

Applications of AR and VR in Marketing: A Case Study Perspective

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Abstract

The process of marketing has constantly evolved over the years, with the influx of newer strategies focusing on providing a good customer experience. To provide a value-added customer experience, digital technologies like Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) marketing are adopted by companies which bridges the gap between experience and action by offering a digital experience in place of a physical one to promote products and services. Companies are focusing on the metaverse and creating virtual experiences that enable customers to get an experience that closely resembles the real world, as it allows brands to provide unique experiences at the convenience of using mobile devices with the help of various hardware and software tools such as Sensors, Computer vision, Machine learning and AI to arrive at an accurate and wholesome experience. Companies like Adidas, IKEA, Volvo, GSK, and many more have partnered with technology companies to provide digital and virtual experiences that provide customers an experience resonating with the real world and invoke a greater sense of interest in the buying process. The functional areas where these technologies have been adopted by the above-mentioned companies have been studied and newer potential areas where this technology can be implemented more effectively is arrived at by analyzing the mathematical and computational techniques that make the implementation process more efficient and easier to adopt. The day-to-day consumer marketing activities carried out by adopting these technologies are also studied and the

identified newer processes are simulated, and results are evaluated in real-time implementation by capturing and analyzing the consumer behavior towards these new strategies.

Keywords: virtual, augmented, metaverse, digital, experience

Introduction

Marketing is a business strategy and a fundamental technique for organizations to position their products and services among potential customers. Marketing is basically an evolving technique that rests on the advancements in technology and is dependent on consumer behavior and trends pertaining to the emergence and evolution in newer technologies. Customers tend to align towards latest trends and marketers must find a way to capitalize on this potential by merging marketing activities with technology and trends, such that they stay in the minds of the customer for a longer period and have the tendency to retain existing customers and keep them engaged to the company, product, or service. Companies have started to integrate technology into marketing activities and have heavily incorporated technological aspects into even the simplest marketing efforts, to gain an edge over other players in the corresponding space. This paper focusses on the use cases of emerging technology such as Augmented Reality and Virtual Reality in the marketing activities of top companies, how they have improved the customer experience and the other potential areas where these technologies can be incorporated and the existing areas where the implementation can be improved.

Literature Review

Tianjiao Wang (2022) in the publication, Augmented Reality Marketing: A Systematic Literature Review and an Agenda for Future Inquiry, discusses the existence of marketing using AR and the potential future use cases and advancements in this technology for marketing activities.

Cristian Gallardo (2018) in the publication, Augmented Reality as a New Marketing Strategy, specifies the emergence of AR as a new go to strategy for companies to carry out marketing and engage customers.

Jaime Guixeres (2019) in the publication, Virtual Reality in Marketing: A Framework, Review, and Research Agenda, mentions the potential areas where VR can be used for marketing activities and the significance of the technology.

Carlos Flavián (2020) in the publication, The impact of virtual, augmented, and mixed reality technologies on the customer experience, discusses the benefits and results of implementing these technologies into daily marketing activities.

Evolution of Marketing Strategies Pertaining to Development in Technology

The evolution of technology can have a significant impact on marketing strategies and how brands reach and engage with consumers. Some examples of changes in marketing strategies that have occurred because of technological evolution include:

1. Shift to digital marketing: With the widespread adoption of the internet and social media, traditional marketing channels such as print and television have declined in importance, and digital marketing has become increasingly important. This includes tactics such as email marketing, social media marketing, and search engine optimization (SEO).
2. Use of data and analytics: Technology has made it easier for marketers to collect and analyse data on consumer behaviour, which has led to an increased focus on data-driven marketing strategies.

This includes using data to target specific audiences, measure the effectiveness of campaigns, and optimize marketing efforts.

3. Personalization: Advances in technology have made it possible for marketers to deliver personalized experiences to consumers on an individual level. This can include personalized emails, recommendations based on past purchases, and targeted ads.
4. Use of artificial intelligence (AI) and machine learning: AI and machine learning can be used to automate and optimize various marketing tasks, such as ad targeting and content creation.
5. Increased use of video: The popularity of video content has grown significantly with the rise of streaming platforms and social media, and video has become an important marketing medium.

