# ANALYSING VIRTUAL AND AUGMENTED REALITY APPLICATIONS IN DIGITAL MARKETING

**Dr. ANAND MULEY,**
Assistant Professor, Department of Commerce, J. M. Patel Arts
Commerce and Science College Bhandara, Maharashtra.

**SAKSHI PANDEY,**
Assistant Professor, Faculty of Commerce and Business Management
Amrapali Group of Institutes, Haldwani, Uttarakhand.

**Dr. N.V.S. NATTESHAN,**
Assistant Professor, Department of CSE, School of Computing,
Kalasalingam Academy of Research and Education, Krishnan Koil, India.

**SHARDUL SINGH CHAUHAN,**
Assistant Professor, Computer Science Department, ABES Engineering
College, Ghaziabad, Uttar Pradesh.

**ARJUN SINGH**
Associate Professor, Department of Computer and Communication
Engineering, Manipal University Jaipur, India.

## Abstract

Virtual reality (VR) and augmented reality (AR) have recently emerged as potent technologies that provide immersive experiences and make it possible for marketers to engage customers in novel ways. When it comes to digital marketing, the advantages of virtual reality (VR) and augmented reality (AR) include their capacity to deliver highly immersive experiences, establish emotional connections with users, and supply valuable data and insights. The attention of users is captured by these technologies, which also make it possible to tell interactive stories and enable personalized marketing campaigns based on users' actions. When analyzing the applications of virtual reality and augmented reality in digital marketing, several challenges and factors need to be taken into consideration. These include the availability and use of virtual reality and augmented reality technologies, the financial and time investments necessary for development, as well as the measurement and evaluation of the effectiveness of marketing campaigns. Marketers can make educated decisions about whether or not to include virtual reality and augmented reality in their digital strategies if they have a thorough understanding of the specific advantages and drawbacks of these two technologies. Marketers can take advantage of the potential of virtual reality and augmented reality to create memorable brand experiences, increase customer engagement, and accomplish their marketing goals by giving careful consideration to their target audience,

Eur. Chem. Bull. 2023, 12 (S6), 796 - 805

796

conducting cost-benefit analyses, and defining relevant key performance indicators (KPIs). The purpose of this research is to conduct an analysis of the applications of virtual and augmented reality in digital marketing in order to gain insights into how these technologies can be leveraged to improve customer engagement and brand experiences. Marketers can strategically integrate virtual reality and augmented reality technologies into their digital marketing strategies if they have a thorough understanding of the benefits and challenges associated with these technologies. This will, in the end, result in improved campaign outcomes and customer relationships. The purpose of this study is to investigate the various aspects of incorporating virtual reality and augmented reality into digital marketing strategies, including the potential benefits, potential challenges, and potential considerations.

**Keywords:** AR, VR, Digital Marketing, Business, Virtual

## Introduction

Virtual reality (VR) and augmented reality (AR) are two powerful technologies that have emerged in recent years and have the potential to revolutionize a variety of industries, including digital marketing. Immersive experiences are offered by both virtual reality (VR) and augmented reality (AR), allowing users to interact with virtual environments or superimpose digital information onto the real world. These technologies have opened up exciting new possibilities for marketers to engage customers in novel ways and to create experiences that customers will remember for their brands.

Analyzing the applications of virtual reality and augmented reality in digital marketing entails researching the various ways in which these technologies can be successfully incorporated into marketing campaigns in order to boost customer engagement, increase brand awareness, and ultimately accomplish marketing goals. Marketers can make educated decisions about whether or not to include virtual reality and augmented reality in their digital strategies if they have a thorough understanding of the specific advantages and drawbacks of these two technologies.

## Benefits of virtual and augmented reality in digital marketing

Applications that utilize virtual and augmented reality provide a number of benefits to businesses that engage in digital marketing. To begin, they deliver highly immersive experiences that seize the attention of users and leave impressions that stick with them for a long time. Virtual reality (VR) and augmented reality (AR) have the potential to offer users a sense of presence and interactivity that is difficult for traditional marketing mediums to achieve. This is because VR and AR can transport users into virtual worlds, while AR can overlay digital content onto the real world.

