustrate the interconnectedness between reality and virtuality and differences between the existing technologies. Figure 3 displays this concept.

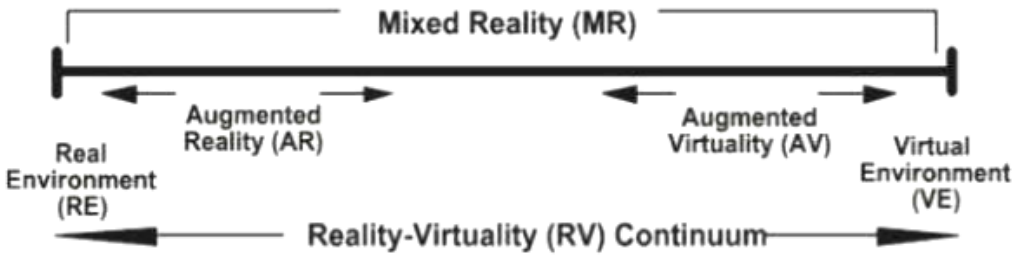


FIGURE 3 - REALITY - VIRTUALITY CONTINUUM (MILGRAM ET AL., 1995)

The scale consists of two end points. On the left the real environment is placed, where all objects are real and everything that is observed here, is part of the real world. In contrast, on the other end of the continuum a totally virtual world is presented (Milgram et al., 1995). Everything between the two mentioned positions is part of mixed reality. Augmented reality is located closer to the real environment as it only complements objects or places of the real world with digital information while in the case of augmented virtuality the environment is rather virtual and the layered content comes from the reality (Milgram et al., 1995).

When it comes to the technical aspect of augmented reality, it can be observed that there are different kinds of augmentations, so there are also various technical solutions that can be applied. However, for each type, there are four important components that are needed for carrying out the augmentation (Berryman, 2012). Firstly, as it was already mentioned above, a display is needed to bring together the digital layer and the elements of the real world. Also, an input device is essential, as well as a tracker, that guarantees a precise alignment of the digital information on the real world objects or environment. In order to reach the desired outcome,

one more element is needed, that establishes the whole experience, and that is a software (Berryman, 2012).

As it was mentioned there are essential elements needed to trigger an augmentation, but it can be differentiated between different types of augmentations such as "projection, recognition, location and outline" (Katiyar et al., 2015, p. 441). Projection means that real life objects get augmented by virtual content. This is the most often used type of augmented reality. Recognition works by scanning different patterns, faces or objects and layers the augmentation on the recognized items or humans in order to give additional information about that specific object or person for the user (Katiyar et al., 2015). When it comes to locational AR, GPS data is used to provide guidance and instructions for users to find specific places. This can work by holding a smartphone with the camera to the street and based on the locational data of the user the right direction to the destination will appear on the screen augmented over the live picture. Finally, in the case of outline, either the whole body of a user or only some parts of the body, for instance the face, get superimposed by virtual content on the screen. The users are allowed to make changes to the content that is visible on the screen (Katiyar et al., 2015).

Numerous big brands and companies are using the different possibilities of AR in order to provide an enhanced and immersive consumer experience (Scholz & Smith, 2016). For instance, IKEA created an application in which users are able to augment furniture into their home and visualize in 3D how different items would look like in their homes. Firstly, they have to open their camera on their tablet or smartphone and scan the space where they would like to try out a chosen product. After that with a drag and drop function the selected item can be placed into the room. Further, users of the app also have not only the opportunity to save their favourite items and share them on their social media profile but also they can directly buy their favourite pieces through the website (Ayoubi, 2017). Figure 4 displays how the IKEA Place app looks like.

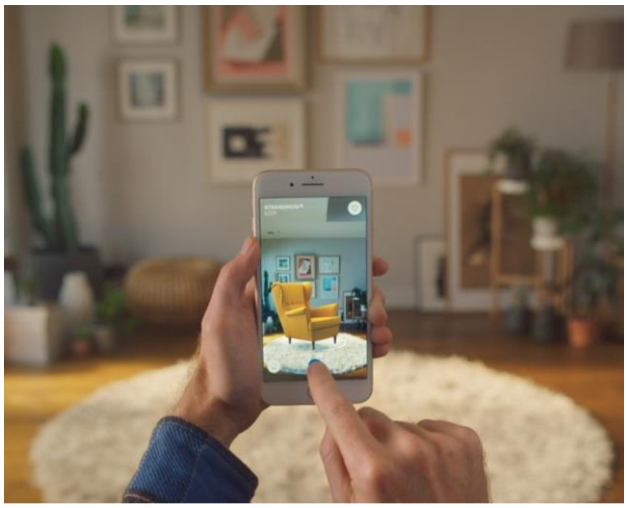


FIGURE 4 - IKEA PLACE - AN AR APP (AYOUBI, 2017)

An example for utilizing locational data and augmented reality would be the Penguin Navi app that was developed for Sunshine Aquarium in Tokyo. This application helps potential visitors to find their way starting from the closest train station to the aquarium. Based on their locational data superimposed penguins are guiding users towards the right direction, so everything an individual has to do is hold a smartphone and follow the penguins (Clegg, 2014). Figure 5 shows the output of the Penguin Navi app.

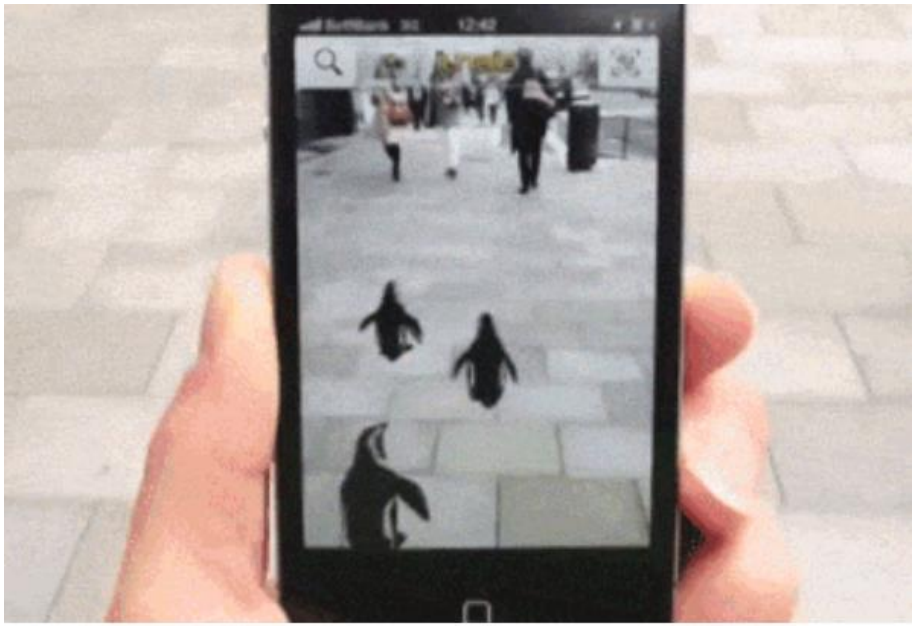


FIGURE 5 - PENGUIN NAVI APP (CLEGG, 2014)

Moreover, a use case for outlining AR content is Sephora. Sephora launched an app where customers can try out various products of the brand by creating different looks for themselves. The app also provides a lot of exclusive content to its users, such as personalized step-by-step tutorials, colour match for finding a specific shade as well as an arm swatch function for comparing colour palettes (Sephora, n.d.). Figure 6 presents the features of the Sephora app.

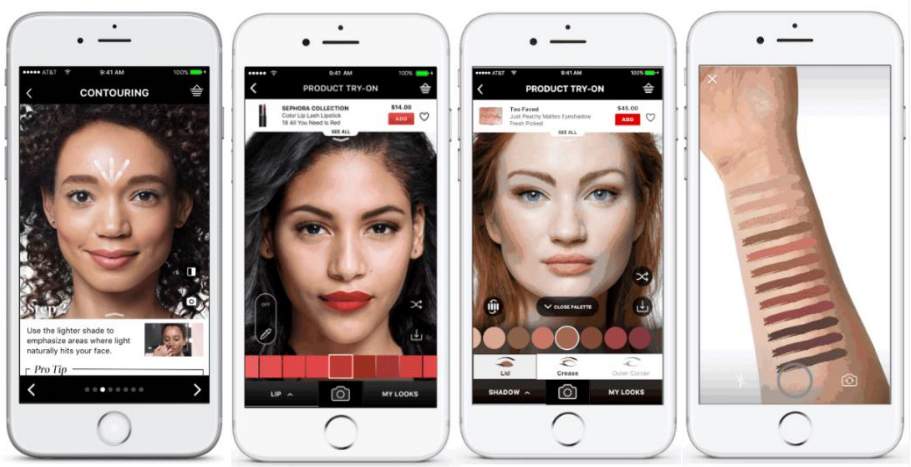


FIGURE 6 - SEPHORA VISUAL ARTIST APP (SEPHORA, N.D.)

Further, it can be differentiated between marker-less and marker-based AR (Katiyar et al., 2015). In the case of a marker-less augmentation the content is displayed based on the locational data of a user, for example "a mobile's GPS and compass" (Katiyar et al., 2015, p. 442). For layering the virtual elements on the display, also an internet connection is needed. In contrast, marker-based AR is triggered by so called, markers, that are images to be scanned by a camera (Katiyar et al., 2015). It can be distinguished between three different types of markers: template, 2D barcode, and imperceptible markers (Gupta et al., 2018). Template markers are mostly black and white with a simple black shape surrounded by a white background a black border (Gupta et al., 2018). 2D barcode markers are also black and white, however in this case the black pattern is created only out of the combination of squares on a white background and a black border (Gupta et al., 2018; Katiyar et al., 2015). Lastly, there are also imperceptible markers, that are not explicitly visible for humans. These markers can be either infrared markers, miniature markers but a clue can also be an image (Gupta et al., 2018).

As augmented reality was considered only from a technological perspective above, Figure 7 and the following paragraph describes augmented reality from another perspective and it introduces the concept as a whole.

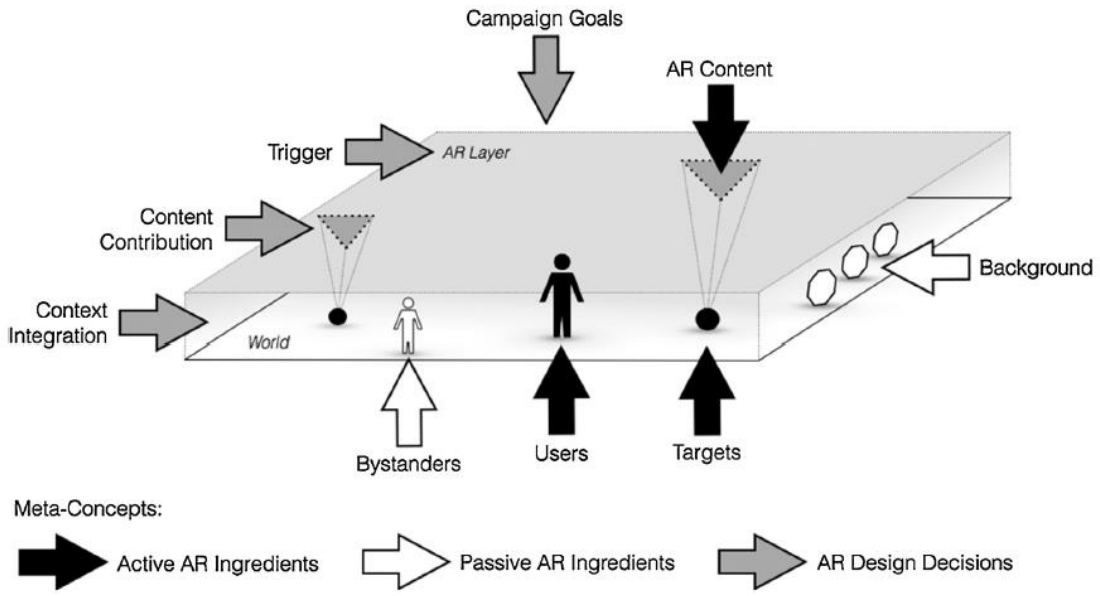


FIGURE 7 - ELEMENTS OF AUGMENTED REALITY (SCHOLZ & SMITH, 2016)

Figure 7 shows the single components of augmented reality. Scholz & Smith (2016) defined the five main elements that are required for an augmented reality experience. Firstly, a digital content has to be created that will be augmented, this is represented as a grey triangle on the figure. There is a wide range of possibilities to design augmented reality content (Scholz & Smith, 2016). It can be displayed either on a smartphone or on a screen in the form of a text, a picture, or a video. A specific application or a browser is needed that will display the content through

layering an augmentation on the target. A target can be any physical object, such as a product but even the consumers themselves in a given environment. This specific environment can also be referred as the background that is not layered with augmented reality. The background can however in some cases still contribute to the augmentation as part of the content (Scholz & Smith, 2016). Moreover, users and bystanders also have to be mentioned as they are also key players. Users can be defined as individuals who personally take part in the augmentation, while bystanders are only the observers of an AR experience. Often, bystanders can influence the readiness of people to take part in an augmentation and the reaction to a specific AR content (Scholz & Smith, 2016).

These various elements can be assigned into three categories. The AR content, the users and the targets can be classified as active elements, either because they have an effect the experience or because they are directly influenced by another element (Scholz & Smith, 2016). However, the rest of the defined elements are only passively part of the process, such as bystanders and the background of the target object. Even though these two elements are passive, they can still affect how active users encounter augmented reality (Scholz & Smith, 2016). The above described five main components are essential for establishing any augmented reality experience Furthermore, marketers have to make decisions, how the augmented reality content will be designed (Scholz & Smith, 2016).

Finally, the advantages of augmented reality will be highlighted in the following paragraphs, from two different point of views, firstly benefits will be introduced from consumers' eyes and then the companies' perspective will be taken.

Augmented reality provides a relatively new unique experience for consumers where products are presented in an interactive way so different attributes can be better imagined (Kim & Forsythe, 2008 as cited in Bonetti et al., 2018). For this reason, augmented reality content also supports consumers during their decision-making process and also reduces their time invested for looking for suitable products (Huang & Liao, 2015 as cited in Bonetti et al., 2018; Kang, 2014 as cited in Kumar et al., 2016). Further, augmented reality does not only assist consumers during the whole purchasing process, but also it delivers "entertaining and experiential value" (Bonetti et al., 2018, p.127). According to Berryman (2012), augmented reality can also serve as an additional informational source for the users.

However, augmented reality is beneficial not only for consumers but also for businesses. As an augmented reality experience involves consumers interactively into the demonstration of a product, it has a positive impact on the buying behaviour and it also increases customer satisfaction (Kim & Forsythe, 2008 as cited in Bonetti et al., 2018; Porter & Heppelmann, 2017). Also, the implementation of AR is still recognized as an innovation, therefore, it can also contribute to gaining competitive advantage against other firms not utilizing the benefits of augmented reality (Bonetti et al., 2018). Bonetti et al. (2018) also highlighted that the

implementation of AR cannot only result in benefits that are associated with consumers but also internal resources, such as time or expenses, can be saved. Moreover, augmented reality also facilitates the training of employees especially in factories and warehouses by allowing workers to follow visual instructions via augmentations in real time. The better visualization and easier learning also contributes to the improvement of efficiency productivity and to reduced error rates (Porter & Heppelmann, 2017). Last but not least, AR also enables firms to collect on consumers' behaviour which can be further analysed and turned into valuable information about customer preferences (Kumar et al., 2016).

Even though, the use of augmented reality contributes to successful results in various areas of a business, its implementation can lead to some challenges and risks. One of the challenges of adopting AR more widespread is that the technology is not interoperable yet, meaning that different AR contents are developed through different platforms and by different standards (Berryman, 2012).