Overall, technology has had a significant impact on marketing strategies, and it is likely that technology will continue to shape how brands reach and engage with consumers in the future. There are a few technologies that adopt all the above specified factors. Virtual Reality, Augmented Reality and Mixed Reality is a combination of all the five technologies mentioned above. Brands have started adopting these technologies and they have a considerable impact on the user engagement.

Objectives

The objectives of the study can be classified into primary and secondary based on the scope of the study.

Primary Objectives

- To study the impact of VR and AR technology in marketing activities of companies.
- To identify the prominent areas of technology implementation.

Secondary Objectives

- To identify potential areas that can be subjected to these technologies.
- To identify areas of improvement and suggest alternatives.

Research Methodology

This research uses Case Study Method to analyse the implementation of VR and AR in the marketing strategies of top companies and to identify the areas where these technologies are deployed and to deduce the areas of improvement.

Data Collection and Analysis

The data is obtained from the documented findings of the usage of these technologies in potential marketing activities of prominent companies. Several cases are collected, observed, and studied to arrive at an analysis that determines the impact and improvement areas for companies using these technologies.

Applications of VR and AR in Marketing

Virtual reality (VR) and augmented reality (AR) are technologies that are being used in marketing to create immersive and interactive experiences for consumers. VR involves creating a fully simulated environment that a user can interact with using a VR headset or other device. This can be used to give consumers a virtual tour of a product or service, or to simulate using it in a real-world setting. AR involves overlaying digital information or graphics on top of the real world, typically using a smartphone or other device with

a camera. This can be used to enhance the consumer experience by providing additional information or interactive elements to real-world products or environments.

Some examples of how VR and AR are being used in marketing include:

- Virtual product demonstrations: VR can be used to allow consumers to experience products in a simulated environment, such as trying on virtual clothing or experiencing the features of a car or piece of equipment.
- Virtual events: VR can be used to host virtual events, such as trade shows or product launches, allowing attendees to experience them as if they were physically present.
- AR advertisements: AR can be used to enhance physical advertisements, such as adding interactive elements to a print ad or providing additional information when a consumer points their phone at a product in a store.
- AR filters: Social media platforms, such as Snapchat and Instagram, offer AR filters that users can apply to their photos and videos. Brands can create their own AR filters for users to apply, which can be an effective way to promote products or services.

Overall, VR and AR have the potential to create unique and engaging experiences for consumers and are likely to continue to be used in marketing in the future.

Augmented Reality

Augmented Reality (AR) is a technology wherein the real world is integrated with virtual elements and the customer gets a more enriched experience of the product or the service offered, and this enables proper decision making since a glimpse of the product experience is given in the place specified by the customer itself. This helps people to get an idea on the functionalities of the product in their designated environment. AR technology leverages smartphone technology and uses the camera to track the given space or environment and places a virtual or digital model of the product or service in that location. Using AR, companies can give a cumulative shopping experience where the customer can virtually experience the product before purchase. Gaming companies have started using AR to develop games which can get better customer engagement and an enriched experience. Companies have started partnering with technology and software organizations to develop custom AR experiences. Most of the e-commerce platforms have in built AR engines that enable customers to experience the product from the comfort of their homes.

Companies using Augmented Reality

Top companies have started deploying AR technologies in their primary marketing activities. Gaming companies leverage this technology to provide the best possible gaming experience. Some organizations have tied up with gaming companies and communities to come up with gamified marketing experiences. Some of the top companies using AR are Flipkart, IKEA, Nintendo, Volvo, Amazon, Rovio, Google, Lego, Adidas, Starbucks, GSK, Lenskart, L'Oréal, among many others. This paper will illustrate the areas where these companies implemented this technology, the areas that require improvement and the other potential areas where this can be implemented.