Second, virtual reality and augmented reality make it possible for marketers to tell emotionally engaging brand stories that engage users on a deeper level. Brands have the ability to elicit potent feelings in their target audience as well as forge deeper connections with them by utilizing techniques such as interactive experiences and storytelling. Because of this emotional resonance, increased brand loyalty and advocacy are possible outcomes.

In addition, both virtual and augmented reality have the potential to supply marketers with valuable data and insights. Marketers can gain a better understanding of customer preferences, interests, and purchasing patterns by analysing the interactions and behaviours of users within these immersive environments. This approach, which is driven by data, makes it possible to create marketing campaigns that are more personalized and targeted, which leads to higher conversion rates and a better return on investment.

## Challenges and considerations

Keep in mind that despite the fact that virtual and augmented reality present digital marketers with exciting new opportunities, there are also challenges and factors to take into consideration. The availability of virtual reality and augmented reality technology presents a significant obstacle. Although in recent years these technologies have become easier to access, they still call for specialized hardware, and it is possible that they will not

Eur. Chem. Bull. 2023, 12 (S6), 796 - 805

797

be widely adopted by the general population. It is important for marketers to consider whether or not their target audience is ready and willing to participate in virtual reality and augmented reality experiences.

Another factor to take into account is the financial and time commitment necessary to create VR and AR applications of a sufficient quality. Developing experiences that are both immersive and engaging can require a significant investment of resources and the expertise of developers, designers, and content creators. When considering whether or not to include virtual reality and augmented reality in their digital marketing strategies, businesses need to conduct a thorough cost-benefit analysis. Last but not least, the measurement and evaluation of virtual reality and augmented reality campaigns can be difficult. When attempting to evaluate the significance and efficiency of immersive experiences, it is possible that traditional marketing metrics will not be directly applicable. For the purpose of tracking user engagement, conversion rates, and the overall success of a campaign, marketers need to define pertinent key performance indicators (KPIs) and make use of advanced analytics tools.

**Augmented reality and digital marketing business**

Within the realm of digital marketing, augmented reality, also known as AR, has emerged as a powerful tool for use by businesses. It presents one-of-a-kind opportunities to drive conversions, engage customers, and create immersive brand experiences.

**Here are some highlights on how augmented reality can be integrated into digital marketing strategies:**

- Augmented reality makes it possible for companies to provide their customers with interactive and interesting brand experiences. AR applications allow users to interact with products, try virtual samples, and explore brand stories in a more immersive and memorable way than was previously possible. These interactions are made possible by superimposing digital content onto the real world. Because of the

interactivity, customers are more engaged, and they are more likely to remember the brand.

- Augmented reality is a tool that can be used to improve social media marketing efforts, and this tool can be activated through social media. AR filters and effects on social media platforms such as Instagram and Snapchat enable users to incorporate branded AR experiences into their content, allowing for user-generated brand advocacy and virality. Social media campaigns that are powered by augmented reality have the potential to generate buzz, increase brand visibility, and drive user participation.

- Augmented reality (AR) offers a one-of-a-kind opportunity for businesses to showcase their goods or services in a virtual environment. This gives customers the ability to visualize and customize their experiences with the goods or services being offered. AR applications allow users to virtually try on clothing, decorate their homes with virtual furnishings, and even see how cosmetics look when applied to their faces. The customer's understanding is improved, and they are better able to make decisions about their purchases as a result of this immersive product visualization.

- Augmented reality applications produce valuable data and insights that can be used to inform digital marketing strategies. Businesses are able to gain insights into customer preferences, behaviors, and purchase patterns through the analysis of user interactions within augmented reality (AR) experiences. This approach, which is driven by data, makes it possible to create marketing campaigns that are more personalized and targeted; as a result, customer engagement is improved, and conversion rates are increased.