Augmented reality can be and is applied to various industries, such as fashion, arts, sports, tourism, information services, such as libraries, or to medical industry (Berryman, 2012; Kumar et al., 2016). Further, Bonetti et al. (2018) found that the use of augmented reality can be extended also to the industry of retailing or gaming. However, also specific business areas, for instance e-commerce, marketing or manufacturing, can benefit from its implementation (Berryman, 2012; Katiyar et al., 2015). Porter & Heppelman (2017) found, that augmented reality can be utilized in other operational sections of a business, such as product development, logistics, sales and customer care.

2.1.3 Augmented reality in mobile marketing

After mobile marketing and augmented reality were introduced as separate topics, the next subchapter combines the two concepts and augmented reality will be approached from a marketing perspective. Therefore, firstly AR marketing will be defined and use cases will be introduced. Further, the process of designing mobile AR marketing content will be presented. Finally, the last paragraph of this subchapter will describe different forms of mobile augmented reality (MAR) that well-known brands are already utilizing.

Firstly, it is essential to introduce the term augmented reality marketing, that can be defined as follows: "AR marketing is a strategic concept that integrates digital information or objects into the subject's perception of the physical world, often in combination with other media, to expose, articulate, or demonstrate to consumer benefits to achieve organizational goals" (Rauschnabel et al., 2019, p.44). Augmented reality marketing can be utilized for a wide range of purposes to reach a firm's objectives as well as consumers can be targeted at different points of their customer journey (Bona et al., 2018; Rauschnabel et al., 2019). The goals of companies can vary between different outcomes such as promoting branded content, enhance purchases

to increase sales, supporting customers in their decision-making process or even providing an improved customer service (Rauschnabel et al., 2019). Further, AR can also be utilized for promoting a specific product or for experiential marketing (Forsey, 2020).

When it comes to designing the content, Scholz & Smith (2016) suggested that a successful AR campaign has to be developed in a form that enhances customer engagement, lets consumers interact with the brand as well as it creates remarkable experiences. Therefore, marketers should follow four steps when designing a marketing campaign with AR (Scholz & Smith, 2016). However, if the AR content is planned for mobile devices, marketers should not only focus on the characteristics of AR but they also should consider the aspects of mobile marketing (Rowles, 2017).

According to Rowles (2017), before setting any objectives for a MAR content or campaign, an evaluation has to be made. Marketers should analyse the customer journey and understand how mobile devices can be a part of it. Not only potential innovations and development has to be examined, but the user experience of already existing features on mobile devices has to be assessed. Moreover, also the competition and what kind of experiences it provides to consumers has to be considered. After analysing the current situation, marketers can proceed with the design process and plan the marketing content in detail (Rowles, 2017).

Firstly, the target group and the "communications objectives" have to be planned (Scholz & Smith, 2016, p.2). When choosing the audience, it has to be considered, to what extent do the targeted consumers accept the technology of augmented reality. Early adopters fit to more interactive AR campaigns, such as active print or packaging or geo-layer, as they are more willing to try out new applications and participate in the augmentation (Scholz & Smith, 2016). However, if the target group consists of individuals, in which the acceptance rate of new technologies is lower, the augmented content is better displayed through bogus windows or magic mirrors. The reason for that is, that the participation in the augmented reality experience in this case requires less technological knowledge from the users, so people may be more likely to take part if no additional effort is necessary for trying out the augmentation (Scholz &Smith, 2016). Moreover, also the aim of the communication is decided in the first step of designing the AR experience (Scholz & Smith, 2016). This goal is defined by marketers based on the needs of the business, such as raising "awareness for a new product, convey product knowledge, create emotional experiences, or cultivate communities and relationships" (Scholz & Smith, 2016, p.5). Further, by using the mobile channel, the purpose of the communication could also be enhancing online sales, increasing traffic on the website or optimizing user experience. Marketers also should consider whether they are will only use mobile AR content for reaching the defined objectives or they applying a multi-channel approach (Rowles, 2017). Multi-channel marketing means that multiple different channels are utilized for delivering a message to consumers (Rosenbloom, 2007). Finally, key performance indicators (KPIs) have to be defined in order to be able to measure if the objectives are achieved or not (Rowles, 2017).

After setting the main objectives, measurement tools and the target audience, the second stage is to design the AR content more specifically (Rowles, 2017; Scholz & Smith, 2016). Therefore, in this step the trigger that will start the augmentation by layering the AR content has to be established. In most of the cases users are needed to trigger the AR layer. Users can decide when and how often they activate the trigger and sometimes even where they do it (Scholz & Smith, 2016). In other cases, users do not have control over triggering the AR content. Marketers also have to take into consideration that the type of the trigger fits the campaign goals (Scholz & Smith, 2016). Scholz & Smith (2016) recommend letting users activate the trigger if the aim of the campaign is to transfer information to the customers about a product. However, when marketers aim to promote a product or a brand the AR content should be triggered without the control of users. (Scholz & Smith, 2016).

This decision stage is followed by the determination of what kind of content will be shown to the users and who can contribute to the content. Mostly, marketers limit the possibility for users to be able to change the AR layer and try to specify the final content that will be displayed to those who experience the augmentation (Scholz & Smith, 2016). A reason for that is, that if users are allowed to contribute, some of the content may harm the message, damage the brand and maybe even the values it stands for. Marketers should therefore be able to take control over the users who create content and the created AR layer itself. Moreover, marketers also should prepare a strategy, that helps to deal with critique and to react to negative or inappropriate content (Scholz & Smith, 2016).

Finally, the last step in designing the experience is to "establish how the AR layer will integrate with specific social and physical contexts" (Scholz & Smith, 2016, p.5). In this stage of the planning process marketers should decide in what kind of environment the AR layer can be triggered and what role the background and bypassers play within the context (Scholz & Smith, 2016). Given the previously defined goals of the communication and the customer experience marketers have to decide whether the content should be incorporated into a "surrounding physical context" or not (Scholz & Smith, 2016, p.6). In some cases, it is completely sufficient to put an AR layer over the packaging of a product while in other cases, the augmentation makes only sense if the physical environment, a private or a public space, is also utilized within the context. If the background plays a role in the experience, creators should give attention to all the details that can have an influence on the final outcome users encounter. Moreover, the available resources, such as budget, time and technical know-how also should be considered in the planning process (Scholz & Smith, 2016).

Figure 8 summarizes the above mentioned four steps of designing an AR campaign.

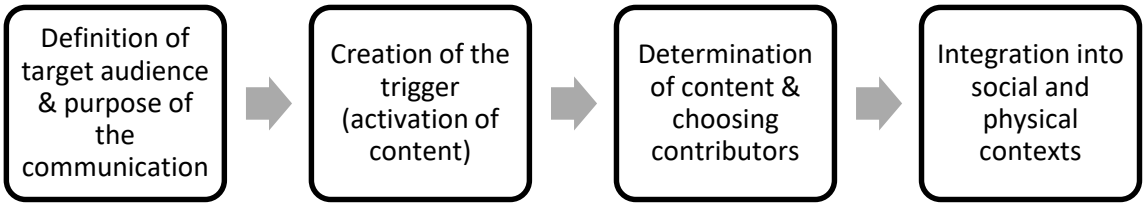


FIGURE 8 - DESIGNING AN AR CAMPAIGN (SCHOLZ & SMITH, 2016)

To conclude this subchapter, real-world examples will be given. Numerous companies from different industries are taking advantage of the AR technology and thereby create unique experiences for consumers. Various retail and cosmetics brands, have created virtual try ons. The Gucci app allows users to try different types of shoes via an overlay. By swiping left or right, the shoes can be changed to another model. L'Oréal and Sephora created applications in which different make up products can be tried via the overlay and mirror function. AR can also be utilized for showcasing other types of products, such as cars. Toyota created the Hybrid app in order to introduce one of its new car model to the consumers. The app not just allows to see the details of the car but it also gives insights into more technological aspects, such as how the hybrid technology works. Further, companies who are selling interior products can benefit from creating AR experiences. As it was already mentioned, IKEA Place, which supports consumers to put furniture virtually into a room, to see how it would fit, is one of them. Dulux also has created an app where different paints can be visualized via overlaying the colour on the wall. Finally, AR also can be used for other reasons then product presentations. Foot Locker created an in-store experience by a poster of Lebron James that served as an AR-marker that had to be scanned. If customers in the shop scanned the poster with their smartphones, it turned into a video of the basketball player. After Lebron James posted the shop experience himself on social media, the video went viral and created therefore a buzz for the brand (Gilliland, 2019).

2.1.4 Consumer responses to AR mobile marketing campaigns

To understand consumers' reaction to different marketing contents with AR, it is essential to reveal the factors that influence how users perceive different technologies. For this purpose, the technology acceptance model will be introduced, which is "the most influential and commonly employed theory for describing an individual's acceptance of information systems" (Lee et. al, 2003, p.752).

The technology acceptance model was developed by Davis (1986) and it is based on the theory of reasoned action. The model identifies two factors that influence the acceptance or rejection of a technology. The first variable is the perceived usefulness. Perceived usefulness (PU) refers to the extent to which an individual considers the use of a system improving job performance. The other determinant in the model is perceived ease of use (PEOU), that can be defined as the degree of being able to use a technology without making effort (Davis, 1989).

Figure 9 reveals the causal relationship between the above mentioned variables and all elements of the model (Davis, 1986).

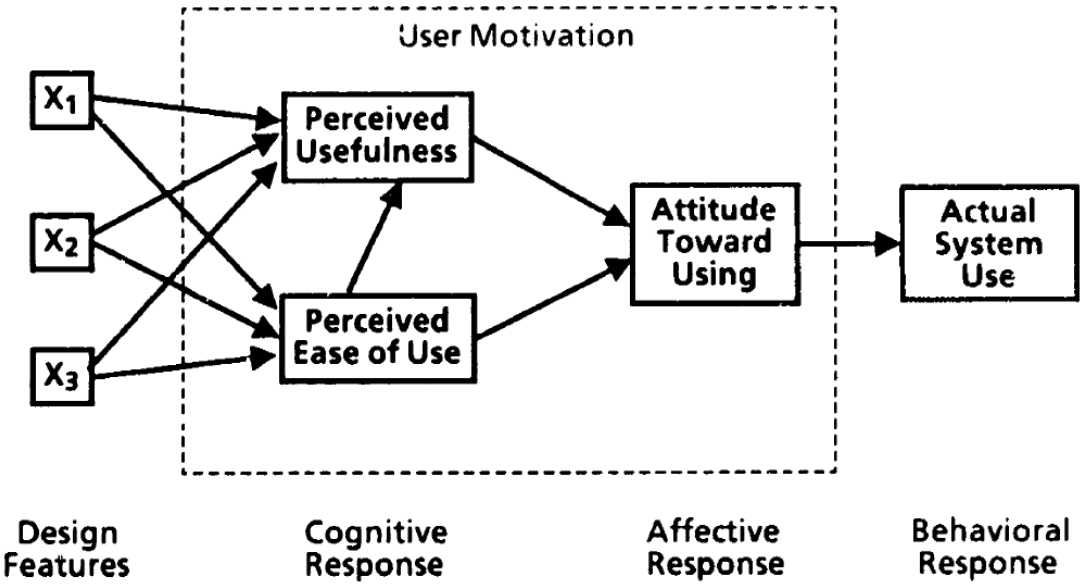


FIGURE 9 - TECHNOLOGY ACCEPTANCE MODEL (DAVIS, 1986)

The figure shows that whether an individual uses a technology depends on the person's overall attitude toward the system. The attitude towards the use is the result of two factors, which are the perceived usefulness and the perceived ease of use (Davis, 1986). The model also shows that "perceived ease of use is hypothesized to have a significant direct effect on perceived usefulness" (Davis, 1986, p.26). The reason for that is that a technology that is easy to be used contributes to an enhanced performance of the user. Finally, the last constituent of the model are the design characteristics that are external factors directly influencing PU and PEOU and therefore, are only indirect determinants of the attitude and the behaviour of an individual. Moreover, as the dependent relationship between perceived usefulness and perceived ease of use was revealed, external system features may have only an indirect effect on PU through influencing PEOU (Davis, 1986).

After Davis (1986) proposed TAM there was a lot of scientific research dealing with this topic. TAM is still widely used as it can be applied to any technology and for this reason, numerous recent studies are examining AR based on the constructs of TAM (Kim & Forsythe, 2008). Kim &

Forsythe (2008) examined the adoption of virtual try-on on websites. Similarly, Pantano et al. (2017) also published a study about virtual try-on but extended the model by considering the effect of AR characteristics, such as interactivity or quality of information. Further TAM-based research articles focused on other types of AR, such as mobile AR apps, or on different product categories. For instance, Rauschnabel et al. (2019) applied the IKEA app, that augments furniture, in the experiment, or McLean & Wilson (2019 included the Amazon app that emphasizes the scan function of AR. All of these studies confirmed the findings of Davis (Kim & Forsythe, 2008; McLean & Wilson, 2019; Pantano et al., 2019; Rauschnabel et al., 2019). However, there is no current research that compares a traditional app with the AR app of the same brand. Therefore, it can be hypothesized that:

H1: As compared to traditional apps, an AR app will increase ease of use.

H2: AR apps are perceived to be more useful than traditional apps.

Even though, TAM was a widely used tool to assess the acceptance of information systems, it was criticized by other researchers (Lee et al. 2003; Venkatesh & Bala, 2008). While the determinants of perceived ease of use were developed, it was not revealed which aspects lie behind perceived usefulness (Venkatesh & Davis, 2000). To refine the missing aspects in the model, TAM was expended by Venkatesh & Davis (2000), which was named TAM2 and later on Venkatesh & Bala (2008) developed further the model into TAM3 (Rese et al., 2016).

TAM2 proposes the determinants of perceived usefulness. Figure 10 displays the additional elements that influence perceived usefulness.

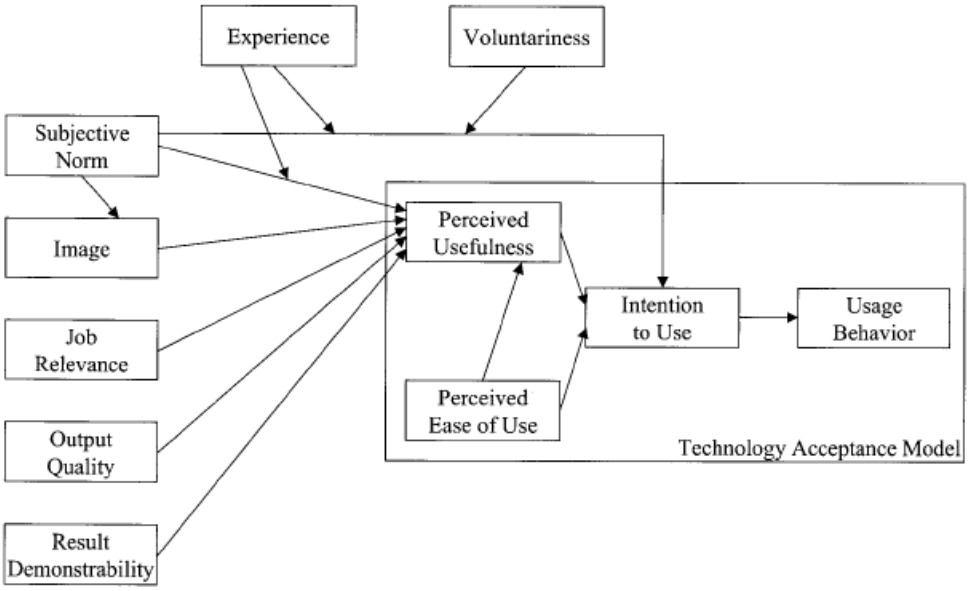


FIGURE 10 - TAM2 (VENKATESH & DAVIS, 2000)

On one hand, the extended model suggests three additional aspects within the term social influence processes, that contribute to an individual's decision to accept or reject a new technology through assessing its PU. These factors are: subjective norm, voluntariness and image. On the other hand, also cognitive instrumental processes, such as relevance of the job, result demonstrability as well as quality of output, are essential to consider for the model (Venkatesh & Davis, 2000). The following paragraphs explain the influencing factors of PU individually.

