



Perception and Scope of AR/VR in the Retail Applications

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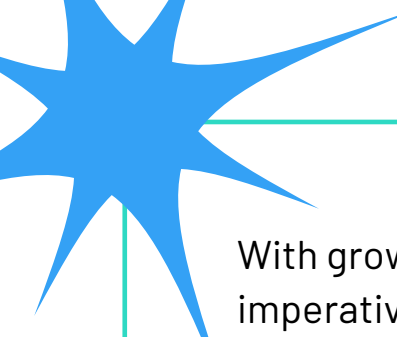
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ABSTRACT

Retail is a globally advancing industry with continuous adaptations in terms of technology and infrastructure. Indian retail is one center staged industry shining since the past few years with steep growth rate and a promising potential. According to Forrester research, India's retail sector was valued at **US \$883 billion**. It has reached **US \$1.1 trillion** by the year 2020. Customer spending has increased to **US \$245.16 billion** in the third quarter of 2020 from **US \$192.94 billion** in the second quarter of 2020.

Holding a rank of **73** in the United Nations Conference on Trade and Development Business-to-customer E-commerce Index, India stands as the 5th largest preferred retail destination globally. The key factor to be considered is that Indian retail growth is not just limited to the metros, but also favours the tier 2 and tier 3 cities. Prospective economic growth, urbanization, flexible demographics and consumer preferences, and higher investments (both foreign and domestic) are considered the key factors responsible for this growth.





With growing numbers favouring the retail industry, it's imperative that brands and companies restructure and evolve continuously to meet the changing customer preferences to spur along the rising curve. Globalization has favoured product diversity and increased the potential options available to the consumers. The invocation of these developments was so intense that almost limitless choices were available. With a catalogue this wide and diverse, customers often face a dilemma regarding their choices and preferences.

Recent pandemic and restrictions have confined customers to their homes and made it practically impossible for them to visit the store to purchase accessories or apparels. The already existing array of choices and the lack of mobility to visit the stores to choose their products has posed a crucial challenge to be addressed.

It is to address challenges, brands and companies have begun exploring and deploying Virtual Reality as well as Augmented Reality into their sales. With the latest technologies powered by AI, the customers can experience the thrill of shopping from virtual mirrors to virtually augmented dressing rooms. In the year 2020, **20%** of the companies have already adopted augmented, virtual and mixed reality solutions in their digital strategies.

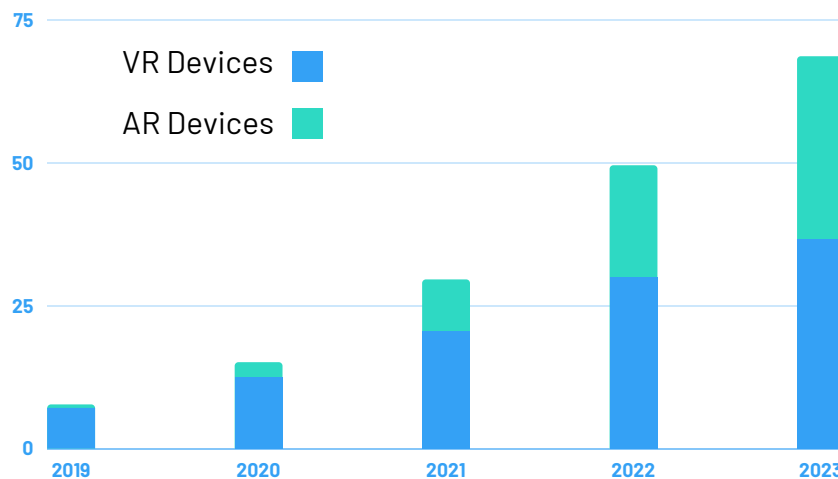
While the business approach of this deployment is fair sided, it only makes a relevant appropriation to flip the coin to the other side- the customer perception of the value. This paper is a thorough dive-in into the research carried out to understand the customer perceived value of Virtual Avatars and Conversational AI in their shopping experience.

DESCRIPTION

The reduction of costs incurred in sales and marketing has to be acknowledged while conversing about VR. With no requirement of physical transport and demonstration of the product to potential customers and stakeholders, VR has significantly minimized the costs incurred in sales.

According to research by International Data Corporation (IDC) research, the AR and VR industry is forecasted to multiply by a whopping 21-fold over 2019-2023

With an increase in social distancing norms worldwide, consumers are more and more reluctant to visit stores in person, severely affecting the retailers in almost every industry. With AR technology, consumers can use their smartphones to bring life to a product and see what it might look like in their homes, on their tables or walls, or even on themselves.



