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Master Thesis:

**The role of augmented reality on marketing practices in the B2C
sector for the German market**

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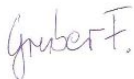
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**ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ
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31.05.2023 (Date)

Abstract

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Academic Advisor's Name	Maria M. Smirnova Associate Professor, Marketing Department
Master Thesis Title	The role of augmented reality on marketing practices in the B2C sector for the German market
Description of the goal, tasks and main result the research	<p>The main goal is to analyze how businesses can effectively incorporate augmented reality into their marketing strategies to enhance the customer experience and achieve marketing objectives in the German market. The subsequent goals which have led to answering the research question are the examination of the impact of augmented reality on marketing practices in the B2C sector of the German market; identifying strategies that businesses can use to effectively leverage augmented reality in their marketing strategies; identifying best practices and key success factors for incorporating augmented reality into marketing strategies and to analyze marketing campaigns of companies in the B2C sector in the German market that have successfully integrated augmented reality into their marketing strategies.</p> <p>The main result is the development of a decision tree which helps companies to understand if AR could be applicable for their company which starts in the consideration stage and finishes in the implementation stage.</p>
Keywords	AR Marketing in Germany Augmented Reality Marketing in Germany AR marketing practices Augmented reality marketing practices AR Implementation Augmented Reality Implementation AR use case analysis Augmented Reality use case analysis Key success factors AR Marketing Key success factors Augmented Reality Marketing AR benefits and drawbacks Augmented reality benefits and drawbacks AR in the B2C sector Augmented Reality in the B2C sector

Table of Content

1. Introduction	1
2. Theoretical perspectives on the integration of AR in the marketing context	3
2.1 Methodology Literature review	4
2.2 Terminology explanation	6
2.2.1 General classifications.....	6
2.2.2 Extended reality concept	7
2.2.3 AR Definition	8
2.3 Environmental and technological perspective of AR adoption	9
2.3.1 Environmental Analysis	9
2.3.2 AR adoption	10
2.3.3 Technological perspectives on AR usage.....	15
2.3.4 Challenges for marketers with AR	17
2.4 Discussion of frameworks with use case analysis	23
2.4.1 Marketing Audit	23
2.4.2 Marketing strategy.....	29
2.4.3 Value creation and the value pyramid	33
2.4.4 AR Customer-Journey Map.....	38
2.4.5 Implementation of AR.....	45
2.4.6 Success measurement	49
2.5 Implementation case analysis	53
2.6 Summary and gaps in the literature	60
3. Methodology	62
3.1 Summary table with key decisions made	63
3.2 Research Design Interviews	64
3.3 Methodological Limitations & Mitigation Strategies.....	66
4. Results and analysis interview	67
4.1 Data analysis.....	68
4.2 Results	70

4.3 Conclusion.....	74
5 Discussion	76
5.1 Summary	76
5.2 Theoretical Implications	78
5.3 Managerial Implications	79
5.4 Decision tree.....	80
5.5 Limitations and future research.....	84
References	86
List of images	104
List of Tables.....	105
List of abbreviations	106
Additional in-depth information:.....	107
A1: Defining VR	107
A2: Types of Innovation.....	107
A3: Strategy by Greenley	108
A4: GE McKinsey Matrix and sources of competitive advantage	115
A5: Segmentation, Targeting, Positioning	116
A6: Customer journey explanation.....	118
A7: AR objectives	119
A8: Smart Framework	119
A9: Metrics for success measurement:.....	120
A10: Case Analysis raw data.....	122
A11: Interview questions.....	123

1. Introduction

1.1 Background and context of the study

The corporate climate has changed dramatically in the recent years, necessitating the adoption of new models which can handle and anticipate the fast-changing world. This environment seems like it is changing from volatility, uncertainty, complexity and ambiguity (VUCA) to brittleness, anxiety, non-linearity and incomprehensibility (BANI). This switch in paradigm especially with the increased attention of AR over the last years, both from managers and scholars alike acknowledges that the business environment is becoming more fragile, with minor changes having major repercussions. This means that companies must be sensitive and adaptable to the changing environment. Various studies in the marketing discipline have tackled fragmented aspects of AR, such as its impact on sales or brands. However, yet, a holistic approach to AR remains scarce. Only a few scholars tried to examine the impact of AR regarding the company's marketing practices which can disrupt entire industries and going to influence the marketing efforts of companies intensively (Rauschnabel, Babin, et al., 2022). The market growth for AR with a CAGR¹ of 48,6% is significant for the next 6 years (Fortune Business Insights, n.d.). Nevertheless, a report from BCG (Bona et al., 2018) revealed that companies and marketers² see the potential which lies in AR but most of the companies are still in the experimental stage and do not know how to effectively use this technology. Studies in Germany and America also showed that the acceptance between demographic groups is different. The highest acceptance for AR features is in the Generation Z³ and Generation Y⁴. These generations will soon become the major generations for which companies need to align their marketing strategy since the buying power of them is increasing with the raise in age.

1.2 Problem statement

The analysis of the current literature in AR marketing showed several undiscovered research areas. Most of the studies focus on the customer usage of AR but neglect the implications for companies and marketers, and how they will be affected by the increasing use of AR. This study aims to give a holistic insight into the literature around AR and subsequently give marketers the knowledge if AR can enhance their marketing efforts and what decisions they will face by implementing AR (Decision Tree). Therefore, this thesis aims to provide insights into **how businesses can effectively incorporate AR into their marketing strategies to enhance the customer experience and achieve marketing objectives in the German market.**

¹ Compound Annual Growth Rate.

² A marketer is a person or company that markets goods (= makes them available in a way that encourages people to buy them, for example by advertising) (cambridge dictionary, n.d.).

³ Generation born between 1997-2012.

⁴ Generation born between 1981-1996.

For answering the research question the following objectives have been set:

- To examine the impact of AR on marketing practices in the B2C sector of the German market
- To identify strategies that businesses can use to effectively leverage AR in their marketing strategies
- To identify best practices and key success factors for incorporating AR into marketing strategies
- To analyze the marketing campaigns of companies in the B2C sector in the German market that have successfully integrated AR into their marketing strategies

1.4 Scope and limitations of the study

This study focuses on the impact of AR on marketing practices in the B2C sector of the German market. The research will include a comprehensive literature review with selected case studies and the use of a qualitative research to investigate the impact of AR on marketing practices. Since the study is qualitative it will have several limitations. The limitations which are prevalent are sampling bias, generalizability, subjectivity, reliability, and validity. To mitigate the risks, the study will use a purposive sampling strategy which includes professionals with relevant experience in the field of AR and marketing in the B2C sector for the German market as well as a clear rationale for the selection will be used. Since the study is of explanatory nature the study will not be able to generalize for different countries or the B2B sector since the research has been only conducted for the German B2C sector. Additionally, the use of qualitative analysis techniques such as the use of deductive coding involves a degree of subjectivity in the interpretation of results. To minimize the potential bias the process of analysis will be transparent and well-documented in the methodology chapter. The reliability and validity of the findings might be limited by the qualitative research. Therefore, the analytical techniques will be well-documented and transparent.

1.5 Significance of the study

The conducted research is significant since the current literature is focusing mostly on the consumer perspective of AR but neglect the impact for companies. Only two research papers (Berman & Pollack, 2021; Bona et al., 2018) have been identified which focus on the company perspective but they neglect significant questions which companies need to address before using AR in their marketing strategies. (Berman & Pollack, 2021) focusses on the successful implementation but only emphasizes on the implementation when the decision of using AR has been made. (Bona et al., 2018) focuses on the current usage of AR by companies but neglect the considerations companies need to make before using AR in their marketing strategy. Therefore, this thesis with its holistic design will cover the considerations which are needed to be made by companies to effectively incorporate AR into their marketing strategies and to enhance the customer experience and achieve marketing objectives in the German market. With

this research design the study will contribute to the existing literature on AR and marketing and identifies best practices and key success factors for incorporating AR into marketing strategies.

1.6 Overview of the thesis

This thesis aims to provide insights into **how businesses are currently using AR and how they can effectively incorporate AR into their marketing strategies to enhance the customer experience and achieve marketing objectives in the German market.** The study will use a comprehensive literature review and qualitative research approach to investigate the impact of AR on marketing practices.

The research objectives include:

- To examine the impact of AR on marketing practices in the B2C sector of the German market
- To identify strategies that businesses can use to effectively leverage AR in their marketing strategies
- To identify best practices and key success factors for incorporating AR into marketing strategies
- To analyze the marketing campaigns of companies in the B2C sector in the German market that have successfully integrated AR into their marketing strategies

Chapter 2 lays the groundwork for analyzing the research question with terminological definitions followed by key frameworks which will be used to analyze the use cases and to develop a framework on how companies can use AR in their marketing strategies. The main frameworks which have been identified in developing a comprehensive guide for implementing AR by companies is the marketing strategy concept by (G. Greenley et al., 2001), the customer journey map, the value pyramid concept by (Almquist et al., 2016) and the guideline for successful implementation of AR by (Berman & Pollack, 2021). Chapter 3 explains the used methodology of the study and the reasoning behind the used methodology. Chapter 4 is dedicated to the qualitative part of the study which include the data collection and analysis process as well as the findings which have been extracted from the interviews with experts. Subsequently, Chapter 5 concludes the work which has been done by revisiting the research questions, summarizing the results, conclude about further research and what limitations this study has.

2. Theoretical perspectives on the integration of AR in the marketing context

The aim of this chapter is to theoretically explore the current literature and give an overview about AR marketing and the underlying frameworks to analyze based on the literature use cases by companies. However, firstly the thesis describes and distinguishes AR from VR to determine for the subsequent use, if the applications which have been analyzed are truly AR or can be considered VR. Subsequently the

chapter 2.3 discusses the current market environment in Germany, the technological perspective of AR as well as the AR adoption by customers. Further chapter 2.4 discusses the used frameworks for the analysis of the AR use cases which will lead to the development of the decision tree in chapter 5.4 Therefore, the marketing audit which includes marketing levels, goals and assets will be elaborated and the marketing audit cube will be presented. Since AR marketing is a multifaceted discipline which is not simply an add-on to marketing efforts by a company, it has been also further analyzed what intercorrelates with the development of an AR marketing strategy. Therefore, the marketing strategy concept from (G. Greenley et al., 2001) has been used to give further understanding of what considerations must be made for developing a successful marketing strategy. Further, the value creation by AR will be discussed and the model of the value pyramid by (Almquist et al., 2016) will be presented which has the potential to enhance the company's decision making not solely in regard to AR but also to enhance their overall marketing efforts. Furthermore, an example customer journey map will be shown with a summary of the discovered positive as well as negative aspects of using AR. Additionally, the chapter 2.4.5 shows an implementation framework by (Berman & Pollack, 2021) for AR which will be adjusted and revised with additional considerations in the further dissertation. Followed by that, success measurement techniques and challenges will be presented. Lastly, based on the knowledge which has been analyzed a use case analysis will be conducted to examine the impact of AR on the current marketing practices and if AR can be a valuable tool for marketers to use.

2.1 Methodology Literature review

A comprehensive literature review has been conducted based on Scopus research. The identification of relevant sources has been done based on a key word research with the following keywords (Table 1) which have been subdivided into the following parts:

Topic: The role of augmented reality on marketing practices in the B2C sector for the german market		
Topic Formulation	Keywords:	Inserting into Scopus:
Role:	Part, aspect, performance, presentation, representation, adopt, adaptation, coping, cope, coping mechanisms, adjustments, adaptability, adaptivity	TITLE-ABS-KEY ("Role*" OR "Part*" OR "Aspect*" OR "Performance" OR "Presentation*" OR "Representation*" OR "Adopt*" OR "Adaptation*" OR "Coping" OR "Cope" OR "Coping Mechanism*" OR "Adjustment*" OR "Adaptabil*" OR "Adaptiv*" OR "Perception*" OR "Adoption*" OR "Customer Satisfaction")
Augmented Reality:	advanced reality, exaggerated reality, probable reality, extended life, possible reality,	TITLE-ABS-KEY ("augmented realit*" OR "advanced realit*" OR "exaggereated realit*" OR "probable realit*" OR "extended life" OR "possible realit*" OR "ar" OR "Mixed Reality" OR "Augmented Reality and Virtual Reality")
Marketing:	commerce, retailing, purchasing, selling, buying	TITLE-ABS-KEY ("Marketing" OR "Commerce" OR "Retailing" OR "Purchasing" OR "Selling" OR "Buying" OR "Sales" OR "Retail" OR "Electronic Commerce" OR "Online Shopping" OR "E-commerce" OR "Marketing Strateg*")
B2C sector:	Retail, Business to customer, Retail Sector, Business to Customer Sector	TITLE-ABS-KEY ("B2C" OR "Retail" OR "Business to Customer" OR "Retail Sector" OR "Business to Customer Sector")
German:	n/a	n/a
Market:	n/a	n/a

*If every version of the word

Table 1: Keyword search Scopus

The initial search showed 292 results without subsequent filtering. To further specify the papers for relevancy the results have been filtered by language (English only) and by subject area (business, management & accounting). After conducting this limitation 97 results have been identified.

Additionally, the research showed that the public interest into AR topics was rather stable from the years 2003 till 2015. Followed by that AR gained interest till 2020 and had a significant development in interest in the past two years. This increase in interest and lack of research in specific areas is one of the key factors why the topic has been chosen for the dissertation. Below you can see the graphical presentation (Figure 1) of the development of scientific papers from 2003 till the beginning of 2023.

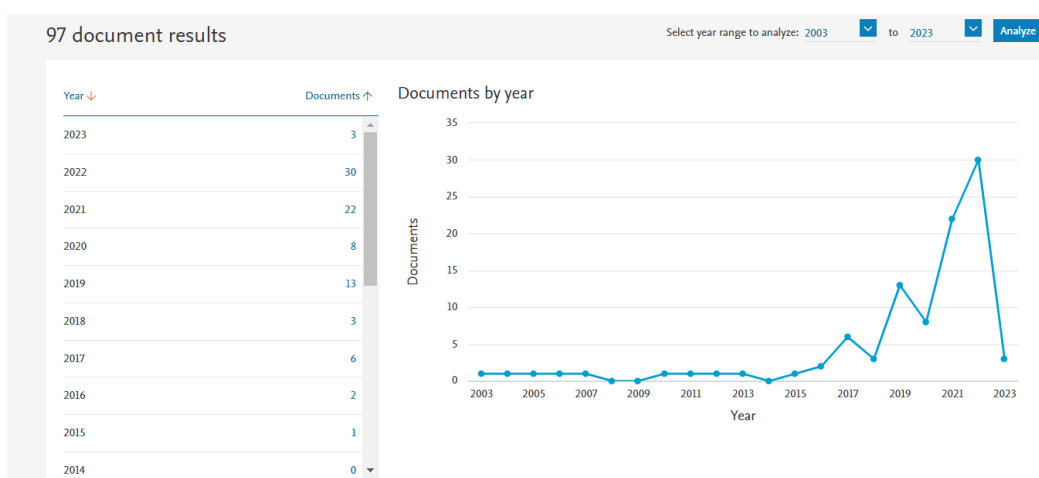


Figure 1: Development of scientific papers around AR Marketing (Scopus, 2023)

The rationale for the selection of the articles was:

1. Most current published papers have been preferred.
2. Screening of abstract if information's could align to research.
3. Credibility of the authors.
4. Peer-reviewed articles.

Followed by the initial screening, the selected articles have been reviewed by reading the abstract to see if the information is somehow linked to my dissertation. Based on the initial keyword research the snowballing technique has been used to get relevant primary data. Additionally, Instructors at the Graduate School of Management in the Saint Petersburg State University and professionals in the field of marketing were also consulted. The majority of cited references were within the last 5 years. A few researchers were included from previous decades to establish foundational concepts that continue till today. Additionally, company resources of leading key opinion leaders have been used as well as technology blogs and technology platforms to gain better understanding on the practical side of AR in marketing. The examination of the data in the articles has been done by looking at the methodology which indicate proper research procedures. By reviewing quantitative data, I looked for large sample sizes with a certain degree of diversity in the demographic data. By reviewing this data I also sought information in the data collection that reflected research questions which have been mostly in line with my aim. Lastly, in examining qualitative data, I analyzed the collection procedure and the demographic data to verify that the researchers had adhered to practices that would ensure validity and reliability.

2.2 Terminology explanation

2.2.1 General classifications

Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large (The Universal Marketing Dictionary, 2013).

B2C marketing is the process of selling services and products to individual consumers. Therefore, any organization which is focused on serving the demands, needs and preferences of individuals can be called a B2C company.

AR marketing is defined as the strategic integration of AR experiences, alone or in combination with other media or brand-related cues, to achieve overarching marketing goals by creating value for the brand, its stakeholders, and societies at large, while considering ethical implications (Chylinski et al., 2020; Rauschnabel et al., 2019; Scholz & Smith, 2016). This idea positions AR marketing as a discipline that seamlessly integrates into a business's overall marketing strategy as opposed to being a standalone, one-off project.

2.2.2 Extended reality concept

XR is presented as an umbrella word in the framework given by (Rauschnabel, Felix, et al., 2022) with two separate sub streams: AR and VR, each of which has its own continuum (Figure 2).

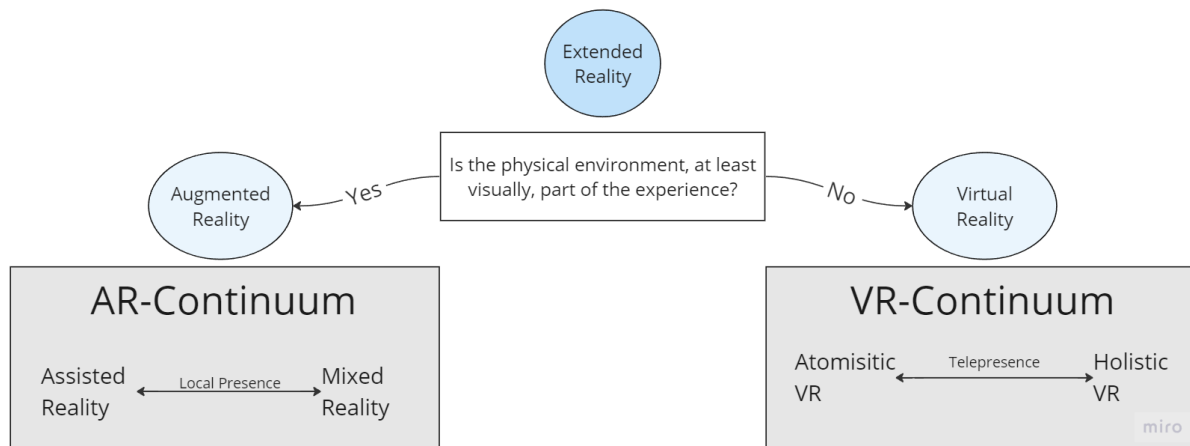


Figure 2: AR classification in the extended reality (Rauschnabel, Felix, et al., 2022, p. 6; adjusted design)

This approach is distinct from the pre-existing categorizations, which place AR and VR (Virtual Reality) on the same continuum. To the best of knowledge, this paradigm is also the first to incorporate all regularly used terms—including AR, VR, XR (Extended Reality), MR (Mixed Reality), and assisted reality—into a single, cohesive framework. There are numerous older (Milgram & Kishino, 1994) and more modern frameworks on various parts of reality (Farshid et al., 2018; Flavián et al., 2019) which remain silent on some aspects of reality. The distinction between AR and VR is made by (Rauschnabel, Felix, et al., 2022) and is not reliant on the devices a person uses, but rather, it supplements definitions that are more technology focused. One might classify a wearable gadget that keeps the user from seeing the real world as VR, but it might also have cameras to record it for AR applications. Users could be able to use this to change from VR to an AR mode that let them see videos. Even if the device might support both AR and VR, a user might only be using one of them at once. Furthermore, shared experiences, which are sometimes referred to as "metaverses," might also be included in the framework. Here, several users spread across various physical locations might communicate in a shared experience using either AR or VR; some users would perceive the others as holographic avatars while some would communicate from a VR environment. The framework also recognizes that not all AR and VR experiences are created equal. Separate continua for AR and VR are suggested, and they describe how complex the experiences are in the user's eyes. Additionally, managers frequently seek to use XR to address business challenges. While it is true that XR cannot fix every issue, the framework further argues that it is crucial to distinguish between AR and VR, and its sub forms in particular. For instance, AR, and particularly MR, is probably helpful if a corporation needs to walk its production staff through a certain activity. However, mixed reality might be the most effective method for letting a buyer visually experience a product in their home. However, VR might be the ideal option if the company wants to

give customers a better understanding of their production environment. But in every situation, the target customer's ability to access gadgets is vital (Rauschnabel, Felix, et al., 2022). The functional degree of the user experience can range from very basic (assisted reality) to extremely realistic and participatory experiences (mixed reality). (Rauschnabel, Felix, et al., 2022) suggests that the main differentiation on the continuum should be the extent of the experience's local existence. Simple text overlaid on data from the real world, for example, suggests assisted reality at low levels, while mixed reality at high levels. Users might not be able to tell the difference between virtual and real content in a true mixed reality because of the high local presence; they might truly see it as being in their physical environment. Higher telepresence levels in VR correspond to a greater sense of immersion in the simulated environment. According to the VR continuum of the XR paradigm, user experiences fall somewhere between the extremes of atomistic and holistic VR. Atomistic experiences typically have a more practical purpose, are simplistically created, and involve little to no involvement. Multisensory, complex, social encounters are characteristics of holistic VR experiences. Similar to AR, higher levels of telepresence can cause a flow experience of "time flying by" and prolonged use, which may not always be beneficial.

2.2.3 AR Definition

A user's real-time perception of their actual world is combined with context-specific virtual content using computing devices to create AR. Depending on the degree of local presence, AR can be further honed, ranging from assisted reality (low) to mixed reality (high). This definition calls for a more thorough description of a few components. First, it can be difficult to say when fused forms of virtual and actual items first start to resemble AR. For instance, the original Snapchat Glasses are frequently referred to as AR, although according to the glasses, the real world is first captured by a camera, and then (not immediately) virtual features are added to a user's smartphone or tablet. A real-time version of this would be AR. Second, AR material needs to be related to the user's actual, physical environment, which may potentially involve the user. Third, the word "hybrid" reflects the widespread belief that AR experiences must combine actual content with digital content and require that the two coexist. The concept of (Rauschnabel, Felix, et al., 2022) does not disallow the experience with, for example, acoustic digital content solely. However, most of the time, the main digital content is visual. Fourthly, while AR is not hardware-dependent, each technology has some distinctive qualities that specify whether an experience qualifies as AR or not. The AR experience takes place on a transparent screen in video see-through AR. As a result, while a standard digital picture frame or screen in a living room may affect how a person perceives the space as a whole, this is not called AR. In contrast, AR would be used to describe a virtual TV screen that people view with AR smart glasses that exclusively use optical see-through technology. Virtual items displayed on the screen must be a part of the experience in optical see-through AR. The projected content in projection-based AR needs to be digitally managed and

registered to the real world. An ornamental color light would not be regarded as AR. Similar ideas may be applicable in non-visual AR, even though the majority of AR discourses often focus on visual content. There, the content must also instantly meld with a certain situation (Rauschnabel, Felix, et al., 2022). For additional information the definition of VR will be discussed in the appendix A1.

2.3 Environmental and technological perspective of AR adoption

Since AR is still in the early stages of the implementation and only a small number of companies use AR in their marketing strategy this chapter will discuss, several perspectives of the AR adoption, including an environmental analysis, the AR adoption by companies and users, the technological development/perspective of AR and what issues and challenges are marketers facing. Therefore, firstly the changing environment from VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) to BANI (Brittleness, Anxiety, Non-Linearity, and Incomprehensibility) will be elaborated and subsequently the adoption of AR will be explained by referring to the Gartner Hype Cycle concept. Further, it was visible by the literature that there are also a lot of misconceptions around the complexity of the implementation of AR in a technological sense. Therefore, the chapter 2.3.3 provides knowledge and discusses the technological component of AR. Lastly, the chapter 2.3 will conclude with the most mentioned challenges what marketers are facing. The generated knowledge in that chapter will be further necessary, especially for the chapter 2.4.2 in regard to the development of the marketing strategy since the internal capabilities and the external market environment play a significant role in increasing the firm's performance. Hence the information will contribute to the development of the decision tree in chapter 5.4.

2.3.1 Environmental Analysis

The corporate climate has changed dramatically in recent years, necessitating the adoption of new models to handle the obstacles. The VUCA paradigm was developed to characterize the current corporate world's issues (Bennett & Lemoine, 2014). But, when new issues develop, the BANI paradigm has been proposed as a more appropriate framework (Mitzkus, 2022). The switch from VUCA to BANI has a number of ramifications for the function of AR in B2C marketing in Germany. The BANI model acknowledges that the business environment is becoming more fragile, with little changes having major repercussions (Mitzkus, 2022). This means that companies must be adaptable and sensitive to changing market conditions. AR can assist B2C firms in Germany in responding to these developments by giving customers with a more immersive and engaging buying experience. Because the BANI model is non-linear, firms must be able to adjust to changes in a non-linear manner (Mitzkus, 2022). By offering real-time data on customer interactions with products and services, AR may assist businesses in adapting to changes in consumer behavior and preferences. This can help organizations make more educated marketing and product development decisions. Moreover, AR may improve the efficacy of product

demonstrations by assisting buyers in better understanding the characteristics and benefits of items (Dacko, 2017). Lastly, the BANI model's incomprehensibility acknowledges that the business world is growing increasingly complicated and harder to comprehend (Mitzkus, 2022). AR may assist businesses in simplifying this complexity by giving customers with more intuitive and user-friendly interfaces. Further AR can assist to boost consumer engagement and happiness, which can lead to higher sales and income in the long run. Finally, the switch from VUCA to BANI has a number of ramifications for the function of AR in B2C marketing in Germany. Businesses may employ AR to deliver a more immersive, engaging, and user-friendly buying experience for customers by understanding and reacting to the problems of the current business environment. The graphical illustration can be found in figure 3 below.

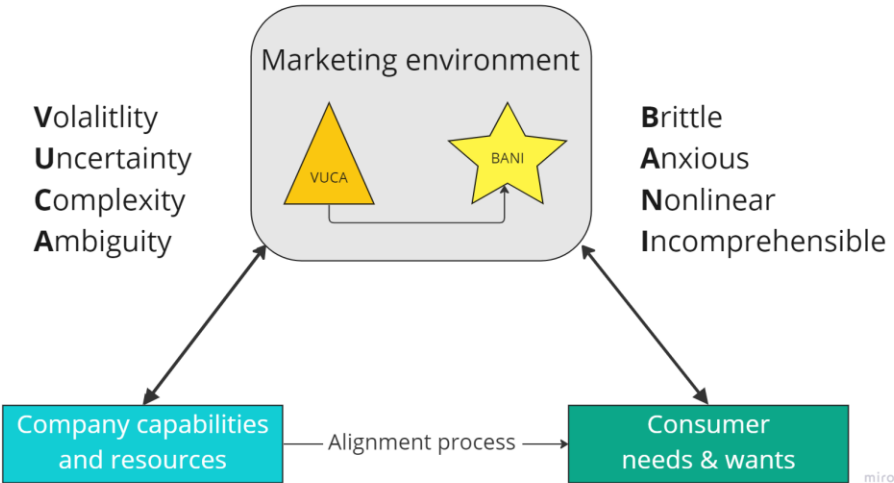


Figure 3: Change of Marketing Environment (Alkanova, 2023, p. 9; own design)

2.3.2 AR adoption

An analysis by Deloitte showed that by 2023, over 20 million consumers in Germany will be using AR functionalities on a regular basis, which represents almost 25% of the German population⁵. As a result, the number of active AR users will increase by an average of over 50 percent per year over the next five years (Figure 4). AR will establish itself sustainably as an essential feature in the mobile ecosystem (Böhm & Esser, 2018).

⁵ Source: Statistisches Bundesamt DESTATIS (https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/_inhalt.html) retrieved 17.04.2023

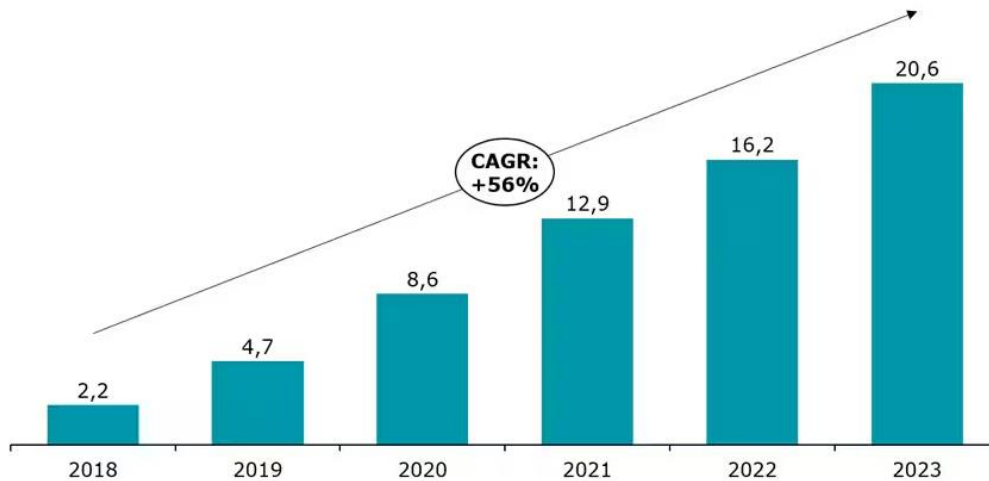


Figure 4: Number of active mobile augmented reality service users in Germany (mil) (Böhm & Esser, 2018, p. n/a)

Additionally, ARtillery Intelligence estimates that globally the AR active devices are going to grow to 1.67 billion by 2025 as more advanced hardware cycles in, and as AR acclimates culturally (Boland, 2021). With the use of five stages—innovation trigger, peak of inflated expectations, trough of disillusionment, slope of enlightenment, and plateau of productivity—Gartner's hype cycle technique illustrates how new technologies develop from their infancy to their mature productivity (Gartner, n.d.).

- **Innovation Trigger:** A possible technological advance sets the ball rolling. Media attention and early proof-of-concept reports lead to a lot of exposure. There are frequently no useable goods and questionable commercial feasibility.
- **Peak of Inflated Expectations:** Early publicity results in some success stories, frequently followed by a large number of failures. While some businesses act, many don't.
- **Trough of Disillusionment:** As trials and implementations fall short of expectations, interest dwindles. Technology manufacturers either succeed or fail. Investments only continue if the remaining providers enhance their goods in a way that appeals to early adopters.
- **Slope of Enlightenment:** More examples of how technology may help the company start to come into focus and gain widespread understanding. The release of second- and third-generation goods by technological companies. More businesses support pilots, while conservative businesses maintain their caution.
- **Plateau of Productivity:** Widespread adoption begins to pick up steam. More precise criteria for determining provider viability are now available. The technology is clearly benefiting from its broad commercial application and relevance.