- Before integrating augmented reality into digital marketing strategies, businesses should first define clear objectives and determine how AR aligns with their overall marketing goals. This should be done before

Eur. Chem. Bull. 2023, 12 (S6), 796 - 805

798

integrating augmented reality into digital marketing strategies. Having a clear focus will guide the development and execution of augmented reality (AR) campaigns, regardless of whether that focus is on increasing brand awareness, driving conversions, or improving customer engagement.

- To get the most out of augmented reality (AR) in digital marketing, companies need to ensure that it is seamlessly integrated with all of the different marketing channels. AR experiences may be integrated into a variety of mediums, including websites, mobile applications, social media platforms, and even physical stores. A unified and immersive experience for the customer can be achieved by maintaining consistent branding and messaging across all of these channels.

- Experts to Develop High-Quality Augmented Reality Experiences Creating high-quality AR experiences requires expertise in the development and design of Augmented Reality. Businesses should form partnerships with seasoned augmented reality (AR) professionals or agencies that can assist in the production of AR applications that are both interesting to users and technically sound. Through this collaboration, we can ensure that the augmented reality experience will deliver a seamless user experience while also aligning with marketing goals.

- The user experience in augmented reality applications is very important. The user interface needs to be straightforward, simple, and straightforward, and it needs to provide clear instructions for users on how to interact with the augmented reality content. Putting an emphasis on providing a pleasant experience for users will increase engagement as well as positive interactions with the brand.

- Integrating augmented reality into digital marketing strategies necessitates performing ongoing

measurement and optimization. The performance of augmented reality (AR) campaigns should be monitored by establishing relevant KPIs for businesses to use, such as user engagement, conversion rates, and social media reach. The analysis of these data will provide insights that can be used to improve the efficiency of campaigns and optimize augmented reality strategies.

**Virtual reality and digital marketing business**

The game-changing technology known as virtual reality (VR) has the potential to have a significant influence on digital marketing strategies. It offers experiences that are completely encompassing, making it possible for businesses to engage customers in novel and compelling ways.

**Here are some highlights on how virtual reality can be integrated into digital marketing strategies:**

- ✓ Virtual reality enables companies to create experiences that are both immersive and memorable for their brands. Virtual reality (VR) applications have the ability to showcase products, services, or brand narratives in a manner that is highly engaging and interactive by transporting users to virtual environments. Customers are left with an indelible impression as a result of this immersive experience, which encourages brand loyalty and advocacy.

- ✓ VR paves the way for businesses to conduct product demonstrations conducted in a virtual environment, enabling customers to experience and interact with the products in question. Customers can explore properties, test drive virtual vehicles, or take virtual tours thanks to this capability, which is particularly useful for businesses in the real estate, automotive, and tourism industries. Customers have a better understanding of the product, more confidence in their ability to make purchasing decisions, and less need for physical prototypes when virtual product demonstrations are used.

- ✓ Virtual reality (VR) can recreate physical showrooms and retail spaces in

virtual environments. Within the virtual reality setting, consumers are able to navigate and interact with virtual shelves, look through product catalogs, and make purchases. This removes the restrictions that are imposed by the availability of physical space, broadens the market's reach, and offers customers a shopping experience that is both unique and convenient.

✓ Virtual reality (VR) can be used for training employees, particularly in industries that require hands-on experience or deal with complex procedures. VR is particularly useful for training employees in these types of industries. Employees are able to practice their skills, gain expertise, and improve their performance all within a setting that is safe and well-controlled thanks to the use of virtual simulations and scenarios. When compared to more conventional methods of instruction, VR-based training programs may prove to be both more efficient and cost-effective.