Subjective norm can be defined as the belief that an important person or a group of people whether or not approve or support to behave in a certain way (Venkatesh & Davis, 2000 cited in Fishbein and Ajzen, 1975). This indicates, that individuals' decision on choosing to use a new information system depends on the influential behaviour of other people, whose opinion is considered to be important. Therefore, it can be said that subjective norm has a positive effect on perceived usefulness. A further element of the extended TAM is voluntariness. Voluntariness means the degree of perceiving the acceptance of something non-obligatory (Venkatesh & Davis, 2000). Further, in the model it is also stated that voluntariness is only a moderating variable, as it was found that "in a computer usage context, the direct compliance-based effect of subjective norm on intention over and above perceived usefulness and perceived ease of use will occur in mandatory, but not voluntary, systems usage settings" (Venkatesh & Davis, 2000, p.188). The last element that is identified as a social influence, is the image. This external variable states the extent to which the adoption of a new technology improves an individual's social status. The model reveals that image is positively affected by social norms. The reason for that is, that if surrounding members of a group support the use of a new system and a person accepts its use, then the individual's image will be enhanced within the mentioned social group. Therefore, it was also found that image is another influencer on perceived usefulness (Venkatesh & Davis, 2000).

Further, another factor has to be examined that has a moderating effect on the whole model, and this is the experience (Venkatesh & Bala, 2008; Venkatesh & Davis, 2000). It was found, that over time the effect of subjective norm and its influence on perceived usefulness is diminishing. This can be explained by the fact that in the earlier stage of adoption an individual is less familiar and less confident with a system. Therefore, in the beginning, users are more influenced by others' belief about using a particular technology (Venkatesh & Davis, 2000). As users gain more knowledge about a system, "the normative influence subsides" (Venkatesh & Davis, 2000, p.190). Experience has the same effect when it comes to the relationship between subjective norm and perceived usefulness. Similarly, the effect of subjective norm on perceived usefulness is weakening with the passing of time (Venkatesh & Davis, 2000).

Moreover, as it was introduced earlier, perceived usefulness is dependent also on cognitive factors These variables indicate that the motivation to accept a new system comes from mental judgments made by an individual (Venkatesh, Davis, 2000). This can be described as a process

of matching "important work goals and the consequences of using a system" (Venkatesh & Davis, 2000, p.191). The first aspect that is part of the model is the relevance of the job, meaning a person's understanding on the appropriateness of a system in relation to the job. If a system seems to be helpful for the purpose of the job individuals will be willing to accept its use (Venkatesh & Davis, 2000). The next determinant of perceived usefulness is the output quality, which has similarly to job relevance a positive effect. Even though these aspects positively influence perceived usefulness, the judgmental process behind them differs. In contrast to job relevance, this variable takes into consideration whether an information technology and the features it has how well can perform or support completing a task. The difference lies between the perspective of the individual. In the case of job relevance, the judgement on the system is rather considered from an entire point of view regarding the usefulness of the system for the job as a whole, while during the assessment of output quality rather the attributes of the system and their performance are evaluated (Venkatesh & Davis, 2000). Finally, according to Venkatesh & Davis (2000), also result demonstrability is a determining factor of perceived usefulness. Result demonstrability shows the extent to which users are able to recognize the advantages of using a new information technology. Also this element of the model contributes to a positive influence on perceived usefulness, as individuals who can identify the values of a system will be more willing to use it (Venkatesh & Davis, 2000).

To summarize, the extended technology acceptance model, TAM2, provides the determinants of perceived usefulness, in which there are social influence processes as well as cognitive instrumental processes (Venkatesh & Davis, 2000). Moreover, as it was already mentioned, the technology acceptance model got further extended by Venkatesh & Bala (2008). TAM3 is a combination of TAM2 and the determinants of perceived ease of use that was elaborated by Venkatesh. The antecedents of perceived ease of use can be grouped into two categories: anchors and adjustment. The variables that are considered as anchors play an important role in the early phase of system adoption and influence perceived ease of use until a system is regarded as an innovation (Venkatesh & Bala, 2008). These factors are "computer self-efficacy, computer anxiety, computer playfulness" as well as perceptions of external control (Venkatesh & Bala, 2008, p.280). After users of a particular information system gain know-how on using it, the adjustment variables, "perceived enjoyment and objective usability" have to be examined (Venkatesh & Bala, 2008, p.286).

Moreover, Venkatesh & Bala (2008) suggested that the causal relationships identified in previous models will hold in TAM3. Also, it was also proposed that there is no crossover effect between the determinants of perceived usefulness and perceived ease of use, meaning that the antecedents of one variable does not influence the other one and vice versa (Venkatesh & Bala, 2008).

However, the technology acceptance model and its advanced versions are rather general and do not take a technology's unique attributes into consideration. Therefore, in marketing

contexts, two essential factors have to be more emphasized, namely the perceived enjoyment (PE) and the perceived informativeness (PI) (Rese et al., 2016). Even though perceived enjoyment is already a part of TAM3, when it comes to the acceptance of mobile augmented reality, according to recent studies, these two variables play an essential role in the adoption process (Pantano et al., 2017; Rese et al., 2016; Venkatesh & Bala, 2008). Perceived enjoyment can be defined as the degree to which an individual enjoys working with a technology regardless the outcome from the use (Venkatesh, 2000). Perceived informativeness in contrast is the extent to which a user finds the information provided by the specific technology qualitative (Rese et al., 2016).

The final part of this subchapter introduces the technology characteristics of augmented reality. Pantano et al. (2017) argued that it is also essential to measure additional variables that also play an important role in the consumer acceptance of AR due to its unique attributes. The following aspects should be considered as augmented reality's features: aesthetic quality, interactivity, response time and the quality of information (Pantano et al., 2017). Moreover, Javornik (2016) studied the effect of media characteristics on consumers' response to augmented reality. Also, other extant studies investigated the relationship between the use of AR technologies by consumers and AR's attributes, however some studies focused only on some aspects but did not assess all of the technology's characteristics (Pantano et al., 2017; Yim et al., 2017). For instance, Yim et al. (2017) focused on interactivity and vividness while McLean & Wilson (2019) assessed additionally to "AR interactivity and AR vividness" also novelty of AR (p.213).

As it was mentioned above augmented reality possesses various characteristics that contributes to consumers' response of this technology. Firstly, aesthetic quality should be mentioned, that refers to all visual and graphical features of an augmented reality experience. This aspect incorporates also the vividness and realism of an augmentation (Pantano et al., 2017). Vividness is "the ability of a technology to produce a sensorially rich mediated environment" (Steuer, 1992, p.19). A vivid content does not only refer to an appealing design but also the sound is considered under this term (McLean & Wilson, 2019). The next characteristic that has to be examined within the AR context is interactivity. Interactivity can be defined in two ways, as it can be viewed from two different perspectives (Yim et al., 2017). Firstly, it can be considered as a user perception that "involves an individual's subjective perceptions of interactivity" while from a technological point of view it can be defined as the degree to which a user is able to modify the content in real time (Downes & McMillan 2000 as cited in McLean & Wilson, p.212, 2019; Steuer, 1992; Yim et al., 2017). A further characteristic that should be studied is response time, that is speed of the system reacting to user request. An acceptable response time cannot be defined as it differs from one user to the other. Moreover, another aspect of augmented reality that has to be examined is the quality of information (Pantano et al., 2017). Under information quality attributes such as "availability, accessibility, completeness, accuracy and

adequacy" can be understood (Pantano et al., 2017, p.85). Finally, McLean and Wilson (2019) studied novelty also as an AR attribute. The term novelty can be defined as something new, however in the context of AR novelty does not specify the newness of technology itself but it "refers to the new, unique, personalized, novel content (stimuli) experienced each time through the AR display" (McLean & Wilson, 2019, p.213).

2.1.5 Interactivity and anticipated emotions

However, the study will explore also other concepts that likely influence behavioural intentions, that are not part of TAM, more specifically, the two constructs anticipated emotions and interactivity. The following paragraphs describe the above mentioned constructs as well as introduce further hypotheses of the thesis.

Research about future-oriented emotions, such as anticipated emotions, dates back to the 1990s and since then it is still a popular research topic (Baumgartner et al., 2008). Anticipated emotions can be defined as emotions that "are expected to be experienced in the future if certain events do or do not occur" (Baumgartner et al., 2008, p.685). Numerous studies examined the role of anticipated emotions and have found that besides the three determinants (attitude toward the behaviour, subjective norms, and perceived behavioural control), also anticipated emotions play an important role when it comes to behavioural intention. Therefore, this aspect should be considered when behavioural intention is intended to be measured (Kotabe et al., 2019). Current research already has dealt with the topic of anticipated emotions in connection with different mobile technologies as well as the adoption and usage of a product (Bettiga & Lambert, 2018; Verkijika, 2020). The study by Bettiga & Lambert (2018) concluded that positive anticipated emotions influence the attitude towards the use and thereby the intention to use very strongly. When it comes to AR, very little is known about anticipated emotions. Therefore, Hypothesis 3 focuses on positive anticipated emotions and is constructed as follows:

H3: AR apps trigger more positive anticipated emptions as compared to traditional apps.

As interactivity has been identified as one of the most important characteristics of AR, numerous articles have focused on this aspect and investigated its role on different attributes of TAM (Park & Yoo, 2020). McLean & Wilson (2019) have studied whether interactivity resulting from AR positively influence the perceived usefulness and perceived ease of use. Further, Yim et al. (2017) also examined if the enjoyment of the AR experience is positively affected by interactivity. In all three cases, it was confirmed, that interactivity has a significant positive influence on the previously mentioned elements of TAM (McLean & Wilson, 2019; Yim et al., 2017). Moreover, various studies explored the effect of interactivity through examining different types of augmented reality. For instance, Yim et al. (2017) created two websites, one with and one without AR, and compared the interactivity perceived by consumers. Other researchers,

McLean & Wilson (2019) or Qin et al. (2020) used branded apps, such as IKEA Place, ASOS, Amazon or RayBan in order to examine interactivity and its effect. Thus, Hypothesis 4 of this research can be formulated as follows:

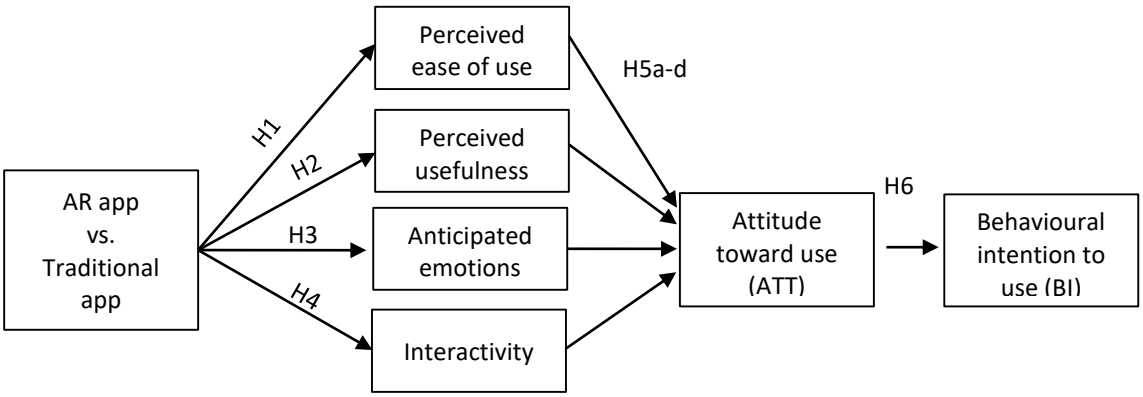
H4: In comparison to traditional apps, the users of AR apps experience a higher level of interactivity.

Finally, as TAM proposes and as described in the previous chapter, attitude towards use and subsequently behavioural intention to use are positively influenced by perceived ease of use and perceived usefulness (Davis, 1986; Rese et. al, 2016). As this research focuses on additional aspects besides perceived ease of use and perceived usefulness, Hypothesis 5 is formed as follows:

H5: (a) Perceived ease of use, (b) perceived usefulness, (c) anticipated emotions, and (d) interactivity increase the attitude towards the app.

H6.: Attitude towards the app positively influences behavioural intentions.

Figure 11 summarizes the research framework and the constructs that will be measured later on in this study.



Note. Experience is considered as a covariate.

FIGURE 11 - RESEARCH FRAMEWORK

2.2 Conclusion of literature review and summary of hypotheses

The previous subchapters highlighted the most important concepts and theories in order to be able to explore the effect of augmented reality in mobile marketing. Firstly, mobile marketing was introduced and it was defined how mobile marketing should be implemented into the IMC concept of a firm, as well as how a mobile marketing campaign should be designed. The next subchapter, augmented reality, described the topic from a technological point of view, such as how it works, what are its elements as well as which types do exist. After introducing the two key concepts, the third subchapter merged these, and presented AR as a mobile marketing tool and revealed the steps of designing a mobile augmented reality campaign. As the thesis deals with consumers' reaction to mobile marketing content with AR, it was essential to discuss the technology acceptance model as it identifies important constructs that influence the acceptance of a technology, in this case, augmented reality. In this part of the literature review the first two hypotheses, that will be tested later on in the research were already introduced. These are:

H1: As compared to traditional apps, an AR app will increase ease of use.

H2: AR apps are perceived to be more useful than traditional apps.

Finally, the last subchapter dealt with additional constructs, interactivity and anticipated emotions, and proposed further hypotheses of the research. These are formulated as follows.

H3: AR apps trigger more positive anticipated emptions as compared to traditional apps.

H4: In comparison to traditional apps, the users of AR apps experience a higher level of interactivity.

H5: (a) Perceived ease of use, (b) perceived usefulness, (c) anticipated emotions, and (d) interactivity increase the attitude towards the app.

H6: Attitude towards the app positively influences behavioural intentions.

The next chapter, methodology, describes in detail which research method will be applied throughout the study as well as the participants and the procedure of the data collection will be presented.

3 METHODOLOGY

This chapter of the thesis describes which research method was chosen to investigate consumers' reaction to marketing content with and without augmented reality and why this method was used. Further, the sample of the research will be introduced as well as the process of the data collection. Finally, it will be described how the collected data was analysed and which analysis methods were used.

3.1 Study design & participants

The empirical part of the study deals with the assessment of consumers' reaction to mobile marketing with and without AR. The research aims to examine the impact of augmented reality vs. traditional apps without AR on specific consumer reactions. The focus will be thereby on perceived ease of use, perceived usefulness, interactivity and anticipated emotions as dependent variables. During this examination, experience will be considered as a covariate. Within the quantitative research paradigm, an experimental (causal) design or also often called explanatory research was chosen in order reveal the causal relationships between the above mentioned variables. The data collection followed through an online survey. The decision of selecting a quantitative research method and especially conducting an online experiment can be supported by numerous reasons.

Firstly, as Bhattacherjee (2012) argues "experimental research, often considered to be the 'gold standard' in research designs, is one of the most rigorous of all research designs" (p.83). Therefore, experiments are often applied in social sciences when researchers aim to examine causal relationships between variables. Running an experiment also enables researchers to examine the effect of "a treatment on an outcome, controlling for all other factors" (Creswell, 2014, p.156). As this study intends to apply a specific treatment and test the potential causal relationship between variables, an experimental design was selected. Experimental research design is also known for its strong external validity, as it also allows the generalization of the results and application of the conclusions to the population (Bhattacherjee, 2012, Creswell, 2014). Further, causal research design provides also higher internal validity when compared to other research designs (Bhattacherjee, 2012).