VR-AR Devices Market Occupancy Forecast



As per a recent statistical survey in the industry:

- 71% of consumers say they would shop more often if they used AR

Increase buyer confidence:

AR has the unique ability to display details about the look & feel of a product that traditional photos can't match. With AR, customers are more confident in buying decisions, which means increased satisfaction and customer-based loyalty.

- 61% of consumers say they prefer retailers with AR experiences

The right choice, the first time:

Customers want to know that the product they purchase will fit their needs. Having the power at their customer's fingertips with AR means that retailers can see decreased returns and wasted logistics cost.

- 40% of consumers say they would pay more for a product which they could customize in AR

Customers will pay more for convenience:

11% of all retail sales account for Online retail. While shopping in-store, the customers can see, touch, and feel your product selection.

However, shopping online, customers can experience how a product will appear in their house, their kitchen counter, or the shelf using AR. This means higher margins on existing revenue and higher quality, "hands-on" experience for customers for online retail.

- 5% of AR use will be in retail by 2022

Retail is expected to be 5% of AR by 2022:

AR can help retailers increase sales conversions by 40%. This means tremendous growth for your business that will only increase as a more consumer base uses AR.

CORE IDEA of the paper

01

To analyze the perceived value of AR and VR by the customers

02

Brands perception of the use of Augmented and Virtual Reality

03

Scope of AR/VR in offline and online segment



RESEARCH AND ANALYSIS

To obtain an unbiased and a considerable sample size, research has been conducted in three different phases - Customer Surveys, Focus Group and In depth Interviews. While the customer survey offers a broader perspective of the people's affiliation towards AR/VR, the focus group and in-depth interviews of individual members provide a deeper and an individualistic inference of the opinions of individuals representing a common set of population affiliated with the technology.

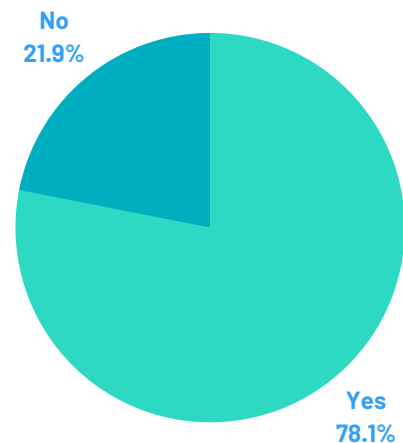
CUSTOMER SURVEYS

Demographic

With an approximate of **93%** of the Millennials, **90%** of GenX and **68%** of baby boomers owning the smartphones and other technology and GenZ being the generation with highest rate of technology adaptation, the sample unit comprised a majority of the members aged between **18-45+**. Their experience with the usage of technology and the adaptability through generations were considered to be the key catalyst factors providing a qualified opinion and response to the survey.

Customer Awareness

Although AR/VR is a popular topic among tech savvy and experts, consumers are unaware of the benefits of these technologies. This lack of awareness not only prevents them from accessing the latest deployed advancements on the website or store, but also makes them skeptical regarding their privacy and security issues. To address this scenario, the respondents were inquired about their awareness regarding the usage of Augmented/Virtual Reality in physical stores or online stores.

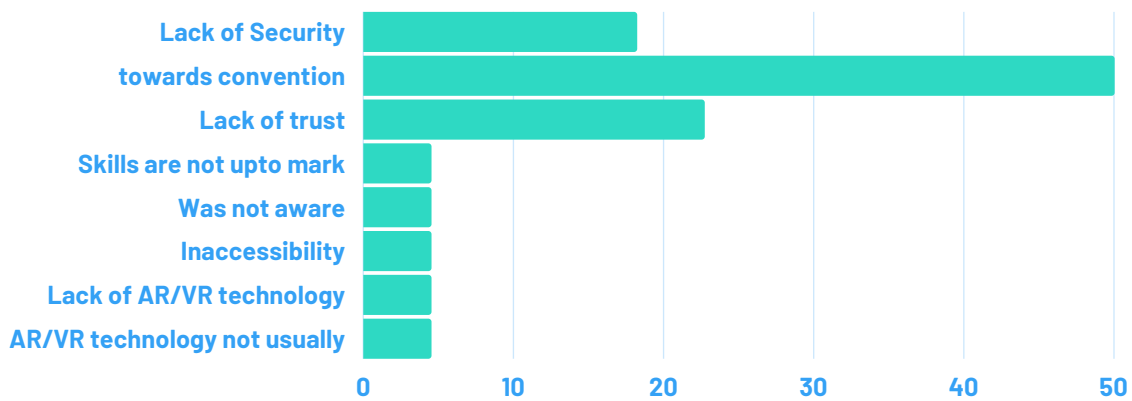


Are you aware of the Augmented/Virtual Reality aids used in physical stores and online shopping applications? (Example IKEA place)

While **78.1%** of the respondents were aware of the technology, the rest **21.9%** were completely unaware of the existence of the same in the shopping and retail sector. On further question regarding the reason for being unaware, **52.2%** of the respondents have mentioned that they do not have the necessary resources to use the Augmented/Virtual Reality platforms, which might have been the potential cause of unawareness among the people.