According to the Gartner assessment, AR has become so mature and productive that it should no longer be considered an emerging technology. Gartner included AR the last time in 2018, when it went through

the stage “through of disillusionment” (Figure 5) (Gartner, 2018). By 2021, one-third of all businesses will be using multipipeline platforms, including AR, according to a Gartner prediction. When AR reaches maturity, a number of important things will happen. These include a larger market for AR applications, better consumer standards for AR quality, and more usage of AR across a wider range of customers (Herdina, 2020). Global COVID-19 lockdowns have accelerated AR's quick consumer adoption. Customers who are unwilling to purchase in stores can utilize AR as a viable alternative to open storefronts, and both online and in-store customers can benefit from it as a valuable source of product knowledge (Berman & Pollack, 2021).

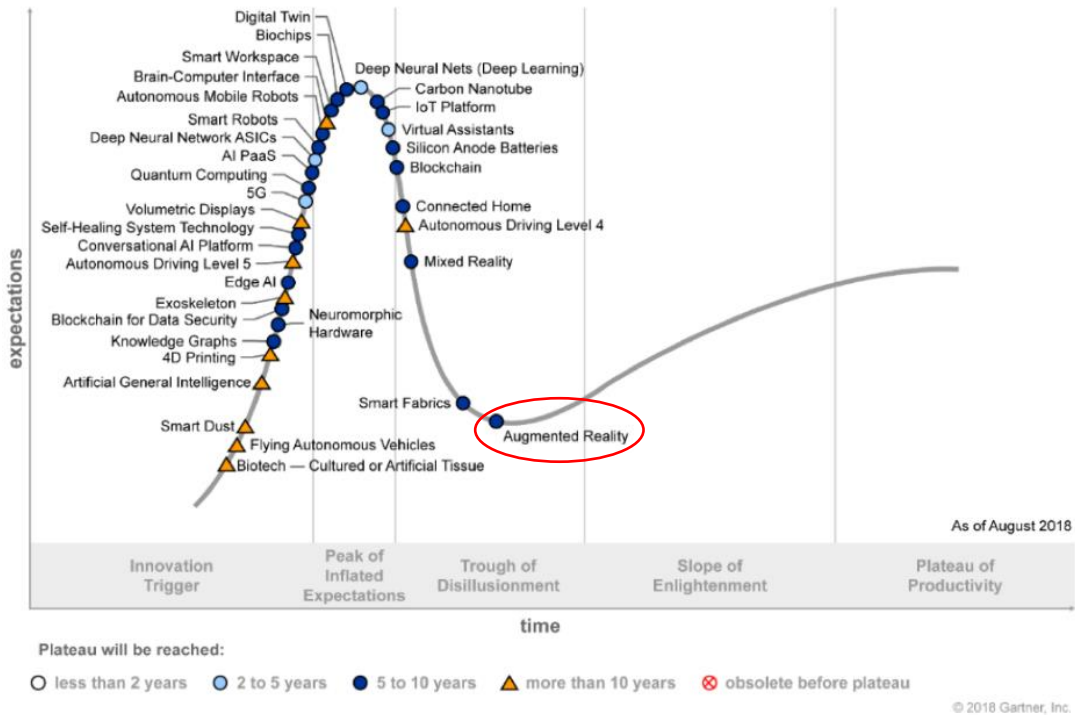


Figure 5: Gartner hype cycle 2018 (Gartner, 2018)

Adoption by consumers:

The use of AR integrations is rising across several industries, which is fueling the global AR market's explosive expansion. The AR market is expected to generate more than \$25 billion in sales by 2023, and more than \$50 billion by 2027. According to estimates, there are already 1.4 billion active AR user devices in use, and in the US, 3 out of 4 persons under the age of 44 are aware of AR. American consumers mostly use AR for gaming, but more people are starting to use it for shopping. Nearly half of all consumers say that AR-based shopping makes shopping more enjoyable and leads to higher spending (over 55% of shoppers agree). Within the following five years, the AR market is anticipated to quadruple, and by 2030, it is anticipated that the economic value of AR in the automobile sector would range between \$4 billion and \$7 billion. By 2023, sales from consumer and business AR glasses software and hardware had surpassed \$6.5 billion, and by 2026, it was expected to reach over \$35 billion.

The market for AR headsets delivered slightly over 11 million units in 2021; it is anticipated to more than quadruple to 23 million units in 2023; and to ship more than 50 million units in 2026. The data shown here indicates that although AR is a new business, it has a bright future in a variety of industries (Howarth, 2022). Under consideration of the growth potential and the current users I personally expect that AR applications can create increasing value to potential customers. However, it should be mentioned that even with the significant growth the design of the application should be perceived as value enhancing (Chapter 2.4.3) by the customer. Already two years ago, "Pokémon Go" triggered a worldwide hysteria and caused millions of people to hunt virtual monsters on the streets via smartphone. But just as quickly as the AR game had come, the interest has also decreased again. Since then, no AR-based game has been able to establish itself even remotely as successfully (Bitkom e.V., 2018). Therefore, it needs to be cautiously considered if the product will lead to a continuing success or will develop as a fad⁶ product.

Resistance in AR adoption by companies

In spite of recent technology advancements and rapid AR industry expansion, many businesses still do not include AR into their overall marketing planning process. Only one out of ten businesses have AR properly integrated into their marketing strategy, according to a Boston Consulting Group assessment of 26 top marketing executives in the United States (Bona et al., 2018). Retail, fashion and beauty, gaming and entertainment businesses were more likely to use AR than businesses in other sectors. According to a different study, 51% of businesses did not yet have an AR/VR plan in place (Jabil, 2018). According to Tech Pro's research, 20% of respondents had no knowledge about AR technology and 42% had only a passing familiarity. As a result, 37% of the companies that responded did not have an adoption timeline and 34% were not even contemplating adopting AR (Maddox, 2016). Many businesses continue to doubt the worth of AR. According to 34% of respondents in Gartner's report on the Top Technology Trends for Small and Midsized Businesses, AR is essential for business. In contrast, 22% of respondents said AR was not required for their organization, and 44% said it was good but not essential (Bose, 2019). The majority of participants $\frac{2}{3}$ said that AR was either unneeded for their present business or good but not required. According to a different survey, respondents mentioned that the main barriers to widespread usage of AR are, user experience with 32% (bulky hardware and technical issues) and content offers with 19% (lack of high-quality material and availability of information). The widespread usage of large headsets is a significant barrier. These headsets have a constrained field of view and need to be connected to a computer, smartphone, or smart TV (Berman & Pollack, 2021).

⁶ A fad is a product that has little, if any, utility but is characterized by a quick rise in sales and popularity followed by a quick decline in sales and popularity (American Marketing Association, n.d.)

Additionally, descriptive research of 127 German managers was undertaken by (Rauschnabel, Babin, et al., 2022) in February 2022 to learn more about the various aspects of AR marketing. The respondents worked for organizations (>10 workers) that fill roles relevant to B2C marketing and have backgrounds in marketing or similar subjects. The information was gathered in Germany in 2020 via an online poll. Even though the ad hoc survey results are exploratory and based on a small sample, the findings showed that 22% of the survey managers stated they were very familiar with AR, 28% had already engaged with AR professionally, and 39% had personal experiences with AR.

As seen in Figure 6, 15% of managers (referred to as "planners"; n=19) anticipate using AR Marketing in the near future. 17% (n=21) already use AR Marketing in certain areas, and 8% (n=10) apply it strategically (combined to "users", n=31). A majority (60%, n=76) are currently not using AR ("non-users", n=76; n/a=1). The main reason for currently not using AR Marketing is a lack of established AR Marketing tools within their specific industry (63%). However, none of the managers sees no future in AR.

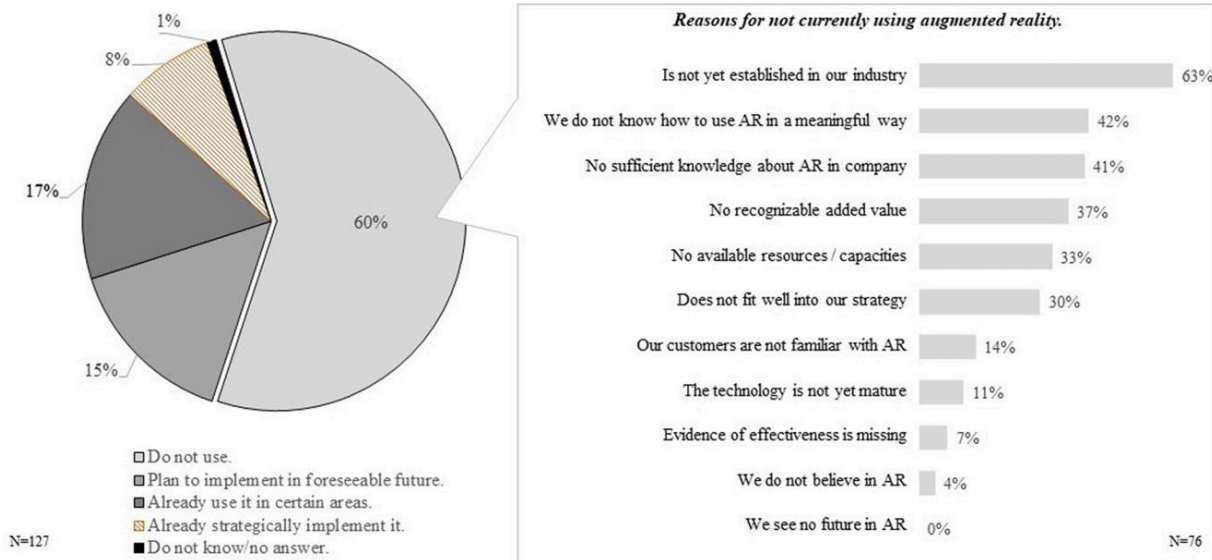


Figure 6: Augmented Reality Marketing usage (Rauschnabel, Babin, et al., 2022, p. 1141)

To conclude, it can be said, that AR has significant potential and is becoming increasingly important in various industries. However, the resistance into adoption by some businesses and the need for value-enhancing implementations should be considered. Therefore, the research on AR which is conducted within this thesis will help to eliminate the misconceptions and aims to help marketers to fully understand the potential and how to overcome barriers of the implementation.

2.3.3 Technological perspectives on AR usage

There are two main ways to employ AR technology: **mobile AR**, which largely uses smartphones and tablets in the consumer market, and dedicated **AR devices**, such as smart glasses, which are mostly used in the B2B market. Since widespread adoption of dedicated AR devices is not apparent in the current time, we will focus mostly on mobile AR technology (Böhm & Esser, 2018).

Hardware Prerequisites

High requirements are placed on the AR hardware. While entry-level and mid-range smartphones and tablets may be used to run basic AR apps, the hardware requirements for the current generation of AR content, which has a high user benefit and enjoyment factor, are much greater. A flawless AR user experience requires the usage of strong processors since AR apps need billions of operations per second to produce images perfectly. The most recent version of Apple's AR development framework (ARKit) is only supported by the newest versions of devices with powerful CPUs. Similar to that, ARCore-based AR products are only available to a select group of users since they need an updated version of the Android software and hardware that is at least as powerful as a Samsung Galaxy S7. In order for AR applications to function properly, cameras must have the capacity to discern precise spatial depths, which is crucial. Future smartphone generations will employ three lenses to triangulate their position in a room, while dual cameras currently provide greater accuracy. Time of flight⁷ and other quantitative techniques promise to make additional progress. These techniques detect distances using laser light while simultaneously recording motions and geographical data. Apple iPhones started to use Time of Flight cameras in 2019. Apple's iPhone X employs infrared Structured Light front cameras to determine face recognition depth. The high energy consumption of AR apps, which call for the simultaneous usage of the three most power-hungry smartphone parts -the camera, CPU, and display- represents another big hardware barrier. Demanding AR apps use one to two percent of a typical smartphone's battery capacity per minute. The most potent batteries with the quickest charging times will be installed by device makers, who will concentrate on the already important battery issue. Current energy sources will ultimately be replaced by new ideas like solid-state batteries, fuel cells, or batteries based on the nanostructured carbon material graphene, but it will take some time for these technologies to be ready for the market (Bitkom e.V., 2018).

Content Prerequisites

The development of engaging AR content is at least as crucial as the development of hardware requirements. By providing integrated software development kits that enable developers to improve motion tracking, dynamic lighting calculations on virtual elements, and reliable recognition in space,

⁷ A time-of-flight camera, also known as time-of-flight sensor, is a range imaging camera system for measuring distances between the camera and the subject for each point of the image based on time-of-flight, the round trip time of an artificial light signal, as provided by a laser or an LED.

among other things, Apple's ARKit and Google's ARCore have established a new foundation for high-quality AR content. Either a separate AR app or AR technology integrated into another app will be used to provide this content (Bitkom e.V., 2018).

Consumer Sector

Six key areas will see the establishment of AR products in the consumer market: social networks, learning material, retail, advertising, navigation, and gaming. In this early stage of the industry, users already have access to a wide variety of AR content options thanks to the effort being done by app developers on various AR content offers. A Deloitte market analysis shows that retail and navigation & travel guides are the most popular, followed by AR-based learning content. The potential for AR to develop into a technology with several diverse uses is shown by the interest in various content categories being fairly evenly distributed (Bitkom e.V., 2018).

Web-Based AR

Web-based AR and application-based AR are the two subcategories of AR. The latter is reachable immediately from smartphones by a straightforward URL link, QR code, or tap on an NFC tag, whereas the former can only be accessed by installing an application from a store. Because these technologies are common to the majority of mobile devices and browsers, web-based AR is widely accessible and provides a consistent user experience. With the help of the WebAR technology, consumers may enjoy AR experiences straight from their smartphones without having to download anything. Due to the new support capabilities that mobile browsers are introducing, WebAR experiences are expected to keep getting more intricate and detailed. This involves enabling the RGB camera, gyroscope, accelerometer, orientation, and magnetometer of the device to be used by AR. In order to position a digital model inside a real-world context, WebAR needs six degrees of freedom. In order to manipulate a 3D picture, WebAR must be able to track a model's three axes of orientation and three axes of position. WebAR technology synchronizes the virtual and physical worlds through camera stream access. An RGB camera must be utilized to give perspective and range of view in order to improve a physical area with an AR experience. For WebAR to locate a 3D item inside a real-world environment, scene comprehension is necessary. This is the capacity of a mobile device to map a surface and calculate the ambient light. The cloud-based CMS (content management system) completes WebAR by providing users with access to an AR experience via a variety of triggers. Retailers may utilize web-based AR as a tool to assist customers with their buying selections. Audiences find WebAR entertaining, and it is a powerful tool for spreading commercial messages. An open-source package called *AR.js* is used for AR web development. With the help of this framework, users can easily construct captivating WebAR experiences. Despite being user-friendly, *AR.js* can provide 60 FPS⁸ experiences on both Android and iOS. The app-based development

⁸ FPS = Frames per second

framework Vuforia is robust and easy to use. It has cutting-edge marker less AR technology, which improves stability while putting digital items in a real-world setting (Rockpaperreality, 2021).

It is evident from the information above that there are several possible applications for AR technology. The development of engaging AR content and the necessary technology, however, are significant obstacles that must be overcome for AR to realize its full potential. Retailers may utilize AR as a tool to assist customers in making judgments about their purchases, and its power and performance are only expected to expand as huge tech firms continue to promote it. This chapter will be subject for the creation of the decision tree and to give marketers an overview of what technological considerations should be made before engaging in the development of an AR campaign.

2.3.4 Challenges for marketers with AR

Marketing is an essential component of any organization, and the B2C industry is no exception. Marketing methods have changed dramatically as new technology such as AR have emerged. These developments, however, bring with them several concerns and challenges that must be handled. Subsequently some of the concerns and obstacles that marketers encounter will be discussed (Figure 7).

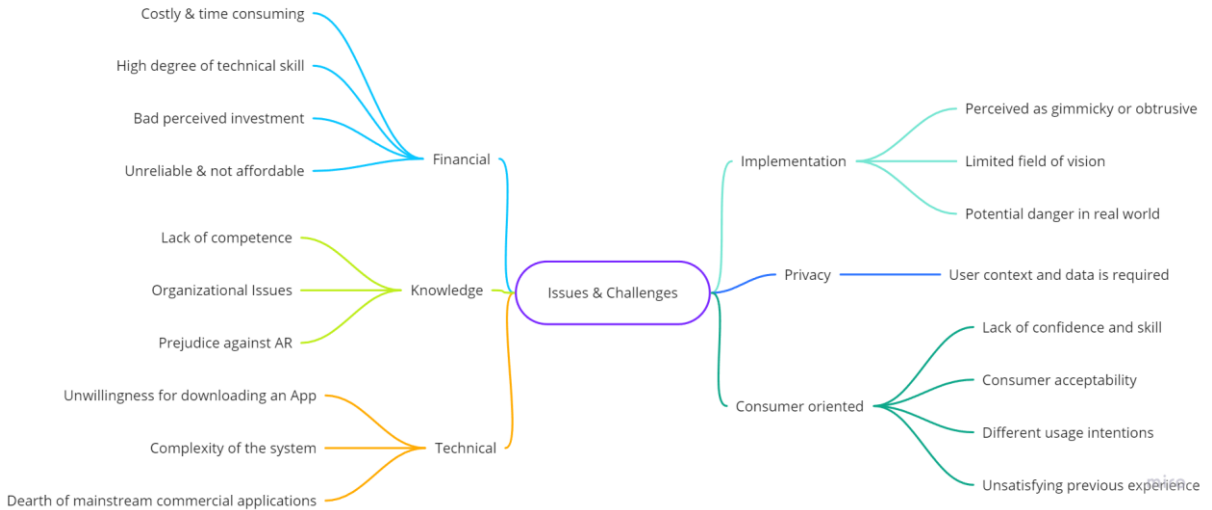


Figure 7: Issues and challenges in AR marketing (own design)

Financial

- The expense and time involved in generating AR content is one of the key hurdles of adopting AR in marketing. Creating AR content may be costly and time-consuming, which may be prohibitive for small enterprises with limited resources. Because AR technology is still in its early stages, the expense of deploying it can be too expensive for many firms. This is especially true for small firms that may lack the financial resources to invest in such technologies.

According to intelivita the cost for a simple AR application can range from \$10,000 to \$50,000 dollar whereas medium and complex AR applications can range from \$50,000 to \$800,000. This high cost can be a significant barrier for businesses that want to use AR in their marketing campaigns (Bhatt, 2023).

- Moreover, AR experiences can be challenging to execute successfully, necessitating a high degree of technical skill as well as user testing to guarantee they function as intended. This degree of technological skill may not be available to all marketers, making effective implementation of AR marketing difficult (Bona et al., 2018).
- The perceived investment expense and unpredictability, particularly for small enterprises, are significant barriers to AR adoption (tom Dieck & Jung, 2017). However, because startup expenses can be substantial, organizations that work on AR projects occasionally run into financial difficulties. Due to the unfamiliarity with AR technology, significant resources must be committed to training, hiring a qualified team, and development projects (Guo et al., 2019; Ng & Ramasamy, 2018).
- (Javornik, 2016b) notes that the early versions of AR did not find widespread acceptance since they were not reliable and affordable. Therefore, to provide higher consumer value and boost brand equity, AR applications should be financially feasible and accessible (Rauschnabel et al., 2019). Therefore, the research advises doing a thorough analysis of businesses' potential for integrating new technologies.

Knowledge

- One of the most significant obstacles for marketers is a lack of understanding and competence in the use of AR technologies. Many marketers are unfamiliar with the technology and may be unsure of how it works or how to properly use it. According to a McKinsey & Company report, 31% of marketers lack internal experience in technology and how it may be applied in marketing campaigns. This lack of information might result in unproductive marketing initiatives that fail to reach the intended audience. As a result, marketers must better grasp AR technology and how it can be leveraged to develop compelling marketing campaigns (Bona et al., 2018).
- Organizational issues may arise from the use of AR in marketing. These are connected to the businesses' current business environments and the requirement to create new procedures when implementing AR in marketing. Given the infancy of the technology, marketers may view the lack of knowledge and the ambiguity around AR deployment as a significant roadblock preventing the desire to utilize AR (Ng & Ramasamy, 2018). The adoption of this new breakthrough may also be hampered by the lack of a complete and clear branding strategy for AR (Rauschnabel et al., 2019) and the costs associated with putting AR into practice may slow down the spread of the technology.

- Because the organizational structure for developing and implementing AR is frequently team-based, there may be prejudice among participants from specific functional areas. Logistics managers could worry that their position will change as a result of AR's virtual inventory capabilities. Store display staff may be worried about the effect of AR on store display expenditures, and store managers and salespeople may see AR as a way to boost web sales at the expense of a company's storefronts. If these problems are not handled, AR adoption may not be successful. Collaboration between team members and management helps lessen conflicts by helping everyone understand how AR fits into the company's broader marketing plan. With the right AR software, salespeople may better interact with critical clients whose orders are more likely to be complex while also cutting costs on simple expenditures and increasing related-item purchases (Berman & Pollack, 2021).

Technical

- Another issue with AR marketing is the necessity that people download and utilize a specific app. This might be a barrier to entry and limit the campaign's reach since people may be unwilling to download and utilize a new app. This limitation may result in a smaller audience and lower campaign engagement. AR experiences can also be hardware-dependent, which means they may not be compatible with all devices. This may limit the campaign's potential audience because not all users may be able to access the AR experience.
- Further, system complexity may be a significant consideration when choosing an adoption strategy (Lian et al., 2014). Hardware, extra technological elements, and sub-systems of several layers are all included in AR systems in order to enable interactions between users and the AR device (Guo et al., 2019). The use of AR in marketing also calls for more energy-efficient technology, as some applications may be resource-intensive and require greater processing power (Grzegorzczak et al., 2019a). These complex constraints might negate the advantages of AR and render the technology unusable for a number of retail marketing initiatives. (Ng & Ramasamy, 2018) contend that AR has to be more adaptive and versatile in terms of user interface, storage, and computing power in order to overcome these constraints. (Javornik, 2016b) notes that there is a lack of connectedness in existing AR applications compared to social media and he further elaborates that this may have a detrimental effect on customer engagement with companies. The author also makes the point that if merchants just provide AR apps for in-store use, AR may not be flexible enough.
- Although the advantages of AR in marketing have been extensively studied, their deployment is still hindered by the technology's infancy and the dearth of mainstream commercial applications. Understanding the benefits of utilizing AR in retail-marketing interactions is a challenge for brands wishing to invest in the technology (Li et al., 2020). Marketing scholars

have therefore claimed that AR is still a fresh technology that is shrouded in ambiguity and uncertainty (Grzegorzcyk et al., 2019b; Hopp & Gangadharbatla, 2016; Javornik, 2016a, 2016b). The lack of consistency in social norms (Grzegorzcyk et al., 2019a), customers' low knowledge of existing AR apps (Yim et al., 2017), and the scarcity of AR use cases in marketing are the causes of this uncertainty. For instance, (Pantano et al., 2017) point out that few eyeglasses stores in Germany and Italy have already implemented AR to enhance online and mobile buying. Because AR is still in its infancy, customers are often less certain and more dubious about the practicality and usefulness of these technologies (Scholz & Duffy, 2018). Managers are still cautious to include AR into their marketing strategy, despite the possibility that novelty perceptions and uncertainty might disappear with repeated encounters with the technology (Hopp & Gangadharbatla, 2016; Scholz & Duffy, 2018).

Implementation

- Furthermore, if not implemented effectively, AR experiences might be viewed as gimmicky or obtrusive, which can hurt the brand's reputation (Bona et al., 2018). Another problem for marketers is the ongoing need to adapt to new technology and shifting market trends. With the rapid growth of technology, marketers must stay up with the newest trends and modify their plans accordingly. This may be a difficult endeavor, particularly for organizations without a dedicated marketing team. According to a HubSpot survey, the most difficult marketing task for businesses is generating visitors and leads. As a result, firms must have a specialized marketing staff that can keep up with the current trends and adjust their plans accordingly (Forsey, 2022).
- Real-time rendering and AR visualization capabilities are strong characteristics; however, the issue of AR's restricted optical potential still exists. For instance, (W. Zhu & Owen, 2008) claim that the limited field of vision that AR systems still have prevents users from having a comprehensive view of the AR or a complete sensation of presence. Similar to this, (Javornik, 2016b) points out that owing to the restricted flexibility in the AR viewing mode, which only enables movement to a certain amount, the display capabilities of AR could hinder its great mobility. It takes work to produce computer-generated content with a high resolution. This is necessary in order to compute the position and orientation of the virtual content and achieve high accuracy in the augmentation, as significant location recognition is required. (Blanco-Pons et al., 2019; W. Zhu & Owen, 2008). Therefore, problems with calibration accuracy, registration latency, and object misalignment between virtual and real-world items may limit the potential use of AR in retail marketing (Feng & Mueller, 2019).
- Similar to AR, Diminished Reality is a "negative version of AR that removes genuine material from the real-world," according to the customer. Anything deemed offensive might be an

erasable item, including signs, buildings used for industry, vehicles, or even people (Kari et al., 2021; Rauschnabel, Felix, et al., 2022). Additionally, AR material can put users in danger by diverting their attention from hazards they may face in the real world. Furthermore, prolonged exposure to AR content over an extended period of time may have unknowable effects on users' health.

Privacy concerns

- AR cannot function without user and context-specific data, and this fundamentally differs from other kinds of digital marketing (Dwivedi et al., 2021). For instance, knowledge about a consumer is necessary for efficient targeting in social media marketing. The same is true for AR marketing, but AR also requires a thorough grasp of the environment of the user. These technologies may gather, store, analyze, and interpret enormous volumes of data about a user's actual surroundings, including information about other people and the identification of a consumer's present items (e.g., through face recognition) (Rauschnabel, Babin, et al., 2022). Privacy has been cited as a key issue for the use of AR in marketing in several studies that have been evaluated. For instance, (Feng & Xie, 2019) look at how users react to brands that sponsor virtual try-on apps. The results show that users who have significant privacy concerns often feel invasive and have poor opinions of AR apps, particularly when they may virtually try on clothes. According to research by (Hilken et al., 2017), customers may become less receptive to companies' use of privacy techniques as a result of growing consumer knowledge of these methods. Opponents of AR technology, according to (Carrozzi et al., 2019), blame a lack of privacy for the failure of AR platforms like Google Glass. Consumers frequently experience victimization and lose faith in businesses when their private information is exposed, which raises privacy concerns. (van Esch et al., 2019) place even more emphasis on the idea that when people learn about the surveillance capabilities of AR technology, they may feel uncomfortable and out of control. As a result, the capacity of AR to protect users' personal information creates a barrier that may make users even less willing to adopt the technology.

Consumer-oriented challenges

- One of the main forces behind and indicators of technology adoption is consumer acceptability (Sathye, 1999). This suggests that customers' openness, preparedness, and desire to engage in technological activities rely on the introduction of a new technology in marketing (van Esch et al., 2019; Yim et al., 2017). Since academics have scarcely touched on this subject, there is a dearth of study on consumer acceptability of AR in marketing as of yet. Customers could be hesitant to see AR holograms of items, according to (Carrozzi et al., 2019), if they believe that the objective of doing so is to gather their personal data for marketing purposes. (Ng &

Ramasamy, 2018) contend that when societal difficulties (such privacy concerns) contribute to a technical failure, a domino effect may happen, and the entire population may be unwilling to utilize the particular technology.

- Additionally, different consumers may have different intentions when it comes to using AR. Due to their inability to accurately assess the quality of the items, customers who prefer traditional purchasing experiences may stop using AR (Feng & Mueller, 2019). Similar to this, (Hilken et al., 2017) note that users who are less likely to employ AR's visualization capabilities may wind up depending on their own mental images, negating the usefulness of AR-based augmentation.
- (Hopp & Gangadharbatla, 2016) note that customers may be discouraged from engaging with companies that provide AR-interactive content if they lack confidence and skill in using a new technology. As a result, customer expectations and current ideas about the utility of AR technology have an impact on its reception.
- Additionally, customers won't use AR in the future due to a bad AR experience in the past. Risk aversion is the term used by (Matzler et al., 2008) to describe the scenario when customers want to avoid running into serious uncertainties and ambiguous circumstances. (He et al., 2018) found in their research on tourism that tourists may suffer a failure of the mental imaging process, leading to an ineffective AR experience and a decline in desire to pay, when they are less eager to fully immerse themselves in the virtual environment. When customers suffer social pressure, which can be brought on by threats to their privacy and autonomy, as well as when they project a bad image of themselves, the probability that they will have a negative AR experience increases. (Hilken et al., 2020; Rauschnabel et al., 2019; van Esch et al., 2019). Therefore, when customers are dissatisfied with their interactions and purchases from a brand in the virtual world, there may be significant psychological concerns (Rauschnabel et al., 2019)

To conclude, AR marketing has the ability to transform B2C marketing methods in the German market. It offers clients unique and engaging experiences, which may aid in the creation of compelling marketing campaigns that resonate with their target population. This technology, however, comes with a number of issues and restrictions that marketers must be aware of and manage. Advertisers must carefully assess the expenses of developing AR content, as well as the possible barriers to entry for users. Furthermore, they must guarantee that the AR experience is carried out correctly in order to prevent harming the brand's reputation. Businesses may effectively employ AR in their marketing plans by obtaining a deeper grasp of the technology, thoroughly analyzing its efficacy, and having a dedicated marketing team.

2.4 Discussion of frameworks with use case analysis

2.4.1 Marketing Audit

The aim of this chapter is to give the foundation of the subsequent analysis of the marketing efforts which have been undertaken by companies. Therefore, a decision cube will be introduced with the layers of marketing levels, marketings goals and marketing assets.

2.4.1.1 Marketing Levels

It is important to understand, at which marketing levels AR is currently used by companies. Therefore, this chapter will give the theoretical understanding of the subsequent analysis of use cases and the development of the marketing audit cube. Marketing is an important component of every firm, and it requires several layers of decision-making. Marketing is divided into three levels: strategic, functional, and tactical.

Strategic Marketing:

Strategic marketing is the most advanced degree of marketing decision-making, including long-term planning and goal formulation. The emphasis at this stage is on creating a thorough understanding of the company's target market, finding the greatest market prospects, and positioning the company's products. To do so, firms must address the following issues (P. T. Kotler & Keller, 2012).

1. In which market are we going to compete?
2. How will the market evolve?
3. Which market segments will we serve?
4. What will our market position be in comparison to established technology and ways of doing things?

Functional Marketing

Functional marketing is the mid-level of marketing decision-making, and it entails designing marketing plans and strategies that are in line with the company's broader strategic goals. Product ideation, business model decisions, market research, product development, pricing, and distribution decisions are all part of this level of marketing. Functional marketing entails developing and delivering value to consumers in ways that are consistent with the entire business strategy (Grewal & Levy, 2019).

Tactical Marketing

Tactical marketing is the lowest level of marketing decision-making and entails the use of particular marketing methods such as advertising, promotions, and public relations. This level of marketing is concerned with meeting short-term marketing goals and increasing revenues. Tactical marketing entails the creation and use of marketing tools such as brochures, collateral materials, websites, trade

exhibitions, media, and other activities that are carried out in accordance with strategic and functional choices (P. T. Kotler & Keller, 2012).