Finally, also some of the recent studies, that are examining the impact of AR applied causal research design for the above mentioned reasons. The data was collected in most of the cases via questionnaires. For instance, the studies by Rese et. al (2016) investigating the acceptance of AR apps, Pantanto et al. (2017) examining the effect of AR on the online decision-making process or the research by Javornik (2016) testing the effect of AR on consumers' perception of media characteristics. Considering all the reasons mentioned above, the best way to assess augmented reality and its impact on dependent variables is the application of experimental design.

The current study employed a one factor, two level (AR app vs. traditional app) between subjects design. Respondents were acquired by the online panel Talkonlinepanel and received remuneration for their participation. The data collection period was from the 25th of February to the 13th of March and resulted in a sample of 304 participants. The experimental group consists of 150 participants and the survey for the control group was filled out by 154 participants. Both, the experimental as well as the control group is representative of the Austrian population with a maximum deviation of 5%

Figure 12 shows the distribution of the Austrian population with regard to gender, age and place of residency.

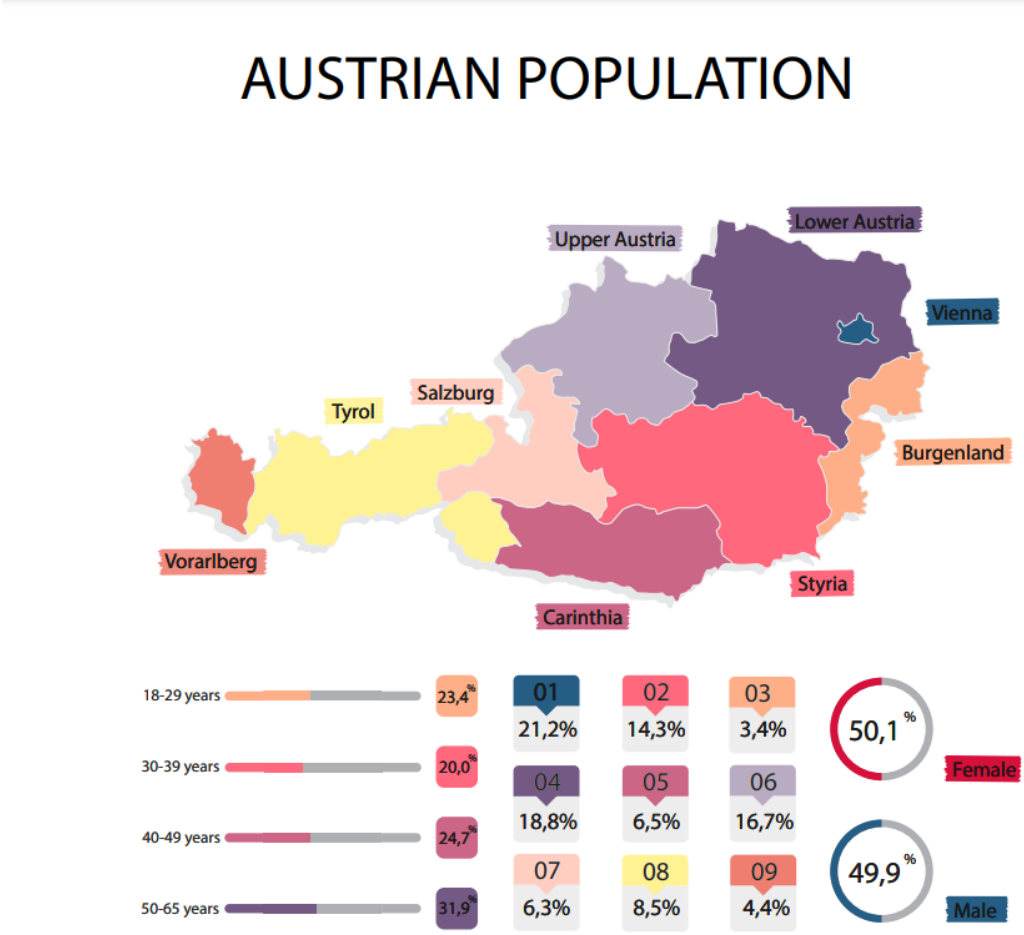


FIGURE 12 - AUSTRIAN POPULATION INFOGRAPHICS (TALK ONLINE PANEL, 2021)

As Figure 12 presents, the Austrian population can be divided by gender. The ratio of female to male residents is 50,1% to 49,9%. This adult population can be grouped into four age groups. The age group with the largest share is with people between 50-65 years old (31,9%) and in the group of 30-39 years old is the lowest share of people with 20%. As the map shows, Austria has nine federal states. Therefore, the population can also be grouped by place of residency. Vienna

hosts the most people in Austria, 21,2% of Austrians lives here. After Vienna, in Lower Austria, in Upper Austria and in Styria reside the most of the population. In the rest of the federal states only between 3,4% and 8,5% of the Austrian inhabitants can be found.

Table 1 compares the population of Austria with the samples of the experimental and the control group. As previously mentioned, the sample might deviate from the actual population by a maximum of 5%.

		Actual values	Experimental group	Control group
Gender	Men	49,90%	53,30%	48,70%
	Women	50,10%	46,70%	50,65%
	Prefers not to answer	n/a	n/a	0,65%
Age group	18-29 years	23,40%	19,30%	21,40%
	30-39 years	20%	22,70%	21,40%
	40-49 years	24,70%	20%	20,10%
	50-65 years	31,90%	38%	37%

TABLE 1 - SAMPLE OF THE EXPERIMENT

3.2 Procedure

As it was mentioned earlier, an online experiment was conducted test the conceptual research framework. Therefore, this section of the research presents the structure of the experiment, the items measured, and describes the process of pre-test and data collection.

3.2.1 Experiment structure & item measurement

As the study employs an experiment in order to detect causal relationships, upon starting the experiment participants were randomly allocated either into the experimental or to the control group. The experiment was structured for both of the groups in the same way except, the experimental group was treated by a different stimulus than the control group. This will be explained in the next paragraph.

The experiment can be split into four parts. In the first part, participants were asked to rate IKEA as a brand and watch a video about one of IKEA's mobile application, which represented the stimulus. The videos were provided by my thesis supervisor, Mrs. Garaus, who supported me in the creation process of the videos. In the case of the experimental group, a video was shown about the IKEA Place app. This app takes advantage of the benefits provided by augmented reality. Participants were exposed by the treatment of the experiment, namely by augmented reality, in the video. The video was 1:27 minutes long and showed an armchair that was placed into a room with the help of augmented reality. With this feature it can be seen whether a specific product would fit at a chosen point of a room and how it would look like. The video also presented further features of the app, such as showing more details, for instance price, colour

options or size, about the item or the browsing option of further product categories within the app. Figure 13 displays some screenshots from the video about the IKEA Place app presented to the experimental group.

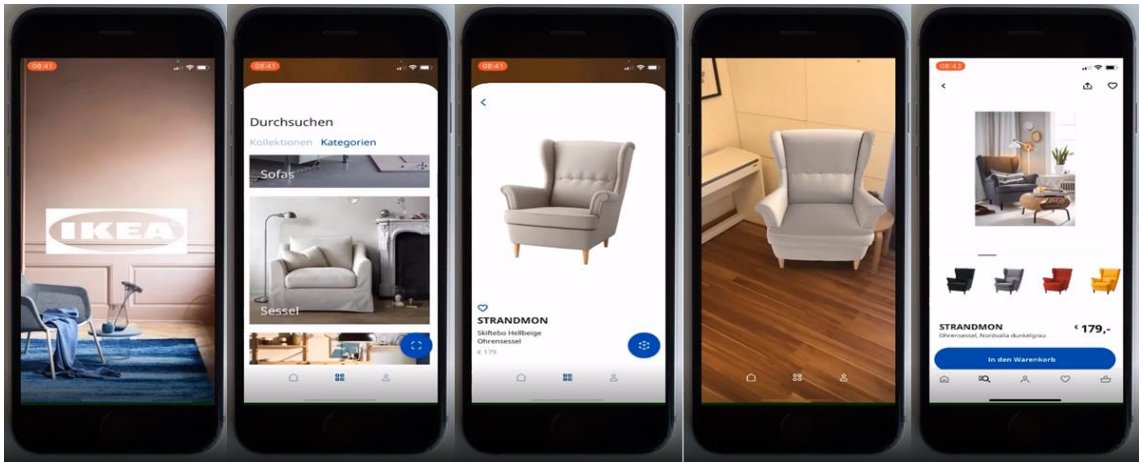


FIGURE 13 - SCREENSHOTS OF THE VIDEO ABOUT THE IKEA PLACE APP

In contrast, for participants of the control group the traditional app of IKEA was shown in the video. This video took 0:49 minutes to watch and it presented how the product page of an item looks like and which details can be seen about a product on this page. In order to avoid the influence of the shown content, for both of the groups the same armchair in the same colour was shown. Figure 14 showcases how the IKEA app was displayed to the control group of the experiment.

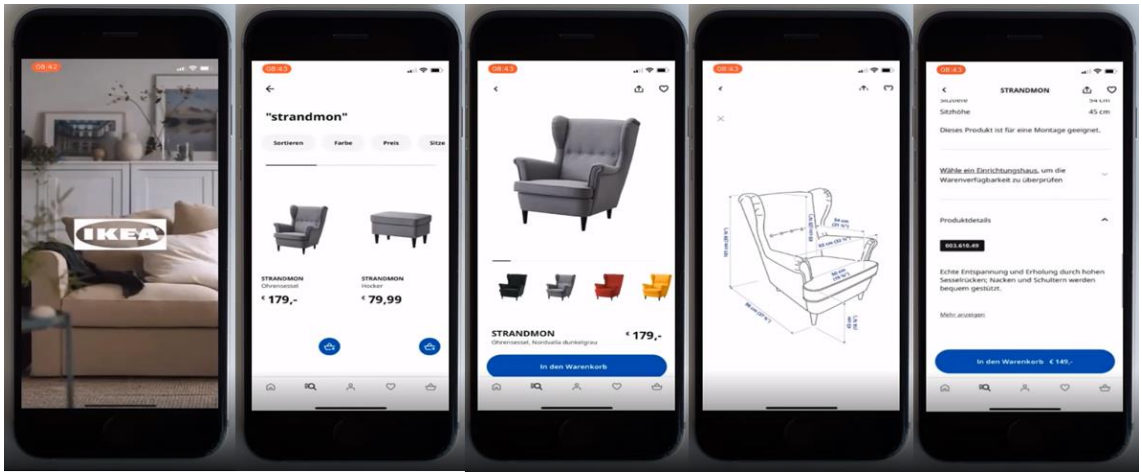


FIGURE 14 - SCREENSHOTS OF THE VIDEO ABOUT THE IKEA APP

After watching the video, participants had to answer three questions regarding the type of product presentation, whether the content shown was displayed with or without augmented reality. After that, questions about the app shown in the video had to be answered. Each question consisted of four to five statements about a specific attribute of the app. The measured attributes were: perceived ease of use, perceived usefulness, time convenience, hedonic

motives and interactivity. Moreover, also anticipated emotions were investigated and participants had to answer to what extent they would experience emotions, such as excitement, enjoyment, happiness, satisfaction, surprise, curiosity or delight, if they would use the application. The last questions of this section covered participants' attitude towards use and their behavioural intention to use. This section also included an attention check in order to avoid participants who do not focus on the questions. If this question was not answered correctly, the participant was lead to the end of the experiment and therefore was disqualified from the sample. As Shamon & Berning (2019) argue, attention checks are an important tool for filtering out participants who pay less attention to the instructions and questions within a survey. Thereby, also a higher rate of answer quality can be ensured that contributes to again a higher measurement quality (Shamon & Berning, 2019).

As it was mentioned above, several constructs were measured throughout the experiment. These are mainly part of the technology acceptance model (Davis, 1986). The measurement scale and questions for these items (perceived ease of use, perceived usefulness, attitude towards the app and behavioural intention) were adapted from the study by Rese et al. (2017). All of the items were measured on a 7 point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Moreover, also positive anticipated emotions were assessed that were established by Bagozzi and Pieters (1998). However, these elements were slightly adjusted and complemented with further emotions. Originally, it was examined how people would feel if they would use a product in the next six months and thereby it was covered whether they would be excited, delighted, happy, glad, satisfied or content (Bagozzi & Pieters, 1998). For this study, due to the innovative nature of AR, it was additionally examined whether people would be surprised or curious. This measurement was also done by a 7 point Likert scale, similarly to the other items of the research. Finally, the last item that was investigated is interactivity. As described in a previous chapter of the thesis, Yim et al. (2017) and also McLean and Wilson (2019) studied interactivity in connection with AR. Therefore, the measurement for this item was adapted from Yim et al. (2017) and again, also for these questions a 7 point Likert scale was applied.

In the third section of the experiment questions focused on the previous experience of the participants, whether they have used the shown app in the past or not and whether they made a purchase through the app. Finally, participants were asked about their purchase behaviour towards IKEA.

The final section of the experiment covered the demographics of the participants and asked their age, gender and education. In this part participants also had the possibility to leave a comment and share their opinion about the experiment.

3.2.2 Pre-test

Before distributing the online experiment, a pre-test was conducted in order to assess whether the questions and the wording is understandable for participants, its length is optimal or possibly detect mistakes within the survey. Approximately 10-15 volunteers were asked to fill out the survey and give feedback on the above mentioned aspects.

After completing the online experiment most of the participants confirmed, that the questions are understandable and only minor changes were made regarding the wording and formatting of the online experiment. Most of the comments that mentioned a problem with the formatting or structure were only due to the pre-test mode. Therefore, no further aspect had to be adapted.

3.2.3 Distribution of the online experiment

The online experiment was created with soSci survey which is a platform to create online surveys. The online experiment was created in German and the completion time was approximately 5-6 minutes.

As the main aim of the thesis is to increase the validity of the results from the hypothesis testing as well as to generalize the findings, it was essential to assess non-student samples. Also, the sample should be representative of Austria's population and contain at least 300 participants. This could only be assured by acquiring data from a panel survey conducted in this case, by Talk online panel, a market research company. However, this method of data collection is associated with costs, so the expenses were covered by the Merit Scholarship of MODUL University Vienna. The cost-per-incidence of the research amounted to € 2,70 and this sum also included the incentive for the participants.

After the creation of the online experiment only the access link had to be provided to Talk online panel and the participants were recruited by the company. Talk online panel ensured that the sample is representative of Austria's population. Firstly, a further pre-test was made with 20 participants in order to examine whether there are further adjustments needed. As some of the answers in the first part of the experiment were not as expected, questions regarding AR, the treatment in the experiment, were adapted. The final version and all questions of the online experiment can be found in Appendix 1 in German and in Appendix 2 in English.

The data collection started on the 25th of February and the planned 300 completes were reached within 14 days. Therefore, the experiment was closed on the 13th of March. In total, 362 participants took part in the online experiment. However, not all of the completes will be analysed throughout the research. This will be discussed in the next subchapter under the topic of data preparation.

3.3 Analysis & results

This section of the thesis describes the process of preparing the data for the analysis as well as the tools that will be used for the hypothesis testing.

3.3.1 Data preparation

As it was already mentioned, even though a high-quality data was obtained from the panel company, not all completes could be considered for further analysis. It was previously stated, that the after the first 20 participants completed the online experiment, an adaptation had to be made. Therefore, these participants were not considered later on in the research. Further, participants, who did not fully finish the experiment were also eliminated as well as the participants, who made a mistake entering their age and thereby not fitting into the sample anymore. Finally, Talk online panel recommended to not include the last 14 completes, as these would distort the quota and the sample would not be representative of Austria anymore. Therefore, 304 completes were eligible to be considered in the data analysis.