**Review Literature**

Grudzewski, Awdziej, Mazurek, and Piotrowska (2018) say that effective use of marketing communication requires not only a good understanding of social phenomena and market processes, but also an understanding of the tools and information communication technology used in the process. Hajduk (2016) says that businesses that use modern marketing communication methods and tools can talk to customers and other important people in their marketing environment in a quick and effective way. There are more and more marketing campaigns out there that use VR. In general, they can be put into two groups: those that depend on how the person sees things and those that depend on how other people see things (Pindel, 2015). When it comes to the first group of consumers, they have all the tools they need and are ready to get promotional messages at any time or place. After that, ads are usually shared through social media, such as by uploading them to YouTube or putting them on the website of a certain brand. (Jang, Hur, and Choo, 2019; Steuer, 1992) say that virtual

reality (VR) creates an environment where a person can feel like they are physically present. So, VR could be a good way to make shopping the same both online and offline. The same author (Steuer, 1992) puts a lot of weight on the ideas that vividness and interactivity are the two most important things that can have a big impact on how people feel in a virtual world. More research in this area (Steuer, 1992) supports the idea that the two variables above make up telepresence, which is a key concept for understanding virtual experience. Bigné, Llinares, and Torrecilla (2016) say that test labs have already started using virtual reality as a way to gather data that can be used to predict how customers will act when they shop in traditional stores. (Lau, Lau, and Kan, 2012) Modern researchers spend a lot of time trying to figure out how virtual reality will affect customer behavior and the buying experience, which is what the customer has when they buy something. Also, the simulation showed a number of different ways to sort food, all of which were shown in a very easy-to-understand graphical format. This made it easier for the users to understand the basic ideas behind how the system worked. From inside the machines, visitors could look at the sorting processes from any angle. With the help of this strategy, Key Technology was able to show that their system was unique and very effective compared to the solutions offered by their direct competitors. The project was part of a large B2B market campaign that was meant to raise brand awareness among companies in the food industry and make the complex techniques and technologies used to process food easier to understand (Becker, 2019). The goal of the campaign was to show how the food industry uses techniques and technologies. Visitors were given virtual reality goggles and asked to look at and learn about the network's production lines (Feltham, 2016). This was done to help them build their brand and get over the idea that fast-food products are highly processed and unhealthy, which is how most people think about them. Kumar, D. (2019), observed that recent developments in virtual reality and augmented reality have resulted in the creation of several applications that are garnering increased interest from researchers

and professionals working in business enterprises. As augmented reality (AR) and virtual reality (VR) technologies advance, the number of scientific applications that can make use of them also grows. Virtual reality (VR) and augmented reality (AR) are proving their worth particularly once designing particularly planning, marketing, education, and tourist sport preservation are coming into light. The purpose of this research paper is to shed light on some of the most important technologies for use in business and social settings, particularly as they relate to AR and VR.

## Problem Statement

Despite the increasing popularity and potential of VR and AR applications in digital marketing, a thorough examination of their efficacy, challenges, and considerations is required. Businesses are unable to reap the full benefits of VR and AR because they do not understand how to incorporate them into digital marketing strategies. There are no standardized metrics or evaluation frameworks for digital marketing VR and AR applications. Because VR and AR campaigns are difficult to measure, ROI and justification are difficult. VR and AR adoption is hampered by specialized hardware, high costs, and technological limitations. Due to the limited availability of VR and AR, businesses struggle to reach and engage customers. It takes time and expertise to create engaging VR and AR content. Many businesses are unsure of how to create engaging brand experiences that align with their marketing objectives. To seamlessly integrate VR and AR into digital marketing channels and platforms, careful planning and execution are required. Not all target audiences are open to VR and AR or have the necessary devices. Understanding the demographics, preferences, and technological readiness of the target audience is required for incorporating VR and AR into digital marketing strategies.

VR and AR implementations necessitate significant investments in technology, content, and expertise. Companies must evaluate cost-benefit analysis and resource allocation to ensure the success of VR and AR projects. Businesses must address these challenges and considerations in order to make informed VR and AR digital marketing decisions. To successfully implement virtual reality and augmented reality in digital marketing, you must first assess effectiveness, ROI, user adoption barriers, content creation and integration, target audience relevance, and resource allocation.