Businesses should evaluate all three levels of marketing decision-making when implementing AR into their marketing plan for the German market. AR can provide value in all the stages of the marketing levels, but it should be aligned to the overall companies’ strategy. A graphical illustration about the connection of the three different marketing levels can be found below in Figure 8.

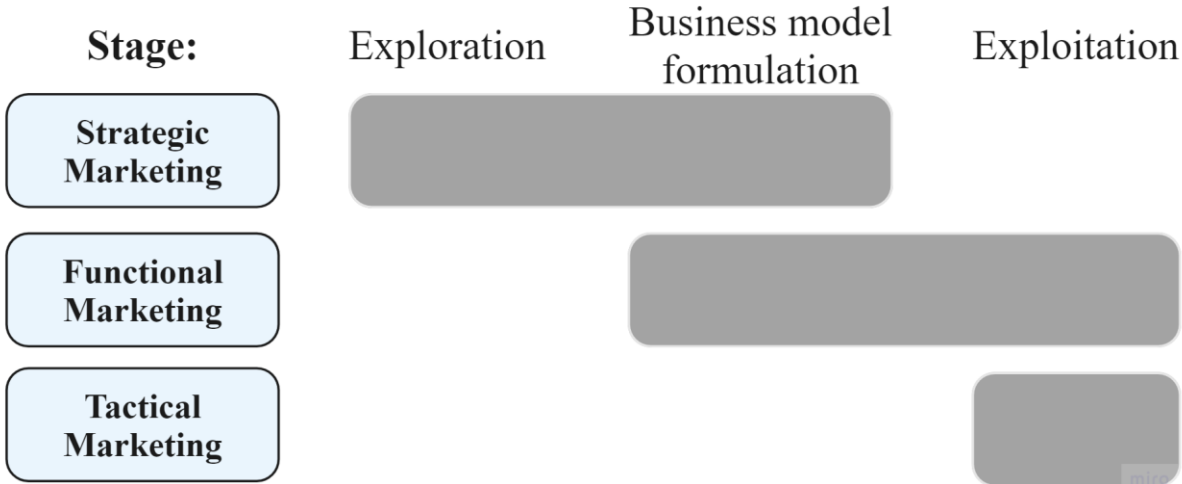


Figure 8: Marketing levels illustration (Smirnova, 2023, p. 50; adjusted design)

2.4.1.2 AR Marketing goals

The aim of this chapter is to introduce the most common AR marketing goals which will be subsequently used for the analysis of the use cases and the development of the decision tree. All traditional businesses want to improve their performance by raising their profits. This aim, however, cannot be achieved merely by announcing that the organization needs to produce more money. To increase profitability, more realistic tactics must be implemented and linked with the company’s business model. The firm's business model explains how the company generates and delivers value to clients, and then turns revenue into profits (Teece, 2010). Companies should first segment the market and develop a value offer for each of the targeted categories in order to construct a viable business strategy. Companies should then create and execute methods to capture value for each segment, as well as isolating procedures to prevent copying by rivals and disintermediation by consumers and suppliers. As a result, marketing objectives should be aligned with the overall business objectives. To increase profitability as a business performance goal, the marketing department can, for example, develop new products to meet customer needs, build customer relationships, and manage the corporate image in order to sell more, increase margins, accelerate cash flow, or reduce cash flow volatility. For additional information on defining to whom companies can sell their products and how, the explanation of the STP (Segmentation, Targeting

and Positioning) Strategy can be found in the appendix A5. This step will not be specifically elaborated since it will be taken as a prerequisite.

In addition to increasing revenue, AR marketing may be used to achieve a variety of marketing and, eventually, organizational goals. (Y.-C. Tan et al., 2021) assert that AR has four key uses in retail settings, including the capacity to educate and entertain customers, help them decide whether a product suits them, and enhance the post-purchase consuming experience. From a procedural perspective and in accordance with the customer journey, marketing goals can be divided into the "BICK FOUR" categories: **branding** (e.g., increasing brand awareness, product knowledge, and brand image), **inspiration** (e.g., to elicit new needs and wants), **convincing** (e.g., motivating purchases or other decisions), and **keeping** (e.g., sustaining brand loyalty) (e.g., loyalty and re-usage intention). For each of the four categories, sample goals are included below in table 2.

<u>Branding</u>		<u>Source:</u>
	Build brand awareness	(Javornik et al., 2021)
	Strengthen brand image	(Rauschnabel et al., 2019)
	Increase employer attractiveness	n/a
	Reach new target groups with the brand	(Sung et al., 2021)
	Present offerings	n/a
<u>Inspiring</u>		
	Inspire customers	(Rauschnabel et al., 2019)
	Generate customer needs	(Barhorst et al., 2021)
<u>Convincing</u>		
	Generate buying interest	(T. H. Jung et al., 2021; Kowalczyk et al., 2021)
	Enforce higher willingness to pay	(Heller et al., 2019a, 2019b)
	Generate sales	(Y.-C. Tan et al., 2021)
	Promote cross-selling / upselling	(Heller et al., 2019a, 2019b)
<u>Keeping</u>		
	Increase customer loyalty	(Dacko, 2017)
	Improve customer service / after service	n/a
	Offer additional services to products	(Hinsch et al., 2020)
	Offer customers added value through AR content	(Hinsch et al., 2020)
	Keeping customers in the loop	n/a

Table 2: AR Marketing Goals (Y.-C. Tan et al., 2021; adjusted design)

The above listed sample goals will be used in the chapter 2.5 to analyze the efforts, which have been made by companies to understand what the objectives have been and -if applicable- if they have been reached.

2.4.1.3 Marketing Assets

One of the main tasks for companies is to create assets which are hard to imitate, and which can give companies the chance to create barriers for imitation. Therefore, subsequently the research will give

insights into the four most crucial marketing assets which should be considered by companies to develop to create a competitive advantage. **Brands, goods, information/data, and segments/relationships** are the four basic forms of marketing assets.

Brands are an important marketing asset for businesses because they may generate considerable value by developing brand equity and brand loyalty. According to (Aaker, 1991), brand equity is the value that a brand brings to a product or service that goes beyond the utilitarian advantages that it offers. Brand loyalty, on the other hand, refers to the extent to which customers are dedicated to a single brand and eager to make repeat purchases. Companies may differentiate themselves from rivals, boost client retention and loyalty, and create more long-term value for their stakeholders by developing strong brands and brand loyalty.

Goods are a significant marketing asset since they are the physical or virtual product that customers buy from businesses. If a company's product offerings suit the demands and preferences of customers better than competitors, it can gain a major competitive advantage. Goods may also play an important role in increasing consumer happiness, which can lead to greater loyalty and repeated purchases. Companies may generate value for their consumers and stakeholders by concentrating on innovation, quality, and customer service.

Information/data may also be a significant marketing asset since it gives insights into customer behavior and preferences that can be utilized to create more effective marketing campaigns. Businesses may get client information from a variety of sources, including social media, surveys, and website analytics. Companies may better understand their consumers' wants and preferences by evaluating this data, identifying trends and patterns, and developing more successful marketing campaigns suited to certain client categories. Data-driven marketing is becoming increasingly significant as firms strive to utilize the power of data to produce more successful marketing efforts, according to (P. Kotler et al., 2017).

Lastly, **segments/relationships** are important marketing assets because they enable businesses to identify and target certain client segments with customized marketing messages and services. Segmenting a market is splitting it into smaller groups of customers with comparable wants and interests. Companies may design more focused marketing strategies that are suited to the individual requirements and tastes of each group by recognizing these categories. Relationship marketing, on the other hand, is establishing long-term client connections via customized service, support, and communication. Companies may boost customer loyalty, retention, and lifetime value by concentrating on customer

relationships. Building good customer connections is critical for organizations wanting to develop long-term competitive advantages in today's business climate, according to (Peppers & Rogers, 1993).

Overall, efficient marketing asset management is critical for organizations seeking to create and sustain a competitive advantage in today's volatile business climate. Companies may establish more successful marketing strategies and provide more value for their consumers and stakeholders by using their brands, goods, information/data, and segments/relationships. AR technology can enhance the customer experience and engagement. AR can create interactive and immersive experiences that can attract and retain customers, increase brand awareness, and improve customer loyalty. By leveraging marketing assets such as brands, goods, information/data, and segments/relationships with AR, companies can create more effective AR experiences that generate more value for their customers and stakeholders. For example, AR can be used to showcase product features, provide virtual try-ons, offer personalized recommendations based on customer preferences, and create unique brand experiences. By incorporating AR marketing strategies into the development of marketing assets, companies can create more compelling and meaningful experiences that drive customer engagement and ultimately lead to increased sales and revenue. Therefore, considering the importance of the development of marketing assets, it is critical for businesses to understand the potential what AR technology can create. Therefore, the last level of the marketing audit cube will be dedicated to analyze the marketing assets which can be developed by using AR.

2.4.1.4 Marketing Audit Cube

After introducing the elements of the marketing audit the following marketing audit cube (Figure 9) will be introduced to analyze the marketing efforts from companies in the chapter 2.5. The concept of the audit cube is a three-dimensional cube with the first-dimension levels, second-dimension goals and third-dimension assets which have been explained in the previous chapters.

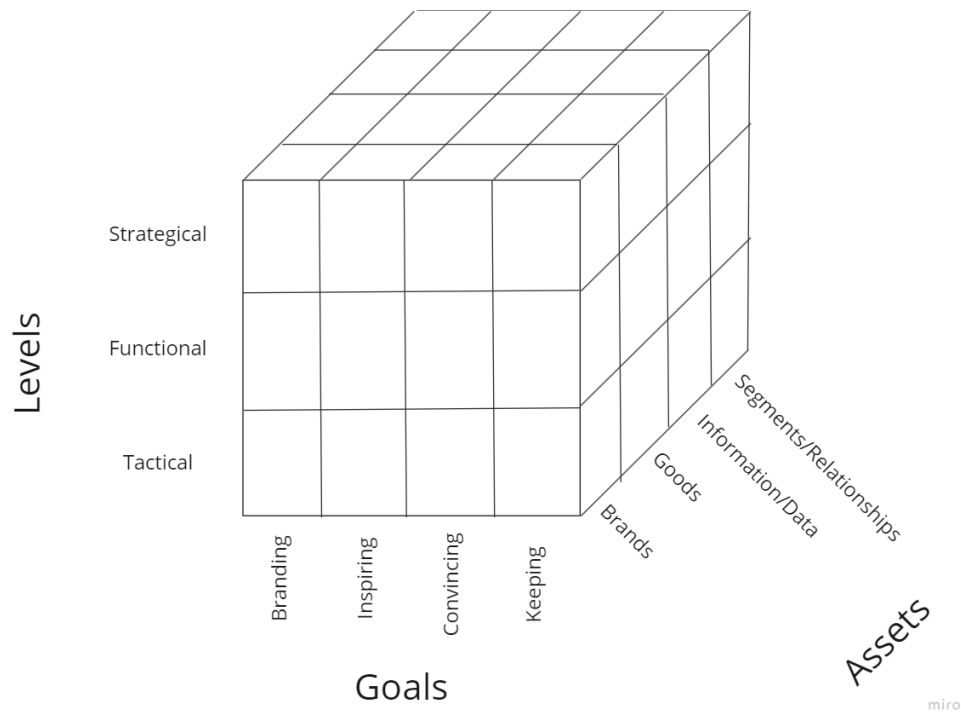


Figure 9: Marketing Audit Cube (own development)

The first dimension (Levels) will show on which marketing level AR has been used by the company. It can be either strategical (high-level), functional (mid-level) or tactical (low-level). Subsequently the second dimension will show for which primary goal AR has been used. The goals from branding, inspiring, convincing and keeping have also significant impact on the considerations which have to be made during the customer-journey analysis which will be further discusses in chapter 2.4.4. Additionally, since AR can help to create marketing assets, the cube will show which assets may have been generated through the use of AR or could be developed by leveraging AR in the marketing efforts. For illustrative purposes the research will discuss the marketing audit cube on basis of the AR application from Adidas. The AR application “sneakers app” which have been introduced in 2019 by Adidas gives their customers the possibility to try-on the most iconic Adidas models. The AR efforts by Adidas are solely on the tactical level since they use their AR application to support their business model rather than creating a new one or changing the company’s strategy. The main followed goals can be considered as inspiring and convincing since it gives their customers positive feelings and shows them how the shoe or apparel would look like on them. The goal which can be reached with the AR application is an increase in the customer relationship. Since internal data was not available and Adidas declined to take part in the qualitative analysis the analysis has been solely conducted through secondary data from the internet. However, Adidas may have the potential to leverage their AR efforts by increasing the data which can be extracted from the AR application to enhance better decision-making. Graphically illustrated the audit cube would look like the following (Figure 10).

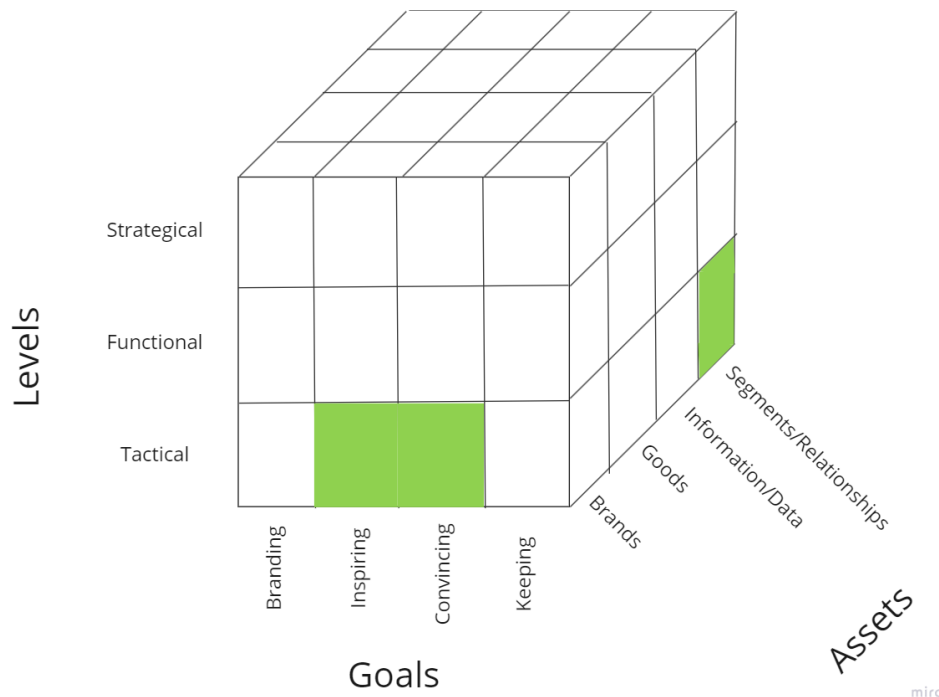


Figure 10: Marketing Audit Cube Example: Adidas (own development)

2.4.2 Marketing strategy

To understand what factors are contributing to the development of a suitable marketing strategy the framework from (G. Greenley et al., 2001) will be used since it gives a thorough understanding of how complex the marketing area is. Figure 11 shows the framework and the interrelations of several aspects which are linked to marketing strategy. Subsequently the research will only highlight the most crucial aspects for answering the research question. However, the full framework with additional details can be found in the appendix A3.

The decision of using the framework from (G. Greenley et al., 2001) is based on the increasingly complex environment in which companies need to maneuver (chapter 2.3.1). However, it should not be neglected, that the discussion of elements of competitive positioning with subsequently an increase in the companies' performance have not been started by Greenley in 2001. It dates to at least 1988 with the publication of (Day & Wensley, 1988) on competitive superiority. Despite the early efforts which have been made, by (Day & Wensley, 1988) the framework of (G. Greenley et al., 2001) seems more comprehensive since it is adapting the complex environment and it includes additional factors which have not been introduced by (Day & Wensley, 1988) -which can be considered significant-.

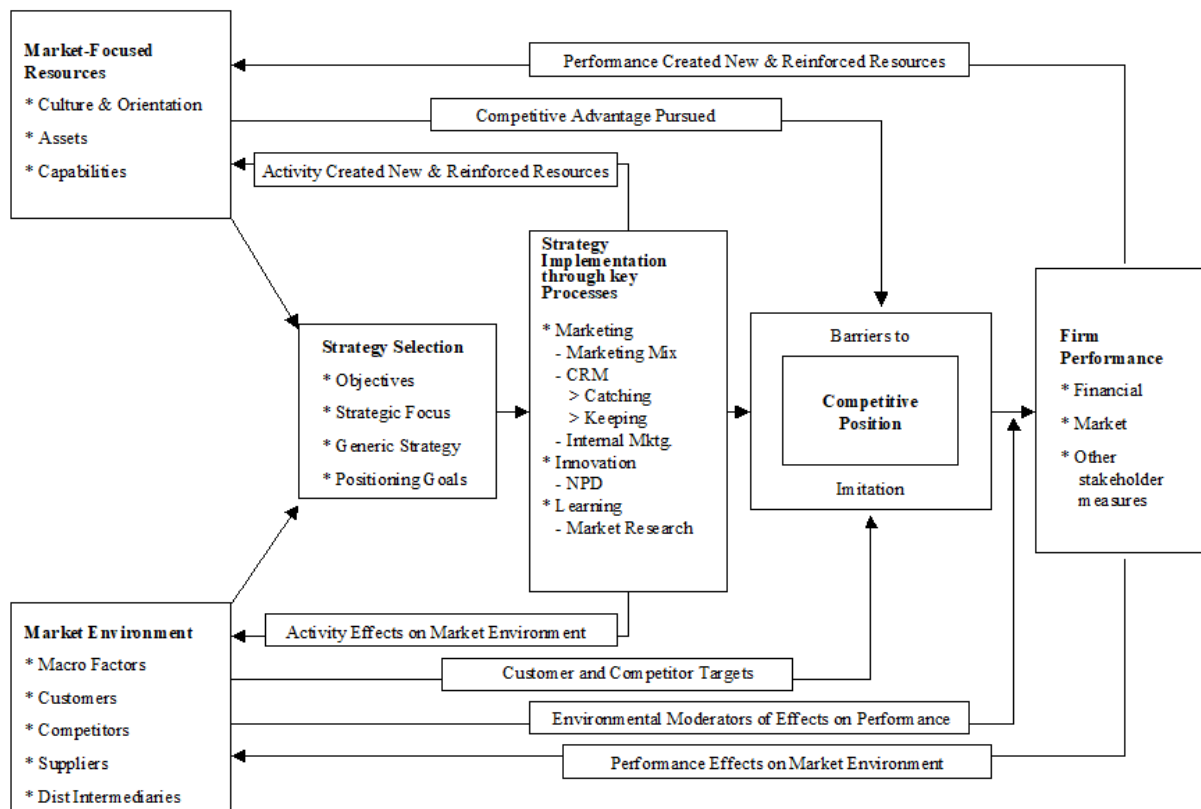


Figure 11: Market-Focused Resources, Competitive Positioning and Firm Performance (G. Greenley et al., 2001, p. 20)

The marketing strategy concept from (G. Greenley et al., 2001) has six essential parts, market focused resources, market environment, strategy implementation, competitive positioning, firm performance and feedback loops.

1. Market focused resources:

The market focused resources include culture & orientation, assets, and capabilities. The first level of market focused resources is culture & orientation. Different factors, such as orientation towards stakeholders, can affect both strategy selection and implementation (G. E. Greenley & Foxall, 1998) (Deshpande & Webster Jr, 1989; Hunt & Morgan, 1995). Market orientation has been widely researched as a key factor in firm success, but other business approaches also contribute to success. However, an excessive focus on short-term financial goals can negatively impact a firm's performance (Doyle & Stern, 2006). It is important for managers to balance multiple priorities and allocate resources accordingly. Recent research recognizes the need for richer descriptions of firm orientations that consider multiple stakeholders⁹. Secondly, assets are resources that a firm acquires over time to gain a competitive advantage. They can be tangible or intangible, but intangible assets like brand reputation, market knowledge, customer relationships, and databases are more valuable.

⁹ Side note: The stakeholder mapping concept from A. Mendelow could be a valuable tool for analyzing the stakeholders which should be considered in the decision-making process (Johnson et al., 2008).

Other assets like distribution, internal assets, and alliance-based assets can provide firms with a competitive edge by reducing costs, improving delivery to customers, and accessing new markets, technology, and managerial resources. Lastly, capabilities are the skills and competencies that bind these resources together for effective deployment (Day, 1994; Fahy et al., 2000; Hooley et al., 1999). Firms must possess a variety of assets and capabilities to effectively compete in the market. Strategy decisions are made based on a review of the market environment and the resources available to the organization. Important strategic choices include setting goals, deciding on the strategic focus to be pursued, choosing a general strategy, and aiming for a target competitive position. Usually, the capabilities and assets at hand will be heavily considered while making placement selections.

2. Market environment:

The environment in which companies operate can have a considerable impact on market and other stakeholder orientation implications on performance (G. E. Greenley & Foxall, 1998; Slater & Narver, 1994). This makes intuitive sense given that a firm's own orientation and subsequent actions in the market are likely to be influenced by rival competitors' actions as well as general market conditions. Environmental elements are suggested as moderators of the impact of competitive position attained on business performance in the proposed model. For further information on the market environment see chapter 2.3.1.

3. Strategy implementation:

Strategy implementation discusses three important processes for businesses: Marketing, innovation, and learning. **Marketing** involves connecting organizational capabilities to customer needs through the marketing mix. The marketing mix consists of the following: items, price, promotion, distribution, and customer connections. By adjusting the marketing mix, companies can profitably connect with their target customers. Customer relationship management (CRM) is also important for acquiring and retaining customers (Payne, 1995). **Innovation** is the process of developing fresh, improved responses to client problems. By doing this, innovation helps companies establish and protect a competitive position from imitation or erosion. This is because innovative solutions to customer problems are difficult for competitors to replicate (Deshpandé et al., 1993). Additionally, in appendix A2 different types of innovation based on the Oslo-manual will be described. The definition of the Oslo-manual separates innovation based on product innovation, process innovation, marketing innovation and organizational innovation. **Learning** involves gathering, analyzing, internalizing, and acting on both internal and external knowledge to improve the organization's fit with its markets (Fiol & Lyles, 1985; Morgan et al., 1998; Sinkula, 1994). This can lead to higher performance and ultimately help establish a competitive position. For instance, (Slater & Narver, 1995) promotes market orientation and facilitates organizational learning, which in turn leads to an improved capacity for matching market goods with consumer demands. Learning also helps grow

managerial abilities and acquire marketing assets and capabilities, such as market knowledge and understanding.

4. Competitive Positioning:

The framework further discusses the achievement of a distinctive **competitive position** for a firm's market offerings by choosing a target market and developing a viable competitive advantage (Hooley et al., 1998). The combination of advantages or features that the target client derives from an offering determines how competitive it is in the market. Furthermore, the article highlights the importance of **barriers to imitation** that can be built around the position generated to defend against rival imitation (Bharadwaj et al., 1993; Lippman & Rumelt, 1982; Mahoney & Pandian, 1992). Isolating mechanisms are produced by the peculiar manner a certain organization handles its resources, such as assets and capabilities, as well as by learning how to create and assemble these resources (Bharadwaj et al., 1993). The article lists several elements that help create isolating mechanisms, including inimitability, path dependency, non-transferability, non-tradeability, and sustainability. **Inimitability** is a crucial factor in achieving a successful positioning strategy, as a competitor must first understand the resources committed to developing that position to copy it (Barney, 1986; Grant, 2021). Three qualities of resources that achieve causal ambiguity are suggested, including, tacitness, complexity, and specificity (Reed & DeFillippi, 1990). Lastly, the article discusses **sustainability**, highlighting that most resources deteriorate over time as rivals perfect imitations of effective tactics. As a result, isolating mechanisms lose their effectiveness, and further resources will be required to build unique competitive positions (Reed & DeFillippi, 1990). In appendix A4 the GE McKinsey Matrix and sources of competitive positioning will be further elaborated to analyze in detail the competitive positioning a company can create.

5. Firm Performance:

The performance outcomes, like the actions carried out, will have an impact on the firm's resource base as well as the environment in which it operates. For instance, a performance that outperforms competitors is likely to lead to higher financial resources, enhanced reputational assets, and increased managerial trust in its ability to make and implement decisions. Similar to how a firm's performance results may influence competitors' objectives and plans, customers' expectations, and relationships with other supply chain participants.

6. Feedback Loops

The framework above describes a model of strategy formulation and implementation that leads to a competitive position for a firm. The process involves strong feedback loops that reinforce the firm's resource base and change the market environment. The competitive postures of a business adapt and

alter when the resource base and the market environment change. The dynamic link between resources, plans, implementation, and performance constitutes the competitive position. Feedback loops are critical in this process. Decisions made in implementing a business strategy impact the firm's resource base and the market environment. Learning activities improve knowledge of the market, innovation leads to better product and service solutions, and customer relationship management strengthens or weakens the customer relationship asset. Improving customer connections leads to ongoing feedback and reinforcement, improving the organization's capacity profile. The market is also impacted by businesses' decisions, with customer expectations being raised through advertising and promotions. Pricing policies of prominent companies or market leaders can impact general market expectations. Certain companies' market actions may have a negative impact on others, with low pricing strategies making life tough for those with a high-cost advantage (G. Greenley et al., 2001).

When implementing AR in marketing strategies, understanding competitive positioning is crucial for an effective marketing strategy development. AR technology can enhance a firm's competitive positioning by providing an innovative and immersive experience for customers that can differentiate the firm's offerings from competitors. However, to leverage AR technology effectively, firms must possess a variety of assets and capabilities that enable them to compete in the market. Market-focused resources, such as organizational culture, marketing assets, and capabilities, are crucial in creating value in the marketplace. The marketing strategy process can start with either an external or internal approach, but firms must adopt an integrated approach that considers both perspectives for effective marketing strategy development. Moreover, firms must manage marketing, innovation, and learning procedures when implementing a marketing strategy that involves AR. By leveraging their resources and deploying their competencies effectively, firms can gain a competitive advantage and create long-term value for their stakeholders. In conclusion, understanding competitive positioning is essential when implementing AR in marketing strategies. Firms can use AR to differentiate their offerings and enhance their competitive positioning, but they must possess the necessary assets and capabilities to compete effectively in the market.

2.4.3 Value creation and the value pyramid

The marketing strategy concept gave insights into how complex it is, to create barriers to imitation and subsequently to increase the company's performance. However, one key aspect in reaching that objective is to create value to customers. Therefore, this chapter will discuss the concept of value creation and will subsequently introduce a framework which can be used by marketers to analyze if they can provide additional value by using AR in their marketing efforts. Hence the introduced value pyramid

concept will be used for the analysis of the implementation cases (chapter 2.5) and will be part of the decision-tree (chapter 5.4)

Value creation

Scholars are discussing two main distinguishments of value creation. Firstly, external value creation, which is separated into mainly two areas, new apps which provide utilitarian benefits, hedonic benefits or symbolic benefits as well as customer interactions which provide customer service as well as AR marketing (branding). Secondly, the internal value creation which enhances R&D, collaboration, or process efficiency (Y. Ro et al., 2017). For this research I will mainly focus on the external value creation since it is more aligned to the research question.

The user experience of AR has been the subject to several academic researches. According to the findings, AR has boosted consumer trust in a brand (Bulearca & Tamarjan, 2010), offered information value, usefulness, or convenience (O'Mahony, 2015), and produced a pleasurable experience (Pantano et al., 2017). Other research has linked AR to improved user satisfaction and a higher propensity to buy (Poushneh & Vasquez-Parraga, 2017). According to one study, AR improved brand recognition, affiliation, and loyalty but had no impact on perceived quality (Haumer et al., 2020).

According to this research, there are three main areas of consumer advantages connected with AR:

- **Functional advantages** - These include advantages like time savings, usefulness, convenience, reaction time, information quality, and interaction.
- **Emotional benefits** - These advantages include feelings of trust, artistic quality, richness, novelty, immersion, enjoyment, and attitude toward the medium.
- **Increased willingness to buy** - By giving customers an interactive and immersive purchasing experience, AR has been proven to enhance consumers' inclination to buy.

However, another study from (Y. Ro et al., 2017) clusters the needs which can be addressed by AR under effectivity factors, hedonic factors, social & symbolic factors, customer interaction and companies' advantage.

Effectivity Factors:

In this context, effectiveness refers to how 'helpful' AR are for customers by improving their quality of life and so addressing more utilitarian requirements and wants. The perceived utility of a new technology has been proven to be a key factor of the adoption intention of new technologies in earlier studies, such as the widely recognized technology acceptance model (Davis, 1989; Davis et al., 1989; King & He, 2006). People are more likely to embrace AR if they believe that they are a technology that will make

their life more efficient (Rauschnabel et al., 2015). Other researchers have demonstrated that AR technology may be a useful tool for guiding tourists or other visitors around museums (T. Jung et al., 2015; Leue et al., 2015; tom Dieck & Jung, 2018). Additionally, (Hein & Rauschnabel, 2016) put out the idea of fusing enterprise social networks with AR. Additionally, customers who believe that AR is easier to use since it is more self-explanatory and intuitive, do so with a greater degree of efficacy benefits. In keeping with this, organizers and navigation systems are frequently mentioned applications. In fact, from a technology standpoint, guidance apps could be more useful than traditional navigation systems since they can record information from the actual world, including speed reductions and diversions brought on by construction, or give precise navigational instructions in challenging circumstances (Y. Ro et al., 2017).

Hedonic Factors:

Hedonic features are best understood as being 'fun' qualities in plain English. It's not unexpected that individuals frequently employ a certain type of media for hedonistic activities. These include amusement, passing the time, playing games, or running away from the actual world. The chances for customers to gain hedonic advantages via AR are numerous. Think of virtual games like Pokémon Go which can be played in the real world as an example. In popular environmental settings from movies like Tomb Raider or James Bond, modern video games are used. Games that use AR provide users the chance to play them in settings that are familiar to them in the real world (Y. Ro et al., 2017).

Social and Symbolic Factors:

Consumer researchers have recognized for a long time that publicly displayed goods or brands are associated with social and symbolic elements (Bearden & Etzel, 1982). People dress themselves in a way that enables them to show themselves in a specific way, which is another well-known result from the field of fashion marketing. Through the use of filters, AR may improve appearance and help one appear more favorable. Therefore, there might be psychological overlaps between what is understood about fashion adoption and AR, even if there hasn't been much research in this area. But according to recent research, people are more likely to embrace AR practices if they think that their friends and coworkers will (Rauschnabel et al., 2015). Additionally, historical experience has demonstrated that users of (new) technologies frequently create communities, and that within these communities, links between the members play a significant role in determining the adoption of technology (Felix, 2012; Muniz Jr & O'guinn, 2001). In fact, there are already a number of AR user groups. The significance of social aspects in influencing user engagement in these online communities has been demonstrated by research e.g., (Hennig-Thurau et al., 2004). If similar apps, like as dating apps, are created in the future, AR may be a way to address unmet social needs.