After eliminating the above mentioned completes, further variables were created within the dataset. A new, numerical group variable was created for both the experimental and the control group. All participants of the experimental group were allocated to group '1,' and everyone from the control group was assigned to '0'.

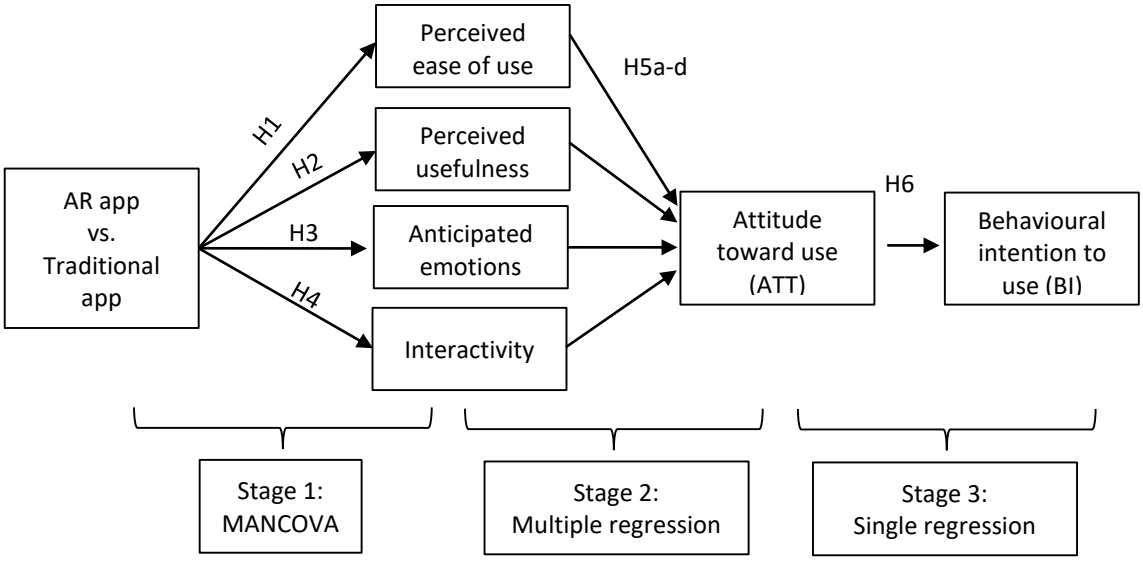
3.3.2 Data analysis

The data was analysed with the help of SPSS, which is a statistical software that enables conducting a wide range of statistical tests. These tests contribute then to being able to maintain or reject the hypotheses of this study. The tests will be carried out in three stages.

After assessing the scale reliabilities, conducting the manipulation check and looking at the assumptions of the chosen testing methods are not violated, in the first stage of the analysis, a test will be run in order to assess the effect of augmented reality apps on specific aspects in comparison with traditional apps. For that, a MANCOVA, a multivariate analysis of covariance will be performed. The dependent variables of the MANCOVA are: perceived ease of use, perceived usefulness, anticipated emotions and interactivity. The group variable (experimental or control group) is considered as the independent variable. As covariates the attitude towards the brand, the experience whether one has already used the IKEA app or not, the experience of using the IKEA app for a purchase in the past, and the fact whether one has made a purchase at IKEA in the last five years or not were measured. Further, in the second stage, H5 a-d will be answered by conducting a multiple regression analysis. Finally, for investigating H6, namely whether the attitude towards the app positively influences behavioural intention, a regression analysis will be estimated.

4 RESULTS

This chapter of the thesis deals with the outcomes resulting from the statistical tests. As it was previously described, the analysis will be divided into three stages. This is presented in Figure 15.



Note. Experience is considered as a covariate.

FIGURE 15 - STAGES OF HYPOTHESIS TESTING

In the first stage of the analysis a MANCOVA will be conducted in order to detect the influence of AR on specific aspects perceived by consumers whereby experience will be considered as a covariate. This will be followed by a multiple regression analysis where the effect of the four variables from the first stage on the attitude towards use will be investigated. The last stage includes a regression analysis which tests whether attitude towards use positively influences behavioural intention. However, prior to conducting the mentioned statistical tests, firstly, the reliability of the scales will be examined as well as a manipulation check will be conducted.

4.1 Results

4.1.1 Scale reliabilities & manipulation check

The scale reliabilities have to be assessed in order to ensure the consistency of the items measured. Therefore, for each construct, a reliability analysis was conducted. Table 2 summarizes the results of the reliability analysis as well as lists all of the items measuring each construct.

Construct & items measuring the construct	Cronbach's Alpha if item deleted	Cronbach's Alpha
Brand attitude before		**0.945**
Attractive/unattraction	0.931	
Good/bad	0.939	
Pleasant/unpleasant	0.930	
Advantageous/disadvantageous	0.935	
Likeable/unlikeable	0.926	
Perceived ease of use		**0.953**
I think the IKEA app is very easy to use.	0.933	
The IKEA app looks intuitive to use.	0.952	
It looks easy to learn how to use the IKEA app.	0.931	
Handling the scan function and its elements looks easy.	0.939	
Perceived usefulness		**0.924**
For me, the IKEA app has great value.	0.927	
The IKEA app provides beautiful interior ideas.	0.897	
The IKEA app is very inspiring in terms of interior design ideas.	0.883	
The IKEA app is perfect for keeping the overview of the furniture.	0.897	
Interactivity		**0.939**
If I would use this app, I would…		
…have a lot of control over my product choice.	0.919	
…the feeling of being able to choose what I wanted to see.	0.926	
…the feeling that the app is reacting to my inputs.	0.922	
…I would communicate with the content.	0.936	
…the feeling that the content is interacting with me.	0.924	
Anticipated emotions		**0.944**
Excitement	0.940	
Enjoyment	0.930	
Happiness	0.936	
Satisfaction	0.931	
Surprise	0.940	
Curiosity	0.939	
Delight	0.927	

Attitude towards use		**0.959**
I am positive about the IKEA app.	0.947	
The IKEA app is so interesting that you just want to learn more about it.	0.953	
It just makes sense to use the IKEA app.	0.945	
The use of the IKEA app is a good idea.	0.946	
Other people should also use the IKEA app.	0.954	
Behavioural intention		**0.967**
If I were to buy furniture in the future, I would...		
...download or use the IKEA app immediately.	0.950	
...give the IKEA app priority over the website.	0.960	
...give the IKEA app priority over the websites of other providers.	0.958	
I will recommend using the IKEA app to my friends.	0.962	
I will use the IKEA app regularly in the future.	0.959	

TABLE 2 - RELIABILITY ANALYSIS

The results of the analysis indicate that all of the constructs are reliable as for each construct the Cronbach's Alpha is > 0.8. Further, not only the values of Cronbach's Alpha were examined but also the values of "Corrected Item-Total Correlation" as well as "Cronbach's Alpha if item Deleted". These statistics show whether the specific variable positively influences the construct as a whole or not and whether it should be deleted or not. In the case of the "Corrected Item-Total Correlation", each value should be > 0.3. This statement is true for all of the variables in each construct. When it comes to the results of "Cronbach's Alpha if item Deleted", the value of each variable has to be compared to the overall Cronbach's Alpha value. If all of the values are smaller than the overall Cronbach's Alpha, it can be said that each item contributes to the reliability of the construct. Only in the case of perceived usefulness can an item be detected that's deletion would increase Cronbach's Alpha. However, as the overall reliability of this construct is good (0.924) and deleting this item would not considerably increase the reliability (0.927), it was decided to leave this variable in the construct. Thus, it can be concluded that each construct indicates good reliability and that no adaptations are needed regarding the constructs of the research.

As a next step, also a manipulation check was run with the help of crosstabs in order to be able to assess the effectiveness of the manipulation of the experiment. The results should reveal whether the participants recognized the circumstances they were exposed. In this study the experimental group was shown a video featuring the AR app of IKEA and the control group had to watch a video about the traditional app of IKEA. After watching the video, both of the groups were asked the following questions:

- Was it possible to virtually project a piece of furniture to any place in the apartment by the use of a special app (a hologram)?
- Was a room scanned with the mobile phone in the video in order to virtually place a piece of furniture in this room?
- Was augmented reality part of the video shown earlier?

These questions had to be asked either by yes or no. For the manipulation to be successful, the above mentioned questions had to be answered correctly by participants of both of the groups. For instance, participants of the experimental group had to answer all three questions by yes. To examine the effectiveness of the manipulation, a Chi-Square test had to be conducted for each question. The cross-tab analysis for the first question revealed that 94.67 % of the experimental group correctly answered that a piece of furniture could be virtually projected anywhere within a room. Within the control group almost 60 % of participants could not answer this question correctly and also answered by yes, however this was not the case as augmented reality was not part of their video. However, the results of the Chi-Square test still indicate a successful manipulation check, as $X^2(1) = 53.73$, $p < .001$, and thus statistically significant.

The second check's outcome is also significant, as $X^2(1) = 60.79$, $p < .001$. Overall, the results of the question asking if a room was scanned by a mobile phone, improved. 88,67 % of the experimental group recognized that a room was scanned in order to virtually place a piece of furniture and more than 50% of the participants in the control group stated correctly that in their case no room in the video was scanned.

Finally, the last question of the manipulation check explicitly directed the question at participants whether AR was part of the video shown or not. The outcome of the 2x2 cross-tab analysis shows, that again, within the experimental group almost all participants (96,62 %) answered correctly that AR was part of the video presented to them. In contrast, again, slightly more than the half (51.95 %) of the control group stated incorrectly that AR was part also of their video, while the control group was not exposed to any AR stimulus. The Chi-Square test in this case resulted in $X^2(1) = 77.98$, $p < .001$, again statistically significant, indicating, that the manipulation check worked.

To sum up, in the case of all three questions the p-value is < 0.001, that indicates that overall, the manipulation check was successful. Therefore, the research can be continued by the hypotheses testing.

4.1.2 Hypotheses testing

In the first stage of the hypothesis testing a multivariate test will be carried out in order to be test H1, H2, H3 and H4. However, before conducting the test, the assumptions for a MANCOVA have to be assessed. For this purpose, Box's test of the assumption of equality of covariance

matrices has to be considered. The results of Box's test are not significant (p = 0.149), therefore homogeneity can be assumed and it can be pursued with the test.

The overall results of MANCOVA implicate that there is a significant difference between the two groups (AR app vs. traditional app) regarding perceived ease of, use perceived usefulness, anticipated emotions and interactivity as Pillai's trace = 0.041, F (4, 295) = 3.160, p = 0.015. However, the Partial Eta Squared (η2 = 0.041) reveals only a small size effect.

Looking at the tests of between-subjects effects it can be separately reported in which aspects there is a significant difference between the experimental (AR app) and the control group (traditional app).

Starting with perceived ease of use, it can be said that the outcome of the between-subjects test is not significant, as F (1, 298) = 1.06, p = 0.304, η2 = 0.004. Therefore, **H1:** As compared to traditional apps, an AR app will increase ease of use, has to be rejected. Also the mean values of perceived ease of use support these results differing only slightly from eachother: $M_{PEUO=Ex}$=5.195 vs $M_{PEUO=Co}$=5.023 (see Figure 16).

The between-subjects test for the next variable indicates, that when it comes to perceived usefulness, there is a significant difference (F (1, 298) = 6.23, p = 0.013, η2 = 0.020) between the two groups. When looking at the mean values of the experimental and the control group it can be noticed that the mean value of the experimental group is higher than of the control group ($M_{Pu=Ex}$=4.958 vs $M_{Pu=Co}$=4.562). This supports **H2**, so it can be concluded that AR apps are perceived to be more useful in comparison to traditional apps.

Moreover, continuing the observation on anticipated emotions, the test result reveals a significant difference (F (1, 298) = 10.32, p = 0.001, η2 = 0.033). To be able test the postulated direction of the effect, again the mean values have to be assessed. Also in this case, the results show, that the mean for the experimental group is higher, meaning, that AR apps trigger more positive anticipated emptions as compared to traditional apps. Therefore, also **H3** can be maintained.

Finally, in the case of interactivity, again, a significant difference can be detected as the between-subjects test resulted in F (1, 298) = 10.10, p = 0.002, η2 = 0.033. Observing the mean values of both of the groups imply, that participants of the experimental group considered the AR app to be more interactive than the traditional app without any AR features ($M_{IN=Ex}$=4.505 vs $M_{IN=Co}$=4.036). Thus, also **H4** can be retained and it can be concluded that in comparison to traditional apps, the users of AR apps experience a higher level of interactivity (see Figure 16).

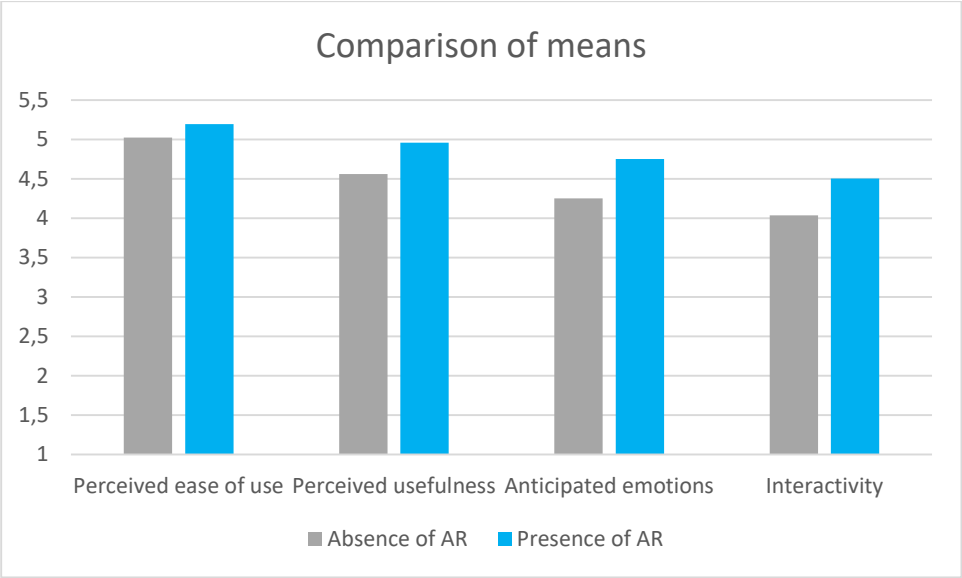


FIGURE 16 - COMPARISON OF MEANS

To summarize, it can be said that except of one construct, perceived ease of use, in each aspect the AR app was perceived to be more useful, more interactive and more positive emotions were connected with it when compared to the traditional app. This is also highlighted in Figure 16, as it can be well seen, that the mean values for all four aspects are higher rated by the experimental group than in the control group. With the between-subjects test also the effect size can be presented. Out of the three variables, anticipated emotions and interactivity have the largest effect size in both of the cases with a Partial Eta Squared $\eta 2 = 0.033$, while for perceived usefulness $\eta 2 = 0.02$ can be reported.

However, as it was previously mentioned, experience was considered as a covariate in this study, therefore, also the results on the covariates have to be mentioned. As recent studies also reported, such as the one by Yim et al. (2017), experience might influence the previously detected effects of AR on the dependent variables.

For examining the effect of experience, a set of questions were directed at participants regarding their experience towards the brand of IKEA and their app use. These questions were formulated as follows:

- Have you already used the app that was shown previously in the video?
- Have you ever made a product purchase from IKEA through the app that was shown previously in the video?
- Have you made a product purchase from IKEA in the last five years?

The first two variables measured experience from the point of view of the app and asked participants both in the experimental as well as in the control group whether they have used the IKEA app shown in the video shown and if they made a purchase from IKEA through that

app. The test results were in both of the cases not significant as Pillai's trace = 0.009, F (4, 295) = 0.663, p = 0.618 and Pillai's trace = 0.010, F (4, 295) = 0.735, p = 0.568 respectively.