Nintendo

Pokémon Go is one great example of a gamified AR experience. It is a mobile game that has attracted over 130 million users all over the world. The parent company Nintendo has partnered with GPS companies to provide accurate navigation experiences, and the game uses all the sensors on smartphones to provide users an experience aligning with the real world. The game has several stops that the user is supposed to visit physically to score points. Upon visiting the location, the user can find objects to collect using the AR mode with the smartphone camera. Food outlets like Baskin Robins, Starbucks, McDonalds have partnered with Nintendo to feature their locations on the game, prompting users to visit the outlets. In India, Reliance Jio stores serve as major zones for collecting items and scoring points. The company has optimally utilized smartphone technology and the trending food chains and other retail outlets with maximum crowd to increase user engagement.

Flipkart & Amazon

Flipkart and Amazon have partnered with major brands to bring about a 3D AR experience to a lot of the products that are available on the platform. Users can virtually try out the products in their places of interest and view them from all angles and dimensions. This is applicable for almost all the major products like furniture, electronics and many more, where fully rendered 3D models are available on the respective product page. The AR engine is not available for all the products as of now and current products utilizing the architecture have limited functionalities, thus opening a room for improvement.

Lego

Lego has a dedicated AR application that allows users to compare their Lego models with other users around the world. These models can be put into competition with gamified experiences, where the users can play digitally with a community of people across the world. Applications like this prompt the user to buy the physical product and serve as an additional source of promotion and provide an enriching user experience. The company can bring out more gamified virtual experiences that cater to all age groups and make use of both physical products and virtual customization options preferred by the customer.

IKEA

IKEA has its own application for users to virtually experience the brand's products in their own place and to get a glimpse of the real-world placement of the product. The company offers all the products in their platform to be virtually experienced and they can also be shared on social media. The app makes use of all the stabilization sensors in the smartphone to provide a near accurate resemblance of the preferred product. The app uses a technology that is termed as true to scale and this provides a fully rendered 3D model that is realistic in size, and fitting. This prompts the customer to visit the experience centers to witness the live product.

Google

Google uses AR across multiple services. AR search allows users to search for a specific item and view its 3D model in a live location. This enables companies to provide a future dimensional experience to customers who search for the products. This beats traditional search results when it comes to the user experience. The AR technology is integrated across services such as Maps under the name Street View, AR Camera, AR Search and many more. Many brands have listed their outlets on the maps for users to virtually experience the place beforehand. Moreover, users can also create their own AR experiences using Google services.

Rovio

Rovio's Angry Birds mobile game has been optimized for AR with the new Angry Birds AR application, where users can interact with real world elements to play the game in a more interactive and realistic sense. The game uses real world objects to create customized physics and interactions to provide a live action gamified experience. The app does not have any brand tie ups as of now, and it would be an apt area to focus on to provide a more integrated experience to engage users with the marketing activities.

Adidas

Adidas has used AR technology to provide customers with a seamless shopping experience from the comfort of their homes. The Adidas AR application lets users virtually try on the shoes, and the AR engine uses advanced tracking patterns to let users try on their footwear in all possible angles, resembling a real world try on experience. This has increased the customer engagement with the digital division of the brand and the efforts are designed in such a way that the potential customers feel the urge to visit the physical outlet to feel the real one and deduce a difference between the virtual and real try on process. This creates curiosity among the customers and drives the marketing efforts.

GSK

Glaxo Smith Kline has used AR to improve customer engagement with the products and to provide an informative shopping experience in the retail space. The app can be used to scan medicine packages which provides a 3D visualization of the contents specified. This enables customers to have a better engagement with the product and to get a better understanding on the working of the drugs. The app also provides educational visualizations and product information in an interactive format. Users can get detailed information on the usage of the medicines, and this serves as a major driving factor for customer engagement.

Volvo

Volvo has an AR application that lets users visualize their cars and trucks in the real-world environment. The app allows customers to build custom versions of the vehicles and view them in real environments resembling a factory assembled model. Customers can select the car models and view them in their desired space before approaching the showroom. The company is also working on recreating the interior of vehicles in the AR engine. This may serve as a major marketing tool to engage more enthusiastic customers.

Starbucks

The Augmented Reality App of Starbucks allows users to interact with real world elements of the physical outlets, by scanning coffee cups, machines and several other interactive objects found within the store. This gives users the scope to visit the physical outlets on a regular basis to unlock the benefits provided in the AR app and allows them to share it on social media further attracting users towards the privileges provided by using the application. This marketing technique prompts users to try the technology in the physical outlets and invokes curiosity in the benefits that are provided by the outlet.