Customer Interaction:

Additionally, AR offers lots of chances for consumer contacts (Javornik, 2016b). Customers may receive assistance with after-sales support, product reviews, and other services, for instance. Imagine a consumer walking into the showroom of a car dealership. A client representative can be integrated into the customer's field of view. It is predicted that, similar to earlier stages of the media development, AR applications will emerge that let consumers interact with companies, for instance in a manner akin to Facebook brand pages and other types of social media marketing (Felix et al., 2017). As a result, there may be a need for a new field called "AR marketing" (Javornik, 2016b, 2016c), and it may be possible to add an AR component to already existing offline communication activities (such as exhibits and other marketing events).

Companies Advantages:

The capacity of AR technology to increase consumer engagement and pleasure while lowering sales-related costs is one of its most important benefits. To upsell, cross-sell, and close purchases, marketers may use AR to replace sales representatives, conventional advertising, and web-based transactions. Customers may envision and feel the product in use, as well as see how to assemble, maintain, and repair it using AR. Customers may digitally try on apparel or see a 3D presentation of a product in action, imitating an actual in-store experience (Berman & Pollack, 2021).

Since the two afore mentioned studies have some overlaps in regard to the needs and advantages, the research will introduce a framework (value pyramid by (Almquist et al., 2016) which includes both of the study insights and extends the considerations of value and needs.

Value Pyramid as proposed model

The above-mentioned positive attributes in regard to the use of AR are fragmented and it makes it difficult for marketers to rely their decision making on this particularly value-enhancing factors. Therefore, the study will introduce a framework which can help to enhance the value provided to customers. In the case of AR, it is essential to understand whether it adds value to a product or service or is satisfying needs. While AR has the potential to enhance the customer experience, it is not always clear whether it is worth the investment. Research has found that customers are willing to pay more for products or services that offer AR experiences, but only if the experiences are perceived as adding value. Therefore, understanding the different levels of value that AR can provide is crucial in determining whether it is worth the investment.

The value pyramid (Figure 12) is a marketing concept by (Almquist et al., 2016) that helps businesses understand the different levels of value that their products or services can provide to customers. The

value pyramid is based on the idea that customers are willing to pay more for products or services that offer a higher level of value. The elements of value are the different levels of value that a product or service can provide to customers. These elements are arranged in a pyramid, with the most basic/functional elements at the bottom and the more emotional and aspirational elements at the top.

Below the levels of the value pyramid will be discussed:

- **Functional value:** This is the most basic level of value that a product or service can provide. It includes elements like reliability, durability, and ease of use.
- **Emotional value:** This level of value is based on how the product or service makes the customer feel. It includes elements like security, nostalgia, and excitement.
- **Life-changing value:** This level of value is based on how the product or service can change the customer's life. It includes elements like self-improvement, motivation, and inspiration.
- **Social impact value:** This level of value is based on how the product or service can impact society as a whole. It includes elements like sustainability, ethical practices, and community involvement.

Businesses that understand the value pyramid can use it to create products or services using AR which offer a higher level of value to customers. By focusing on the higher levels of the pyramid, businesses can differentiate themselves from their competitors and create loyal customers by enhancing value. The value pyramid concept will be used for the analysis of the use cases in the chapter 2.5 as well as the expert interviews in the chapter 4.2.

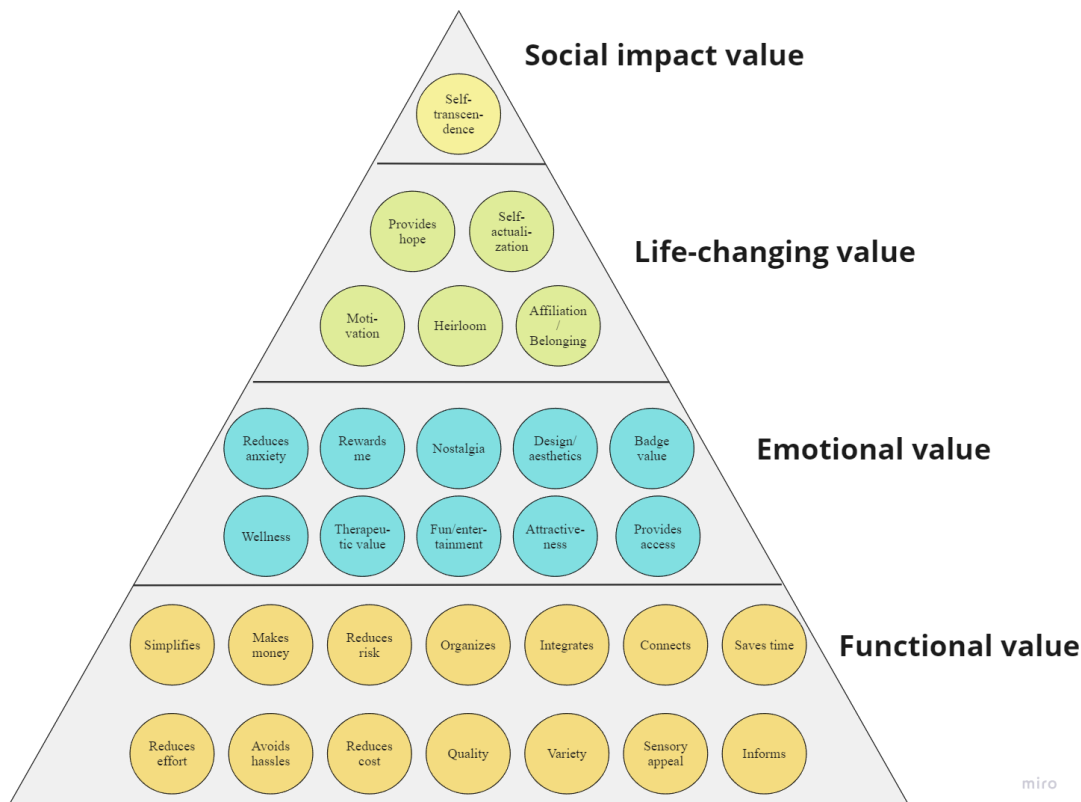


Figure 12: The elements of the B2C Value Pyramid (Almquist et al., 2016; adjusted design)

2.4.4 AR Customer-Journey Map

Subsequently, after discussing the value creation through the lens of the value pyramid it is important to understand on which stage of the customer journey this value can be generated. Therefore, the chapters aim is to discuss the AR CJM as well as positive aspects and negative aspects of using AR in the CJM. The insights from this chapter will be used for the analysis of the implementation cases by companies as well as the development of the decision-tree. Hence it is significant for marketers to understand on which stage of the customer journey they would like to enhance the customer experience to create additional value for their customers.

Introduction of an AR customer journey

A customer journey map represents a visual depiction of a customer's experience across their contacts with a brand. It enables businesses to comprehend a customer's demands, feelings, and actions at every stage of the customer journey. Companies can pinpoint problems and potential areas for development to improve the entire customer experience by mapping out the customer journey. Consumers are exposed to several touchpoints during the customer journey, and these touchpoints determine the customer experience during the pre-purchase, purchase, and post-purchase phases¹⁰. As AR comprises a mix of

¹⁰ Further information's on the traditional stages of the customer journey can be found in the Appendix A6.

online and physical touchpoints, AR Marketing may use a more sophisticated definition of stages. (Hybrid AR touchpoints). Figure 14 illustrates the B2C context of the customer journey model for AR use.

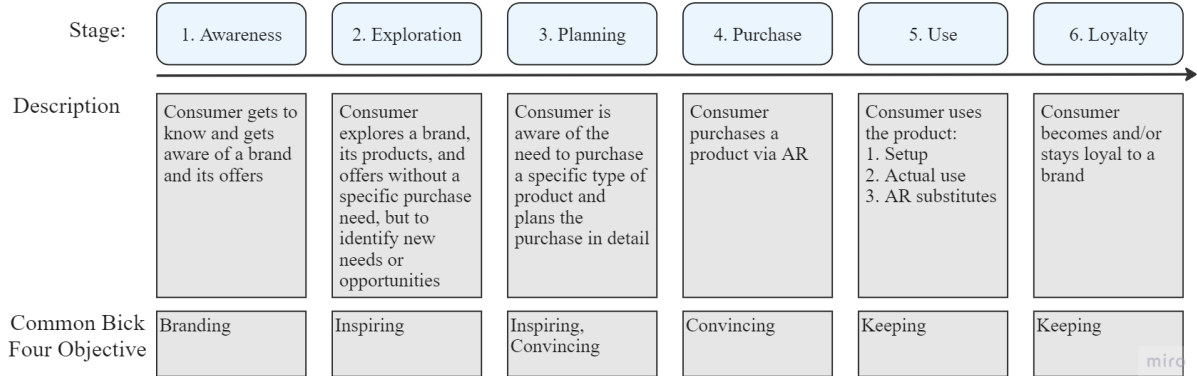


Figure 13: Customer journey model for AR Marketing (Rauschnabel, Babin, et al., 2022, p. 1142; adjusted design)

Incorporating the contextual cognition theory (Robbins & Aydede, 2009) and the technological acceptance model (Davis et al., 1989), the study predicts that AR will have both positive and negative effects on the overall customer experience. The technology acceptance model specifically states that consumer judgments of the technology's usability, convenience of use, and general attitude toward its use will affect how well it is accepted. Together, these components influence both favorable and unfavorable results. According to the notion of situated cognition, consumers' information processing is embodied through physical simulations and actions and is ingrained in their physical surroundings (Chylinski et al., 2020; Hilken et al., 2017). Customers may learn about items through situated cognition in the setting of AR by instantly connecting abstract information. The figures 15 and 16 will give an overview of the found benefits and drawbacks. Since the customer journey is different depending on the product or service, the benefits and drawbacks which follow are dedicated to the currently mostly used case as a virtual fitting/try-on tool in retail. Therefore, the benefits and drawbacks might vary depending on different types of customer journeys for separate use cases.

Positive Aspects of AR on the customer journey



Figure 14: Benefits of AR for the customer journey (own design)

Usage Process:

AR technology has the potential to revolutionize the way customers shop for clothes in the fashion retail industry. By utilizing a digital projection, customers can experience a virtual try-on, allowing them to see how a particular outfit might look on them. This technology can be used by both physical and online retailers. Physical businesses often make use of virtual fitting rooms with smart mirrors that reflect the customer's image without the need for them to physically try on the item (Beck & Crié, 2018). On the other hand, online retailers can provide a virtual try-on experience through a website or smartphone application. By using the phone's camera or uploading a photo, customers can test out products digitally (J. Kim & Forsythe, 2008; Pantano & Gandini, 2017). AR technology merges the physical and digital worlds, offering customers an immersive experience (Baudrillard, 1994). This technology enhances the overall shopping experience by providing aspects such as informativeness and fun, which can improve consumer satisfaction (Kang et al., 2020). The recreational aspect of the shopping experience is known as perceived playfulness, which can be achieved through AR (Kang et al., 2020). The use of cutting-edge technology, including AR, can boost customer happiness and feeling of fun (Kang et al., 2020). Perceived playfulness has two components: intrinsic enjoyment and escapism (Mathwick & Rigdon, 2004). Intrinsic enjoyment refers to the amusement provided by AR (Bloch et al., 1986), while escapism

refers to a psychological state of immersion that allows customers to momentarily "get away from it all" (Lombard & Ditton, 1997). Several theories, including the technology acceptance model, flow theory, and situated cognition theory, have been used to describe how customers react to technology, including AR (Chylinski et al., 2020; Hilken et al., 2017; Huang & Liao, 2017; Javornik, 2016a; Pantano et al., 2017; Spreer & Kallweit, 2014; Yim et al., 2017). AR can improve both hedonic and utilitarian purchasing experiences (Jones et al., 2006). While the former allows customers to accomplish a specific goal (X. Zhu et al., 2012), the latter is for entertainment purposes (Bonetti et al., 2018). In conclusion, AR is an interactive technology that has the potential to digitally enhance the vision of businesses, providing customers with entertainment and knowledge in the process (van Esch et al., 2019). By using AR as a tool for virtual try-on in retail, businesses can offer a fun and engaging experience that enhances the overall customer experience.

Financial Benefits

AR has been gaining popularity as a retail technology due to its potential to address the shortcomings of both online and offline purchasing (Javornik, 2016a). Online apparel retail has seen a significant number of returns (Duarte et al., 2018), with almost 1 out of 4 goods purchased online in Germany being sent back to the retailer (Gowans, 2022). This has led to high carbon prices, impacting sustainability (Cullinane et al., 2019), and an increase in return services worldwide, costing \$642.6 billion (Statista, 2015). However, AR in a virtual try-on environment could reduce the amount of product returns. Additionally, customers that have a strong desire for touch may find it difficult to visualize an item online and prefer to see it in person. AR may lessen users' dependence on touch, which would cut down on research shopping and channel flipping. Furthermore, AR could expand consumers' consideration set, particularly in terms of design or style (Romano et al., 2021). Respondents conducted more product trials with AR virtual try-on. They were discovered to test out goods, fashions, and designs they would not have otherwise thought about. Respondents mentioned that AR will enable people to experiment with various looks and transform their image. According to the remarks, the AR try-on experience was completely immersive, similar to a flow state (Csikszentmihalyi, 1990). Customers put on certain items to determine whether they would match an ensemble they had imagined but had trouble seeing. Hence, AR gives shops the chance to strategically differentiate themselves from the competition and get an edge over rivals (van Esch et al., 2019). Additionally, when respondents were given AR as a virtual try-on tool, they claimed to have paid little attention to brand (Romano et al., 2021).

Better decision making

AR technology has been implemented in online shopping to enhance customers' experience by providing them with a more detailed view of the products they wish to purchase. Customers are more confident in their decision-making when they can engage with a product and view it from multiple angles (Kang et

al., 2020; Suh & Lee, 2005). AR empowers customers to make decisions with greater confidence, which is crucial for online customization, as it could be challenging to resell rejected goods. AR is perceived as aiding customers in narrowing their choice set and widening the consideration set. When making initial decisions, consumers tend to want the most alternatives accessible for evaluation, and AR is most helpful in this regard (Garaus et al., 2015). Consumers may be exposed to a variety of options, but AR might also benefit them by easing choice overload and choice confusion. When used in the early stages of consumer decision-making, AR might make customers feel more confident in their selection of a product (Garaus & Wagner, 2016). However, the utility of AR may be limited in situations when there are already few alternatives available, such as with common smartphone models (Mohd Puad et al., 2016). There may be a threshold in terms of option availability and usefulness that will increase choice confidence. Size and fit issues might arise while purchasing online (D.-E. Kim, 2016). The ability of AR to show a visual picture of the objects worn simultaneously is valued by consumers. AR provides a less cumbersome setting than one in which clients must take off their clothing to put together and try on various ensembles. When AR technology improves the customer experience or makes the consumer journey more frictionless, respondents see its benefits (Puccinelli et al., 2009). Customers have very specific expectations for what they will get when they buy products online in more conventional settings. Customers may respond differently when they receive the product, such as with joy or dismay (Barnes et al., 2016; J. Sweeney & Swait, 2008). The respondents considered their post-purchase expectations after utilizing AR technology as a try-on tool. When compared to merely viewing a two-dimensional image, several people felt more confident in their decision after their AR encounter. The usage of AR was mentioned as having the ability to reinforce their choices made throughout the customer experience (before the purchase and after the purchase), increasing their comfort level with the delivered product. Buyers feel more certain of the product's appearance and their decision when using AR to sample an item virtually, increasing the likelihood that they would enjoy it. In the event that they do not enjoy it, buyers may attempt to reverse the impacts of their regretting choice by returning the item. This might lead to an amplified case of cognitive dissonance (Gilovich & Medvec, 1995; Zeelenberg et al., 1996).

Reduces Efforts

One of the main issues with offline buying is the effort required, and forcing customers to physically try-on clothing is not always a fun experience (Barnes et al., 2016). Undoubtedly, many people choose internet buying to get over this problem (Hao Suan Samuel et al., 2015). According to research, consumers are more likely to complete a transaction the more straightforward the path to buy is (Willems et al., 2017). Given that customers want to make the most of their time and exert the least amount of work possible, reducing the effort required throughout the shopping experience is crucial (Roy et al., 2018). Since effort has cognitive, emotional, time, and physical components, AR technology allows customers to visualize how various goods might appear when worn together without having to

physically put them on, which would be a waste of time (Chen & Wang, 2010). This would significantly reduce the cognitive and emotional effort required from the customer, making the offline buying experience more enjoyable and less tiring.

Psychological benefits

AR has the potential to revolutionize the way customers shop in various ways. One of the primary benefits of AR is its ability to cater to the rising demand for customization among consumers (Pallant et al., 2020). As an increasing number of companies allow customers to select specific elements for their own product designs, such as Nike ID sneakers, AR enables them to visualize the finished product during the design process, which can enhance their level of personalization (H. Y. Kim & Lee, 2020; Pallant et al., 2020). AR can also increase the perception of psychological ownership among buyers before making a purchase (Pierce et al., 2003). The endowment effect suggests that customers who touch products tend to have a greater sense of psychological ownership (Brasel & Gips, 2014). When items are customized for online sales, the psychological ownership of the product increases (Jussila et al., 2015). AR can be used to enhance co-creation and personalization value, which can improve the customer experience (Jussila et al., 2015; Pantano & Servidio, 2012; Varadarajan et al., 2010). Moreover, according to (Liu et al., 2017), many buyers believe that touching an object before purchasing it is crucial. As internet shopping is very popular, customers tend to conduct research shopping, which involves looking for products on one platform before buying them on another (Verhoef et al., 2007). AR can bridge the gap between the in-store and at-home experiences by enabling customers to widen their consideration set and explore products from the comfort of their homes. This is particularly significant because it allows customers to experience less peer pressure while trying on items through AR at home, which can help them feel more at ease and broaden their range of options.

Furthermore, customers are social creatures who experience criticism, peer pressure, and the urge to act responsibly in social situations (Fishbein & Ajzen, 1977). AR can help customers overcome these barriers by enabling the simulation of physical control over a product, such as the ability to adjust spectacles, and integrating items in personally meaningful surroundings (Hilken et al., 2017). These aspects can increase a customer's happiness and involvement while purchasing, based on situated cognition theory, which suggests that AR can enhance customers' purchasing experiences.

Negative Aspects of AR on the customer journey

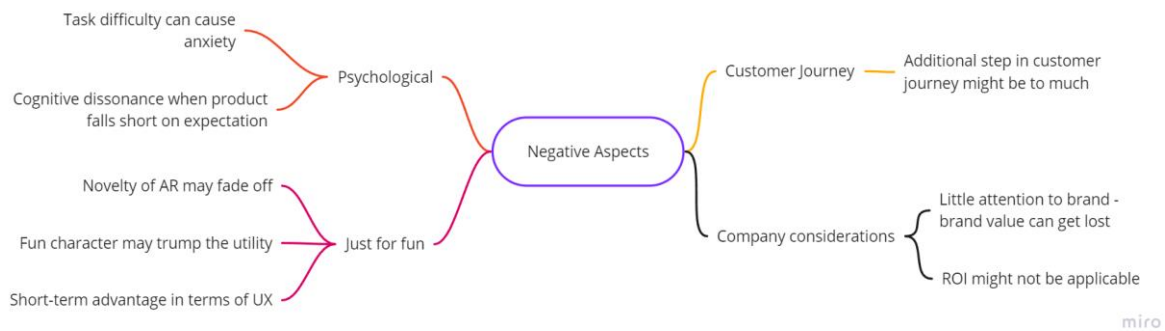


Figure 15: Drawbacks of AR for the customer journey (own design)

Psychological

The usage of an AR virtual try-on tool requires the same information-gathering procedure as internet shopping (Mathwick & Rigdon, 2004), which might be difficult and cause consumer anxiety due to the task's difficulty. Given their high degree of decision confidence, some customers could feel more cognitive dissonance when they obtain a product that falls short of what they had hoped for (Powers & Jack, 2013). According to the research from (Elliot & Devine, 1994; J. C. Sweeney et al., 2000), the amplification of cognitive dissonance has both a product dimension and an emotional component. Product dissonance is the cognitive part of dissonance associated to the product that was trialed using AR and then bought, which, if expectations are not satisfied, can lead to an emotional dissonance upon product reception. Customers who purchase online understand that an item may be slightly different from what they expected in some ways. Therefore, flexibility about returns was one of the key qualities what the respondents searched for in an online store. This is due to the fact that buyers are aware that the actual item may differ from the image; thus, if they are unhappy with it, they can return it for free and with comparatively little hassle (Romano et al., 2021).

Just for fun

It is possible that customers may want to test AR because it is interesting, but it remains unclear if this novelty or perceived utility, on its own, will lead to trial and usage, at least in the near term (Kang et al., 2020). As a result, there may be an initially significant rise in readiness to utilize AR as a tool for virtual try-ons. However, following an initial roll-out, the novelty-related shift in usage might soon return to baseline levels. If this is the case, the utilization of the technology may decline as the novelty wears off. Playfulness, which is somewhat related to novelty, is another crucial characteristic to take into account. According to (Kang et al., 2020), playfulness is a feature of AR, which could entice users to interact for amusement rather than making a purchase. It may even be considered a game or something to post on social media, rather than a mechanism for making purchases.

Customer journey

One of the benefits of internet shopping is the perceived lesser effort required, which is why browsing and buying can be done easily while multitasking and with minimal effort and focus (Duarte et al., 2018). However, using AR as a tool for virtual try-ons would require an additional step for a customer making an online purchase. This extra step could seem like too much work to some customers. According to (Dixon et al., 2010), the idea of effort is made up of four parts: cognitive, emotional, temporal, and physical effort.

Company considerations

In this flow state, the brand's value is lost along with the consumer's feeling of self-consciousness and the passage of time (Csikszentmihalyi & LeFevre, 1989). It was discovered that the usage of the AR tool diminished the significance of brand before purchase for several of the respondents. Participants appeared to be more interested in the product's style and its availability for virtual try-ons. The respondents characterized the experience as thrilling and claimed to have become engrossed in it at similar periods of flow, which, for some, negated the significance of the brand. With people contemplating previously unheard-of companies, this might provide a challenge for existing businesses while providing a chance for new and rising brands to reach out to new consumers. Second, the return on investment for merchants from using AR at the point of sale may not be substantial. The findings showed that participants had a high degree of enthusiasm for utilizing AR, which is consistent with the notion that innovation fuels consumer excitement (Pantano, 2014). There was a balance between AR's features of perceived play (hedonic) and perceived utility (utilitarian), since several people noted that the novelty impact of AR may fade off. Given the novelty of the instrument, participants generally approached it with an open mind and willingness to test it. The novelty, rather than the technology's fundamental worth, which is more long-term, meant that there was a short-term advantage in terms of consumer experience. The novelty of the situation may result in a temporary increase in the value of any customer experience, with the size of the shift returning to the baseline rather fast (Ferraro et al., 2017). According to the assimilation-contrast hypothesis (Sherif et al., 1958), the perceived difference between an initial reference point and any subsequent information determines the extent of change (Ferraro et al., 2017). The use of AR technology in this situation causes an initial rise, which is expected to fall off quickly as the novelty and fun wear off.

2.4.5 Implementation of AR

(Berman & Pollack, 2021) tried to assist marketers with a step-by-step plan for planning and implementing a successful AR strategy. For answering the research question and designing the decision tree this framework will be adjusted with additional insights from interviews as well as further

theoretical knowledge. In the following Figure 17 you can see the steps suggested by (Berman & Pollack, 2021) on how to implement an AR application for a company.

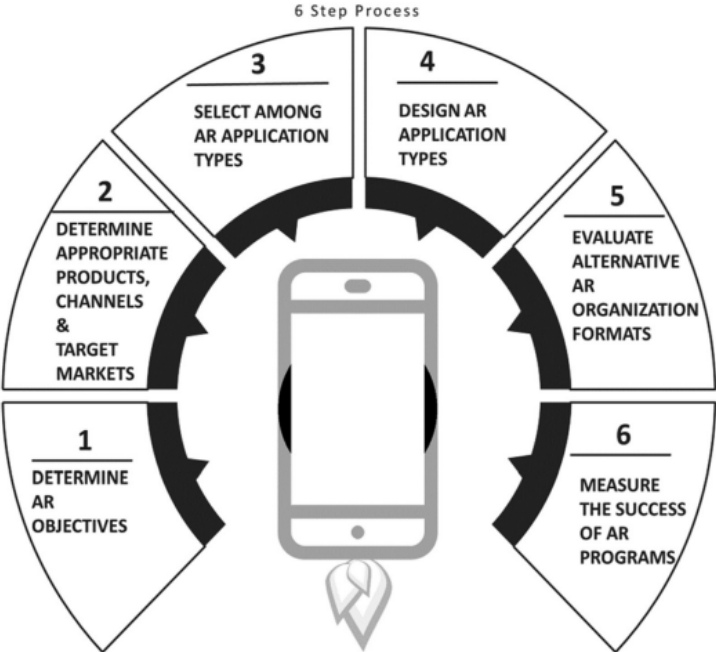


Figure 16: 6 Step Process for Successful Implementation of AR (Berman & Pollack, 2021)

1. Step 1: Determination of AR objectives

Table 5 in the appendix A7 categorizes AR objectives by (Berman & Pollack, 2021) into five broad categories: (1) increasing profits through increased sales; (2) increasing profits through lower expenses; (3) generating excitement for retailers or a product; (4) facilitating the consumer purchase process through increased product information; and (5) implementing and upgrading a firm's omnichannel strategy. To achieve each goal, businesses must employ a diverse set of strategies and techniques. Some marketing strategies can be linked to more than one overarching goal. Making clients feel more at ease while purchasing high-risk items online may be classified as either a consumer purchase process or an omnichannel approach. Each goal must be quantified and assigned a completion time estimate. Quantifiable goals include raising product awareness by 10% in six months, reducing customer support expenditures by 15% in six months, and reducing product returns by 15% in three months. Customer journey mapping is a valuable tool for creating a company's goals. Firms with a poor track record of convincing web-based customers to buy complicated items or encouraging online customers to visit local stores should concentrate on specific omnichannel strategies for the effective application of AR objectives and tactics. Consumer journey mapping may also reveal low levels of related item purchasing, a small number of customers choosing to shop online, and consumer reluctance to return products acquired online to a local store.

2. Step 2: Determine appropriate products, channels, & target markets

AR is especially useful in assisting clients in making decisions between contextual items and products available in a broad range of colors, textures, sizes, and styles (Haumer et al., 2020; Heller et al., 2019a). AR, on the other hand, has a lesser potential with standardized items, minimal participation purchasing, and low perceived risk circumstances (Haumer et al., 2020). Marketers should consider the number of items and markets selected for first and subsequent AR implementations. A company might facilitate initial AR adoption by restricting AR use to its best-selling goods or retail locations. Boxed.com, an online retailer that delivers wholesale size bulk groceries, beverage, and paper products to a customer's home or firm, restricts its AR applications to its top 30 best-selling items. AR allows Boxed.com's consumer and business buyers to compare sizes of items in the same category to the measurements and other specifications of their pantry (Amato-McCoy, 2018). A similar channel-based issue is whether to make an AR app available in all of a retail chain's stores or simply in important store locations. While Zara has 85 locations in the United States, its AR experience is limited to seven (S. Miles, 2019). A marketer may cater to its best consumers by deploying restricted product and shop applications, fine-tune an AR strategy for subsequent rollout in a larger marketplace, and protect its most critical items and places against specific AR-savvy competitors. Because of the scale of the market, limiting AR app product and store use is a dangerous strategy. An alternate technique is for a firm to first build and test AR applications on less significant items and places before expanding the apps to more key locations and products once they have been fine-tuned. AR can be utilized only for online or in-store applications, or it can be integrated into a company's whole omnichannel strategy. AR may compensate for what the customer perceives as a lack of product information, such as a consumer's inability to physically touch or feel a product, and it can boost consumer engagement in online applications. AR may be utilized in-store to drive traffic, engage customers more effectively, and display a product in use. Millennials, who are big smartphone users, are a target demographic that is familiar with AR technology. Marketers can also choose target markets based on behavioral characteristics. One research looked at the acceptability of AR by two target markets: Visualizers and verbalizers are two types of people. While visualizers prefer to process information through the creation of visual images, verbalizers prefer semantic processing without the creation of images. This study discovered that adding pictures to verbal product descriptions had less of an influence on product assessments by visualizer's vs verbalizers because visualizers are better able to employ their own mental imagery. Pictures, on the other hand, provide more information to verbalizers (Hilken et al., 2017).

3. Step 3: Selection of AR application types

Marketers should select among four popular AR application types: try-on applications, product demonstration via interactive media, try-out applications and remote technical support. The AR product demonstration is well suited to show a product in use, to tour the firm's facilities and to describe a product's features. The product demonstrations via AR are recommended as a firm's initial entry into AR because of the easy way of implementing it compared to try-on and try-out applications. Try-on applications show costumers how products such as cosmetics, and clothing fits with the body shape and facial characteristics. Try-out applications help consumers to see how different furniture, colors and layout's fit within their home. These applications also feature products, colors and sizes which are not in stock by the company or currently out of stock. The remote technical support application facilitates technical support by overlaying instructions on an image of a customer's product. This support enables customer to be guided and helped through the installment or repair process by simply pointing their smartphone to the direction where the problem is.

4. Step 4: Design of AR apps

There are two major aspects of AR design to consider. One is concerned with technical difficulties, while the other is concerned with customer issues. The ease of developing, maintaining, and upgrading an AR app, the realism of AR images, the ability to run an AR app on multiple devices without major programming for each device, and the ability to use existing computer-aided design (CAD) models as the basis for AR content are all important AR technology issues (Forrester, 2019). Consumer-based AR design concerns include download speed, simplicity of usage, and user experience quality. Other design issues include the absence of critical functions such as calling, chat, GPS, and social media (Agrawal, 2018). A successful AR design should prioritize high engagement. An effective AR software must give users with a compelling and memorable experience that includes elements like as realism, engagement, and vividness. According to one research (Rauschnabel et al., 2019), the AR experience must give consumers with hedonistic advantages (aesthetic, sensory, and pleasure components) as well as perceived augmentation quality (i.e., realism). Another consumer-focused factor is the requirement for the AR software to be interactive and colorful. The ease of engagement and involvement of a customer with AR material is referred to as interactivity. The vividness of AR material is related to its realism or richness (Yim et al., 2017). AR apps that are difficult to use or that place an emphasis on novelty rather than important product information are examples of potential design flaws. A second AR design element is establishing how users will activate the AR layer. A customer can engage the trigger by scanning a print ad with their mobile device or by accessing multiple wardrobe alternatives through a virtual try-on mirror. Marketers may create their own first-party applications or use third-party platforms

such as Snapchat or Facebook to deploy AR advertising. Third-party platforms may raise customer awareness of a company's app while also increasing downloads, use, and transactions. Artificial intelligence may be used by businesses to propose various AR apps based on a consumer's web surfing behavior.