The last question measuring experience dealt with the purchase behaviour of the last five years. The analysis resulted in a Pillai's trace = 0.005, F (4, 295) = 0.397, p = 0.811. As the p-value is > 0.05, the outcome is not significant. Therefore, it can be concluded that the significance level is not significant for all of the three covariates, experience, as a covariate, does not have a significant impact.

After the examination of the group differences on the four constructs, the next stage of the analysis deals with the assessment of their effect on the attitude towards the app. For this purpose, a multiple regression analysis was applied. The overall result of the regression is significant, as $p < 0.001$. This means, that in general, all four variables, perceived ease of use, perceived usefulness, anticipated emotions and interactivity have an effect on the attitude towards the app and the regression fits the data well. Looking at the adjusted R^2 in the model summary, which is also a useful indicator whether the regression model fits the data, it can be observed that the adjusted $R^2 = 0.833$. This is considered a relatively good value, therefore, it can be stated again, that the data is a good fit for the regression and it can be continued with the analysis.

In the coefficients table, each variable is reported separately and it can be assessed whether a single variable influences the attitude towards the app. In the case of perceived ease of use the test resulted in a p-value of 0.048, that is a significant outcome. Observing the unstandardized coefficients B value, it can be stated whether perceived ease of use or any other variable positively or negatively influences the attitude. For perceived ease of use, B = 0.081, a positive value, which implies that it increases the attitude towards the app. Therefore, **H5(a)** can be retained. The outcome for rest of the variables, perceived usefulness, interactivity and anticipated emotions, is $p < 0.001$, meaning that also all of these variables have a significant effect on the attitude towards the app. Also the unstandardized coefficients B has a positive result in each case implying that all three variables have a positive effect, namely increasing the attitude. Thus, it can be stated that not only perceived ease of use increases the attitude towards the app, but also perceived usefulness, interactivity and anticipated emotions. **H5(b)**, **H5(c)**, and **H5(d)** can therefore also be maintained (see Table 3).

Independent variables	Unstandardized coefficients		Standardized coefficients	Significance
	B	Std. Error	Beta	
Perceived ease of use	0.081	0.041	0.069	0.048
Perceived usefulness	0.265	0.053	0.238	0.000
Interactivity	0.503	0.048	0.456	0.000
Anticipated emotions	0.276	0.052	0.237	0.000

TABLE 3 - COEFFICIENTS TABLE OF THE MULTIPLE REGRESSION

Table 3 summarizes the results of the coefficients table of the multiple regression the was conducted. Last but not least, examining the standardized coefficients beta results, it can be highlighted that interactivity has the largest influence on the attitude (β_{IN} = 0.456), followed by Perceived usefulness and anticipated emotions influence attitude to a similar extent (β_{PU} = 0.238, β_{AE} = 0.237), while perceived ease of use having the weakest influence (β_{PEOU} = 0.069).

The last stage of the data analysis consists of the examination of attitude's effect on behavioural intentions. This will be done by a single regression analysis. Again, firstly it has to be checked whether the data fits the model by reviewing the adjusted R^2 and the outcome in the ANOVA table. As the adjusted R^2 = 0.816 and $p < 0.001$, it can be concluded that the data fits the regression very well. Finally, looking at the coefficients table, a p-value < 0.001 and an unstandardized coefficients B = 0.976 suggest that attitude towards the app has a positive, significant effect on behavioural intentions. Therefore, also **H6** can be accepted.

4.1.3 Additional insights

Further, as the focus of the thesis is to reveal consumers' reaction to augmented reality, further interesting insights can be revealed by conducting group tests within the experimental group that was treated with the AR function by the IKEA Place app. As it was already mentioned in the previous chapter, participants of the online experiment were asked to complete questions regarding their demographics, such as gender, age or education. Moreover, also some questions were directed at their consumer behaviour, asking whether participants have used the IKEA app, whether they made a purchase at IKEA in the last five years and if yes, which purchase channel they regularly use. Testing for group differences may suggest further information on consumer behaviour that can be a valuable information for managerial implications or even for further research. Finally, in the last section of the survey, participants of the online experiment were also asked whether they would use a similar app before buying a product. The analysis will consist of two parts. Firstly, a further group test will be conducted between the experimental group and the control group to detect possible differences. After that, the four age groups of the experimental group will be investigated in order to be able to observe further differences.

As previously described, the assessment will start with testing whether there is a difference in perceived ease of use, perceived usefulness, anticipated emotions or interactivity between the age groups confronted with the AR app of IKEA. The four age groups are the following:

- Group 1: 18-29 years
- Group 2: 30-39 years
- Group 3: 40-49 years
- Group 4: 50-65 years

Before deciding on conducting a parametric or non-parametric test, it has to be analysed if normal distribution is assumed. For this purpose, a One-sample Kolmogorov-Smirnov test has to be run. In the case of perceived ease of use and perceived usefulness is the assumption of normal distribution violated, as in one of the age groups $p < 0.05$. Therefore, the non-parametric Kruskall-Wallis H test has to be conducted. In contrast, both for anticipated emotions and interactivity the data is normally distributed, thus an ANOVA can be applied.

Starting with the Kruskall-Wallis H test, in the case of perceived ease of use, no significant difference between the age groups ($p = 0.337$) can be detected. However, when it comes to perceived usefulness, the results report a significant difference, as $p = 0.008$. By running pairwise Mann-Whitney U tests as a post hoc, it also can be reported between which age groups there is a significant difference. After the Bonferroni correction ($0.05/6 = 0.0083$) in two cases there can be a significant difference reported. The age group of 30-39-year-old participants significantly differs from the group of people with 18-29 years as well as from 50-65 years. In general, it can be stated, that people of 30-39 years find the AR app the most useful with the highest mean ($\bar{x}_{PU} = 5.735$) among all age groups. When it comes to anticipated emotions and interactivity, an ANOVA has to be run in order to be able to observe the differences. However, the assumption of homogeneity has to be met before the test is conducted. The outcome of the test of homogeneity is $p > 0.05$, therefore the assumption is met. The outcome of the test for anticipated emotions is $p = 0.033$. Thus, different age groups experience different emotions when using the AR app. Again, to define among which groups there is a significant difference a post hoc test has to be conducted. For this purpose, a Scheffé test will be applied as the group sizes are unequal as well as this test is robust against a Type I error. The results imply that again, the 30-39 year-old participants differ mostly from the other group, as there is a difference between them and the group with the oldest participants ($p = 0.039$). Between the rest of the groups no significant difference could be detected. Looking at the means it also can be stated that the age group of 30-39 years old participants have the most positive emotions towards the use of the app ($\bar{x}_{AE} = 5.126$). However, in the case of interactivity the ANOVA was statistically not significant. Therefore, no difference between the age groups can be detected.

Moreover, also the purchase behaviour might play a role with regard to the fact how the AR app is perceived in terms of its ease of use, usefulness, interactivity or expected emotions, as the

preferred purchase channel differs among participants. Similarly to the age groups, participants can be divided into four groups based on where they usually make their purchase at IKEA. The groups are as follows:

- Group 1: At an IKEA store
- Group 2: Online with home delivery
- Group 3: Online with pick-up (click & collect)
- Group 4: Varying on the situation

Before the examination, it can be observed that the largest ratio in the experimental group, 118 participants, almost 80% of the sample, mainly choose to visit an IKEA store and make their purchase directly there. In contrast, only ten participants stated that they normally order the items online with the home delivery option and barely 2% of the participants prefer the click & collect option. The rest of the group, approximately 12%, favours different ways of purchasing a product, depending on the situation.

Also in this case, firstly the distribution of the data has to be observed in all four aspects. The outcome of the One-sample Kolmogorov-Smirnov test concludes that the data is not normally distributed, as in each case at least one of the groups violates the assumption of normal distribution ($p < 0.05$). Thus, the analysis has to be proceeded with conducting Kruskall-Wallis H tests. The results are not significant at the 5% α-level, so it can be concluded that participants with different purchase behaviour do not perceive the IKEA Place app differently from each other.

Finally, after detecting some differences between the different consumer groups, the last section of the chapter deals with the examination of usage intentions of similar apps. For this purpose, participants of the online experiment had to answer the following question: Would you use a similar app before buying a product? The answer yes was coded with 1, and no was transformed into the value of 2 in SPSS. The non-parametric Mann-Whitney U tests outcome is not significant as $p = 0.334$, indicating that there is no significant difference between the experimental and control group regarding the willingness of using a similar app to the one shown in the video. However, when looking at the means of both of the groups it can be observed that both of the groups would use a similar app before purchasing a product. Table 4 sums up the frequencies as well as the means of both groups of the online experiment.

Would you use a similar app before buying a product?		Experimental group (AR app)	Control group (Traditional app)
Frequency (in %)	Yes	108 (72 %)	103 (66.9 %)
	No	42 (28 %)	51 (33.1%)
Mean	N/a	1.28	1.33

TABLE 4 - COMPARISON OF WILLINGNESS OF USING SIMILAR AR APPS VS. TRADITIONAL APPS

Observing Table 4 it can be stated that consumers would prefer for purchasing a product more an app with AR features than a traditional app, as 72 % of the experimental group stated its intention towards the AR app, while the ratio of using a traditional app lies at 66.9 %. The means of both groups represent the same results, as the mean for adopting an AR app ($M_{UI=Ex}$ = 1.28) is lower than the mean for using a traditional app ($M_{UI=Co}$ = 1.33), indicating that the usage intention is higher towards an application with AR for buying a product.

Furthermore, there may be differences in the usage intention of the different age groups. After assessing the distribution of the data, a Kruskall-Wallis H test was chosen, that resulted in p = 0.31. As this is not considered to be statistically significant, it can be concluded that there are no differences between the four age groups when it comes to the intention of using an AR application. Even though, the result of Kruskall-Wallis H test was not significant, the mean values reveal which age group shows the highest willingness of using an AR to purchase a product. Again, the group of 30-39 years old participants can be highlighted, as this group seems to have the highest intentions ($M_{UI=30\text{-}39yrs}$ = 1.21), while the youngest group of consumers showed the lowest willingness ($M_{UI=18\text{-}29yrs}$ = 1.41) for applying such an AR app for shopping.

4.2 Conclusion

To conclude, it can be said that the results of the conducted statistical tests are mainly as expected, as most of the hypotheses of the study could be retained. These results were also expected as previous studies, such as Rese et al. (2017), Javornik (2016) or Yim et al. (2017) already confirmed the positive influence of AR to some extent as well as that the TAM can be applied also to the technology of AR.

Table 5 summarizes the results of the hypothesis testing as well as highlights which method was used for the analysis.

Hypothesis	Testing method	Result
H1: As compared to traditional apps, an AR app will increase ease of use.	MANCOVA	Not significant → H1 rejected
H2: AR apps are perceived to be more useful than traditional apps.	MANCOVA	Significant → H2 retained
H3: AR apps trigger more positive anticipated emptions as compared to traditional apps.	MANCOVA	Significant → H3 retained
H4: In comparison to traditional apps, the users of AR apps experience a higher level of interactivity.	MANCOVA	Significant → H4 retained
H5(a): Perceived ease of use increases the attitude towards the app.	Multiple regression	Significant → H5(a) retained
H5(b): Perceived usefulness increases the attitude towards the app.	Multiple regression	Significant → H5(b) retained
H5(c): Anticipated emotions increase the attitude towards the app.	Multiple regression	Significant → H5(c) retained
H5(d): Interactivity increases the attitude towards the app.	Multiple regression	Significant → H5(d) retained
H6: Attitude towards the app positively influences behavioural intentions.	Single regression	Significant → H6 retained

TABLE 5 - RESULTS OF THE HYPOTHESIS TESTING

5 DISCUSSION & CONCLUSION

5.1 Summary

As the number of smartphone users is growing day by day and new technologies are being developed, marketers should always focus on new trends and act accordingly by adapting their marketing techniques in order to meet consumers' expectations and be able to maximize customer engagement by creating the right message in the right place and right time. Therefore, one aspect that should be emphasized, is mobile marketing. Besides focusing on the creation of marketing content for mobile devices, marketers should also take a constantly emerging technology, namely augmented reality, into consideration. Augmented reality provides brands numerous ways of possibilities when it comes to content creation for marketing purposes.

Extant literature has already examined the effect of AR on different aspects regarding consumer behaviour, such as the acceptance of the technology, factors determining the adoption of AR in general, as well as specifically as a marketing tool (Kumar et al., 2016, Pantano et al., 2016, Rese et al., 2016) Moreover, studies have not only focused on consumers' responses but also on its influence on customer engagement and how it affects the attitude to the brand (McLean & Wilson, 2019; Rauschnabel et al., 2019; Scholz & Smith, 2016). However, there is no comprehensive research on neither designing AR content for marketing nor a framework for the creation of mobile AR marketing campaigns. Therefore, this study attempts to contribute to existing studies and extend them by examining the effect of AR on consumers' reaction specifically to mobile marketing.

For this purpose, an online experiment was conducted within a sample that is representative to Austria's population. The online experiment presented for both the experimental as well as to the control group a video about one of IKEA's app. For the experimental group the IKEA Place app including AR features was displayed and the control group had to watch a video about the IKEA app that does not enable its users to make use of AR.

The research framework of the study is based on TAM and measured constructs that are part of this model, such as perceived ease of use and perceived usefulness. However, also additional aspects were examined, for instance anticipated emotions or interactivity, while experience was considered as a covariate. In a further step, the effect of the previously mentioned four constructs was assessed on the attitude towards the app and whether the attitude towards the app increases the behavioural intention. Finally, additional analysis was conducted for revealing differences between various groups of consumers based on their age or on their purchase habits. These insights play an important role in giving implications for relevant stakeholders.

As the main purpose of the study was to reveal how consumers react to mobile marketing while investigating the effect of AR, hypotheses testing was conducted in three stages and each stage

examined a different aspect. The first part of the analysis focused on analysing the differences between the two groups of the online experiment and measured how participants of the study perceive specific attributes of IKEA's applications. The results of the MANCOVA were significant, implying that a significant difference was detected between the experimental and the control group when it comes to the previously mentioned four constructs. Based on the results of previous research it was supposed that AR apps increase perceived ease of use, perceived usefulness, interactivity and trigger more positive emotions than traditional apps lacking the AR feature. As expected, in most of the cases the results of the MANCOVA were statistically significant.

Therefore, it can be concluded that AR can drive an application to be perceived more positively regarding perceived usefulness, interactivity and anticipated emotions. As it was previously mentioned in the study, the employment of AR comes with a lot of benefits that can be turned into valuable assets that firms as well as users can make advantage of. One of these aspects is perceived usefulness. Various functions of AR can easily make an app more useful as it offers the possibility to merge elements of the real world with virtual elements on one screen. For instance, with the IKEA Place app users can place a piece of furniture into any room that is scanned with a smartphone. By this function, users can see how an item would look like in their home and whether it will fit to the available space instead of having to use their imagination and manually measuring the space. The increased usefulness of AR is supported by the results of the online experiment; thus it can be concluded that AR apps are perceived to be more useful than traditional apps.

Further, also when considering interactivity, the MANCOVA declared a significant outcome. Therefore, AR apps turn out to provide higher level of interactivity during the app experience. As interactivity is considered as one of the most essential feature, the effect of AR plays an important role. Interactive elements of a marketing campaign or an app aim to actively involve consumers and thereby increase engagement with the content. However, as it is a crucial aspect, it also has to be mentioned that especially in the case of AR content, the content has to be designed correctly, meaning users should have the control over the content they would like to see as well as they should have the feeling to interact with the content. Otherwise, it would generate contradictory feelings in the users' eyes and the AR content would seem less valuable.

An additional factor that was considered within the research is anticipated emotions that measures what kind of emotions would be triggered if the participant would use the shown app. Also in this case a significant result was reported, implying that AR apps trigger more positive anticipated emotions as compared to traditional apps.