## Research Methodology

This study is based both on primary & secondary data. The primary data has gathered from 04 different digital marketing-based companies located in Maharashtra. Total 220 respondents filled questionnaire for the study. Factor analysis & KMO and Bartlett's Test, reliability test has used for analysis. Secondary data has been collected from web sources, e-portals, journals etc.

## Objective of the study

- To describe the concept of AR/VR applications on digital marketing.
- To investigate the various aspects of incorporating virtual reality and augmented reality into digital marketing strategies.

## Hypothesis of the study

H1: There is no significant influence of VR/AR applications on digital marketing

H1: There is significant influence of VR/AR applications on digital marketing

H2: There is no significant influence of investigating the various aspects of incorporating virtual reality and augmented reality into digital marketing strategies.

H2: There is significant influence of investigating the various aspects of incorporating virtual reality and augmented reality into digital marketing strategies.

Eur. Chem. Bull. 2023, 12 (S6), 796 - 805

801

## Results & Discussion

### Table 1: Reliability Test

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items | Mean | Std. Deviation |
|---|---|---|---|---|
| 0.795 | 0.799 | 17 | 92.423 | 14.8823 |

Cronbach's alpha was calculated for this set of questions using SPSS, and the value was 0.795, which is excellent (a Cronbach's alpha value greater than 0.6). The mean score for the final set of 17 questions on the questionnaire was 92.423, with a standard deviation of 14.8823.

### Table 2: KMO and Bartlett's Test

| KMO and Bartlett's Test | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .897 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1987.625 |
| | Df | 220 |
| | Sig. | .001 |

### Table 3: Factor Loading Matrix

| Items | Factor Loadings | % Variance Explained | Factor | Alpha |
|---|---|---|---|---|
| Define Clear Objectives | 0.772 | 62.716 | | 0.909 |
| Seamless Integration with Channels | 0.667 | | Functional and User-Friendly Activation | |
| Collaborate with AR Experts | 0.776 | | | |
| User-Friendly Experience | 0.689 | | | |
| Measurement and Optimization | 0.665 | | | |
| Interactive Brand Experiences | 0.698 | | | |
| Social Media Activation | 0.774 | | | |
| Product Visualization and Personalization | 0.678 | | | |
| Data and Insights | 0.779 | | | |
| Enhanced Customer Engagement | 0.567 | | | |
| Improved Brand Awareness | 0.789 | | | |
| Personalized and Targeted Marketing | 0.678 | 7.896 | Transformation in Collaboration & Marketing Research to Achieve Target | 0.823 |
| Cost and Accessibility Challenges | 0.779 | | | |
| Audience Research and Targeting | 0.765 | | | |
| Strategic Integration | 0.678 | | | |
| Collaborate with Experts | 0.713 | | | |
| Measurement and Analysis | 0.689 | | | |

The 17 assertions were subjected to principal component analysis to see if any factors could be extracted for further investigation. To be used for the Varimax orthogonal

rotation, significant factors had Eigen values greater than one. In the analysis of the 17-item questionnaire about the elements of AR & VR for digital marketing, only items with factor loadings of 0.5 or more were examined, and two factors were discovered, namely Functional and User-Friendly Activation, and Transformation in Collaboration & Marketing Research to Achieve Target.

**Table 4: Model Summary**

| Model | R | R Square | Adjusted R Square | F Change | Sig. F Change |
|-------|------|----------|-------------------|----------|---------------|
| 1 | 0.712 | .398 | .391 | 322.761 | .001 |
| 2 | 0.710 | .788 | .788 | 74.543 | .001 |

In regression analysis, the R, R square, and adjusted r square values were written on a table, and it was shown that the estimated value of r is always more than 30%. So, the independent variables under study have a big effect on the dependent variable of digital marketing.