5. Step 5: Evaluation of alternative AR organizational formats

The best organizational structure for AR is determined by a firm's size, AR competence, the overall value of AR in a firm's communication initiatives, and financial constraints. AR organizational possibilities range from total in-house to total outsourcing. Large corporations have the financial means and management expertise to create an internal AR organization. Lowe's, IKEA, L'Oréal, and Walmart all have big internal AR app development and upgrading teams. Rather than starting from scratch, L'Oréal purchased Modiface, an AR developer, in August 2018. Modiface had a workforce of 70 developers and engineers at the time, focusing on building digital experiences for L'Oréal's 30-plus brands. Modiface's AR software allows customers to test on different hair colors and cosmetics in a virtual setting (Klamann & Krastev, 2017). Small organizations and firms without AR experience, on the other hand, can outsource AR through experts, which produces and maintains AR capabilities.

6. Step 6: Measure the success of AR programs.

The sixth step includes the ways on how to measure success of AR programs and what difficulties exists. The information from (Berman & Pollack, 2021) have been included in the chapter 2.4.6 about success measurement and difficulties to limit double mentioning.

The implementation process of (Berman & Pollack, 2021) can be considered too vague in regard to the implementation of AR. It neglects significant parts of the rational in the decision-making process. Therefore, it will be revised and adjusted by prior and subsequent steps in the chapter 5.4. Most importantly it should be mentioned that it does not consider the consideration stage of the company. Without this stage it can be seen as pointless, to go directly into the implementation stage of AR when a clear rational of AR is missing.

2.4.6 Success measurement

AR is a new technology that opens new marketing and advertising opportunities. It enables companies to provide clients immersive experiences, which may raise customer engagement, brand loyalty, and brand exposure. However, determining the performance of AR campaigns can be difficult since it calls for measures that are different from those used in conventional marketing strategies especially since it has online as well as offline touchpoints. We will talk about how to evaluate the efficacy of AR

marketing efforts in this chapter and what challenges marketers are facing when they try to evaluate their efforts. To provide marketers with general knowledge on how to measure effectively, in the appendix A9 further information on additional metrics as well as the SMART framework (Appendix A8) will be in detail discussed.

User Experience Measurements

A study conducted by (Arifin et al., 2018) analyzed some user experience measurements which have been used in several platform applications such as, AR applications, mobile applications, web applications and other specific applications. The results from this study are rather insightful since they give an overview about existing user experience measurement metrics. Since it is unclear where AR applications will go in regard to web based or app based, we will give insights into the general findings of the research.

1. User experience Measurement on Web application

According to Arslan and Assad Riaz's assessment of studies from 2001 to 2008 on user experience and usability in internet applications, user experience is often measured throughout the implementation and testing phases. Storytelling, narrative, and an emotion-based assessment strategy are some of the UX evaluation techniques; nevertheless, they did not go into great depth on how the UX metrics were used (Arslan & Riaz, 2010). Based on user center metrics, the Heart Framework was utilized to quantify the user experience metric for online applications. The Heart Framework performs extensive measurements of the web's user experience. The goal of the product or feature to be measured, the signal that serves as an indication of the performance of the user experience, and metrics to assess the selected indicator make up this framework. According to (Rodden et al., 2010), the User Center Metric is a happiness metric, which is a measure of satisfaction, an engagement metric to measure how long a user uses a specific application or product, adoption and retention metrics to measure how many new users keep using the app or product in certain periods, as well as task success metrics to gauge how effectively, efficiently, and with what error rates users perform. Based on the purpose, signal, and unit measurement, each of these measures is further elaborated. The quality of a website is assessed in part based on the user experience. Actual User Experience, according to (Rauschnabel et al., 2015), is a level at which users may attain usability, safety, and happiness in a particular usage situation. The quality of the user experience when utilizing a website application is influenced by usability. The degree of user experience in a website application is gauged by the degree of satisfaction with usage and safety. Because it relates to consumers' emotional states and their desire for similarity and trust when using a website or application, safety is a gauge of their user experience (Lew et al., 2010). With an increase in online user activity comes an increase in web service development. In order to benefit users, this must be complemented with a positive user experience. When assessing user experience from online services,

the employed hedonic factors like the emotional and psychological demands of users and pragmatic factors connected to the functional requirements of web services are prevalent (Väänänen-Vainio-Mattila & Wäljas, 2009; Vaananen-Vainio-Mattila & Waljas, 2010). User experience is now taken into consideration while creating a solid website using a recommender system. The scholars advocated a positive user experience; the system should allow users to choose the rating, the characteristics they value most, and the ability to customize the recommender system that is being utilized (Konstan & Riedl, 2012; Pu et al., 2012). The user experience is influenced by the users' degree of expertise as well as the quantity, quality, and variety of suggestions (Knijnenburg et al., 2012).

2. User Experience measurement on Mobile Applications

The point at which a mobile application's user experience is evaluated does not begin when the user begins to use it; rather, it begins when the user downloads and installs the program. Since the user interface influences the user experience when the program is utilized, user experience awareness needs to begin with the developers (Pilomia, 2011). Mobile content has an impact on users' quality of experience, which is - naturally - correlated with the caliber of the material offered by the content provider and the caliber of the service from mobile communication. (Mohseni, 2010; Noor & Khorsandroo, 2011). Users' user experiences may be calculated using the internet service that is offered (Kujala et al., 2011). The ease of use, attractiveness, usefulness, and length of usage are employed by the UX Curve to measure UX across time. Through a graph that displays the degree of each recorded parameter, this technique explains the UX level of mobile users over time and facilitates analysis. (J. Tan et al., 2013) provide a paradigm for measuring usability and UX in the mobile sector utilizing many criteria, including effectiveness, efficiency, productivity, satisfaction, learnability, safety, accessibility, generalizability, and understandability. This framework was created using the Goal-Question Metric¹¹ (GQM) methodology.

3. User Experience Measurement on Augmented Reality Application

(Irshad & Rambli, 2014) conducted a study of UX research from 2005 to 2014 with a particular emphasis on Mobile AR (MAR) and UX. Three research categories emerged from the review: UX as a phenomena, UX as a subject of study, and UX in real-world settings. It may be inferred from these three categories that there are still problems with UX assessment on Mobile AR (Irshad & Rambli, 2014). The MAR Playfulness app, which is an information-sharing application with a virtual pet, the Map Barrier Apps, and the MAR Street and Navigation Apps are some of the MAR prototypes that utilize three assessment methodologies (Dhir et al., 2013). The SUXES approach, which gauges an application's service quality using user satisfaction level measurements, is the first UX assessment

¹¹ GQM defines a measurement on three levels, 1. Conceptual Goal; 2. Operational level; 3. Quantitative level. (Caldiera & Rombach, 1994)

technique employed. The second method is, a UX evaluation method that measures an application's usability level using pragmatic quality criteria, hedonic quality -stimulation, or the level of enjoyment users derive from its features, hedonic quality- identity, or the level of enjoyment users derive from recognizing the applications they use, and attractiveness, or the level of users' interest in using the application. Emocard, which evaluates users' emotional connections while engaging with the program (Dhir et al., 2013), is the third technique.

4. Other User Experience Measurement

UMUX (Usability Metrics for User Experience) is a measurement of user Experience that bases acceptance of an application on subjective evaluations of Usability factors as effectiveness, efficiency, and satisfaction (Finstad, 2010). This metric may effectively give measurements of user experience because it has been evaluated on business applications in Intel and audio-conferencing apps. From idea, pre-development, production, through implementation and testing, user experience in games is assessed using a variety of techniques, including surveys, focus groups, interviews, video coding, quantitative comparison of game behavior, and heuristic review. However, the evaluation did not go into detail regarding the measures employed to assess user experience. Galvanic skin response (GSR), electrocardiography (EKG), electromyography of the jaw (EMG), respiration amplitude (RespAmp), and respiration rate (RespRate) metrics were measured through the Procomp Infiniti Hardware and Biograph software (Mandryk et al., 2006). (Mandryk et al., 2006) used these metrics to measure user experience in entertainment technology.

Challenges

Even given the aforementioned approach, it might be challenging to calculate the ROI. According to one study, the absence of reliable measuring techniques and the ambiguity surrounding ROI calculations are the main obstacles to the implementation of AR (Hilken et al., 2017). According to this study's findings, managers require a deeper comprehension of the kind of customers who are most likely to interact with AR, what makes for an engaging consumer experience, and how AR may help consumers make better decisions (Hilken et al., 2017). 42% of respondents of a BCG research said they were unwilling to enhance AR because the ROI was uncertain, and 27% said that even while the ROI was obvious, it was too low (Bona et al., 2018). The difficulty in estimating the ROI of AR apps is a significant barrier to AR's adoption. Analyzing AR's ability to boost earnings through cost-cutting measures and higher sales is the first step in calculating the ROI of AR. AR may cut costs by lowering the cost of product returns, salesperson charges, and inventory holding costs. Additionally, AR may boost revenues through the sale of related products, the sale of more expensive goods, and better omnichannel integration methods. When customers utilized AR to explore their items, e-tailer Shopify said that its Rebecca Minkoff accessories line had a 65% boost in sales (Walk-Morris, 2020). The short-

and long-term expenditures related to AR must be compared to the financial benefit of decreased costs and better revenues. In addition to AR development and expenditures, businesses also pay costs for designing apps, creating user interfaces, monitoring, and maintaining apps, and maintaining and replacing gear. Licensing fees, hardware and software prices, and outsourcing fees are additional charges. According to (Bhatt, 2023), the price to create a simple AR app range from \$10,000 to \$50,000. AR apps for PCs and the web are often less expensive than those for smartphones and tablets. Businesses may evaluate the worth of AR by contrasting its advantages and disadvantages with traditional media spending. A successful AR application is YouTube's Beauty Try-On, which enables viewers to virtually try on various cosmetics. YouTube claims that 30% of those who saw the Beauty Try-Onsite used the AR app. According to (Gilliland, 2021), the typical user virtually tried on lipstick for more than 80 seconds. Comparisons between AR and conventional advertising media should be made about the size of the AR audience, the typical exposure period, and the beneficial impact of AR on sales. Another valuable method for assessing the financial effect of AR is customer path mapping. This procedure demonstrates how AR streamlines the purchasing process. A good AR strategy allows customers to bypass steps in the typical buying route by moving straight from awareness to purchase, to utilize AR as a replacement or addition to salespersons help, and to make purchases online without physically visiting a shop. Customer journey mapping can also identify ways how AR might streamline the purchasing process and remove bottlenecks and disconnects (Berman & Pollack, 2021). Additionally, what complicates the tracing of marketing's impact is the time frame of impact, if the impact is rather direct or indirect e.g., immediate increase in customer loyalty vs increase in sales, synergies between actions e.g., how are the impacts on cross-selling as well as external factors such as competitors' actions which affect the sales and profitability. However, despite the challenges in measuring, it is essential to justify investment decisions. Expenditures need to have a reliable ground for decision making and in general wisdom said, "what cannot be measured, cannot be managed".

2.5 Implementation case analysis

To further investigate the impact of AR twelve use cases have been analyzed based on the previously discussed theoretical models. The selection of the use cases has been made through snowballing and google searches. The rationale for selection was, that the AR application, tool, or campaign should have been useable or visible in the German market for consumers. If this was not the case or not applicable the companies have been excluded. However, the selection also includes non-German companies since they are also active in the German market and the AR content was visible and affected their decision-making process. Furthermore, it should be mentioned that the results can be subject to the survivorship bias¹², and a broader examination of unsuccessful cases should be conducted. However,

¹² Survivorship bias occurs when researchers focus on individuals, groups, or cases that have passed some sort of selection process while ignoring those who did not. Survivorship bias can lead researchers to form incorrect conclusions due to only studying a subset of the population. Survivorship bias is a type of selection bias (Nikolopoulou, 2022).

through the qualitative analysis it was possible to gather additional insights into non-successful cases which will be presented in chapter 4.2. The raw data of the analysis is presented in a table 6 in appendix A10.

Based on the selection criteria, the following companies have been selected (Figure 18):

- Adidas
- Amazon (Room Decorator)
- Becks
- Deutsches Museum
- Home Depot
- IKEA
- L'Oréal
- Netflix special for Stranger Things series
- Niantic (Pokémon Go)
- Pepsi
- Snapchat
- Svarmony



Figure 17: Selected companies with timeline

Implementation Time

To begin with, it was rather interesting to look at the funding date of the AR campaigns and applications. Since a lot of scholars and marketers consider AR still as a novelty, companies such as Becks started with their AR marketing campaign already 12 years ago. Similarly, like Pepsi and L'Oréal which followed only three years after. However, this gives some room for interpretation, why major marketers such as IKEA and amazon waited almost six and respectively nine years longer before they adapted the technology for their marketing goals. This could be explained by several reasons. Beck's art box projected has been developed to raise awareness by offering artists the chance to showcase their art in an AR virtual gallery. Similarly, to Beck's, Pepsi's aim was also increasing the awareness and both of the apps, did not have any functionality. The AR application could have been considered static and there was no space for interacting like we see currently with amazon room decorator or IKEA's furniture base app. L'Oréal in that sense seems like an outlier, however after the review of the first make-up try-on tool what they introduced, it can be considered significantly less enhancing and value providing. Personally, I believe that the App start of L'Oréal was too early since the try-on tool looked poorly made and for high quality products such as L'Oréal is offering it might be a damaging reputation to their

brand.¹³ Additionally, a study from BCG analyzed the most innovative companies and the insights have been interesting (BCG, 2021). The commitment of the companies which can be considered laggards and innovators are almost equal, however the innovation input in sales is 1.4 higher and the innovators wait in average 5 months longer to market their solutions and products. This resulted in 4x higher innovation output in percent of sales. This phenomenon might be applicable, why companies which are considered to be the biggest innovators waited several years before starting to engage with AR.

Marketing Levels

Secondly, which was interesting – however rather expected – is, that most companies which use AR, use it in a tactical sense and not specifically strategically or functionally. Only two companies, Niantic with its product Pokémon Go and Snapchat with their AR filters are using AR on a functional level. The remaining companies use AR solely in a tactical manner. The reasoning behind it, could be that many companies do not want to change their business model to dramatically, especially when companies believe that the market acceptance and the technological tools are not widely available, and the outcomes are not quantifiable. Therefore, companies support mostly their strategic and functional marketing levels by using AR tactically.

Main Goals

Furthermore, the analysis based on the “BICK FOUR” framework revealed that companies are mostly using AR for inspiring and convincing followed by branding and keeping (Figure 19). This effect can be explained by the most commonly known use cases of AR as a support for decision making in the planning stage of the customer journey e.g. IKEA Place app or Amazon Room decorator. But nevertheless, companies should also consider the potential to use AR for the enhancement of their branding as well as to keep customers. For example, Pepsi created in 2014 an AR experience in a bus shelter in London. This bus shelter transformed by a display into a window which augmented unbelievable scenarios into the real world and astonished pedestrians. The results of this AR campaign have been significant. The video of the bus shelter reached 8 million people whereas 3 million people watched it within five days. Additionally, the unpaid news coverage reached 385 million people and the sales for the new Pepsi Max increased by +35% YoY.¹⁴

The usage of AR as a product should also not be neglected. One of the most famous AR games from Niantic showed in 2016 that the merge from physical and virtual world was very successful. Niantic’s revenue in the first month of the release have been 206.5 million USD and the game was played by over 45 million people in 2016. However, it should be noted that the danger and what also have been

¹³ The Gartner Hype Cycle from chapter 2.3.2 should be consider in that sense, since AR just left the peak of inflated expectation in 2014.

¹⁴ <https://grandvisual.com/work/pepsi-max-bus-shelter/>

experienced in the case of Pokémon Go, is that a game or a product can be develop fast into a fad product.



Figure 18: AR Goals

Main Assets developed

The development of a marketing asset is rather difficult and costly. However, AR might be a way to develop certain assets which can be further valuable to enhance the competitive advantage of the company. The use case analysis showed that the main developed assets by AR are customer relationships, followed by the brand and the goods which have been developed by using AR (Figure 20).

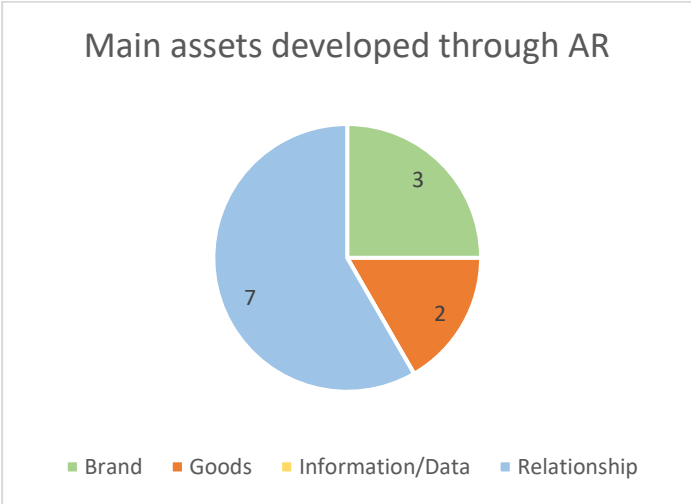


Figure 19: Main assets developed through AR

The use cases which have been analyzed focused mostly on companies which can be considered as very successful in creating long term customer relationships. However, with AR the companies managed to provide additional value into the customer journey and therefore leveraged the bond created between the customer and the company. By creating a better relationship with the customer, it is possible to

increase simultaneously the brand image. Additionally, the better the relationship the more insights can be taken from the customer (information/data) which can leveraged into providing goods which solve real customer problems. However, due to restricted access of internal company information it was not applicable on how the companies used the data collected by AR to enhance the product development.

Customer Journey

The analysis of the use cases showed that AR is mostly used in the planning stage (six uses), followed by the awareness stage (three uses) and use stage (three uses) (Figure 21).



Figure 20: Use cases by customer journey stage

This insight correlates with the findings in the section main goals since a lot of companies are mostly using AR for an assistance during shopping, when the consumer is already aware of the need to purchase a specific type of product and plans the purchase in detail. However, companies could also consider, to use AR in fields which is not a typical use case so far to distinguish themselves between their competitors. For example, let’s take the case of IKEA since most of the companies are aware of that company. One applicable problem that most of the customers face, when they purchase furniture is to reassemble what they saw during the shopping process. IKEA could provide an AR manual which could help customer by building their furniture in showing them via their mobile phone which screws belong to which part and how to assemble the parts together. To enhance the loyalty of the customer, IKEA could also try to create an AR application to help customers with fixing broken furniture. It might be applicable to scan the furniture piece or scan the QR code and search for the broken part and subsequently an AR application could guide the customer through the process of maintenance and fixing of the furniture piece.

Provided Values

One of the most crucial things by developing an AR campaign is to provide value for the customer. The analysis of the created values has been done using the proposed concept by (Almquist et al., 2016). Most of the use cases stimulate functional values (39) followed by emotional (16) and life changing (3). One of the explanations could be, that it is much more feasible to create functional value using AR rather

than to climb the pyramid and create emotional, life changing or social impact. However, companies which can create higher levels for their customers be perceived as superior companies. Therefore, companies should aim to fulfill the basic needs e.g., functional levels but also aim to bring higher values to their customers. The results below (Figure 22) show which values have been created by the companies using AR.

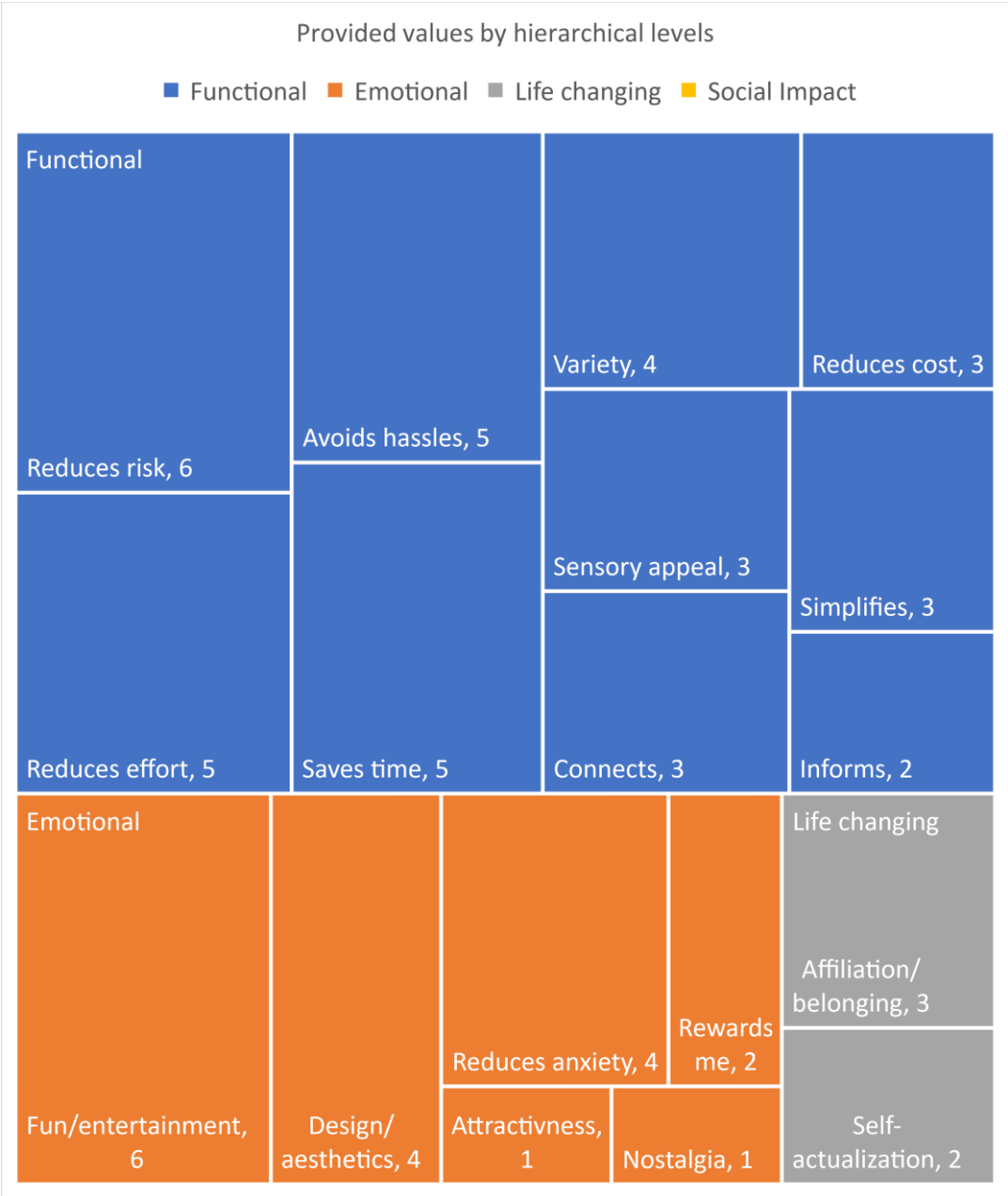


Figure 21: Provided values by hierarchical levels

Only three of the companies which have been analyzed reached the life changing ladder (Becks, Niantic and Snapchat). Becks created with the Green Box project the opportunity for artists to showcase their art in virtual galleries all around the world. This project is not the first project to support artists. However

Becks created through the project a community and a sense of belonging for the artists and the artists had a space to create something on their own. Similarly, to Becks, Niantic engaged people and brought them together to hunt virtual Pokémon's. Lastly, Snapchat created with their AR filters a space where people can present themselves in a new way which previously was not applicable. The widespread of usage of filters and the redevelopment of the outer self, hit a pain point of many users. That why the AR filters of snapchat have been used significantly. Snapchat reports that their AR lenses have been viewed over five trillion times and the daily active usage of them is at 300 million. This is probably one of the most successful use cases of AR which fulfills also a very high perceived value of the users.

Since this is only a limited use case analysis, AR has the potential to enhance and provide much greater value than only functional elements of the value pyramid. Companies should strive and understand their customers deeply to create emotional, life changing and social impact for them. Let's take a look into the case of adidas. Adidas try-on AR application is designed to provide their customers a chance to virtually try-on their most iconic models. However this application is currently solving solely functional and emotional benefits, e.g. it reduces effort, avoids hassles, reduces risk and saves time during the shopping process as well as it reduces anxiety and is aesthetically to view. However, Adidas could expand their try-on tool by creating groups for specific customer segments. In those groups customers can engage and share their newest discoveries while using AR and can discuss and communicate during their shopping process if they wish. For people who would like to engage in an online shopping experience but would like to be engagement with other people could see an additional sense of affiliation and belonging. The insights which can be gathered through this communication inside of the AR application would be also helpful to increase the availability of data and information for further developing new products or services. Not to neglect this experience could seem for customers intrusive on their privacy but could be a step forward in creating something which is more valued by customers.

Conclusion

The use cases analysis gave interesting insights into the efforts of companies which engaged already in the creation of AR content for their marketing purposes. Additionally, the tools which have been developed and proposed showed, that they are applicable for further research purposes to better examine and understand the impact of AR on marketing practices in the B2C sector. The results which have been found are insightful and give a first look at the current AR marketing practices of companies in the German market. It should be highlighted, that most of the companies are currently only using AR in the tactical level of their marketing strategy which can further enhanced since AR content and technology is steadily improving. Additionally, the main goals of companies are currently to convince and inspire. However, it is anticipated, that the goals of branding and keeping will become more feasible in the future when companies can anticipate the benefits of AR. Subsequently, when marketers have a better

understanding of AR I personally believe, that the main assets which can be developed will shift from currently mainly increasing the customer relationship to increase the information/data and to create virtual goods which will substitute real goods. Furthermore, the customer journey analysis showed, that currently several stages of the customer journey are not penetrated by AR. This phenomenon could erase over time since AR could expand the whole customer journey and make a frictionless shopping experience from the pre-purchase till the post-purchase customer journey. Lastly, as discussed, the current usage of AR focuses mostly on functional values and a small number of emotional values. Marketers should strive to distinguish themselves from their competitors to create values which are life changing or create social impact.

2.6 Summary and gaps in the literature

After reviewing extensive research on AR and marketing theory it is visible that yet a holistic approach on how AR is connected in regard to marketing practices is missing. In the conducted research scholars focused mostly on the consumer side of AR but neglected the implications of businesses. Only, two studies have been dedicated to the context of the company (Berman & Pollack, 2021; Bona et al., 2018). The first research focused on the successful implementation of AR but neglected several aspects regarding market specifics, company strategy, value enhancement, adoption of technology and customer understanding whereas the second study was mainly researching the current usage of AR and their outlook.

For answering the research question how businesses can effectively incorporate AR into their marketing strategies to enhance the customer experience and achieve marketing objectives in the German market a broad study has been conducted to understand firstly the concepts around AR and to define what AR is. Therefore, AR has been distinguished with VR based on the presence of the physical environment and subsequently AR was further separated into assisted reality and mixed reality based on the local presence of AR elements.

Secondly, the environmental and technological considerations have been discussed, and it can be concluded, that the adoption by customers is already significant but marketers are lagging with their offerings. Additionally, the technological perspective showed, that the advancement in hard- and software is going very fast, and the technology is already suitable for a wide range of use cases. However, customers might not be equipped with the newest technology, therefore marketers should consider their target groups devices before creating AR content. Nevertheless, it is visible that the main issue in the adaption in the B2C markets is grounded in the lack of understanding of AR by marketers.

Thirdly, the marketing audit cube has been developed to understand which marketing levels, marketing goals and marketing assets are connected to the AR efforts. This framework enhances the current marketing literature as well as enhances the decision-making process of companies retrospectively and prospectively.

Fourthly, the marketing strategy framework by (G. Greenley et al., 2001), has been discussed to elaborate on the interconnectivity between several aspects of the companies surrounding. The insights from this framework are important, especially for the development of the decision tree to increase the company's financial performance and to create barriers of imitation by considering the market environment, internal factors and the company's strategic choices, including their marketing strategy.

Fifthly, the value pyramid framework by (Almquist et al., 2016) has been introduced to give marketers a suitable tool for assessing their marketing efforts. The introduction of this framework is highly applicable since it was not visible through the literature review that one framework included all relevant value enhancing factors. Further, through the iterative research process, the interviews which have been conducted with marketing specialists in chapter 4 additionally reaffirmed the usefulness of the value pyramid concept as a tool for consideration by companies.

Sixthly, the AR customer journey map has been discussed with the underlying positive and negative aspects of AR on the customer journey. The AR CJM gives important considerations for marketers since the path of the customer will be different when using AR in their shopping process. Further since many marketers do not know for what stage of the CJM AR might be relevant, it will give an understanding for what stage AR might be suitable.

Seventhly, (Berman & Pollack, 2021) introduced strategies for the successful implementation of AR. Since the aim of this thesis is elaborate on how business can effectively incorporate AR into their marketing strategies, the framework from (Berman & Pollack, 2021) has been discussed. However it neglects significant parts of the considerations which companies need to observe. Therefore, this framework will be adjusted and enhanced. The final decision tree with the consideration stage as well as implementation stage can be found in chapter 5.4.

Eighthly, since AR has connections to the offline and online world, the success measurement is rather complex. Therefore, the chapter 2.3.5 give marketers the necessary information to keep track of the performance and introduce KPIs which can be used to analyze the performance of their AR campaign.

Lastly, chapter 2.5 analyzed selected implementation cases for AR with rather interesting insights. Most interestingly is the development of value enhancing applications over the past years as well as the limited focus on certain elements of AR. Firstly, AR was mostly used in the tactical level and lesser attention has been made on the other levels. Secondly, the desired goals are mostly convincing and inspiring which are correlated with the planning stage of the AR CJM. Currently, the main dominated assets which have been developed through AR are customer relationships. However, it is expected that there will be a shift to an increase in data and information gathering as well as the substitution of physical products by AR solutions. Lastly, the predominant values which have been provided are functional values. However, the most successful AR solutions provide more than solely functional values. Therefore, companies should strive to create values which are connected to emotional, life changing or social impact.

To conclude, the results of the literature and the case studies are wide ranging. The introduced models are applicable for analyzing the current marketing efforts by companies and it will be anticipated that the models which have been used, could be also applicable for creating a rationale on the consideration of the implementation of AR in marketing. Therefore, the insights from the literature review and the case studies will be used for the development of the decision-tree to give marketers a guideline on what considerations should be made before engaging with AR.

3. Methodology

The following research question will guide this study:

How can businesses effectively incorporate AR into their marketing strategies to enhance the customer experience and achieve marketing objectives in the German market?

This research question is aimed at exploring the impact of AR on marketing practices in the B2C sector for the German market, and to identify strategies that businesses can use to effectively leverage AR in their marketing strategies and identifying best practices and key success factors for incorporating AR into marketing strategies. Additionally, to give guidance for marketers a decision-tree will be developed based on the insights from the literature review and from the subsequently generated knowledge through **expert interviews**. This research adopted a theoretical and qualitative approach to investigate the impact of AR on marketing practices in the B2C sector of the German market. The literature review conducted in chapter 2, including the case studies contributed to the development of the research design which will be of qualitative nature since the study is of exploratory nature. The qualitative research will adapt the deductive coding technique (Hyde, 2000) by conducting expert interviews.