However, when it comes to perceived ease of use, the positive effect of AR could not be detected. This can be explained by the fact that evaluating ease of use based on watching a video about demonstrating all the features of an app can be difficult. As only the display of the

smartphone was shown in the video about IKEA Place, the scanning feature of the room could not be shown from the complete perspective. Therefore, participants could probably hardly imagine and judge how easy or difficult the shown app is to serve especially in the case of the AR app. Finally, it also has to be mentioned, that experience was considered as a covariate in the study, however the outcomes of MANCOVA was not significant in any of the constructs measuring experience.

The next stage of the hypotheses testing dealt with the effect of the four previously mentioned constructs on the attitude towards the app. The results of the multiple regression analysis revealed, that all four variables have a significant impact on the attitude towards the app altogether as well as separately. It was also found that the effect of this variable is positive, therefore, perceived ease of use, perceived usefulness, interactivity and anticipated emotions increase the attitude towards the app. Moreover, it also has to be mentioned that these four variables do not influence the attitude equally. The largest effect has been measured in the case of interactivity, implying that interactivity is the most important aspect when it comes to how a person thinks and feels about the app. Therefore, this finding supports and even strengthens the previously mentioned arguments that interactivity is one of the most essential features when it comes to AR. Also anticipated emotions and perceived usefulness increase the attitude towards the app, however not as strongly as interactivity. Last but not least, the weakest effect was found in the case of perceived ease of use. In the final stage of the analysis it was tested whether attitude towards the app positively influences behavioural intention. The outcome of the ANOVA was significant, thus, it was concluded that attitude towards the app positively influences behavioural intentions.

As previously mentioned, also group comparison tests were conducted among participants, who were exposed to the IKEA Place app, in order to be able to detect differences between different groups of consumers. Firstly, various age groups were examined. Out of the four aspects considered, only in the case of two variables, perceived usefulness and anticipated emotions, resulted the tests in significant differences between the groups. The main finding of both of the assessments is that in one specific age group, the results turned out to be significantly different in comparison to the others. This age group includes the 30-39 years old participants. After comparing the means of each age group, consumers of the mentioned age period perceive the IKEA Place app to be the most useful and think that they would experience the most positive emotions when using the app. This phenomenon could be explained by the nature of the app. IKEA focuses on home interior products, such as furniture or decor items. As furnishing a home can be associated with a specific period in life (having sufficient monetary background, buying an own property, starting a family, etc.), mainly the 30s of a person, it was expected that such an application would be the highest rated within this group. In the case of elderly people, even though there is interest in home decoration or furniture, the technology of AR and using a mobile app may create barriers, as this generation has not grown up with this technology. While

the younger generation can also be called digital natives, may not consider such an app useful enough yet.

Moreover, also the shopping habit of participants was investigated. Even though no significant difference was detected between any of the groups, insights on the preferred way of purchasing a product can be reported. Most of the participants (approximately 80 %) usually visits an IKEA store in person and shops the items right there. A smaller ratio of customers (approximately 12 %) stated that their shopping behaviour varies based on the situation. The rest of the customers either chooses to shop online with delivery to home or decides for the click & collect option. This group of consumers represents less than 10% of the sample. Finally, participants of the online experiment were also asked if they would use a similar app shown in the video for purchasing a product. Even though no significant difference could be found between the two groups of the online experiment, some valuable insights were still revealed. Again, the positive impact of AR can be highlighted, as a larger percentage of participants would consider using an AR app for product purchase in comparison to a traditional app.

To conclude the findings of all the three stages of the hypothesis testing and the additional insights, it can be said that with only a few exceptions most of the results are as expected. Therefore, the positive effect of AR on consumers' reaction to mobile marketing can be confirmed. This indicates that the implementation of AR into mobile marketing positively influences the response of consumers as well as increases the attitude towards use and thereby the behavioural intention. Further, a positive effect of AR was detected in the case of perceived usefulness, interactivity and anticipated emotions. When it comes to the attitude towards use, it was found, that all four constructs positively influence attitude towards use, where interactivity plays an essential role, having the strongest effect. Last but not least, it also has to be mentioned, that consumers between 30-39 years are the most open for using an AR app and finding it highly interactive, useful and connect the most positive emotions to it. Considering the shopping behaviour of participants, it can be said that almost 80 % prefers to visit stores in person, but these participants also stated that they would use a similar app to IKEA's and thereby are showing a high willingness towards using a similar application for making a purchase.

5.2 Contribution to knowledge

The findings of the research contribute to the literature about the technology of AR and to the current knowledge on mobile AR marketing in several ways. Even though recently there has been numerous research on AR in the context of acceptance of the technology, reaction of consumers or on its effect on customer engagement or on brand attitude, the technology of AR is not totally incorporated into consumers' everyday life yet. Therefore, there is still a research gap in specific aspects such as a framework for designing AR marketing campaigns, the process of implementing AR into a firm's marketing strategy or consumers' response to AR marketing content specifically on mobile devices. The current study aimed to tackle these points and cover the research gap in these topics.

Firstly, TAM is one of most popular models for examining consumers' acceptance regarding a technology. Numerous recent studies already have investigated its usability for assessing the adoption of AR. These studies, for instance the results by Rese et al. (2016), confirmed "the validity of the basic TAM model" by Davis (1989) and proved that it is a robust model that can be applied to various technologies (p.8). The current study supports the findings of previous research about the relevance of TAM. However, it has to be mentioned that this research examined not only perceived ease of use and perceived usefulness, that are originally part of TAM but incorporated also additional constructs in order to detect their contribution to the acceptance of AR. As already stated, results of the thesis correspond with the assumptions of TAM as it was found that perceived ease of use and perceived usefulness increase the attitude towards use and attitude towards use positively influences behavioural intention. Moreover, also the additional findings have to be highlighted as it was discovered the besides the two factors of TAM, also other factors have an influence on attitude towards use, and these are: interactivity and anticipated emotions.

Furthermore, the study has not only focused on revealing how consumers react to AR marketing content and on their acceptance of AR but it also aimed to assess the effect of AR on specific attributes of an app. It was found consumers perceive AR apps to be more useful compared to traditional apps as well as higher level of interactivity can be observed for AR apps. Further, also anticipated emotions were investigated, where again, the use of AR apps turned out to be associated with more positive emotions, such as excitement, happiness, surprise or curiosity.

Finally, the research also has generated some practical knowledge on consumer behaviour and detected some differences between groups of customers that can provide marketers with valuable insights and support them understanding consumers' feelings and actions. This will be revealed in the next section of the study along with recommendations for marketing managers.

5.3 Implications for relevant stakeholders

As it was previously mentioned, AR is still a relatively new marketing technology among consumers. Even though, there are articles that have established models that provide support for marketers in their process of designing AR content, there is little knowledge on marketing practices or best practices considering designing AR marketing content for mobile devices. However, Scholz & Smith (2016) developed the ENTANGLE model that introduces the most important aspects to be considered "to design immersive AR experiences that maximize consumer engagement" or Scholz & Duffy (2018, p.155) who presented a short guide that focuses instead from a technical point of view rather on the campaign objectives and the experience of the augmentation itself. This procedure consists of four steps and navigates marketers through the process of designing the AR content.

The first, and most important aspect that has to be pointed out is that AR as a technology provides a lot of benefits that business should utilize and at the same time consumers' response to AR is positive and consumers are willing to engage with AR content. Therefore, firms should consider adopting AR into their marketing strategy and make use of it while providing a great experience for consumers. The implementation of AR is not only on opportunity to create an outstanding customer experience but it also enhances customer engagement or strengthens the relationship to the brand.

Another valuable insight that marketers should pay attention to is the fact that interactivity plays an essential role in AR apps. As AR is already interactive in its nature, it does not automatically mean, that an augmentation is totally interactive, meaning that consumers have the feeling of having control over the content and being able to interact with it. Thus, when developing the content, marketers should put a high emphasis on interactivity, and make sure, that it works the way it should work and it fulfils the expectation of users.

Furthermore, the study also revealed valuable information about consumer behaviour, especially for Austrian marketers, as the sample of the study is representative to the Austrian population. As it was reported, different age groups have a different feeling about the use of AR for marketing purposes, therefore, marketers should make a segmentation based on age and target consumers with a different content and even maybe via a different technique. As it was expected, younger generations, especially people between 30-39 years old find AR apps the most useful and get along best with the technology. Thus, AR should be applied, when the target audience of a campaign belongs to the age group with up to 30-39 years old.

Finally, it was also reported that almost 80% of customers prefers to visit a shop in person and make a purchase there. If marketers would like to increase the usage rate of AR apps they should consider placing point of sale materials, such as a leaflet or an introduction video on a screen, that promote the application.

5.4 Limitations of the study

Even though the thesis contributes to existing research regarding mobile augmented reality and augmented reality marketing, there are some limitations of the study. As it was previously described, the research applied an experiment in order to reveal the effect of augmented reality on consumers' reaction to mobile marketing. Through the online experiment, participants were exposed by different videos presenting the IKEA Place app featuring AR functionalities and the IKEA app. After watching the video, both the experimental and the control group was asked to answer questions regarding perceived ease of use, perceived usefulness, interactivity and anticipated emotions. Judging different aspects of an application by only watching a video about the app may differ from the evaluation if participants would have tried the app. By actually using the app and discovering the features personally would have given a better ability for participants to judge these aspects. Therefore, participants might have evaluated the features of both applications less accurately as they did not have the opportunity to try it personally. Therefore, the creation of a laboratory experiment and thereby more controlled conditions would have increased the accuracy of the results. A further aspect that should be mentioned regarding the video, that it had no sound or voice-over that explained the features and attributes of IKEA's apps. For some participants it might would have been easier to understand the content that was shown. This may also contribute to the fact that the results may be less accurate than if the videos would have had a voice-over or participants had the possibility to try the apps.

Moreover, it also has to be highlighted that the study only focused on two applications of IKEA and therefore only one type of products, namely furniture was presented to participants of the experiment. Browsing and purchasing furniture or generally interior items may not fit the interests of each gender or each age group. Also, not everyone values the feature of scanning a room and visually placing a furniture into this space the same way, therefore this might also have an impact on the results of the experiment.

A further limiting aspect of the thesis is, that not all types of augmentations are featured in the IKEA app, as it focuses on the scanning and projection function, where objects or spaces get superimposed by virtual content. However, other solutions would be the recognition and locational features of AR, that would provide a different AR experience. Therefore, when generalizing results of this study, this has to be highlighted as consumers might react differently to another type of augmentation.

Finally, even though the sample of the study is representative of the Austrian population, and thereby generalizable to Austria, companies, that are present also on other markets, should also understand the consumer responses to mobile AR marketing also from other countries. As cultures can highly differ, the learnings from the Austrian population may not be applicable to other countries and its markets.

5.5 Future research

The previous subchapter described the limitations of the thesis. When it comes to future research ideas, on one hand, future studies could focus on the limitations of this and other existing studies and eliminate the mentioned limitations and thereby improve the validity and generalizability. On the other hand, future articles could also put emphasis on new aspects that have not been studied before.

First, recommendations will be given how extant studies could be improved. As it was mentioned, the thesis applied an online experiment and thereby presented a video for participants. In order to be able to measure the reaction of consumers' and their emotions, a laboratory setting, where participants would be given the opportunity to actually try the AR app on a mobile device would highly increase the accuracy of the results.

Moreover, as it was mentioned, the study is limited to only one type of product category, as well as to only one type of augmentation. Extending the experiment to products, from other industries, such as the retail industry, tourism or cosmetics would provide additional understanding on the same aspects that are measured within this study as well as could be compared with each other. This would contribute to valuable insights into which features are valuable for which product categories. Also, involving applications with different augmentations would deliver further knowledge about how consumers' respond to and accept AR marketing content. Based on these results implication could be developed that support managers when planning and developing AR content.

Another recommendation for future research is the incorporation of different marketing contents. This study focuses only on the presentation of products with the help of AR. However, mobile AR marketing is not fully covered by product presentation, but it also could be used for further promotion activities, such as increasing the awareness around a brand, for advertising or even for CRM purposes, for instance building a community. Examining the reaction to various marketing purposes could serve for further managerial implications revealing for which purposes AR is the most useful in consumers' eyes and in which activity they would mostly engage with the content.

Further, as it was mentioned in the previous chapter, the sample of the study includes only the Austrian population. Different countries and their cultures often differ, therefore the interests, the perceived value and importance of features might be different between them as well. As the development of AR content can be associated with high costs, companies, especially multinational corporations should be aiming, that when they are developing content or even an application with augmented reality, that it will be suitable also in other countries with different markets, thereby contributing to larger return on investment. This would be possible by

involving other nations in the experiment and collect insights from various cultures. Therefore, extending the study to other countries could be a further future research idea.

When it comes to new research aspects, before 2020 it was unimaginable that consumers' will not be able to go to a clothing store and try on clothes in person or visit an interior shop and look for furniture or home decorating products due to lockdown periods. However, the happenings of 2020 and the global pandemic of COVID-19 proved that in such times augmented reality can be essential for consumers and at the same time for businesses. By scanning a space and virtually placing items into it for checking how a furniture would fit there or consumers scanning themselves to virtually try how shoes or make-up products would look like on them can therefore replace a store visit, even if it does not provide the same experience. Future research could focus on how consumers' behaviour, such as how their acceptance of the augmented reality technology changed during last year as well as if there is a growth in the usage rate of such types of AR apps. This topic would also be interesting from the perspective of businesses in regards to how they reacted to the changes that were required during 2020 and if they were considering the development of AR functionalities in order to present a product with the help of AR and thereby provide an immersive experience, support their consumers in their decision-making process of choosing the right product, or even in assembling products. It is also an interesting aspect in which industries AR was utilized and which of them benefited the most of it in the past year as well as which type of businesses started applying AR as a reaction to the pandemic and to its consequences.

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APPENDICES

Appendix 1: Online experiment (German version)

Liebe Teilnehmerin, lieber Teilnehmer!

Vielen Dank, dass Sie an dieser Umfrage teilnehmen! Wir untersuchen, wie Verbraucher/innen unterschiedliche Apps bewerten.

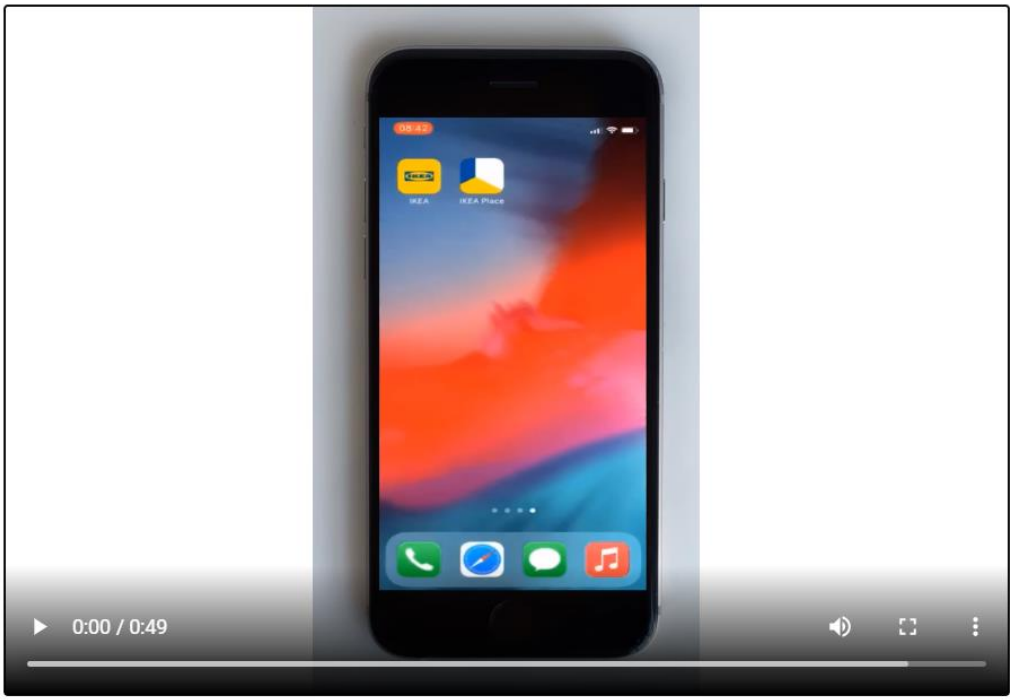
Die Teilnahme an dieser Umfrage ist freiwillig und alle gesammelten Informationen werden anonym behandelt. Die Umfrage dauert ca. 5 Minuten.