Lenskart

The Lenskart online shopping app allows users to virtually try on the glasses that are available on the platform. Customers can try on the spectacles using the smartphone camera, that tracks the head movement in 3D and provides a realistic rendering of the try on in all directions where the user moves the head. Customers can try on all the available models, and this provides an extra edge that prompts them to go for the appropriate fittings and serves as a prominent tool for promotion and marketing.

Loreal

Loreal has an AR app that lets users try on its range of makeup products using the smartphone camera. With this application users have the liberty to virtually try on a vast range of make-up options and arrive at a conclusion. This provides a whole new experience since trying on physical make-up has constraints and the digital counterpart enables users to explore a more diverse range of products.

Virtual Reality

Virtual Reality (VR) is a technology wherein a complete virtual environment is created, and the user is made to leverage this experience with the use of electronic devices such as VR headsets, using which the user can get a complete immersive experience, that is a close replication of the real world. The environment is modelled based on real world physics and in some cases, it involves scenarios based on fantasy, that are simulated for the user, to get a wholesome experience. Using this technology, companies can provide customers with a complete experience of the product or service. Users can get a larger-than-life simulation of products and experiences. VR technology requires headsets, joysticks, and head tracking mechanisms to create the experience. With the rapid evolution of smartphones, innovative and affordable VR devices are available that leverage smartphone technology by making use of all the sensors and software architecture. Companies create physical centers where VR experiences are provided, and in recent advancements, applications are developed which require a smartphone and supporting tech to create a VR architecture.

Companies using Virtual Reality

Many companies use VR technology to exhibit a virtual simulation of the products and services, such that the customer is invested in the catalog. Some of the prominent companies using VR are New York Times, GSK, Adidas, McDonalds, Volvo, Google, Nvidia, Meta among many others. The use cases of VR and potential improvement areas are identified for these companies.

New York Times

The New York Times partnered with Google to provide low-cost VR devices to its subscribers and the digital app allowed users to experience certain stories in a simulated environment. This was a one-of-a-kind marketing effort to hook the latest generation of newspaper readers by integrating immersive virtual experiences.

GSK

Glaxo Smith Kline designed a VR experience called the 'Migraine Experience', where customers can understand the effect of migraines and the significance of drugs that are essential to treat this condition. This gives an awareness to consumers on the medical condition and promotes the necessary medicines through this simulated experience.

McDonalds

McDonalds used an innovative strategy to exhibit the VR technology through its 'Happy Meal' scheme where the packaging can be easily crafted into a simple VR device, in which users can experience games and stories bundled with the scheme. This was a very successful measure to introduce VR technology and leverage it for promotions.

Google

Google revolutionized VR space by introducing the open-source Cardboard VR platform where simple VR devices made from cardboard used a smartphone as the primary device to provide simulated immersive experiences. Apps and certain videos on YouTube can be paired with this affordable VR headset to

visualize virtual experiences. Many brands made use of this platform to come up with innovative applications and it was a one-of-a-kind experiment by Google.

Volvo

Volvo developed VR applications in which the customers can virtually test drive a selected catalog of cars using a VR device. The app was developed to promote a particular model of a car, and users had the options to view realistic 3D renders of the interiors, driving experiences across different landscapes and this served as a major promotional push to visit the real-life counterpart, as the virtual model provided a wholesome experience, prompting users to examine the real one. This facility was not extended across all models and was limited only to a particular set.

Adidas

Adidas offered virtual experiences of mountain climbing, by providing a realistic render of the Delicatessen summit in Punta du Corbi, Corsica to promote its Terrex range of outdoor gear. Users had the option to explore the mountain routes up until the top of the terrain using the provided virtual gear. This prompted users to try the products in real life, as the virtual experience provided an immersive outlook on the product use outdoors.