3.1 Summary table with key decisions made

The Saunders Research Onion is a useful tool for understanding the various stages involved in conducting research (Saunders et al., 2018). The model consists of six levels that build on one another to provide a comprehensive research design (Figure 23).

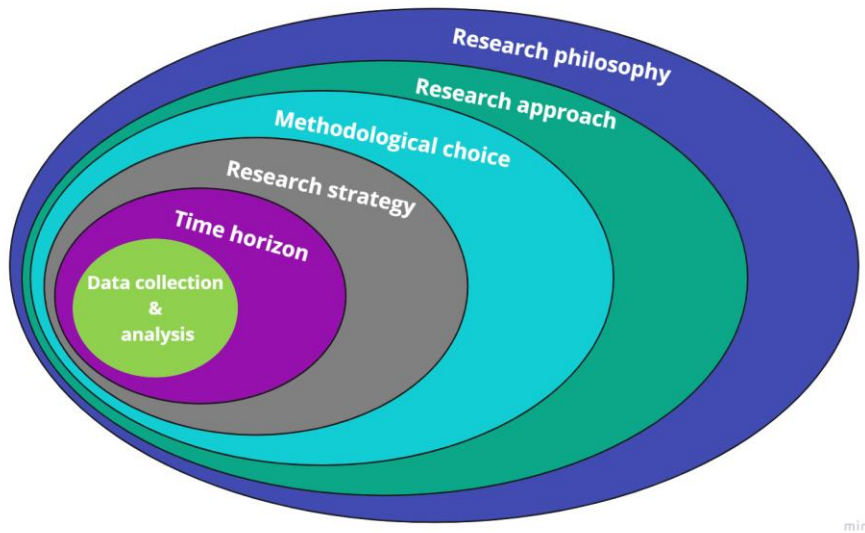


Figure 22: Saunders' Research Onion (Saunders et al., 2018, p. n/a; own design)

1. **Research philosophy:** The philosophy of this research is interpretivism because it allows for the exploration of complex phenomena in depth through the collection and analysis of non-numerical data, such as text or images, to gain insights into the experiences and perspectives of individuals.
2. **Research approach:** The qualitative research approach involves the collection and analysis of non-numerical data, such as text or images, to gain insights into the experiences and perspectives of individuals (Merriam & Tisdell, 2015).
3. **Methodological Choice:** Literature review as well as expert interviews is the methodological choice since it can answer the research question and contribute to a holistic understanding of the topic which will be discussed.
4. **Research strategy:** The research strategy is from qualitative nature since interviews with experts and literature has been analyzed.
5. **Time horizon:** The research for this thesis has been conducted over a period of several months, with the literature review component beginning in November 2022 and concluding in April 2023. The expert interview components of the research began in April 2023 and was concluded in April 2023 and the analysis and results have been finished in Mai 2023.

6. **Data collection method:** In this study, firstly a comprehensive literature review followed by selected case studies and expert interviews has been conducted. The selection of relevant literature was based on a Scopus key word research whereas the selection of cases was done using snowballing and a google research of AR marketing efforts in the German market or applicable to the German market. The selection of interview participants was based on knowledge in the field of AR and marketing in the B2C sector in the German market.

3.2 Research Design Interviews

Expert interviews have been conducted with professionals working in the field of AR and marketing in the B2C sector in the German market. The aim of the interviews was to gain practical insights into how companies can effectively incorporate AR into their marketing strategies by understanding the current trends, challenges, and opportunities related to the use of AR in marketing. Deductive thematic analysis has been used for analyzing the expert interviews. (Braun & Clarke, 2006), define thematic analysis as "a strategy for detecting, analyzing, and reporting patterns (themes) within data. The theory to be tested is stated before starting with data-gathering (Hyde, 2000). The deductive version of thematic analysis, often known as theoretically driven coding, begins with theory (Boyatzis, 1998). (Campbell, 1975) first described pattern matching, which is one of the types of analysis recommended for case study research (Hyde, 2000; Yin, 2009), particularly to improve the study's internal validity (Gibbert et al., 2008). Pattern matching may be traced back to quantitative research using small samples (Campbell, 1975). Its use and attraction were in discovering patterns in tiny data sets and testing hypotheses, but it may also be utilized qualitatively, which supports deductive theme analysis approaches (Hyde, 2000). Pattern matching is the process of discovering patterns in data and comparing them to one or more patterns suggested in the literature (Almutairi et al., 2013; Boyatzis, 1998; Gibbert et al., 2008). Boyatzis (1998) and (Fereday & Muir-Cochrane, 2006) describe and illustrate the steps of deductive thematic analysis, which include: (1) considering sampling and design issues; (2) developing the code manual (this includes labeling, defining, and describing when the theme occurs); (3) validating or testing the code's reliability; (4) summarizing data and identifying initial themes; (5) applying the template of codes and additional coding; and (6) connecting the codes annotated.

Data Analysis Techniques

The data collected from the expert interviews will be analyzed using deductive coding. By using thematic analysis with deductive coding, this study will be able to identify key themes and patterns in the data collected from the different sources, allowing for a comprehensive understanding of the impact of AR on marketing practices in the B2C sector for the German market.

The following steps will be conducted:

Step 1: Conceptual Framework

A literature review should result in a conceptual foundation for the investigation. "A conceptual framework explains the main things to be studied—the key factors, variables, or constructs—and their presumed interrelationships, either graphically or narratively." Frameworks might be basic or complex, intuitive, or theoretical, descriptive or causal. "A conceptual framework forces you to be selective - to decide which variables are most important, which relationships are likely to be most meaningful, and, as a result, what information should be collected and analyzed—at least initially" (M. B. Miles et al., 2013).

Step 2: Propositions

The framework is used to identify the propositions that will be explored.

Step 3: Code Book

The researcher can create a code book based on the propositions (Boyatzis, 1998; Crabtree & Miller, 1992; Fereday & Muir-Cochrane, 2006). Based on the conceptual model derived from the literature research, a basic code book can be created (Crabtree & Miller, 1992). As indicated by (Boyatzis, 1998; Fereday & Muir-Cochrane, 2006), this codebook may be expanded into a coding memorandum, with each code having a label or name; a definition; and a description of qualifiers and exclusions that explain whether it happens or not.

Step 4: Question Matrix

If data is to be obtained through interviews, then interview questions for distinct interviewee groups may be developed using the codebook, considering all competing theories and their propositions. Following the example of (Castillo-Montoya, 2016), a question matrix may be created to guarantee that the questions answered in the interview elicit replies relevant to testing the research propositions.

Step 5: Data Collection

The selection of participants was based on purposive sampling strategy. Purposive sampling involves selecting participants or cases based on specific criteria, such as their expertise or experience with a particular phenomenon (Patton, 1990). The criteria for the search of participants in this study included professionals working in the industry, academics with relevant research expertise, and other stakeholders who have experience with the use of AR in marketing in the B2C sector for the German market. The search for suitable participants was done through a google search in German based on the key words¹⁵ “*augmented reality marketing agency, AR cases companies, augmented reality use cases*”. Based on this approach several companies with experienced participants have been found. In total five

¹⁵ Translated into English for better understanding.

interviews (Table 3) have been conducted using online technology (Google Meet) with the transcription provided by tactiq¹⁶. The duration of the interviews had a length from 45 min – 60 min and all questions have been answered by the interviewees. In table 7 in the appendix A11 the interview questions can be found.

Interview Date:	Company	Headquarter	Position	Participant
19.04.2023	be*merkt	Freiburg (Germany)	CEO	1
17.04.2023	b.Rex	Stuttgart (Germany)	CEO	2
05.04.2023	Off Label	Berlin (Germany)	CEO	3
05.04.2023	Puppeteers	Dortmund (Germany)	CEO	4
05.04.2023	DGM Kommunikation	Stuttgart (Germany)	CEO	5

Table 3: Interviewees

Step 6: Analysis

The data analysis process is divided into three steps. First, the code book is used to analyze the data collected. This entails evaluating, modifying, and/or validating that the codes are indeed presented in the data by locating instances (Boyatzis, 1998). Furthermore, (Yukhymenko et al., 2014) advocate for the analysis to be expanded beyond the theoretical propositions derived from the literature review. They distinguish between "confirmed themes" and "added themes," and they urge scholars to add to the code book if new codes are discovered in the data. As existing theory is being tested, this should be viewed as an exception rather than a standard practice, according to a deductive qualitative approach. Themes are then identified. A theme "represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006). Themes emerge as a result of linking codes and recognizing patterns in the data (Fereday & Muir-Cochrane, 2006). Identifying themes from a deductive viewpoint entail looking for evidence in the data of the patterns specified in the study's premises. Pattern matching is used at this step as the researcher compares the dataset to competing frameworks or ideas.

Step 7: Reporting

The findings are written up, initially focused on one hypothesis at a time, followed by an integrated part demonstrating how the ideas "work together" while also admitting any inconsistencies or conflicts that may develop.

3.3 Methodological Limitations & Mitigation Strategies

Sampling bias, generalizability, subjectivity, reliability, and validity are some of the methodological limitations of this study that have been carefully considered and addressed throughout the research process to ensure that the findings are valid, reliable, and generalizable to the population of interest.

¹⁶ <https://tactiq.io/>

- Sampling bias: To mitigate the risk of sampling bias, the study will use a purposive sampling strategy which includes professionals with relevant expertise in the field of AR and marketing in the B2C sector in the German market. Additionally, the criteria for participant selection will be clearly defined and representative of the population of interest.
- Generalizability: The findings of this study may not be generalizable to other populations or contexts. To address this limitation, the study will clearly define the population of interest and the context in which the research is being conducted.
- Subjectivity: The use of qualitative data analysis techniques, such as thematic analysis, involves a degree of subjectivity in the identification and interpretation of patterns and themes within the data. To minimize the potential for bias, the data analysis process will be transparent and well-documented.
- Reliability: The use of multiple data collection methods and the potential for evolving research strategy may limit the reliability of the findings. To address this limitation, the research methods and analytical techniques will be consistent and well-documented throughout the study.
- Validity: The use of qualitative research methods may limit the validity of the findings, as they may be more prone to bias and subjectivity than quantitative research methods. To maximize the validity of the findings, the research methods and analytical techniques will be well-designed and well-executed.

4. Results and analysis interview

In total five in-depth interviews have been conducted with the CEOs of marketing companies in Germany which already implemented AR marketing campaigns for the B2C sector. The interviews have been conducted over a period of one month. The interviews took between 45 min - 60 min and all questions have been answered by the interviewees. However due to NDA some questions only have been answered broadly to not violate agreements between the interviewees and the clients from the company. All interviews have been transcribed using tactiq. The volume of the transcripts in total is 86 pages. Based on the number of interviews and the gathered information through it, in connection with the already existing literature it is considered that the information is sufficient to answer the research question on **“How can businesses effectively incorporate augmented reality into their marketing strategies to enhance the customer experience and achieve marketing objectives in the German market?”**.

4.1 Data analysis

Step 1: Conceptual Framework

The conceptual foundation of the investigation has been developed in chapter 2 by analyzing and creating frameworks which have been tested through case studies. To answer the research question the following frameworks have been mainly used to build and create the questionnaire for the interview participants:

- **Marketing audit cube** (own development) (**Chapter 2.4.1**)
The marketing audit cube combines the marketing levels, with AR marketing goals and the assets which can be provided and creates a three dimensional cube to analyze the efforts and to give assistance in the decision-making process.
- **Marketing strategy** (G. Greenley et al., 2001) (**Chapter 2.4.2**)
The proposed marketing strategy by Greenley investigates the interrelation of several variables which include market-focused resources, market environment, strategy selection, strategy implementation and competitive positioning to enhance the company's performance.
- **Value Pyramid** (Almquist et al., 2016) (**Chapter 2.4.3**)
The value pyramid by Almquist emphasizes on the importance to understand the customer and on what levels value can be generated by the company. The B2C value pyramid consist of four layers. The most basic level is the functional level, followed by the emotional level and life changing and lastly the social impact level.
- **Implementation of AR** (Berman & Pollack, 2021) (**Chapter 2.4.5**)
The implementation framework of AR from (Berman & Pollack, 2021) elaborates on how businesses can implement AR successfully in six steps. However, since important aspects are missing in this framework it will be adjusted by the insights from the interviews, literature, and case studies.

Step 2: Propositions

To answer the research question on “**how businesses can effectively incorporate AR into their marketing strategies to enhance the customer experience and achieve marketing objectives in the German market**”, the following objectives have been set:

- To examine the impact of AR on marketing practices in the B2C sector of the German market
- To identify strategies that businesses can use to effectively leverage AR in their marketing strategies

- To identify best practices and key success factors for incorporating AR into marketing strategies
- To analyze the marketing campaigns of companies in the B2C sector in the German market that have successfully integrated AR into their marketing strategies

The following objectives guided this research and have been partially addressed by the already existing theoretical knowledge. However, since AR is still a novelty, these propositions have also contributed to the development of the interview questions to get insights into what specialists in that field think and to create additional knowledge. Furthermore, it should be noted that the process of the research used an iterative method since knowledge which has been extracted by the literature influenced the interviews and the insights which have been gathered by interviews gave an additional perspective of necessary literature which had to be considered.

Step 3: Code Book

Based on the proposition from above the following code book has been derived:

- Trends & Engagement
- Implementation Reasons & Value Enhancing AR
- Mistakes & Drawbacks
- Measurement of AR
- Implementation process

Step 4: Question Matrix

Since data have been obtained through interviews the code book from above has been used to develop the interview questions under consideration of the proposition from step 2 of the analysis process. This approach guaranteed that the questions answered in the interviews replies to testing the research proposition. In table 4 the mapping from the interview questions to the developed codes can be found.

Interview Questions:	Codes:
1. What is your name?	n/a
2. What is your position in the company?	n/a
3. In what sector does your company operate?	n/a
4. How many augmented reality solutions did you do for clients already?	n/a
5. What was the objective of your client to implement augmented reality?	Implementation Reasons & Value Enhancing AR
6. Why did you decide to start selling augmented reality solutions?	Implementation Reasons & Value Enhancing AR
7. What were the augmented reality solutions that you made?	n/a
8. Can you walk me through your process for developing an augmented reality marketing campaign?	Implementation process
9. What types of augmented reality experiences tend to resonate best with consumers, and which don't?	Implementation Reasons & Value Enhancing AR
10. In what stage of the customer journey AR might be most promising and why? (pre-purchase, purchase, and post-purchase phase)	Implementation Reasons & Value Enhancing AR
11. Do you think the use of the value pyramid is beneficial in designing an AR experience?	Implementation Reasons & Value Enhancing AR
12. What are the limitations of augmented reality in marketing, and what types of products or services may not be suitable for this technology?	Mistakes & Drawbacks
13. Do you see any risk with the usage of augmented reality?	Mistakes & Drawbacks
14. Can you provide any examples of augmented reality campaigns that didn't meet expectations, and what you learned from those experiences?	Mistakes & Drawbacks
15. How do you measure the success of an augmented reality marketing campaign?	Measurement of AR
16. What are the most important trends and developments in augmented reality marketing that businesses should be aware of in the coming years?	Trends & Engagement
17. What was the target group of your AR applications?	Implementation process
18. How important is it to have a clear understanding of the target audience when incorporating augmented reality into marketing strategies?	Implementation process
19. How would you address different target groups?	Implementation process
20. How can augmented reality be used to create a more personalized experience for customers?	Implementation Reasons & Value Enhancing AR
21. What assets did you need to develop before starting your AR efforts?	Implementation process
22. How does the customer know that the use of AR is appropriate for his business?	Implementation Reasons & Value Enhancing AR
23. What are the most effective ways to promote an augmented reality marketing campaign, and what channels should businesses use to reach their target audience?	Implementation process
24. How much does an AR application cost?	Implementation process
25. How can businesses ensure that their augmented reality marketing campaigns are aligned with their overall brand messaging and values?	Implementation process
26. What applications (technology and hardware) did you use for the AR campaign?	Implementation process
27. What are the main differences between augmented reality and virtual reality in marketing, and when is it appropriate to use one over the other?	Implementation process
28. How do you collaborate with other teams, such as design and development, to create successful augmented reality campaigns?	Implementation process

Table 4: Interview questions with mapping of theme

Step 5: Data Collection

The research data has been gathered using the questions from above and all the questions have been answered by the interviewees.

4.2 Results

As we presented in the following chapter, the results have been divided into five themes:

1. Trends & Engagement
2. Implementation Reasons & Value Enhancing AR
3. Mistakes & Drawbacks
4. Measurement of AR
5. Implementation process

Theme 1: Trends & Engagement

Firstly, all the respondents answered positively to the future impact of AR. Especially the link to affordable AR glasses was mentioned by three of the respondents, that this can have positive impact on the development of AR. Additionally, the development of phones which have a higher performance rate e.g., iPhone 14 will become soon standard which elevates positive usage forms of AR on most of the

devices used by customers. Furthermore, through generating 3D objects on your own via using an App, the generation of content will become soon something that everybody can do (Respondent 4: “Generating 3D objects is not going to be very expensive anymore e.g., start-ups developed a technology where you can scan via your phone objects to create in 5 min a 3D version of it”). Therefore, one of the biggest cost factors of creating 3D content will diminish significantly. Secondly, the responses to the question who the main target group is and how the adoption of the target group is was rather interesting. The applications which have been designed by all the marketing agencies were not specifically meant for younger generations like Millennials or Generation Y. The respondents mentioned that there is a difference in older generations and younger generations. It is easier to generate a WOW effect for older generations, but this effect is diminishing fast. Therefore, the AR content should be something which brings value. (Respondent 1: “If you provide a great value with your content, it doesn’t matter how old you are, you will use it!”). However, to create value for the target group it is important to have a clear understanding of the target group which was positively answered by all the respondents. However, only one respondent answered the following to this question, to get an understanding of the customer that they would ask the customers before and create a concept with mock-up to get feedback on it. (Respondent 2: “In my old company we didn’t ask the end-customer, we always thought we were right, but we never were. Therefore, we never ask ourselves. We always ask potential end-users.”). -This respondent was also the most positive one on the future of AR regarding marketing-.

Theme 2: Implementation Reasons & Value Enhancing AR

The second theme consists of several sub themes. Firstly, the benefits what AR can bring to the customer are very broad. In the following I will highlight the most relevant benefits which have been mentioned by the respondents. AR has the ability to enhance value on several layers of the value pyramid. The respondents answered that their AR campaign generated positive WoM¹⁷, educates the customers through e.g., an AR tour guide, helps for brand building (Respondent 2: “Our customer wanted to be perceived as a technology leader and we developed an AR campaign to show this image to their clients.”), increase the engagement rate on the website or mobile app and creation of a space for personalization of products. To summarize the very broadly mentioned positive benefits AR can generate, all respondents answered that it might be a good way for companies to evaluate their concept of AR by checking if they can provide additional value based on the Value Pyramid. Since the value pyramid was not known by the respondents, the idea and concept of the value pyramid was shared before asking the respondent the question. Secondly, since the aim is to enrich the customer journey or fasten the decision-making in the customer journey, the respondents have been asked for what stage of the customer journey they find it most suitable to use AR. The answers from the respondents include especially the pre-purchase and post-purchase. The reasoning behind it, is because they did not see any

¹⁷ WoM = Word of Mouth

value added in the purchasing decision itself however in pre- and post-purchase it can enrich the shopping process. Especially mentioned was by two respondents who use the IKEA shopping app, that it helped directly in the pre-purchase decision whereas one respondent mentioned that an AR explanation video for a high-class vacuum cleaner enhanced his shopping process.

Theme 3: Mistakes & Drawbacks

Nevertheless, there are also challenges, risks and limitations on the use of AR in the context of marketing. Firstly, since AR is still in the emerging state most of the people do not know how to use AR properly and it may need explanation before using it. This is especially important since a bad experience in using AR can reflect badly on the overall brand image. (Respondent 5: “Poor AR applications like bad try-ons don’t resonate well and I think personally have the risk of damaging the company’s reputation”). Additionally, one of the respondents mentioned, when they ask the user about what they would like to have, in 60-70% of the cases the user answered a 3D version of the application would be better because they are getting tired of holding the phone longer times in the arm to let the AR animation work. Another very important and strategic consideration which was mentioned by the respondents was the lack of a digital asset management in the company and a digital corporate identity. One of the respondents stated that the digital asset management will become as important as the real asset management in the future and companies should implement a system on how to secure their digital assets. The lack of digital corporate identity refers to the corporate identity, but it is aligned on how to show the company in apps or web applications (e.g., how are the buttons designed, what font should be used and what colors are fitting into the web application). Another interesting insight which was shared during the interview by two respondents was the push from the company to initiate an AR campaign because the decision maker in the company wants to do it which does not provide the value expected in the end because it limits the choices before considering alternative solutions which may provide a higher perceived value to the customer. (Respondent 2: “Companies sometimes think to develop an AR application and get a bad experience using it because the CEO has it on his to do list to make an AR app because he thinks it's cool”). Additionally, the reputation of a company could be damaged if they want to show something very complex e.g., the inner layout of a high-performance car and they cannot represent the depth of the complexity using AR. This could lead to disappointment by the customer and subsequently lower the brand reputation. When designing an AR application which needs to be used in the outside e.g., Pokémon Go the marketers should be aware of the weather implications too. This obvious insight led in one of the cases described by the respondent 3 to a very low engagement rate. The application was designed to activate a new product where participants could win new apparels if they would go through the city by an AR treasure hunt. The QR code for starting the AR application was shared via the companies’ own channels and big billboards but the engagement rate was not satisfying which can be partly based on the outer conditions but also because of several steps of the hunt which

would have taken a considerable amount of time to finish. Additionally, safety concerns in regards to AR glasses have been mentioned by two respondents. Their concern is that, if the overlay of virtual world will emerge to intense that the real world will go into the background it could become a major safety issue by the users. However, in the current stage of the development of AR glasses especially with the costs of the glasses from 4000€< it is far away from mass-market considerations.

Theme 4: Measurement of AR

The AR applications designed by the respondents have been dedicated to entertainment, immersive storytelling, information for products, to raise awareness and to enhance the customer experience in general. However, when asking the respondents about how they used to track the performance on their AR efforts. The answers have been superficial. None of the interviewees tracked how well their AR marketing campaign have been by figures. Only two respondents answered that they got positive feedback from their clients after the campaign finished. The respondents answered that the biggest issue for the marketing agencies and subsequently for marketers in general is the calculation of the ROI since there are several online and offline touchpoints in the purchase decision. One of the respondents answered: (Respondent 3: "... even good numbers never led to a direct purchase"). The metrics, click-rate, download rate, opening rate and daily interactions have been mentioned, which theoretically could work to some extent to have an indicator on how well the AR campaign has been executed.

Theme 5: Implementation process

Another interesting topic which has merged out from the data is the misconception, from the current literature that AR campaigns are difficult to develop, and extensive resources are needed. The respondents answered, to develop an AR campaign the main difficulty and most time-consuming work is the generation of 3D content. For the design of AR content, it takes one project manager, one programmer and one UX employee. The creation of the AR campaign can be separated into three main steps. Firstly, the respondents answered either that the company approached them directly to create an AR application or secondly, they have an aim and then the respondents ideated on how to solve that problem. Followed by that, a concept will be developed and presented to the client. It should be mentioned that only one respondent said that they mandate to check the concept with the potential users, to see if the problem can be solved by the AR application. For this process around 50-100 users test the mock-up and give feedback. Lastly, the implementation is the last step of the process. The work between the design and developed team -as have been mentioned- should be done as closely as possible. This is necessary, as respondent 2 said: ("It should be a co-creative process because artists want to develop things which are impossible, so you need the developers to hold them back"). Furthermore, the organization between the project lead, artists and developers is organized in sprints and interim meetings which makes the work much more efficient as been stated by respondent 2. Additionally, the respondents

have been asked, how they can be sure that their AR campaign is aligned with the overall marketing strategy. To secure the alignment the respondents answered that AR is mostly one part of a bigger campaign as well as that the company should have a communication strategy or a well-defined brand where AR should fit in. Lastly, the question on how to promote an AR campaign was answered in a rather diverse way. All the respondents answered it is important to promote your AR campaign. One of the respondents said: (Respondent 1: AR is mostly only one of the parts of a bigger campaign otherwise nobody is going to find it) whereas others specifically highlighted existing owned channels like website and newsletter. However, all responses were clear, that the usage of the promotion should targeted on who you would like to reach.

From the technological view there are major improvements expected. However as of now there are several issues which marketers should be ready to address before engaging into their AR engagement. Since an understanding of the customer is crucial it is important to know which devices your target group is using. Without that knowledge you may design an application which is detailed and can provide your customer with a lot of value but without the consideration of the used device it can lead to frustration and a negative impact. (Respondent 1: “Depending on your target group you need to use technology which is accessible to them. I ones experienced an application where I needed to wait for 30 seconds before I could even open the website because of the huge volume of the data”). Furthermore, it will become more and more difficult to bring people to the point where they will download a dedicated app from just one company to engage with AR. The future as answered by the respondents is rather web-based then app based. (Respondent 5: “Nobody wants to download an app anymore...”).

4.3 Conclusion

To conclude on the insights which have been gather through the interviews, it can be said, that the propositions which have been stated in chapter 4.1 are sufficiently answered.

Firstly, all the respondents answered positively to the future impact of AR on marketing practices in the B2C sector of the German market which is supported by the literature from chapter 2.3.2 even though the current impact of AR is rather applicable due to knowledge and technology gaps by marketers. However, the respondents emphasized on applications and tool which are enhancing value and are not just gimmicky applications which do not bring additional value. Additionally, the value pyramid concept was perceived as positive in reaching that goal.

Secondly, the respondents provided valuable information on how to effectively implement AR in their marketing strategy. This knowledge has been further used for the development of the decision tree in chapter 5.4.

Thirdly, since AR can be complex especially for companies which are just starting to discover the possibilities, several pitfalls can occur during the consideration stage as well as implementation stage. Therefore, the respondents have been asked about common mistakes and drawbacks as well as how successful AR campaign can be designed. The knowledge from these insights will help marketers to enhance their AR efforts.

Lastly, the respondents also shared insights into case studies of AR implementations for several known German brands. These insights could not have been checked by financial data, but they confirm, as well as enhance the knowledge which have been generated through the case study analysis in chapter 2.5.

5 Discussion

The discussion section is separated by firstly providing a summary of the thesis which will explain the logic behind the research as well as findings. Further theoretical as well as managerial implications will be discussed, and chapter 5.4 will show the result of the decision-tree. Lastly, chapter 5.5 will provide recommendations for future research directions.

5.1 Summary

Within the thesis several aspects of marketing in regards to AR and its surrounding have been considered and investigated. The research approach is from explanatory nature and used a rather iterative approach with literature review, case studies and expert interviews. Firstly, the literature has been screened to develop the research question and from there the literature review has been conducted which led to the development of the parameters for the analysis of the case studies as well as the development of interview questions and themes. The insights from the interviews have been used to further adjust and add necessary information into the literature review. The combined knowledge which has been gathered was analyzed and synthesized and led to the results which will be discussed below and subsequently in chapter 5.4 with the decision tree. For graphical illustration see figure 24.

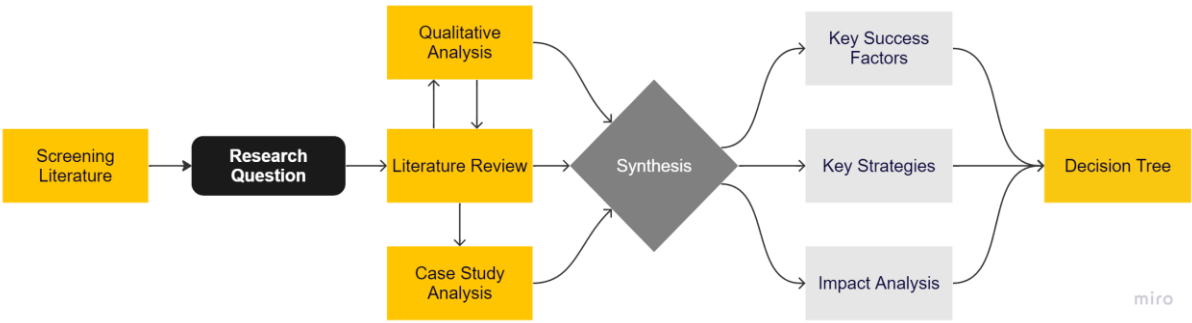


Figure 23: Flowchart of the development of the decision tree (own design)

The results have shown that AR is a very powerful tool for marketers to use in order to create additional value for their customers. The changing market environment and the efforts of technological leaders in that field indicate that the use of AR is just in the beginning and has a significant potential for growth. Both the literature and the qualitative analysis support that AR is still in the early stages in terms of implementation by marketers, but the acceptance of the customers is already significant. In-depth analysis of the German market tendencies has highlighted that the users' adaptation to AR tools is at a high level and the companies which implemented AR solutions point out that their customers perceive the use of AR as value enhancing.

However, one of the main identified reasons why marketers are hesitating to adapt AR into their marketing strategy is the lack of a thorough understanding of how businesses can effectively incorporate AR into their marketing efforts and enhance the customer experience in the German market. This research aimed to identify the role of AR on marketing practices in the B2C sector for the German market in order to develop marketing strategies to achieve companies' objectives.

Based on the results obtained from the theoretical as well as qualitative research, a decision tree has been built. It has significant practical application as it can help marketers go through their most crucial aspects and questions during the consideration phase of AR implementation and successfully integrate the tool into their marketing strategy. The structure of the decision tree highlights the importance of thorough consideration of an AR application/campaign creation as it brings to attention the possible risks associated with improper implementation (like possible harm to company's reputation). The most common mistakes related to the use of AR in marketing practices occur due to attempts to follow technological trends with insufficient adaptation by marketers. Therefore, it is important to align the AR solution with the strategic vision and marketing objectives of the company.

It is also important to mention the prospects for the development of AR on the German market. As highlighted before the current usage of AR by customers is limited by the lack of usage by German companies, but I personally expect that German marketers will soon use AR applications more frequently since the value what AR solutions can provide is favorable for customers and it will be difficult to distinguish yourself from competitors without providing additional value. However, the development of the AR campaign should be done with consideration of the insights of the potential target group in order to provide additional value by enhancing their customer experience.

The research is giving insights into best practices and key success factors in order to help the companies implement AR sufficiently and successfully. AR is currently mostly used to create functional value which is the lowest stage of the value pyramid. However, companies should strive to create value for their customers, which is settled on higher levels of the value pyramid. Supported by the literature and the conducted interviews it can be stated that the success measurement from AR usage due to its inherent connection between offline and online world is not simple. Therefore, companies should have a clear rationale for implementing AR and if AR is the right tool for solving customers problems. The goal that should be considered is to increase the ROI of the company given the companies' resources and their market environment, which play a significant role, by answering the question if the implementation of AR makes sense.

