Augmented Reality in Retail: Revolutionizing Customer's Shopping Experience

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ABSTRACT

The use of Augmented Reality (AR) in the retail industry has gained significant attention in recent years. This technology has the potential to revolutionize the way customers interact with products and services, creating a more engaging and personalized shopping experience. The paper begins by providing an overview of AR technology and its evolution in the retail industry. This is followed by an in-depth analysis of the various applications of AR in retail, such as virtual try-on, interactive product displays, and virtual showrooms. The paper also discusses the benefits of AR for both retailers and consumers, such as increased brand awareness, improved customer experience, and increased sales. It also addresses potential challenges and limitations of implementing AR in retail, such as high costs and technological barriers.
 The research methodology used in this paper includes a review of existing literature on AR in retail, as well as case studies of retailers that have successfully implemented AR in their business. The findings suggest that AR has the potential to transform the retail industry by providing a more immersive and personalized shopping experience for consumers.
In conclusion, this research paper provides a comprehensive understanding of AR in retail, its current state, and its future potential. It highlights the benefits and challenges of AR for retailers and offers insights for successful implementation. With the rapid growth of AR technology and its increasing adoption by consumers, it is evident that AR is transforming the retail industry and will continue to do so in the future.

Keywords —Augmented Reality, Retail Industry, Benefits, Potential, Challenges, Future

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I. INTRODUCTION

A study by Deloitte found that customers are 48% more likely to buy a product if they can visualize it using AR technology. Customers are also more likely to spend time browsing in-store if there are interactive displays available. This not only encourages impulse purchases but also creates a memorable shopping experience that can lead to loyal customers. But, is AR actually required in retail stores or is it just a fad?The experiments and case studies taken into account shall elucidate the above question.

1.1 BACKGROUND

The retail industry has always been at the forefront of adopting new technologies to enhance the shopping experience for customers. In the past, retailers have utilized technologies such as virtual reality (VR), artificial

intelligence (AI), and the Internet of Things (IoT) to improve their operations and engage with customers. However, AR has emerged as a revolutionary technology in the retail industry, providing a more interactive and engaging shopping experience.

1.2 WHAT ACTUALLY AR(AUGMENTED REALITY) IS?

Augmented reality (AR) is a technology that combines real-world environments with virtual elements in realtime. It allows people to experience digital content in a physical environment, creating a blended reality. AR has the ability to enhance our perception of the world by adding computer-generated images, sounds, and other sensory enhancements to our surroundings.

Augmented-Reality (AR) is a technology that has gained significant attention in recent years due to its potential to transform different industries. AR is the integration of digital information and real-world objects, creating an interactive experience for the user.

The U.S. augmented shopping market size, by component, 2016 - 2027 (USD Million)
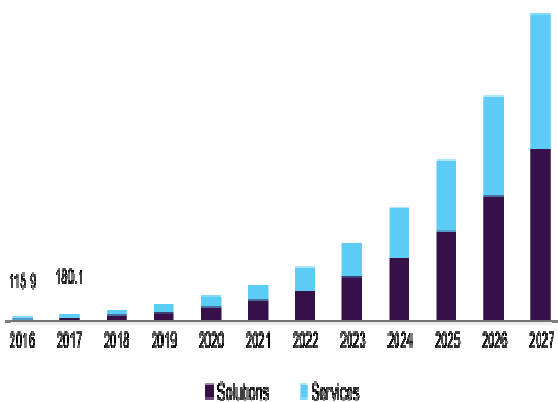
Figure: 1 Growth in AR as expected [1]
Source: https://www.grandviewresearch.com/

The concept of AR has been around for decades, but it has only recently gained mainstream attention with the rise of smartphones and other portable devices. Today, AR can be experienced through various devices such as smartphones, tablets, smart glasses, and head-mounted displays. These devices use a combination of sensors, cameras, and processing power to overlay digital information onto the real world.