Nvidia

Nvidia offered gaming experiences that could be achieved through its range of graphic processors. Gaming companies were leveraging VR tech to bring out more immersive gaming experiences and in outdoor shows, the company offered a glimpse of the gaming performance, prompting users to upgrade their systems and buy exclusive games. The company did not utilize smartphone technology, instead focused on larger computing systems for demonstration.

Meta

Facebook offers a whole virtual world of characters, environment, and experiences for users to interact and immerse in. The parent company designed a metaverse wherein users from all over the world can login and indulge in virtual engagements with the help of VR devices and unique user accounts. Brands have tied up to promote their experiences in the virtual world, simulating a near digital experience of the real world.

Metaverse and Marketing

The metaverse is a virtual shared space that is created by the convergence of virtually enhanced physical reality and physically persistent virtual space, including the sum of all virtual worlds, augmented reality, and the internet. In marketing, the metaverse can be used as a platform for brands to engage with consumers in a virtual environment. This can include virtual events, product demonstrations, and interactive experiences that allow consumers to engage with products or services in a virtual setting. The metaverse can also be used to create immersive brand experiences, such as virtual storefronts or branded virtual environments. The use of the metaverse in marketing is still in its early stages, but it has the potential to be a powerful tool for creating immersive and interactive experiences for consumers. As the technology continues to advance and the metaverse becomes more widely adopted, it is likely that it will become an increasingly important platform for marketing and advertising.

Mixed Reality

Mixed reality (MR) is a term that is used to describe a type of technology that combines elements of both virtual reality (VR) and augmented reality (AR). MR allows users to interact with virtual objects and environments in the real world, using a device such as a headset or smartphone. MR can be used to create

immersive and interactive experiences for users. MR combines the potential of both AR and VR to bring about the best of both worlds.

Some potential uses of MR in marketing include:

Virtual product demonstrations: MR can be used to allow consumers to experience products in a simulated environment, such as trying on virtual clothing or experiencing the features of a car or piece of equipment.

Virtual events: MR can be used to host virtual events, such as trade shows or product launches, allowing attendees to experience them as if they were physically present.

AR advertisements: MR can be used to enhance physical advertisements, such as adding interactive elements to a print ad or providing additional information when a consumer points their device at a product in a store.

Branded virtual environments: MR can be used to create immersive branded environments that consumers can visit and explore, such as virtual storefronts or branded experiences.

MR has the potential to create unique and engaging experiences for consumers, and it is likely that it will become an increasingly important platform for marketing and advertising as the technology continues to advance.

Discussions

Based on the cases studied and observed, a few areas of improvement and the potential application areas are deduced. The following challenges and the scope for improvement have been arrived at from the observations.

Challenges and Potential Areas of Improvement

Augmented reality (AR) and virtual reality (VR) marketing have the potential to create immersive and interactive experiences for consumers, but there are still areas where they can be improved:

Accessibility: Both AR and VR require specialized hardware, such as a smartphone or headset, which can limit their accessibility to consumers. Improving the affordability and ease of use of AR and VR hardware could make them more widely available and increase their adoption for marketing purposes.

Content creation: Developing high-quality AR and VR content can be time-consuming and costly, and there is a need for more effective and efficient methods for creating this type of content.

Integration with other marketing channels: Integrating AR and VR with other marketing channels, such as email or social media, could make them more effective and reach a wider audience.

Measuring effectiveness: There is a need for better methods for measuring the effectiveness of AR and VR marketing campaigns, as it can be difficult to track engagement and conversion rates in a virtual environment.

User experience: Ensuring a smooth and seamless user experience is critical for the success of AR and VR marketing, as any technical issues or problems with the content can diminish the impact of the campaign.

Overall, improving these areas could help to make AR and VR marketing more effective and widely adopted by brands.

Conclusion

Augmented reality and Virtual reality are technologies that are being used in marketing to create immersive, interactive, and memorable experiences for consumers. Both technologies have the potential to significantly impact marketing by providing brands with new ways to reach and engage with customers, such as by creating immersive experiences, delivering personalized content, and creating interactive experiences. While there are still areas for improvement in AR and VR marketing, such as accessibility and content creation, it is likely that these technologies will continue to play an important role in marketing and advertising as they become more widely adopted.

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