Lastly, the analysis of the case studies and the literature has shown that the current AR usage is mostly focused on the planning stage of the customer journey. Companies should try to take initiatives to enhance the value of their customers' experience during the entire interaction process and not focus on one initial part of the customer journey. Proper AR implementation helps the companies fasten the customer journey and distinguish themselves from their competitors while creating a barrier to imitation leading to their competitive advantage.

5.2 Theoretical Implications

This research has several implications for the further development of theoretical knowledge around AR marketing.

Firstly, since AR is still a rather new field of research with very fragmented parts and most of the studies focus on the customer perspective of AR this study gives a holistic understanding of AR in the context of the company's usage. Hence, this research collected and structured a substantial amount of literature in regard to AR and made it applicable in the overall context of the marketing strategy by companies.

Secondly, the thesis introduces a new way of analyzing marketing efforts by the marketing audit cube. This concept was shown as a promising tool for analyzing the case studies which have been conducted in chapter 2.5. Therefore, the marketing audit cube has the potential to enhance the current marketing literature by providing marketers with a better decision-making process as well as analysis tool for past efforts.

Thirdly, it was the first time, that the value pyramid concept from (Almquist et al., 2016) has been used to analyze the AR marketing efforts of companies. This framework has been used for the case studies and was presented to the experts which have been interviewed. The respondents unanimously answered that this framework is very reasonable to adapt for the development of an marketing strategy. Therefore, it might be applicable to broader introduce the value-pyramid concept around scholars.

Fourthly, (Rauschnabel, Babin, et al., 2022) introduced the AR CJM which as been used for the analysis of the case studies. However, the AR CJM did not seem widespread among marketers. The marketers have not been aware of the universal use of AR through the complete CJM. Therefore scholars should emphasize on the big potential of AR throughout the hole customer journey and make it applicable for marketers to explore with different use case scenarios.

Lastly, the implementation framework from (Berman & Pollack, 2021) has been analyzed and further developed since it was applicable that the six steps of implementation are not sufficient for a company's

decision-making process. Therefore, the decision tree in chapter 5.4 contains elements from (Berman & Pollack, 2021) in combination with other strategically as well as tactically important considerations.

5.3 Managerial Implications

AR has the potential to transform the way customers interact with brands. However, its usage by marketers is still in the early stages but nevertheless the acceptance by customers is high. Therefore, companies should find ways to create a sustainable competitive advantage by creating additional value which can be accomplished by enhancing their AR efforts.

Firstly, one of the key developments of this thesis is the development of the decision tree. This decision tree can help marketers to understand if it could be useful to enhance their marketing efforts by creating an AR application and what steps are included in the implementation stage.

Secondly, small scale AR applications can be already developed for around €10.000. Therefore, companies could explore the potential of AR on premium products or test where they see the best fit.

Thirdly, the brand value is not significant when customers are in the flow-state. Therefore, small companies with new brands could benefit from this effect if they would show their goods via AR.

Fourthly, AR has the potential to replace entire product lines (e.g., television, tables, phones) in the future and marketers which are in these industries should consider if AR will disrupt their industry since the change in a crisis situation will be become more difficult the later the changes are adapted.

Fifthly, since intangible goods are becoming more important than tangible goods, AR can help to generate information and data about their target customers and their interactions. With this knowledge which can be created via AR, marketers can develop better services for their customers and continuously learn from these insights.

Sixthly, AR can enhance the entire customer experience and is applicable for all stages of the customer journey. When marketers implement AR, it can reduce friction in the shopping process and create an easier path for their customers.

Seventhly, if the implementation of AR is poorly done it can harm the company's image. Therefore, companies should have a clear rationale for the implementation of AR, and it should fit to their product or service (e.g. high performance cars should have a perfect AR representation which will show the complexity).

Lastly, the development of an AR application should be conducted in a co-creational process of marketing and programming department. This step is needed to develop an AR application which is firstly feasible and secondly which will increase the value for the customers. Additionally, this co-creational process should be done in connection with the potential target group and mock-up tests should be conducted.

5.4 Decision tree

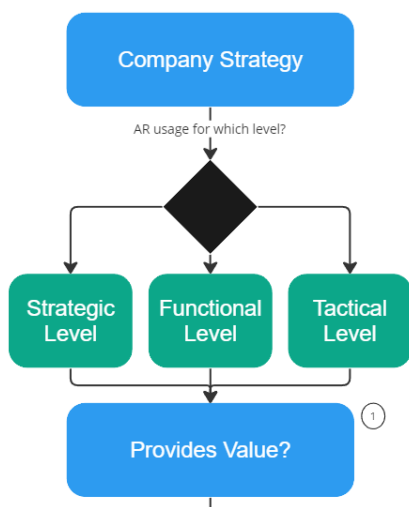
The development of the decision tree has been done by analyzing the literature, studying the use cases and by the conducted interviews. The results of the decision tree give marketers guidance into how to develop an AR marketing campaign beginning from the consideration stage till the implementation stage. The decision tree has been reviewed on the 24.05.2023 by two marketing specialists with whom interviews have been conducted. The respondents had minor adjustments which have been implemented and checked subsequently. In the subsequent pages the decision tree will be showed. The design of the decision tree is a stringent walk through which will not show the details in the illustration on what path companies should take if the answer will be “no”. However, these comments will be made directly in the word document under the decision tree.

For a better graphical illustration, the following link is accessible for viewing the decision tree via Miro board.

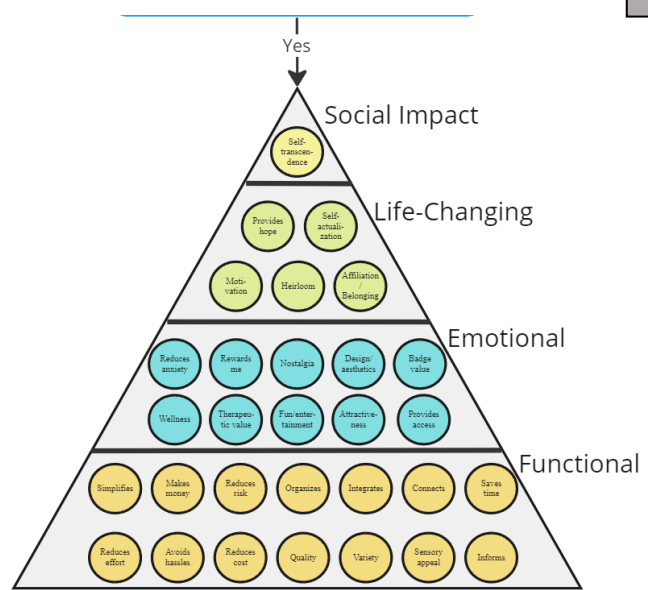
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1.

Consideration Stage



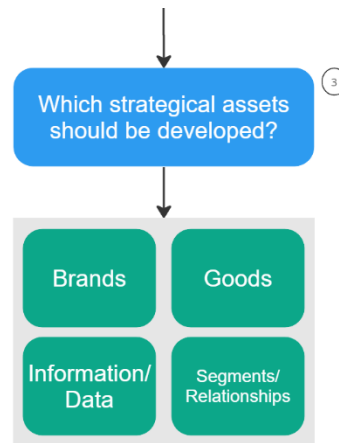
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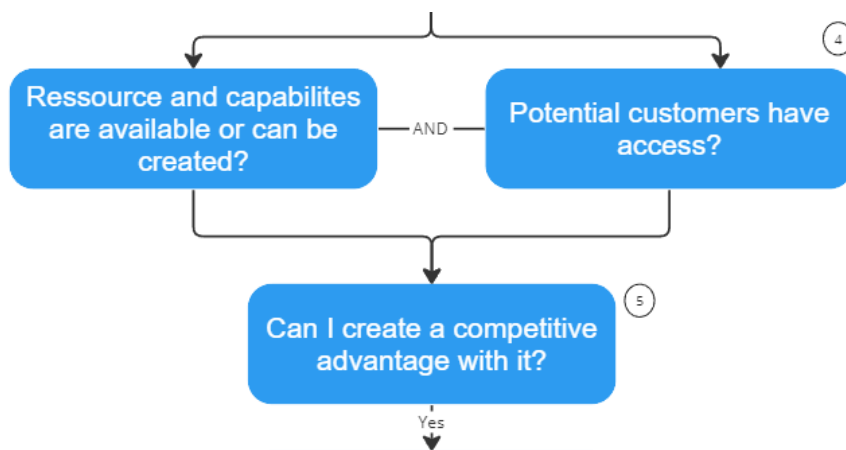
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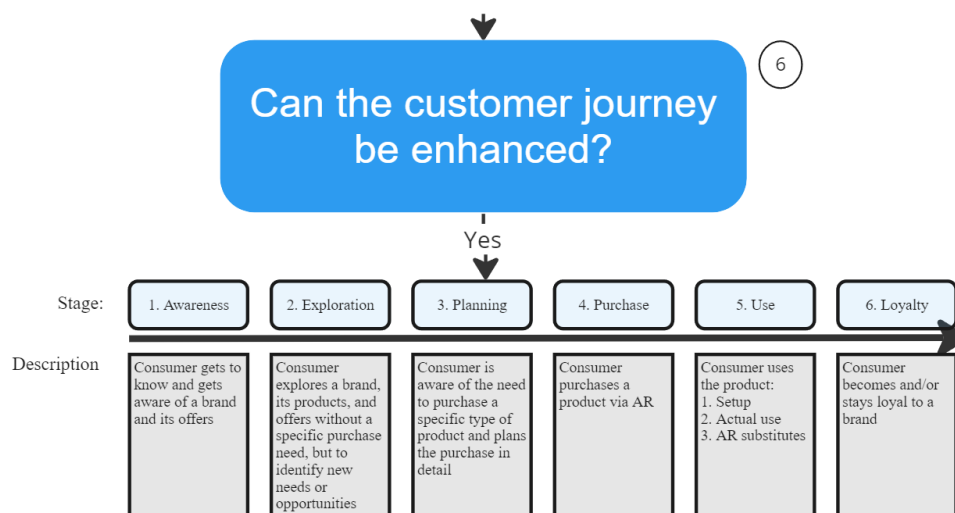
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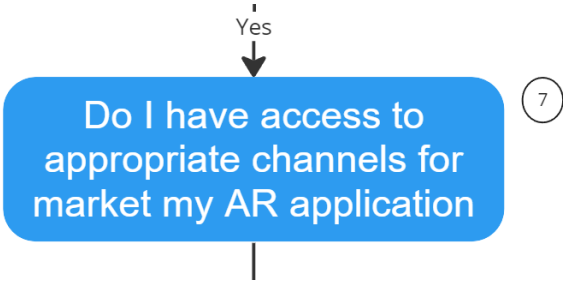
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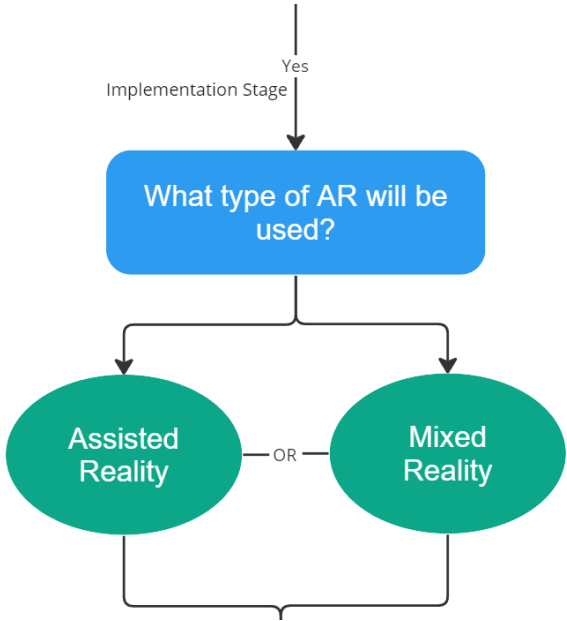
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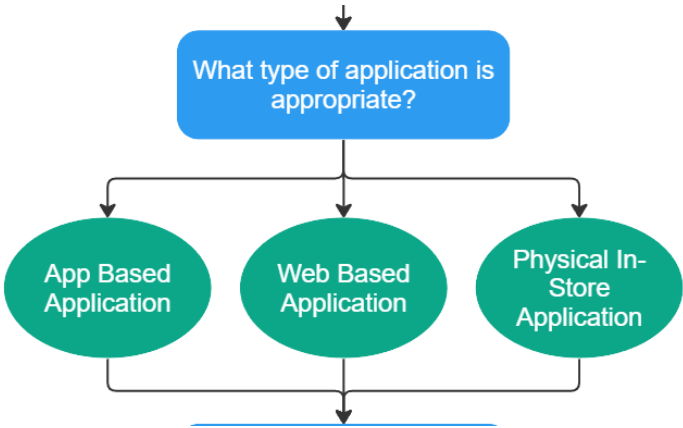
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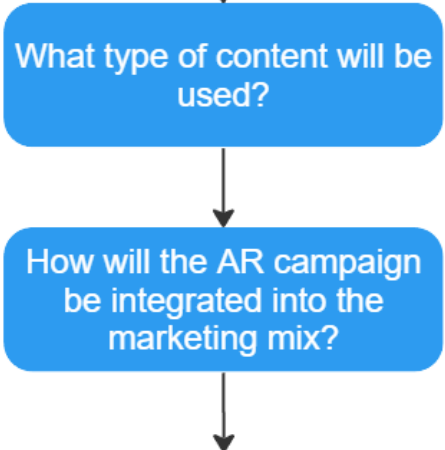
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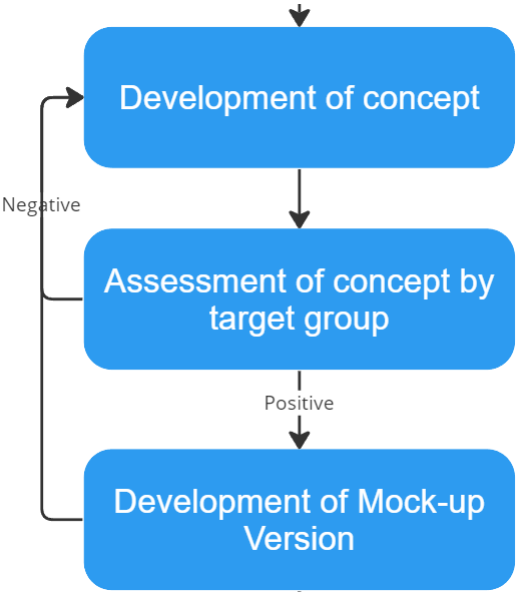
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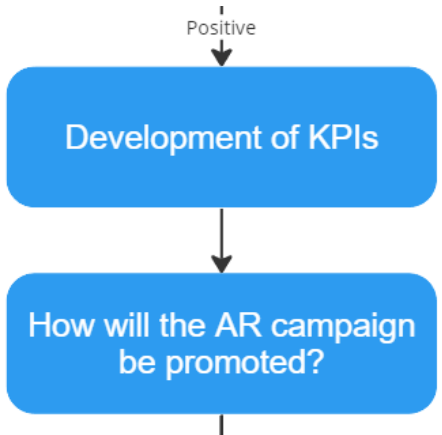
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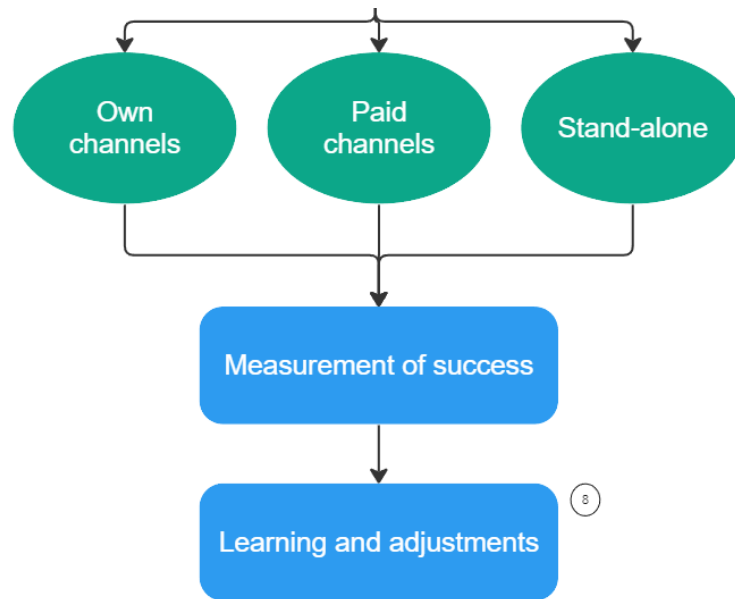


11.



12.





The comments which can be found below are footnotes from inside the decision tree (circles), if further explanation for steps is needed.

1. If no value can be provided based on the value pyramid it is likely, that the AR application will not be perceived positively by the customers. Therefore, companies should consider alternative marketing tools which can provide additional values.
2. If the marketing objectives cannot be met, it should be considered by companies to evaluate if AR would be a suitable tool for their marketing efforts.
3. To develop strategical assets is the key for sustaining competitive advantage. Companies should strive to create and protect their strategical assets.
4. Companies should have firstly the resources and capabilities to create an AR application. This could either mean, to have the knowledge to create an AR application or the budget to outsource the efforts. Further they should understand their target customers since the devices which are applicable for enhanced AR applications are currently not spread across the majority of the market.
5. To create a competitive advantage goes along side with the development of the development of strategical assets. Companies who can generate with their AR application a competitive advantage will have the chance to dominate in the market.
6. Companies should have an understanding about the CJM where the implementation of AR makes sense. It should be at least one stage but could be connected throughout the hole CJM.
7. Since an AR campaign is difficult to market on its own, marketers should have access to channels for promoting their AR application. E.g. own channels, paid channels or a mix.

8. With an AR application a lot of customer insights can be gathered. Therefore, the last step is the continues learning and adoption of new ideas to enhance the competitive advantage of the company.

5.5 Limitations and future research

Since the research is of explanatory nature and the use of a qualitative research approach in connection with case studies and literature review, the results can only be partially extrapolated.

Firstly, the study was limited to CEOs of marketing companies in Germany who have already implemented AR marketing campaigns for the B2C sector. Future research could use a quantitative research design to increase the validity of the findings and include a larger sample size. Additionally, future research could investigate the use of AR in other sectors of the German market and other countries.

Secondly, since the introduced models like the marketing audit cube, value pyramid (Almquist et al., 2016), CJM (Rauschnabel, Babin, et al., 2022), and the developed decision tree have been only used for a limited number of case studies and cross-checks by interview participants the analysis should be expanded to see its validity on a bigger sample size. Hence the development of the decision tree was made based on the current literature and the findings of the interviews. Therefore, further research could enhance and correct the decision tree elements by insights from B2C companies directly and not solely from marketing agencies.

Thirdly, since it was visible that AR is currently mostly focused in the implementation in the tactical level and neglect the fact, that it could be also used in the strategical- and functional level, further analysis could expand the knowledge in that field.

Fourthly, it was found out, that current AR tools are mostly focused on creating better customer relationships as their goal. Since AR can be used for other goals as well it seems, that marketers currently are lagging the understanding for what AR can be used additionally. Therefore, further analysis on how to leverage the use of AR for other goals is recommended.

Fifthly, the insights from the case studies and interviews showed that the implementation of AR is mostly focused on the awareness, planning and use stage. Since AR can be used to create value for the entire CJM, scholars should try to investigate the exploration, purchase and loyalty stage of the CJM to provide marketers the knowledge on how to enhance the walk through of the CJM by using AR.

Sixthly, since the impact of AR on the ROI of companies is still a very big concern, scholars should try to investigate on how to effectively link the offline and online world together to give marketers the possibility to quantitatively justify their investments into AR.

Seventhly, the digital asset management will become soon as important as the physical asset management of companies. Therefore, it should be studied, how companies can manage their assets effective- and efficiently.

Eighthly, since AR is an emerging technology will little quantitative data available, further research could be conducted in regard to benchmarking analysis. Benchmarking could be used to compare traditional marketing efforts with the emerging technology of AR.

Lastly, AR has the potential to reduce the carbon footprint of companies by reducing the return of parcels as well as minimizing the inventory. Since there is currently no research available into the sustainability aspect of the emergence of AR it could be enhancing the literature significantly.

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List of images

FIGURE 1: DEVELOPMENT OF SCIENTIFIC PAPERS AROUND AR MARKETING	5
FIGURE 2: AR CLASSIFICATION IN THE EXTENDED REALITY	7
FIGURE 3: CHANGE OF MARKETING ENVIRONMENT	10
FIGURE 4: NUMBER OF ACTIVE MOBILE AUGMENTED REALITY SERVICE USERS IN GERMANY.....	11
FIGURE 5: GARTNER HYPE CYCLE 2018	12
FIGURE 6: AUGMENTED REALITY MARKETING USAGE.....	14
FIGURE 7: ISSUES AND CHALLENGES IN AR MARKETING.....	17
FIGURE 8: MARKETING LEVELS ILLUSTRATION	24
FIGURE 9: MARKETING AUDIT CUBE	28
FIGURE 10: MARKETING AUDIT CUBE EXAMPLE: ADIDAS.....	29
FIGURE 11: MARKET-FOCUSED RESOURCES, COMPETITIVE POSITIONING AND FIRM PERFORMANCE	30
FIGURE 12: THE ELEMENTS OF THE B2C VALUE PYRAMID	38
FIGURE 14: CUSTOMER JOURNEY MODEL FOR AR MARKETING	39
FIGURE 15: BENEFITS OF AR FOR THE CUSTOMER JOURNEY	40
FIGURE 16: DRAWBACKS OF AR FOR THE CUSTOMER JOURNEY.....	44
FIGURE 17: 6 STEP PROCESS FOR SUCCESSFUL IMPLEMENTATION OF AR.....	46
FIGURE 18: SELECTED COMPANIES WITH TIMELINE	54
FIGURE 19: AR GOALS	56
FIGURE 20: MAIN ASSETS DEVELOPED THROUGH AR.....	56
FIGURE 21: USE CASES BY CUSTOMER JOURNEY STAGE	57
FIGURE 22: PROVIDED VALUES BY HIERARCHICAL LEVELS	58
FIGURE 23: SAUNDERS' RESEARCH ONION	63
FIGURE 24: FLOWCHART OF THE DEVELOPMENT OF THE DECISION TREE	76
FIGURE 25: GE MCKINSEY MATRIX	115

List of Tables

TABLE 1: KEYWORD SEARCH SCOPUS	5
TABLE 2: AR MARKETING GOALS	25
TABLE 3: INTERVIEWEES	66
TABLE 4: INTERVIEW QUESTIONS WITH MAPPING OF THEME	70
TABLE 5: AR OBJECTIVES.....	119
TABLE 6: USE CASE ANALYSIS RAW DATA	122
TABLE 7: INTERVIEW QUESTIONS	123

List of abbreviations

AR	Augmented Reality
AV	Augmented Virtuality
BANI	Brittleness, Anxiety, Non-Linearity, Incomprehensibility
CJM	Customer Journey Map
CMS	Content Management System
CRM	Customer Relationship Management
KPI	Key Performance Indicators
MR	Mixed Reality
ROI	Return of Investment
STP	Segmentation, Targeting, Positioning
UMUX	Usability Metrics for User Experience
UX	User Experience
VR	Virtual Reality
VUCA	Volatility, Uncertainty, Complexity, Ambiguity
XR	Extended Reality

Additional in-depth information:

This chapter gives additional information in detail on the topics, VR, types of innovation, the detailed marketing strategy framework by (G. Greenley et al., 2001) the GE McKinsey Matrix, the segmentation, targeting and positioning theory, the customer journey explanation, AR objectives by (Berman & Pollack, 2021), success measurement techniques & metrics for success measurement as well as the raw data from the case analysis and the interview questions.

A1: Defining VR

Virtual reality (VR) is a man-made, virtual, and viewer-centered experience in which the user is encased in a vast, 3D universe that is, at least visually, cut off from the outside world. On a telepresence continuum that ranges from atomistic to holistic, VR experiences can be found. Similar to AR, this VR definition has a number of components that call for more explanation. The phrase "viewer-centered" first suggests that the information is frequently created with a specific user in mind. Second, the phrase "visually shut off" indicates that the user is blind to the outside world. Since temperature, loud noises, and haptics (such as the feel of the ground or the wind) are not easily omitted or controlled, we limit this idea to the visual senses. Third, users just watch virtual material. This content might be static 360-degree views or expensive multi-sensual, completely immersive VR experiences. Fourth, the topics that are discussed the most in this article are typical head-mounted displays. The main ideas in our framework may still be applicable to VR caves, even if industry experts have seen a decline in their relevance. Fifth, it is determined that higher degrees of telepresence often result in a better user experience and are therefore sought. This is consistent with our informants' perceptions that VR experiences aimed at the atomistic endpoint are frequently seen as more practicable than those aimed at the holistic endpoint, which frequently call for fixed infrastructure and sophisticated tracking equipment.

A2: Types of Innovation

Innovation is a crucial element for businesses to stay competitive in the market. In order to categorize different types of innovation, the Oslo Manual provides a framework for identifying and measuring innovation. In this chapter, we will explain the different types of innovation outlined in the Oslo Manual and how they can be applied to AR marketing. The Oslo Manual defines four types of innovation: product innovation, process innovation, marketing innovation, and organizational innovation (OECD/Eurostat, 2018):

- **Product innovation** refers to the development of new or improved products or services that meet the changing needs of customers. In the context of AR marketing, product innovation could involve the creation of new products that incorporate AR technology, such as AR-enabled packaging or mobile apps that use AR to enhance the shopping experience.

- **Process innovation** involves the implementation of new methods or systems for producing goods or delivering services. In AR marketing, process innovation could involve the use of AR technology to streamline production processes or improve the delivery of services, such as using AR to provide virtual product demonstrations.
- **Marketing innovation** involves the development of new marketing methods or techniques that better reach and engage customers. For AR marketing, this could involve using AR to create more immersive and interactive marketing campaigns, such as AR-enabled billboards or social media filters.
- **Organizational innovation** refers to the implementation of new organizational structures or business models. In terms of AR marketing, this could involve the adoption of new business models that leverage AR technology, such as offering AR-based consulting services or creating new revenue streams through AR-enabled experiences.

The Oslo Manual provides a comprehensive guide for measuring innovation and evaluating its impact on businesses. By understanding the different types of innovation and how they can be applied to AR marketing, businesses can identify new opportunities for growth and stay ahead of the competition.

A3: Strategy by Greenley

Market-Focused Resources:

Organizational culture:

Organizational culture is a crucial factor in shaping the strategic decisions made by a firm, as noted by (Webster, 1992). (Doyle & Hooley, 1992) further point out that a firm's focus on delivering value to customers will result in different decision-making than a firm that prioritizes short-term financial performance or employee satisfaction, as noted by (Patterson et al., 1997). The degree of orientation towards various stakeholders in the business can affect both strategy selection and implementation, as noted by (G. E. Greenley & Foxall, 1998). In addition to organizational culture, the orientation of the firm towards different stakeholders constitutes a key organizational resource, as noted by (Deshpande & Webster Jr, 1989; Hunt & Morgan, 1995). Along with other aspects of firm culture, such as degree of ambition and aggression, planning horizon, and more, the firm's orientation is a crucial factor in its success. Research on orientation has focused largely on market orientation and its relationship to firm performance, as noted by (Narver & Slater, 1990) and (Kohli & Jaworski, 1990). Studies in various parts of the world have developed tools for assessing degrees of market orientation in firms and examining its links to both market and financial performance. While market orientation was found to be positively related to performance, research also suggests that other business approaches, such as a strong emphasis on engineering ability or total quality management, may also contribute to a firm's success, as noted by (Prahalad & Hamel, 1994; Simon, 1996). Research into human resource management issues has also

highlighted the contribution of an internal focus on creating satisfied and motivated employees to competitive success, as noted by (Patterson et al., 1997). However, an excessive focus on short-term financial goals can also negatively impact a firm's performance, as noted by (Doyle & Stern, 2006). Overall, it is clear that market orientation does not exist in isolation from other factors in a business. Managers must balance multiple priorities and allocate resources accordingly to ensure success. Recent research has recognized the need for richer descriptions of the orientations of firms, including recognition of the multiple stakeholders that may induce more complex combinations of orientations, as noted by (G. E. Greenley & Foxall, 1997; Morgan & Strong, 1998).

Marketing assets:

Marketing assets are essential for a firm's competitive advantage, as they represent the resources acquired over time that can be utilized in the market to gain an advantage. According to (Keller & Lehmann, 2006), a marketing asset is any resource, capacity, or strategy that a firm employs to produce value for its consumers and stakeholders. These resources can take tangible or intangible forms, but intangible assets are often more valuable as they are harder to replicate.

Intangible customer-based assets like brand reputation, market knowledge, customer relationships, and databases can significantly enhance a firm's competitiveness. A positive brand image can help build customer loyalty and trust, while market knowledge and databases can assist with targeted marketing.

Distribution or supply chain-based assets, such as a well-established distribution network and supplier relationships, can help firms reduce costs and improve delivery to customers. Additionally, internal assets such as cost advantages, technological skills, and legal patents can provide firms with a competitive edge. Alliance-based assets gained through partnerships, joint ventures, or mergers and acquisitions can give firms access to new markets, technology, and managerial resources. Such alliances can be crucial for firms seeking to expand their operations or enter new markets (Olavarrieta & Friedmann, 1999).

Capabilities:

Assets and capabilities are both essential for firms to gain a competitive advantage in the market. While assets refer to the resources a firm possesses, capabilities are the skills and competencies that bind these resources together and enable their effective deployment (Day, 1994; Fahy et al., 2000; Hooley et al., 1999). (Day, 1994) identified three types of marketing capabilities: outside-in, inside-out, and spanning capabilities. Outside-in capabilities involve understanding the changes in the market and effectively operating in the marketplace, such as through market research and customer relationship management. In contrast, inside-out processes focus on the firm's internal resources and capabilities, such as financial management and technology development, which can be activated and deployed to create competitive advantage in the market (Kay, 1993). Spanning capabilities serve to integrate both outside-in and inside-

out capabilities, requiring an understanding of market requirements and internal competencies to fulfill them. Examples of spanning competencies include customer order fulfillment, pricing, purchasing, customer service delivery, and new product/service development. In addition to (Day, 1994) framework, (Cravens & Piercy, 1994) emphasized the importance of networking capabilities in today's markets. While these capabilities are partly covered in Day's outside-in capabilities, explicit recognition of the role of alliance-creating capabilities can be helpful for some firms to excel in this area. Overall, firms must possess a variety of assets and capabilities to effectively compete in the market. By leveraging their resources and deploying their competencies effectively, firms can gain a competitive advantage and create long-term value for their stakeholders (Cravens & Piercy, 1994; Day, 1994; Fahy et al., 2000; Hooley et al., 1999; Kay, 1993). Strategy decisions are made based on a review of the market environment and the resources available to the organization (or emerge). The organization's culture, which was previously described, will be crucial in determining the strategic path. Important strategic choices include setting goals (from defensive to aggressive), deciding on the strategic focus to be pursued (such as market expansion, market penetration, and productivity improvement), choosing a general strategy (cost leadership versus differentiation), and aiming for a target competitive position (the unique combination of price, quality, service, innovation, customization, speed, responsiveness etc that the firm aims to build into its offerings to appeal to target customers). Usually, the capabilities and assets at hand will be heavily considered while making placement selections.