Limitations of AR/VR

With a respondent range of around **22%** not being aware of the AR/VR technology, this translates to a major chunk when a larger sample is considered.

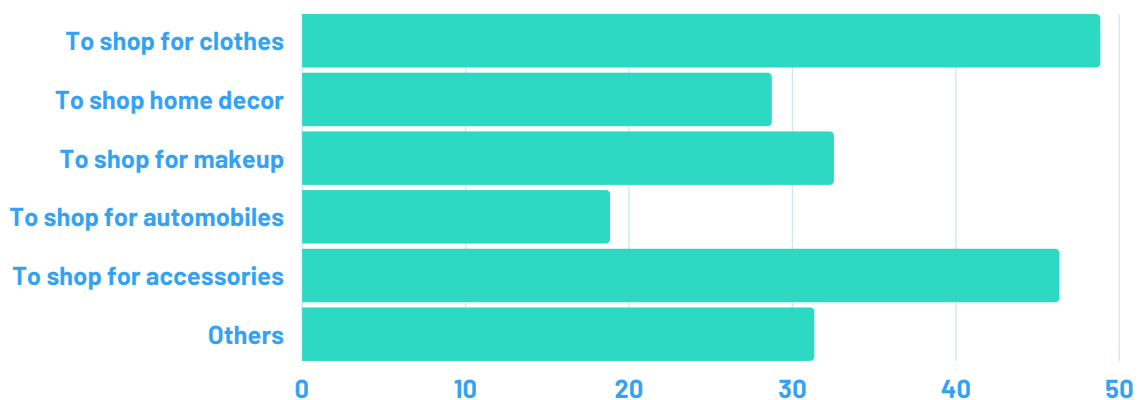


What are the reasons for not being familiar with the AR/VR technology?

When asked for a possible reason for not being aware, **50%** mentioned that they still prefer conventional forms of shopping. **47.8%** of them mentioned they would prefer to visualize the furniture before purchasing using AR and VR, they don't prefer shopping online for lifestyle products owing to their lack of trust and security.

Usage Purpose

To quantify the reach of AR/VR in the retail sector, the main purpose for which the respondents used AR/VR has been inquired. While **39%** of them mentioned using AR/VR for shopping clothes, **37%** of them said they use it for shopping accessories. Furthermore, **23%** of the respondents also mentioned that they use it for the purchase of home decor items.



What purpose have you used the virtual/augmented reality platforms?

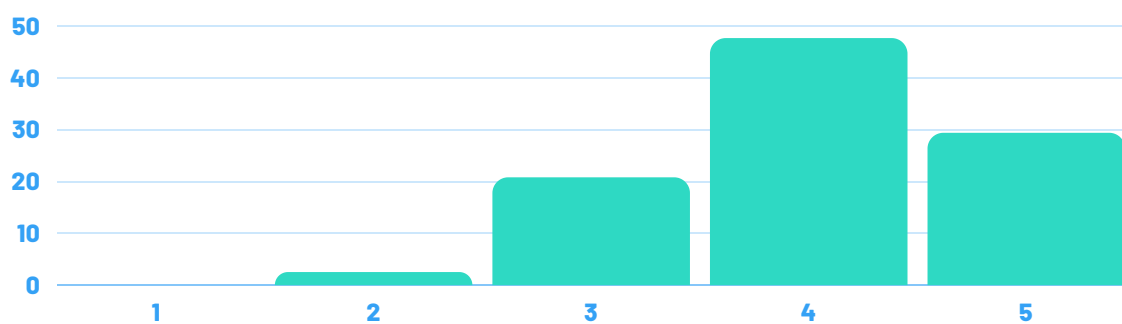


Offline Stores

With the rise in the number of AR/VR accessories deployed in the offline stores, it's crucial to understand the potential for the usage of AR/VR technologies in the offline stores. When asked about how likely they are to use AR/VR in the offline stores if deployed, an approximate **40%** of the respondents mentioned that if the offline stores started deploying AR/VR platforms, they would use them to assist in their purchase decisions.