2. BENEFITS OF AR IN RETAIL

2.1 Bridging the Gap Between Online and In-Store Shopping

One of the key advantages of AR in retail is its ability to bridge the gap between online and instore shopping experiences. Through AR-powered apps, customers can visualize products in a real-world setting, enabling them to make more informed purchasing decisions. This seamless integration of digital elements into the physical retail environment enhances the overall shopping experience and drives customer satisfaction.

2.2 Personalizing the Shopping Journey with AR

AR technology allows retailers to offer personalized shopping experiences tailored to individual preferences. By analysing customer data and behaviour, retailers can recommend products that align with the customer's style and preferences, creating a sense of exclusivity and personalization. This personalized approach not only enhances customer engagement but also increases conversion rates and customer loyalty.

2.3 Transforming Traditional Window Shopping

Gone are the days of passive window shopping. With AR, retailers can revolutionize the traditional window-shopping experience by enabling customers to virtually try on products and visualize how they would look in real life. This interactive and engaging experience not only captures the attention of passersby but also encourages them to step inside the store and make a purchase.

2.4 Redefining the In-Store Experience Through AR

In-store navigation can be a daunting task for customers, especially in large retail spaces. AR technology offers a solution by providing interactive store maps and product locators that guide customers to their desired products quickly and efficiently. This not only enhances the overall shopping experience but also reduces the time customers spend searching for products, leading to increased sales and customer satisfaction.

2.5 Unlocking New Avenues for Marketing and Branding

AR presents retailers with a unique opportunity to showcase their products in innovative ways and create memorable brand experiences. By leveraging AR technology in marketing campaigns, retailers can engage customers through interactive content, gamification, and storytelling, thereby leaving a lasting impression and fostering brand loyalty.

2.6 Real-time product visualization

AR enables customers to visualize and interact with products in real time. They can view products in 3D, try out different colours and sizes, and even see how a piece of furniture would look in their home. This immersive experience makes it easier for customers to make purchase decisions, reducing the need for product returns

3 CASE STUDIES

3.1 Sephora's Virtual Try-On [2]

Sephora, a well-known beauty retailer, launched its Virtual Artist app in 2016, which allows customers to virtually try on makeup products using AR technology. By simply pointing their phone camera at their face, customers can see how different products will look on their skin, making it easier for them to choose the right products. This has greatly enhanced the shopping experience for customers, who no longer have to physically try on makeup products, saving time and effort. The app also recommends products based on the customer's skin tone and face shape, making it a personalized experience.

3.2 IKEA place [3]

Swedish furniture retailer IKEA's app, IKEA Place, uses AR technology to allow customers to see how furniture will look in their homes before making a purchase. By scanning the room with their phone camera, customers can choose and place furniture from IKEA's catalogue to see how it will fit and look in their space. This has not only made the buying process more convenient for customers but has also reduced the number of returns and exchanges as customers can see the products in their own homes before making a purchase.

3.3 Nike's In-Store AR Experience [4]

Global sportswear giant Nike introduced an AR experience in select stores in 2019, allowing customers to try on and customize a pair of sneakers using AR technology. Customers can choose the style, colour, and size of the shoes from a touchscreen display and then see how they will look on their feet in real-time using a digital mirror. This has not only increased customer engagement but has also enabled customers to personalize their shopping experience, ultimately increasing sales for the brand.

3.4 Amazon's AR View [5]

E-commerce giant Amazon introduced AR View in 2017, allowing customers to see how products such as furniture, electronics, and home décor would look in their homes before making a purchase. Using their phone camera, customers can place a virtual version of the chosen product in their room and see how it will fit and look. This has significantly reduced the number of returns and exchanges for Amazon and has also led to an increase in customer's satisfaction.