The model then moves on to the implementation of that strategy after the firm's strategic direction has been established. This happens as a result of several crucial procedures that the company manages. Marketing, innovation, and learning will be particularly pertinent.

Strategy Implementation through key processes

Marketing:

The process of profitably connecting organizational capabilities to the needs of targeted customers is marketing. This is accomplished by adjusting the marketing mix, which consists of the following: items, price, promotion, distribution, and customer connections. Customer relationship management (CRM) entails acquiring and retaining customers (Payne, 1995). In order to guarantee that objectives are understood and the roles of individuals in accomplishing organizational goals are clear, marketing also entails internal communications with employees. This is how internal marketing is done (Piercy & Morgan, 1989).

Innovation:

The process of developing fresh, improved responses to client problems is known as innovation. Innovation is described by (Hurley & Hult, 1998) as a process that concentrates the effects of market

orientation and learning on performance. Innovation, according to (Han et al., 1998), mediates the impact of market orientation on performance. According to (Damanpour, 1991), innovation can be defined as the process of altering an organization to better align it with market demands, either in response to changing environmental conditions or as a proactive effort to change the environment. Thus, innovation serves as a mechanism to both establish and protect a competitive position from imitation or erosion (Deshpandé et al., 1993).

Learning:

The process of learning involves gathering, analyzing, internalizing, and acting on both internal and external knowledge to improve the organization's fit with its markets (Fiol & Lyles, 1985; Morgan et al., 1998; Sinkula, 1994). For instance, (Slater & Narver, 1995) propose that market orientation promotes and facilitates organizational learning, which in turn leads to an improved capacity for matching market goods with consumer demands and, consequently, higher performance. Learning promotes the growth of managerial abilities and the acquisition of market knowledge and understanding (marketing assets) (marketing capabilities). Learning therefore helps to establish a competitive position.

Feedback Loops:

The firm's resource base and the market environment will be affected by the decisions made throughout the strategy's implementation. For instance, learning activities like marketing research will improve your knowledge of the market. New product and service solutions that are better aligned with client needs might come from innovation. The customer relationship asset can be strengthened or weakened by methods of customer relationship management. Similar to this, the experiences associated with seeking to improve customer connections will improve the organization's capacity profile through ongoing feedback and reinforcement. The market itself is impacted by the decisions made by businesses in the marketplace. Customers' expectations may be raised, for instance, when fresh promises are given to them through advertising and promotions. Similar to this, prominent companies or market leaders' pricing policies will have an impact on general market expectations. Certain companies' market actions may have a negative impact on others. For instance, those with a relative low cost advantage could pursue low pricing strategies that, in turn, make life tough for those with a relative high cost advantage and, in certain situations, force them out of the market. In this sense, businesses' actions have an ongoing impact on the market, the competitors, and the customers.

Competitive Positioning

Competitive Position Achieved

According to (Hooley et al., 1998), the results of the activities and implementation will be the development of a distinctive competitive position for the firm's market offerings. This is predicated on choosing a target market and developing a viable competitive advantage in order to reach that market. The combination of advantages or features that the target client derives from an offering determines how competitive it is in the market. Price (Porter, 1996), quality (Buzzell & Gale, 1987), service (Parasuraman et al., 1985), level of innovation (Wong & Saunders, 1993), delivery of certain features (Aaker, 1991), and degree of customization will all be factors in determining this (Peppers & Rogers, 1993). It is possible to identify sub-dimensions inside each of the fundamental dimensions. For instance, in the service dimension, some businesses may place more focus on meeting client needs quickly, while others may place more emphasis on dependability, empathy, or certainty (Parasuraman et al., 1985). In reality, businesses will combine the aforementioned elements to give their products a distinct position in the market.

Barriers to Imitation:

Depending on the extent to which walls against copying can be built up around that position, the degree to which the position generated will be defensible against rival imitation or intrusion (Bharadwaj et al., 1993; Lippman & Rumelt, 1982; Mahoney & Pandian, 1992). Individual resources that were employed to develop the position may, as was already mentioned, have isolating mechanism traits. Yet, more significantly, the position itself is more likely to show those traits since it is the result of combining the firm's resources during the implementation stages. The "isolating mechanisms" that companies might use to prevent copying include organizational phenomena such facets of corporate culture, managerial skills, information asymmetries, and property rights. Isolating mechanisms are produced by the peculiar manner a certain organization handles its resources (such as assets and capabilities), as well as by learning how to create and assemble these resources (Bharadwaj et al., 1993). It has been demonstrated that a number of elements, including as imitability, path dependency, non-transferability, non-tradeability, and sustainability, help to create isolating mechanisms.

Inimitability

A competitor must first understand the resources committed to developing that position in order to copy a successful positioning strategy (Barney, 1986; Grant, 2021). Given the numerous methods in which competing positions are developed and the intricate interplay of the various positioning dimensions, this is likely to present a significant identification challenge for rivals. Causal ambiguity is the term used by (Lippman & Rumelt, 1982) to describe this issue for competitors. Three qualities of resources that achieve causal ambiguity are suggested by (Reed & DeFillippi, 1990): tacitness, complexity, and

specificity. The second of them, complexity, is likely to produce the highest level of causal ambiguity in terms of competitive position. Understanding the intricate interactions of resources and skills that led to the creation of the post is essentially the imitator's dilemma.

Path Dependency

The competitive position is a path-dependent result of a series of actions conducted over time. Even if it is obvious and unequivocal, replicating that perspective could involve going through the same developmental process, which might be prohibitive.

Non-Transferability and Non-Tradeability

A competitor would then need to obtain the resources required for imitation or erosion of the competitive position should they succeed in overcoming the barrier of identification (Chi, 1994). A competitor might find it difficult or impossible to obtain some of those resources because they are covered by legal patents and copyright laws. Others can be unaffordable, while others would not perform as well in a different organizational situation. The competitive position can also have high acquisition costs (considerable expenditure in promotions, for instance), which would limit its transferability. Economical obstacles to rival imitation may exist (a low cost position, for example, may not be imitable by a competitor because the competitor cannot operate at a sufficiently low cost). Even resources that are technically tradeable might not actually be marketable. When managers go to a new company, their effectiveness may suffer, and corporate cultures may not be transferred when companies are bought out or amalgamated. The competitive advantages that one organization's offerings have may be diminished when used by another.

Sustainability

The majority of resources deteriorate over time as rivals finally perfect imitations of effective tactics. This is particularly likely in industries where technology is evolving quickly, like in the case of e-business. As resource asymmetries deteriorate and distinctive competitive positions are threatened by nearby competitors, isolating mechanisms will lose their effectiveness. However, as target market segments change in size, value, or requirements, competitive positions themselves may become less valuable. In order to once again acquire a degree of inimitability and imperfect mobility, further resources will be required to build unique competitive positions (Reed & DeFillippi, 1990).

Environment

Environmental Moderators

The environment in which they operate can have a considerable impact on market and other stakeholder orientation implications on performance, according to new research (G. E. Greenley & Foxall, 1998; Slater & Narver, 1994). This makes intuitive sense given that a firm's own orientation and subsequent

actions in the market are likely to be influenced by rival competitors' actions as well as general market conditions. Environmental elements are suggested as moderators of the impact of competitive position attained on business performance in the proposed model.

Firm Performance

Performance Outcomes

The achievement of the position and its success flow into performance outcomes. Superior market performance will result where such position is appealing to the intended clients and resistant to duplication or incursion. Yet, this might or might not lead to better financial performance or performance assessed in ways that matter to other stakeholders, like employees.

Feedback Loops

The performance outcomes, like the actions carried out, will have an impact on the firm's resource base as well as the environment in which it operates. For instance, a performance that outperforms competitors is likely to lead to higher financial resources, enhanced reputational assets, and increased managerial trust in its ability to make and implement decisions. Similar to how a firm's performance results may influence competitors' objectives and plans, customers' expectations, and relationships with other supply chain participants.

The above-described model implies an ongoing process of strategy formulation and implementation that produces competitive position, with strong feedback loops to reinforce the firm's resource base and change the market environment in which it works. When the resource base and the market environment in which they are developed change, competitive postures will also adapt and alter. This transformation will unavoidably occur extremely quickly in some markets. In some, it might move more slowly. Yet in any market, the dynamic link between resources, plans, implementation, and performance will constitute the competitive position.

When implementing AR in marketing strategies, understanding competitive positioning is crucial for effective marketing strategy development. AR technology can enhance a firm's competitive positioning by providing an innovative and immersive experience for customers that can differentiate the firm's offerings from competitors. However, to leverage AR technology effectively, firms must possess a variety of assets and capabilities that enable them to compete in the market. Market-focused resources, such as organizational culture, marketing assets, and capabilities, are crucial in creating value in the marketplace. The marketing strategy process can start with either an external or internal approach, but firms must adopt an integrated approach that considers both perspectives for effective marketing strategy development. Moreover, firms must manage marketing, innovation, and learning procedures when implementing a marketing strategy that involves AR. By leveraging their resources and deploying their

competencies effectively, firms can gain a competitive advantage and create long-term value for their stakeholders. In conclusion, understanding competitive positioning is essential when implementing AR in marketing strategies. Firms can use AR to differentiate their offerings and enhance their competitive positioning, but they must possess the necessary assets and capabilities to compete effectively in the market.

A4: GE McKinsey Matrix and sources of competitive advantage

The GE-McKinsey Matrix combines two dimensions, industry attractiveness and the competitive strength of a business unit, into a matrix. Correspondingly, a business can direct its business units and determine where to invest, to hold their position, harvest, or divest (Figure 25) (Sridharan, 2023).

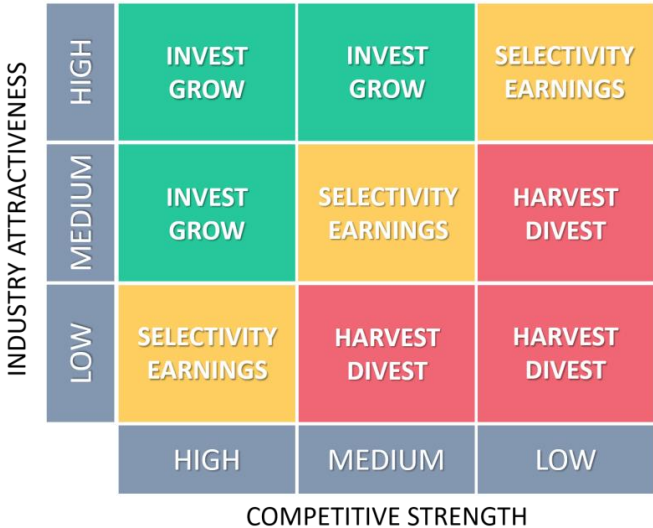


Figure 24: GE McKinsey Matrix (Sridharan, 2023, p. n/a)

The ease with which the business unit will be able to collect profit in the industry is referred to as industry attractiveness. Consider the business's long-term growth potential, industry scale, industry profitability, entrance and exit hurdles, and so on when evaluating it along this dimension. In addition, consider the bargaining strength of suppliers and consumers, as well as any other environmental elements that may impact industrial attractiveness. This matrix's vertical axis, Industry Attractiveness, is divided into three categories: high, medium, and low. Industry attractiveness is the profit potential of an industry for a firm to enter and compete in.

The greater the profit potential, the more appealing the industry. Consider how a business unit performs in comparison to its rivals in the industry while evaluating it along the Competitive Strength dimension. Some criteria that might assist a firm analyze its competitive advantage in an industry are the market share it commands, the potential for market share growth, brand recognition, the business's profit

margins, customer loyalty and satisfaction, and the originality of its goods or services. If the company has a competitive advantage, assess if that advantage is long-term or simply transitory. Lastly, if the company has a durable competitive advantage, evaluate how long it can utilize its industry position. This matrix's horizontal axis, Competitive Strength, is divided into three categories: high, medium, and low. This dimension assesses a company's competitiveness in comparison to its competitors. The three levels of Industry Attractiveness and Competitive Strength (High, Mid, and Low) create nine possible strategic postures for a corporation. There are three strategic actions to pick from: invest/grow, selectivity/earnings, and harvest/divest. The Invest/Grow segment is the finest place for a business to be. A company can achieve this scenario if it operates in a moderate to highly appealing industry and has a moderate to highly competitive position within that sector. There is enormous development potential in such a circumstance. This approach necessitates the use of assets and cash to grow capacity, attract new consumers through marketing, or enhance goods through R&D. In addition to organic development, a company might opt to expand externally through Mergers and Acquisitions (M&A) (Sridharan, 2023).

While the GE-McKinsey Matrix was not intended expressly for evaluating the prospects of adopting AR in business, it might be used for this purpose. Rather of assessing sector attractiveness, a company might assess prospective market demand for AR solutions in their industry. This might include things like the size of the prospective client base, how well AR solutions can solve current problems, and how profitable AR solutions can be. Similarly, the competitive strength dimension might be extended to assess a company's capacity to create and promote AR solutions in comparison to rivals, taking into account elements such as current knowledge and resources, brand recognition, and collaborations. Using the GE-McKinsey Matrix in this manner allows a company to make better decisions about whether to invest in AR solutions, how to allocate resources, and whether to pursue organic growth or M&A strategies.

A5: Segmentation, Targeting, Positioning

Marketing is a complicated process with several components, including segmentation, targeting, and positioning. An effective marketing strategy is built on three interconnected concepts: segmentation, targeting, and positioning.

- **Segmentation** is the process of splitting a diverse market into smaller groups of consumers with similar demands and features. This procedure can be carried out in a variety of ways, including geographic, demographic, psychographic, and behavioral segmentation (P. T. Kotler et al., 2020). Businesses may customize their marketing messaging and create tailored experiences to better engage with their target audience by recognizing these categories.

- **Targeting** entails deciding which of these groups to concentrate on and commit resources to. Successful targeting necessitates organizations considering elements like as market size, growth potential, rivalry, and the specific demands and characteristics of the target group (P. T. Kotler et al., 2020). Businesses may better understand their target demographic and produce more effective marketing efforts by targeting certain groups.
- **Positioning** entails imbuing the brand with a distinct image and value proposition in the eyes of the target audience. This may be achieved by distinguishing the brand from rivals and emphasizing the distinct benefits it provides. The positioning strategy should be in line with the target audience's demands and preferences (P. T. Kotler et al., 2020).

Businesses may employ AR technology to improve segmentation, targeting, and positioning in the context of the study. Businesses may use AR to provide personalized experiences for customers that are suited to their specific requirements and interests. Furthermore, businesses may distinguish themselves from competitors by providing a unique and original experience that meets the demands of the target audience (Grewal et al., 2017). AR gives organizations a valuable tool for improving segmentation by offering a more in-depth insight of their customers' requirements and preferences. AR technology may be used to collect data on consumer preferences and habits, allowing firms to more accurately segment their market (Grewal et al., 2017). AR may also be used to improve targeting by providing more tailored experiences for customers. Businesses may build immersive experiences that allow consumers to connect with products or services in a more meaningful way by utilizing AR technology. This can help firms better understand their target audience's specific demands and qualities, allowing them to build more successful marketing efforts (Grewal et al., 2017). Lastly, by generating a more immersive and engaging brand experience, AR may be utilized to improve the positioning process. Businesses may use AR technology to build interactive experiences that distinguish their brand from rivals and emphasize the specific benefits they provide (Grewal et al., 2017). To summarize, effective segmentation, targeting, and positioning are critical for firms to successfully implement AR into their marketing strategies and accomplish their marketing goals in the German B2C market. Businesses may build tailored experiences that resonate with their target audience and differentiate themselves from competition by utilizing AR technology.

Evaluating Segmentation

Businesses should examine four essential elements when evaluating the efficacy of a segmentation strategy: identifiability, sustainability, accessibility, and actionability. The level to which the divisions are identifiable in the marketplace is referred to as identifiability. A segment's demands, features, and behaviors should be easily identified. The term "sustainability" relates to whether the segments have a large enough population to be appealing as a target market. A segment should be large enough to warrant

the expenditures needed to successfully target it. The amount to which the segments may be reached through marketing tactics is referred to as accessibility. The market segment should be accessible via cost-effective and efficient marketing platforms. Actionability relates to whether the segment's customers and the ways of reaching them are congruent with the firm's aims and competencies. The division should be lucrative and complementary to the company's main strengths. Businesses may evaluate the performance of their segmentation strategy and make modifications as needed to better target their targeted audience by examining these four elements (Wedel & Kamakura, 2000).

A6: Customer journey explanation

- Customers may be influenced by internal and external cues during the **pre-purchase** stage while deciding whether to interact with physical or online businesses. Internal stimuli are individual variables like purchase frequency and involvement, whereas external stimuli are contextual qualities like design elements and technology (Garaus, 2018; Jain & Bagdare, 2009; Kietzmann et al., 2018; Pine & Gilmore, 2011; Puccinelli et al., 2009; Sands et al., 2016).
- At the **purchasing** stage, the client makes a choice and chooses to purchase. Because it increases customers' trust in their capacity to make educated selections about items and their unique attributes, understanding the concept of consumer choice is essential. A customer's confidence in their choice could increase if they take part in the creation process. An optimistic mindset also promotes client confidence. However, owing to retail technology, consumers now have a variety of alternatives, which can complicate selections and reduce consumer confidence. As a result, if a customer feels that their purchase fell short of their expectations or that they should have made a better choice, they may experience cognitive dissonance (Garaus & Wagner, 2016; Inman et al., 2009; Pallant et al., 2020; Swait & Sweeney, 2000; J. Sweeney & Swait, 2008; Vahdat et al., 2021).
- At the **post-purchase** stage, the consumer may have to choose whether to file a complaint after making a purchase, and this choice may have an impact on other behaviors like product returns or WOM intents (Bolkan et al., 2012; H. Ro, 2015).

A7: AR objectives

Table 1. AR objectives classified into five general categories

<p>Increasing profits through higher sales:</p> <ul style="list-style-type: none"> • Increasing sales through reducing perceived risk associated with complex product purchases • Increasing sales of higher margin products • Encouraging related-item purchases • Enabling customers to try on or try out multiple products in a short time • Demonstrating slow-selling but highly profitable goods that a firm does not normally stock
<p>Increasing profits through lower expenses:</p> <ul style="list-style-type: none"> • Lowering salesperson expenses • Reducing customer service expenses • Increasing inventory turnover • Using store space more effectively • Reducing product returns via better information • Facilitating product setup, installation, and repair • Facilitating remote technical support
<p>Generating excitement for a brand, for retailers, or for a product:</p> <ul style="list-style-type: none"> • Increasing consumer interactivity • Introducing new and revised products in an exciting environment • Using product demonstrations to generate consumer interest and excitement • Making overall store environment more exciting
<p>Facilitating the consumer purchase process through increased product information:</p> <ul style="list-style-type: none"> • Increasing overall product awareness • Increasing awareness of specific product features and quality • Reducing perceived risk via demonstrations and virtual try-ons • Making customers more comfortable purchasing high-risk goods in an online environment
<p>Implementing and upgrading a firm's omnichannel strategy:</p> <ul style="list-style-type: none"> • Encouraging web shoppers to visit a retailer's stores • Making customers more comfortable purchasing high-risk goods in an online environment • Reducing bottlenecks in a firm's overall omnichannel strategy

Table 5: AR objectives (Berman & Pollack, 2021)

A8: Smart Framework

The **SMART** framework, which stands for **Specific, Measurable, Achievable, Realistic,** and **Time-bound**, can be used to evaluate the performance of AR marketing efforts (CFI Team, 2023).

Specific:

To increase the chances of achieving a business goal, it is important to make it specific by considering the "who, what, where, when, and why" questions. For example, instead of setting a general goal of "increasing sales," a more specific goal would be "increasing sales by 15% in the next six months by launching a new marketing campaign targeting a specific audience and offering a limited-time discount promotion." By setting a specific goal, businesses can focus their efforts and resources on achieving it, and measure their success based on the relevant metrics.

Measurable:

One key aspect of a SMART goal is that it must have a criteria for measuring progress. Without proper criteria, it's impossible to know whether you are on track to reach your goal. To make a goal measurable, you need to ask yourself questions such as "How many/much?, How do I know if I have reached my goal?, What is my indicator of progress?"

Achievable:

A SMART objective ought to be doable and reachable. This will assist you in determining how to achieve that objective and make progress toward it. The goal's reachability should be sufficiently specified for you to be able to accomplish it but still feeling stretched enough to feel challenging. The questions which can be asked in the process are: "Do I possess the tools and talents necessary to do the task?, What am I missing if not?"

Realistic:

An objective need to be practical, meaning it can be accomplished given the time and resources at hand. If you have faith in your ability to achieve it, a SMART objective is probably attainable. Reflect on your own capabilities in the following sense: “Is the objective realistic and doable?, Given the available time and resources, is the aim attainable?, Can you dedicate yourself to accomplishing the objective?”

Time-Bound:

A SMART objective needs to be time-bound, meaning it needs a start and end date. Without a deadline, there will be no sense of urgency and, consequently, no drive to complete the task. Therefore marketers should asked them selves the following question: “Does my objective have a time limit?, When do you hope to accomplish your objective?”

In conclusion, the SMART framework is a useful tool for businesses looking to set clear, achievable goals and improve their performance. By using this framework, businesses can stay focused, make better decisions, and achieve their long-term objectives.

A9: Metrics for success measurement:

Considering the difficulties in measurement I would like to provide some recommended measurements of AR marketings by (Designhubz, 2020).

- **Percentage of shoppers who activated the AR experience/Click-through rate:**

This metric tracks the percentage of shoppers who clicked or scanned to try the AR product views on your website. It is an important metric to understand if AR is something that your shoppers need or want.

- **Time spent or ‘Dwell Time’:**

Dwell time refers to the amount of time that shoppers spend engaging with your product views. This metric is important to track for any AR-enabled experience. It is also important to track dwell time per category if you have many different product categories. This way, you can pinpoint which categories are seeing the most engagement pre and post enabling AR.

- **Conversion Rates:**

Conversion rate is the percentage of people who purchased after trying on your AR product views. This is one of the most important metrics to measure after enabling AR. It will tell you the actual impact of AR on your revenue and bottom line.

- **Return Rate:**

AR try ons can reduce return rates as shoppers are more likely to make the right purchase decisions when they try before buying. This metric measures the percentage of people who

returned products after trying on products in AR. It will help you understand if AR is reducing return rates for your brand.

- **Impact on brand awareness and loyalty:**

This metric is probably the hardest to track quantitatively. However, it can be measured qualitatively. A few ways to measure this metric are to track the increase in social media mentions, visible spike in traffic, and mentions on media outlets and publications. AR has the potential to increase the perceived value of brands through the hype and curiosity it creates on social media or word-of-mouth marketing by impressed shoppers.

A10: Case Analysis raw data

Company	Solution	Launched	Type of AR	Marketing Level	Main Goal	Main assets developed	Stage in customer journey	Value Provided	Results	References
Adidas	Adidas AR sneakers app let their customers try-on their most iconic models.	2019	Mixed Reality	Tactical Marketing	Inspiring Convincing	Relationship	Planning	Functional: Reduces effort Avoids hassles Reduces risk Saves time Emotional: Reduces anxiety Design/aesthetics	n/a by figures	https://www.virtualrealitymarketing.com/case-studies/adidas-ar-sneakers-try-on-app-2/
Amazon Room Decorator	Amazon rolled out an AR shopping tool which allows customers to see furniture and other home decor in your own space. The technology is capable of adding several items together that customer can see the fit together.	2020	Mixed Reality	Tactical Marketing	Inspiring Convincing	Relationship	Planning	Functional: Reduces effort Avoids hassles Reduces cost Increases Variety Reduces Risk Saves time Simplifies Emotional: Reduces anxiety	n/a by figures	https://techcrunch.com/2020/08/25/amazon-rolls-out-a-new-ar-shopping-feature-for-viewing-multiple-items-at-once/
Becks	Beck's is offering artists from various creative fields (not only visual) an opportunity to showcase their art in the groundbreaking virtual gallery for people to 'unlock' them via augmented-reality in Green Boxes.	2011	Mixed Reality	Tactical Marketing	Branding	Brand	Awareness	Emotional: Fun/entertainment Connects Design/Aesthetics Rewards me Life Changing: Self-actualization Affiliation/belonging	n/a by figures	https://www.dandad.org/awards/professional/2012/branding/18986/becks-green-box-project/
Deutsches Museum	A German museum (Deutsches Museum) created an AR technology which transformed pictures with a barcode into an augmented version of the picture which showed the life in the stone age.	2020	Mixed Reality	Tactical Marketing	Keeping	Relationship	Use	Functional: Informs Sensory Appeal Emotional: Fun/entertainment Design/aesthetics	Visitors which used AR content stopped more often and stayed longer at the exhibits and the rating of the overall visitor experience was better than without AR. (n/a by figures)	https://www.youtube.com/watch?v=pT26rqVzhWc
Home Depot	Home depot let customers virtually place true-to-scale 3D models in your very own space and make them appear as part of your world with the option to share with friends and find furniture by making a picture	2019	Mixed Reality	Tactical Marketing	Inspiring Convincing	Relationship	Planning	Functional: Reduces Effort Avoids hassles Reduces Cost Increases Variety Reduces Risk Simplifies Saves time	2-3 times higher conversation with AR use	https://www.digitalcommerce360.com/2020/10/22/augmented-reality-boosts-conversion-for-home-depot/
IKEA	IKEA Place lets customers virtually place true-to-scale 3D models in their very own space and make them appear as part their your world.	2017	Mixed Reality	Tactical Marketing	Inspiring Convincing	Relationship	Planning	Functional: Reduces Effort Avoids hassles Reduces Cost Increases Variety Reduces Risk Simplifies Saves time	- Increased user engagement - Reduced returns by 30% - 8.5 million downloads	https://www.furnituretoday.com/technology/keys-to-success-in-2021-app-less-augmented-reality/?utm_source=FTSite&utm_medium=SponConModule&utm_campaign=Cooom&utm_term=February2021&utm_content=keys-to-success https://www.linkedin.com/pulse/ikea-one-small-step-augmented-reality-giant-leap-online-retailing-/
L'oreal	The Virtual Makeup try-on technology from L'oreal allows customers to try-on Makeup products on the phone.	2014	Assisted Reality	Tactical Marketing	Inspiring Convincing	Relationship	Planning	Functional: Reduces Effort Avoids hassles Increases Variety Sensory appeal Reduces risk Saves Time Emotional: Reduces Anxiety Design/Aesthetics	-260 million virtual product trials -1.4 million downloads	http://www.digitaltrainingacademy.com/casestudies/2017/03/mobile_marketing_case_study_loreal_fulfills_consumer_needs_and_boots_sales_with_makeup_genius_app.php
Netflix (Stranger Things)	Netflix created with collaboration of Snapchat an AR environment which lets users into the "upside down" of the series stranger things. The AR function and the filters have been done prior to the third season of stranger things.	2019	Mixed Reality	Tactical Marketing	Branding	Brand	Awareness	Emotional: Fun/entertainment	Combined 22 years of time have been spend in the AR environment	https://in.mashable.com/entertainment/4773/stranger-things-fans-can-now-walk-right-into-hawkins-with-netflixs-augmented-reality-trailer
Niantic (Pokemon Go)	Pokemon Go created an AR environment where players can catch and train Pokemon characters in real locations.	2016	Mixed Reality	Functional & Tactical Marketing	Keeping	Goods	Use	Functional: Connects Emotional: Fun/entertainment Rewards me Affiliation/belonging Nostalgia	- Revenue of 206.5 million in the first month - Played by over 45 million people in 2016	https://realityplusnow.com/why-pokemon-go-was-an-instant-success/
Pepsi	Pepsi developed an Augmented Reality experience that transformed a bus shelter display into a window that augmented unbelievable scenarios into the real world.	2014	Mixed Reality	Tactical Marketing	Branding	Brand	Awareness	Emotional: Fun/entertainment	- 8 million views in 5 days; 3 million within 5 days - News coverage with reaching over 385 million people (unpaid) - Sales for Pepsi Max were up 35% YoY	https://grandvisual.com/work/pepsi-max-bus-shelter/
Snapchat	The Snapchat AR tools enable users to view their surrounding with AR content. Additionally, Snapchat provides creators the possibility to design AR content with their own design program.	2015	Assisted Reality & Mixed Reality	Functional & Tactical Marketing	Keeping	Goods	Use	Functional: Sensory appeal Connects Emotional: Fun/entertainment Attractiveness Life Changing Affiliation/belonging Self actualization	- 300 million daily active users - 200 countries - 5 trillion lens views	https://ar.snap.com/
Svarmony	Svarmony created an AR app, which enables indoor orientation via AR. Use cases include football stadiums and big fair events.	2023	Assisted Reality	Tactical Marketing	Inspiring Convincing	Relationship	Planning	Functional: Reduces risk Informs Emotional: Reduces anxiety	n/a by figures	https://www.blachreport.de/digital/52966-svarmony-aryve-ermoglicht-indoor-orientierung-via-ar/

Table 6: Use case analysis raw data

A11: Interview questions

Interview Questions:
1. What is your name?
2. What is your position in the company?
3. In what sector does your company operate?
4. How many augmented reality solutions did you do for clients already?
5. What was the objective of your client to implement augmented reality?
6. Why did you decide to start selling augmented reality solutions?
7. What were the augmented reality solutions that you made?
8. Can you walk me through your process for developing an augmented reality marketing campaign?
9. What types of augmented reality experiences tend to resonate best with consumers, and which don't?
10. In what stage of the customer journey AR might be most promising and why? (pre-purchase, purchase, and post-purchase phase)
11. Do you think the use of the value pyramid is beneficial in designing an AR experience?
12. What are the limitations of augmented reality in marketing, and what types of products or services may not be suitable for this technology?
13. Do you see any risk with the usage of augmented reality?
14. Can you provide any examples of augmented reality campaigns that didn't meet expectations, and what you learned from those experiences?
15. How do you measure the success of an augmented reality marketing campaign?
16. What are the most important trends and developments in augmented reality marketing that businesses should be aware of in the coming years?
17. What was the target group of your AR applications?
18. How important is it to have a clear understanding of the target audience when incorporating augmented reality into marketing strategies?
19. How would you address different target groups?
20. How can augmented reality be used to create a more personalized experience for customers?
21. What assets did you need to develop before starting your AR efforts?
22. How does the customer know that the use of AR is appropriate for his business?
23. What are the most effective ways to promote an augmented reality marketing campaign, and what channels should businesses use to reach their target audience?
24. How much does an AR application cost?
25. How can businesses ensure that their augmented reality marketing campaigns are aligned with their overall brand messaging and values?
26. What applications (technology and hardware) did you use for the AR campaign?
27. What are the main differences between augmented reality and virtual reality in marketing, and when is it appropriate to use one over the other?
28. How do you collaborate with other teams, such as design and development, to create successful augmented reality campaigns?

Table 7: Interview Questions