**Hypothesis Testing**

Applications of Regression analysis, Reliability test, KMO Bartlett test & Factor loading matrix, the findings of the research stated that null hypothesis which is "there is no significant influence of VR/AR applications on digital marketing" & "there is no significant influence of investigating the various aspects of incorporating virtual reality and augmented reality into digital marketing strategies" is rejected and alternative hypothesis which is there is significant influence of VR/AR applications on digital marketing & there is significant influence of investigating the various aspects of incorporating virtual reality and augmented reality into digital marketing strategies is accepted.

**Findings:**

- Applications of virtual and augmented reality in digital marketing have shown the ability to significantly improve customer engagement, and this trend is expected to continue.
- Because of the immersive nature of these technologies, users' attention is easily captured, which enables brands to create experiences that are both interactive and memorable. Because users are more likely to spend more time interacting with VR and AR content, this can result in increased brand exposure as well as deeper emotional connections.
- Virtual reality (VR) and augmented reality (AR) applications provide one-of-a-kind opportunities to build brand awareness and generate buzz.
- Brands that are able to differentiate themselves from their competitors by successfully incorporating these technologies into their marketing campaigns will leave consumers with an impression that will stick with them.
- The novelty and excitement that surround virtual reality and augmented reality experiences frequently generate word-of-mouth marketing and social media sharing, which further amplifies the visibility of the brand.
- Applications that use virtual and augmented reality provide valuable data and insights that can be utilized to personalize and target marketing campaigns.
- Marketers are able to obtain a better understanding of individual consumers' preferences, interests, and behaviors through the analysis of user interactions within these immersive environments.
- This data can be used to guide the development of content that is highly targeted and relevant, which will ultimately result in improved conversion rates and a higher return on investment.
- Virtual reality (VR) and augmented reality (AR) applications in digital marketing continue to face significant challenges in terms of cost and accessibility, despite the numerous benefits they offer.
- It can be a resource-intensive process to develop and implement high-quality

virtual reality (VR) and augmented reality (AR) experiences because it requires specialized hardware and skilled professionals.

- In addition, the widespread adoption of virtual reality and augmented reality technologies among the general public is still in its infancy. As a result, it is essential for marketers to carefully evaluate the readiness and willingness of their target audience to engage with experiences that utilize these technologies.

**Recommendations:**

- Before marketers invest in virtual reality (VR) and augmented reality (AR) applications, they should first conduct extensive audience research to determine the interest level, demographics, and technological readiness of their target audience.
- Using this information, it will be possible to determine whether or not the incorporation of these technologies aligns with the target market and whether or not the investment is likely to result in positive outcomes.
- The use of virtual reality (VR) and augmented reality (AR) should be carefully considered by marketers in terms of how these technologies can enhance and complement existing digital marketing strategies. It is essential to determine which specific touchpoints along the customer journey these technologies can contribute to the creation of meaningful interactions and the addition of value.
- For maximum effect, strategic integration ensures that virtual reality (VR) and augmented reality (AR) experiences are seamlessly integrated into broader marketing efforts.
- Because virtual reality and augmented reality applications are both technically and creatively challenging, it is recommended that marketers work with seasoned experts in the field to develop their products.
- The production of high-quality and engaging experiences that are in line

with marketing goals can be facilitated through the formation of strategic partnerships with VR and AR software developers, designers, and content creators.

- When attempting to evaluate the success of VR and AR marketing campaigns, it is essential to develop applicable KPIs and make use of sophisticated analytics tools.
- In order to assess the effect that these technologies have on marketing objectives, marketers should monitor the level of user engagement, conversion rates, and any other pertinent metrics. This approach is driven by data, which enables continuous optimization and improvement of virtual reality and augmented reality strategies.
- As virtual reality (VR) and augmented reality (AR) technologies continue to advance, it is essential for marketers to test and refine their strategies.
- Experimenting with a variety of formats, content types, and platforms enables marketers to discover what types of content and platforms are most effective with their target audiences, allowing them to adjust their strategies accordingly.
- Testing and iteration on a regular basis help refine VR and AR campaigns, which ultimately leads to improved results over time.
- By adhering to these recommendations, marketers will be able to effectively leverage virtual and augmented reality applications in digital marketing. This will allow them to capitalize on the opportunities to enhance customer engagement, increase brand awareness, and drive better marketing outcomes.