1. Bitte beurteilen Sie die Marke IKEA.

Unattraktiv	○ ○ ○ ○ ○	Attraktiv
Schlecht	○ ○ ○ ○ ○	Gut
Unangenehm	○ ○ ○ ○ ○	Angenehm
Unvorteilhaft	○ ○ ○ ○ ○	Vorteilhaft
Unsymphatisch	○ ○ ○ ○ ○	Sympathisch

Bitte sehen Sie sich das Video auf der nächsten Seite vollständig an. Die "Weiter" Schaltfläche erscheint nach Beendigung des Videos. Klicken Sie bitte auf "Weiter", um nach dem Video mit der Umfrage fortzufahren.

Bitte klicken Sie die den "Play"-Button, um das Video zu starten.



2. Konnte man mit einer speziellen App ein Möbelstück virtuell an einen beliebigen Platz in der Wohnung projizieren (ein Hologramm)?

- ◯ Ja
- ◯ Nein

3. Wurde in dem Video ein Raum mit dem Handy gescannt, um danach virtuelle Möbelstücke in diesem Raum zu platzieren?

- ◯ Ja, in dem Video wurde ein Raum mit dem Handy gescannt.
- ◯ Nein, in dem Video wurde KEIN Raum mit dem Handy gescannt.

4. War Augmented Reality Teil des zuvor gezeigten Videos?

Augmented Reality beschreibt die gemeinsame Darstellung von virtuellen und realen Elementen mit Hilfe eines Smartphones/Tablets. So werden häufig virtuelle (computeranimierte) Grafiken über eine reale Welt gelegt.

- ◯ Ja, in dem Video wurde Augmented Reality (**dynamische Darstellung** des Möbelstücks im Wohnzimmer) verwendet.
- ◯ Nein, in dem Video wurde Augmented Reality NICHT verwendet (es wurden **Fotos des Möbelstücks** im Wohnzimmer gezeigt)..

5. Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen:

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
Ich denke, diese App ist sehr einfach zu bedienen.	◯	◯	◯	◯	◯	◯	◯
Diese App ist intuitiv zu bedienen.	◯	◯	◯	◯	◯	◯	◯
Die Verwendung dieser App ist einfach zu erlernen.	◯	◯	◯	◯	◯	◯	◯
Die Handhabung sieht einfach aus.	◯	◯	◯	◯	◯	◯	◯

6. Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen.

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
Für mich hat diese App einen hohen Wert.	◯	◯	◯	◯	◯	◯	◯
Diese App zeigt schöne Einrichtungsideen.	◯	◯	◯	◯	◯	◯	◯
Die App ist sehr inspirierend in Bezug auf Einrichtungsideen.	◯	◯	◯	◯	◯	◯	◯
Die App ist geeignet, um den Überblick über die Möbel zu behalten.	◯	◯	◯	◯	◯	◯	◯

7. Bitte kreuzen Sie bei dieser Skale genau den Mittelpunkt an:

1	2	3	4	5
◯	◯	◯	◯	◯

8. Welche Art von Emotionen würden Sie Ihrer Meinung nach erleben, wenn Sie diese App verwenden?

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
Aufregung	○	○	○	○	○	○	○
Vergnügen	○	○	○	○	○	○	○
Glück	○	○	○	○	○	○	○
Zufriedenheit	○	○	○	○	○	○	○
Überraschung	○	○	○	○	○	○	○
Neugierde	○	○	○	○	○	○	○
Freude	○	○	○	○	○	○	○

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
Diese App ist eine effiziente Möglichkeit, um Möbel zu kaufen.	○	○	○	○	○	○	○
Diese App wäre für mich praktisch.	○	○	○	○	○	○	○
Durch diese App kann ich Zeit sparen.	○	○	○	○	○	○	○
Diese App würde den Kauf von Möbeln weniger zeitaufwändig machen.	○	○	○	○	○	○	○

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
Ich würde diese App wegen ihrer Neuheit verwenden.	○	○	○	○	○	○	○
Die Verwendung dieser App befriedigt meine Neugierde.	○	○	○	○	○	○	○
Die Verwendung dieser App würde mir neue Erfahrungen bieten.	○	○	○	○	○	○	○
Ich habe das Gefühl, dass ich bei der Verwendung dieser App neue Welten erkunden könnte.	○	○	○	○	○	○	○
Die Verwendung dieser App würde in mir Glücksgefühle auslösen.	○	○	○	○	○	○	○

9. Wenn ich diese App verwenden würde, hätte ich...

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
...viel Kontrolle über meine Produktwahl.	○	○	○	○	○	○	○
...das Gefühl, frei wählen zu können, was ich sehen wollte.	○	○	○	○	○	○	○
...das Gefühl, dass der Inhalt mit mir interagiert.	○	○	○	○	○	○	○
...würde ich mit dem Inhalt kommunizieren.	○	○	○	○	○	○	○
...das Gefühl, dass die App auf meine Eingaben reagiert.	○	○	○	○	○	○	○

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
Ich bin dieser App gegenüber positiv eingestellt.	○	○	○	○	○	○	○
Diese App ist so interessant, dass ich einfach mehr darüber erfahren möchten	○	○	○	○	○	○	○
Ich finde es sinnvoll, diese App zu verwenden.	○	○	○	○	○	○	○
Die Verwendung dieser App ist eine gute Idee.	○	○	○	○	○	○	○
Andere Personen sollten diese App ebenfalls verwenden.	○	○	○	○	○	○	○

10. Wenn ich in Zukunft Möbel kaufe, werde ich...

	1 (stimme gar nicht zu)	2	3	4	5	6	7 (stimme vollkommen zu)
... diese App sofort downloaden.	○	○	○	○	○	○	○
... dieser App Vorrang im Vergleich zu anderen Arten der Informationseinholung geben.	○	○	○	○	○	○	○
...dieser App Vorrang im Vergleich ähnlichen Anwendungen geben.	○	○	○	○	○	○	○
Ich werde meinen Freunden die Verwendung dieser App empfehlen.	○	○	○	○	○	○	○
Ich werde diese App in Zukunft regelmäßig nutzen.	○	○	○	○	○	○	○

11. Haben Sie die in dem Video gezeigte App bereits in der Vergangenheit verwendet?

- ◯ Ja
- ◯ Nein

12. Haben Sie mithilfe der zuvor gezeigten App bereits in der Vergangenheit ein Produkt von IKEA gekauft?

- ◯ Ja
- ◯ Nein

13. Würden Sie eine ähnliche Anwendung vor dem Kauf eines Produktes nutzen?

- ◯ Ja
- ◯ Nein

14. Haben Sie in den letzten fünf Jahren Produkte von IKEA gekauft?

- ◯ Ja
- ◯ Nein

15. Wie oft kaufen Sie im Jahr durchschnittlich bei IKEA ein?

☐ Mal

16. Wie kaufen Sie normalerweise bei IKEA ein?

- ◯ Im Geschäft
- ◯ Online mit Zustellung
- ◯ Online mit Abholung im Geschäft (Click & collect)
- ◯ Unterschiedlich

Alter

17. Geschlecht

[Bitte auswählen]

18. Höchste abgeschlossene Ausbildung

[Bitte auswählen]

19. Wollen Sie uns noch etwas mitteilen?

Appendix 2: Online experiment (English version)

Dear participant!

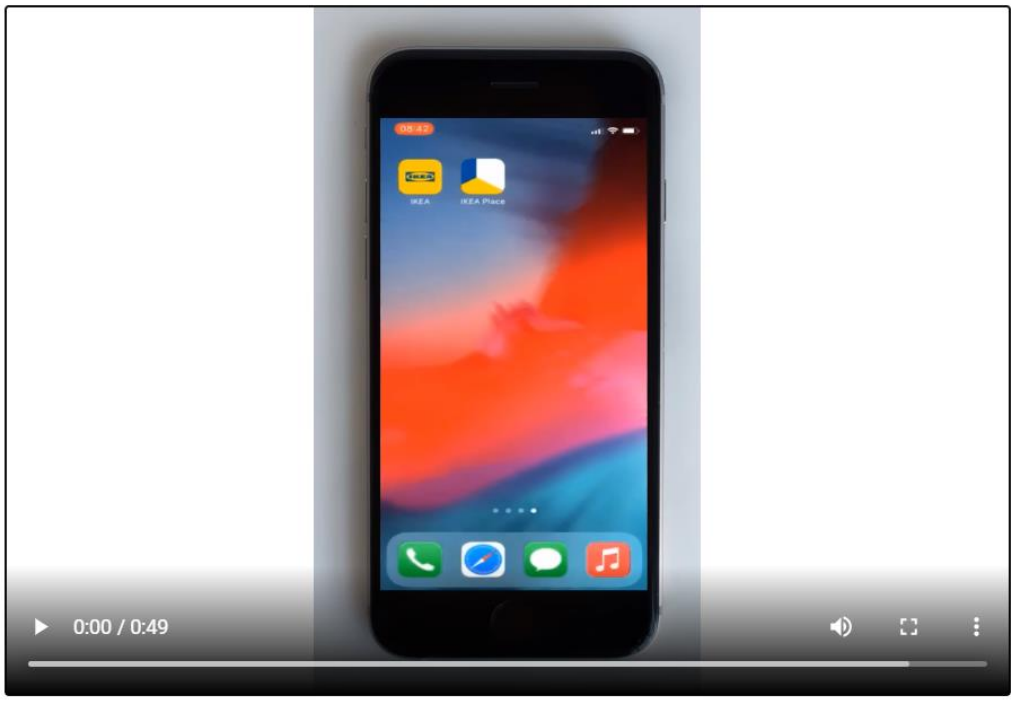
Thank you for taking part in this survey. We are exploring how consumers react to different apps.
Participation in this survey is voluntary and all the information collected will be handled anonymously. The survey will take about 5 minutes.

1. Please rate IKEA as a brand.

Unappealing	○ ○ ○ ○ ○	Appealing
Bad	○ ○ ○ ○ ○	Good
Unpleasant	○ ○ ○ ○ ○	Pleasant
Unfavorable	○ ○ ○ ○ ○	Favourable
Unlikable	○ ○ ○ ○ ○	Likable

Please watch the video on the next page until the end. The "Next page" button appears after the video is finished. Please click on "Next page" to continue with the survey after the video.

Please click the "play" button to start the video.



2. Was it possible to virtually project a piece of furniture to any place in the apartment by the use of a special app (a hologram)?

- ○ Yes
- ○ No

3. Was a room scanned with the mobile phone in the video in order to virtually place a piece of furniture in this room?

- ○ Yes, in the video a room was scanned with a smartphone.
- ○ No, in the video NO room was scanned with a smartphone.

4. Was augmented reality part of the video shown earlier?

Augmented Reality describes the joint representation of virtual and real elements with the help of a smartphone / tablet. Virtual (computer-animated) graphics are often superimposed over elements of the real world.

- ○ Yes, augmented reality (dynamic representation of a piece of furniture in the living room) was applied in the video.
- ○ No, augmented reality was NOT applied (photos of a piece of furniture were shown in the living room) in the video.

5. Give a rating from 1 to 7 (1- strongly disagree – 7-strongly agree)

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
I think the IKEA app is very easy to use.	○	○	○	○	○	○	○
The IKEA app looks intuitive to use.	○	○	○	○	○	○	○
It looks easy to learn how to use the IKEA app.	○	○	○	○	○	○	○
Handling the scan function and its elements looks easy.	○	○	○	○	○	○	○

6. Give a rating from 1 to 7 (1- strongly disagree – 7-strongly agree)

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
For me, the IKEA app has great value.	○	○	○	○	○	○	○
The IKEA app provides beautiful interior ideas.	○	○	○	○	○	○	○
The IKEA app is very inspiring in terms of interior design ideas.	○	○	○	○	○	○	○
The IKEA app is perfect for keeping the overview of the furniture.	○	○	○	○	○	○	○

7. Please mark the center point of the following scale:

1	2	3	4	5
○	○	○	○	○

8. What kind of emotions do you think you would experience when using the app?

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
Excitement	○	○	○	○	○	○	○
Enjoyment	○	○	○	○	○	○	○
Happiness	○	○	○	○	○	○	○
Satisfaction	○	○	○	○	○	○	○
Surprise	○	○	○	○	○	○	○
Curiosity	○	○	○	○	○	○	○
Delight	○	○	○	○	○	○	○

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
Using the IKEA Place app is an efficient way to manage my time.	○	○	○	○	○	○	○
Using the IKEA Place app would be convenient for me.	○	○	○	○	○	○	○
Using the IKEA Place app would allow me to save time.	○	○	○	○	○	○	○
Using the IKEA Place app would make purchasing furniture less time consuming.	○	○	○	○	○	○	○

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
I would use this app for its innovativeness.	○	○	○	○	○	○	○
Using this app satisfies my curiosity.	○	○	○	○	○	○	○
Using this app would provide me with new experiences.	○	○	○	○	○	○	○
I have the feeling, that by using this app I could explore new worlds.	○	○	○	○	○	○	○
Using this app would make me feel happy.	○	○	○	○	○	○	○

10. If I would use this app, I would...

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
...have a lot of control over my product choice.	○	○	○	○	○	○	○
...the feeling of being able to choose what I wanted to see.	○	○	○	○	○	○	○
...the feeling that the app is reacting to my inputs.	○	○	○	○	○	○	○
...I would communicate with the content.	○	○	○	○	○	○	○
...the feeling that the content is interacting with me.	○	○	○	○	○	○	○

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
I am positive about the IKEA app.	○	○	○	○	○	○	○
The IKEA app is so interesting that you just want to learn more about it.	○	○	○	○	○	○	○
It just makes sense to use the IKEA app.	○	○	○	○	○	○	○
The use of the IKEA app is a good idea.	○	○	○	○	○	○	○
Other people should also use the IKEA app.	○	○	○	○	○	○	○

12. If I were to buy furniture in the future, I would...

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
...download or use the IKEA app immediately.	○	○	○	○	○	○	○
...give the IKEA app priority over the website.	○	○	○	○	○	○	○
...give the IKEA app priority over the websites of other providers.	○	○	○	○	○	○	○
I will recommend using the IKEA app to my friends.	○	○	○	○	○	○	○
I will use the IKEA app regularly in the future.	○	○	○	○	○	○	○

13. Have you already used the app that was shown previously in the video?

○ Yes
○ No

14. Have you ever made a product purchase from IKEA through the app that was shown pre-viously in the video?

○ Yes
○ No

15. Would you use a similar application before buying a product?

○ Yes
○ No

16. Have you made a product purchase from IKEA in the last five years?

○ Yes
○ No

17. Have you made a purchase from IKEA in the last five years?

○ Yes
○ No

18. How often do you make a purchase at IKEA on average per year?

[ ] Times

19. How do you usually make your purchase at IKEA?

- ○ At an IKEA store
- ○ Online with home delivery
- ○ Online with pick-up (click & collect)
- ○ Varying on the situation

20. Age

21. Gender

[Please select]

22. Highest level of education

[Please select]

23. Would you like to tell us anything else?