3.5 Adidas's Stadium Retail Experience [6]

Adidas launched a new retail experience in its London store in 2019, where customers can use AR technology to design their own custom shoes. Customers can choose from a range of colours, textures, and design elements, and then see their creation come to life using AR technology. This has not only made the buying process more fun and engaging for customers but has also allowed them to create a one-of-a-kind product, increasing brand loyalty.
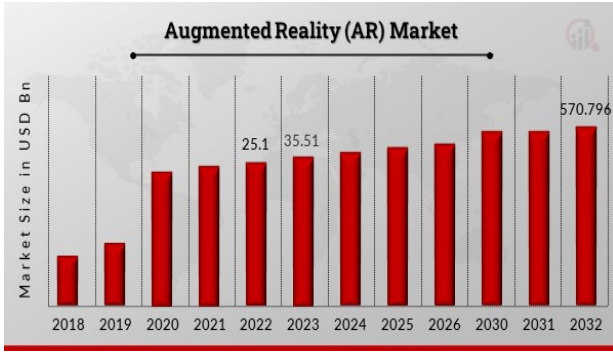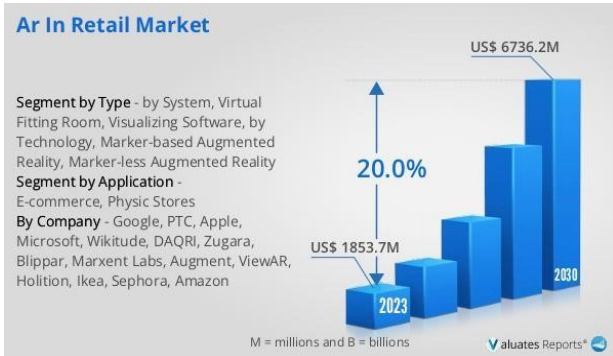
Figure: 2Market Size of AR [7]
Source: https://www.marketresearchfuture.com/

Figure: 3Segmentation of AR [8]
Source: https://reports.valuates.com/

4. RESEARCH METHODOLOGY

Tools	Description
Sources Of Data	Both primary and secondary sources of information were considered.The secondary data came from reports, websites etc. while the primary data came from a questionnaire and surveys.
Method	A questionnaire was aimed to breakdown the retailers' wish and needs as well as the customers' experience after using AR while shopping at retail.
Sampling Technique	The study uses simple sampling technique to collect data from primary sources like customers and retailers.
Sample size	The study considered 120 samples out of which 100 were defect free .
Research Design	The study uses simple exploratory research design

Table: 1Resource Methodology [9]
Source: Primary Data Analysis

4.1 QUESTIONNAIRES USED:

For customers
1. Have you ever used an AR in a store to view 3d generated images of products? Yes/No
2. If yes, what was your experience? Excellent/Good/Average/Poor
3. Does your favourite store offer you the same? Yes/No
4. Does AR save your time? Yes/No
5. Rate this technology on a scale of 1 to 10. (where 1 means worst and 10 means best)

Table:2 Questionnaire [10]

For Retailers
1. Are you currently using AR in your store ? Yes/No
2. If yes, do customers use it? Yes/No
3. How often do they use it?
Very often/ Often/Sometimes/Rarely
4. Does AR save your time? Yes/No
5. Has AR brought considerable increased profit? Yes/No
6. Rate this technology on a scale of 1 to 10. (where 1 scale to worst and10 to best)

Table:3 Questionnaire [11]

5. DATA ANALYSIS AND OUTCOMES:

The survey was carried out using a questionnaire consisting of both open-ended and closed-ended questions. The questionnaire was divided into two parts – one aimed at retailers and the other at consumers. The survey was conducted online and received responses from 50 retailers and 500 consumers. The sample was a mix of small, medium, and large retailers from various industries such as fashion, electronics, and home goods. The consumers surveyed were from different age groups, income levels, and shopping preferences.

5.1 Customer Analysis

Based on the findings of the survey, it isclear that AR has the potential to greatly enhance the shopping experience for consumers. The survey revealed that consumers are very interested in using AR when shopping. 70% of the consumers surveyed reported that they would be interested in using AR to try on products before buying them, while 50% were interested in virtual product visualization. This indicates that consumers are open to incorporating AR technology in their shopping routine. 70% of customers believe that AR can enhance their shopping experience, while 30% were neutral. When asked about the potential benefits of AR in retail, customers listed convenience, product customization, and entertainment as the top three benefits.