**Conclusion:**

Immersive experiences, interesting narrative possibilities, and invaluable consumer insights are just a few ways in which VR and AR apps have the potential to transform digital marketing. Virtual reality (VR) and augmented reality (AR) offer tremendous potential for marketers if they take the time to fully understand the tools' strengths and weaknesses. However, a

strategic and data-driven approach is necessary when incorporating VR and AR into digital marketing strategies due to the challenges of accessibility, cost, and measurement. To sum up, augmented reality has enormous potential to boost businesses' customer service, productivity, and creativity. Businesses can use AR to gain an edge in their fields by analyzing use cases, creating tailored solutions, and integrating the technology with existing systems. The potential for augmented reality to revolutionize digital marketing for businesses is exciting. Businesses can improve customer engagement, drive conversions, and gain a digital competitive edge by developing interactive brand experiences, leveraging social media activation, enabling product visualization, and making use of data-driven insights.

## References

1. Asthana, R., & Pandey, R. (2021). The World of Virtual Reality (1st ed., pp. 141-146). Kaav Publications. https://www.kaavpublications.org/cpabstracts/the-world-of-virtual-reality

2. Becker, B. (2019). 9 VR marketing examples that you'll want to steal for 2020. Retrieved November 11, 2019 from https://blog.hubspot.com/marketing/vr-marketing-examples

3. Bigné, E., Llinares, C., and Torrecilla, C. (2016). Elapsed time on first buying triggers brand choices within a category: a virtual reality-based study. Journal of Business Research.

4. Feltham, J. (2016). McDonalds is using VR to teach people about its food production (and tractor driving). Retrieved November 21, 2019 from https://uploadvr.com/mcdonalds-using-vr-teach-peopleuk-food-production/

5. Grudzewski, G., Awdziej, M., Mazurek, G., and Piotrowska, K. (2018). Virtual reality in marketing communication – the impact on the message, technology and offer perception – empirical study. Economics and Business Review, 4(18), 3, 36-50. DOI: 10.18559/ebr.2018.3.4

6. Hajduk, G. (2016). Challenges for marketing communications in the digital age. In G. Mazurek, J. Tkaczyk (Eds.), The impact of the digital world on management and marketing (pp. 183-195). Warszawa: Poltext.

7. Jang, J. Y., Hur, H. J., and Choo, H. J. (2019). How to evoque consumer approach intention toward VR stores? Sequential mediation through telepresence and experiential value. Fashion and Textiles, 6. Kotler, Ph. (2009). Marketing management. Harlow: Pearson Education Limited.

8. Kumar, D. (2019). Virtual Reality (Vr) & Augmented Reality (Ar) Technologies. National Journal of Arts, Commerce & Scientific Research Review, 6(1), 230-235. https://www.kaavpublications.org/spiabstracts/virtual-reality-vr-augmented-reality-ar-technologies

9. Malhotra, C. (2019). Impact of Augmented Reality on Consumer Purchase Intention & Consumer Behaviour (1st ed., pp. 259-265). Kaav Publications. https://www.kaavpublications.org/cpabstracts/impact-of-augmented-reality-on-consumer-purchase-intention-consumer-behaviour

10. Pindel, D. (2015), A co by było gdyby? Wirtualnie rzeczywisty marketing. Retrieved November 21, 2019 from https://marketerplus.pl/teksty/artykuly/a-co-by-bylo-gdyby-wirtualnie-rzeczywistymarketing/

11. Steuer, J. (1992). Defining virtual reality: dimensions determining telepresence. Journal of Communication 42(4).