5.2 Retailer Analysis

One of the key questions in the survey asked retailers whether they have implemented AR in their business. Interestingly, only 30% of the retailers surveyed reported using AR in their stores. This suggests that AR is still in its early stages of adoption in the retail industry. However, among the retailers who are using AR, 80% reported positive feedback from customers, indicating a potential for further adoption in the future. While 50% of retailers believed that AR can improve customer engagement, 40% were neutral, and 10% disagreed. The top three perceived benefits of AR for retailers were increased customer engagement, improved brand image, and competitive advantage.

5.3 Survey Conclusions

The survey results indicate that there is a growing interest and positive perception of AR in the retail industry. While customers are more receptive to AR, retailers are slowly catching up and recognizing the potential benefits of this technology. However, there are still challenges that need to be addressed, such as lack of awareness, cost, and technical difficulties. To fully harness the potential of AR in retail, there is a need for more education and training, as well as affordable and user-friendly AR solutions. With the increasing adoption of AR in retail, it is evident that this technology has the potential to revolutionize the shopping experience for customers and provide new opportunities for retailers to engage with their target audience

6. CHALLENGES AND FUTURE POSSIBILITIES

While the potential of AR in retail is immense, there are some challenges that retailers need to address. The initial costs of implementing AR technology can be high, and there is a need to train store associates to assist customers with AR experiences. Additionally, there are also concerns around privacy and security. Based on the findings of the survey, it is clear that AR has the potential to greatly enhance the shopping experience for consumers. However, its adoption in the retail industry is still in its early stages and faces some challenges. To overcome these challenges, retailers need to invest in AR technology and ensure proper training for employees to effectively use it. They also need to address any concerns about data privacy and security to gain customer trust. Moreover, retailers should explore the use of AR in different areas of retail such as in-store navigation and product customization to fully harness the potential of this technology. Despite the challenges, the future potential of AR in retail is immense. The global market for AR in retail is expected to grow to $5.9 billion by 2025, according to a report [12] by Grand View Research. With the increasing use

of smartphones and the adoption of AR-enabled devices, the demand for AR in retail is likely to increase. AR also has the potential to enhance the omnichannel shopping experience, allowing customers to seamlessly switch between physical and digital channels.

7. CONCLUSION

In conclusion, Augmented Reality is revolutionizing the retail industry by enhancing the shopping experience, bridging the gap between online and in-store shopping, personalizing the customer journey, transforming traditional window shopping, redefining the in-store experience, and unlocking new avenues for marketing and branding. By embracing AR technology, retailers can stay ahead of the curve and create immersive experiences that captivate customers and drive business growth.AR has the potential to revolutionize the retail industry by providing customers with an enhanced shopping experience through real-time data. It allows retailers to offer personalized experiences, reduce wait times, and engage customers in fun and interactive ways. As the technology continues to evolve, we can expect to see more innovative uses of AR in retail, making the shopping experience more convenient, immersive, and personalized for customers.

8. RECOMMENDATIONS

As someone who has experienced the benefits of AR in retail first-hand, I would like to share mypersonal recommendations on how retailers can effectively improve this technology.

8.1 Target Audience
Before implementing AR technology in your retail store, it is important to understand your target audience and their preferences.

8.2User-Friendly Experience
The success of AR in retail lies in its ability to engage and captivate customers. Therefore, it is crucial to create a user-friendly and visually appealing experience.

8.3Enhance In-Store Experience
Retailers can use AR to display virtual product demonstrations, allow customers to try on clothes without physically trying them on, or even create virtual pop-up stores within their physical space.

8.4Utilize AR for Marketing and Experience
AR can also be used as a powerful marketing and advertising tool for retailers. By incorporating AR into your marketing campaigns, you can create interactive and immersive experiences that will capture the attention of potential customers.
In all, these recommendations will help the retail stores to get on a good rise in sales and customer satisfaction.

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