Relevance of the AR/VR technology

When customers were asked to consider the proposition that the recommendations made by visual sales avatar (a virtually smart avatar powered by AI) are helping in bettering their choices, **47.65%** of the people have said that Virtual Sales avatar recommendations are useful and helpful in a better shopping experience. **36.6%** have also mentioned that they would prefer to visualize the product in AR/VR applications to feel more sophisticated while choosing the right product. AR/VR applications are trying to actively address the existing limitations of the technology to ensure a complete hassle-free experience to the customers.

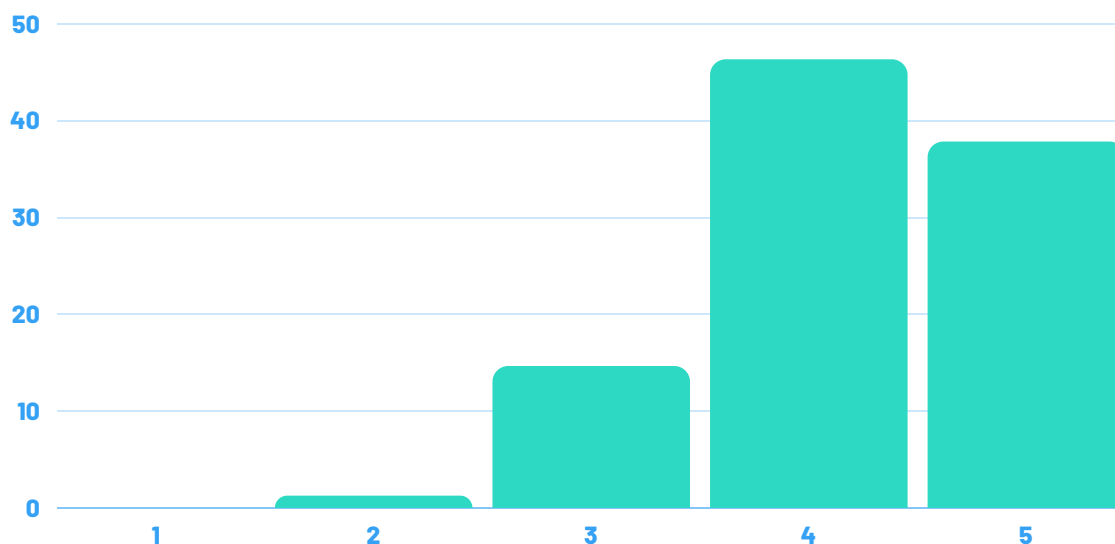


Recommendations made by virtual sales avatar are useful

Future of the Technology

With the AR/VR market expected to grow by **US \$162.71 billion** with a CAGR of **46%** during 2021-2025, the future of the sector is expected to be highly dominated by AR/VR platforms and accessories to augment the customer experience. However, to get a clear understanding of the customer perspective for the future of AR/VR technology, the respondents were asked about their thoughts regarding AR/VR being the future of home decor visualization (a specific industry was chosen due to high relevance of the visualization technologies in home decor industry).

Augmented/Virtual reality is the future of home decor visualisation



A whopping **46.3%** of the respondents believe that AR/VR is the future of new home decor. **41.5%** of the respondents further agree that shopping in AR/VR helps them save time and make the decisions faster. The respondents have also acceded their assent to the use of kiosks instead of an actual salesperson.

Inferences from the Focus-group

Two focus-groups were created with people belonging to varying age, gender, occupations and interests. A discussion with these groups with the framework directed towards the value generated by AR/VR helped provide a summarized analysis.

INSIGHTS

GROUP 1

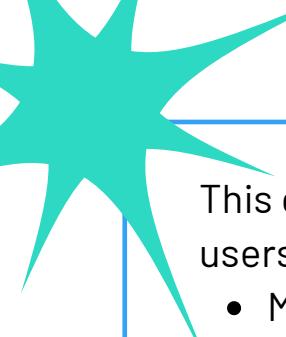
- The group members were aware of AR/VR in the home décor and lifestyle segment. While most of them used these tech to purchase various products, few of them are skeptical due to various concerns.
- A majority of these have not personally used these technologies to shop for home décor; however, they have used them to purchase other items such as makeup and accessories.
- The members unanimously agreed that technology is useful to bridge the gap between the consumers and the brand. However, for the high involvement products like furniture, which requires a considerable amount of investment, the final purchase is made by going to the store.
- There is a factor of trust that still gets compromised as the consumers are not fully aware of the quality of purchase. This often proves a demeaning factor for them while considering AR/VR.
- Data security and privacy came out as a significant concern among the people while using these technologies.
- Majority of the members shared the opinion that AR/VR has the potential to revolutionize the shopping experience if constructive tweaks were made to overcome the limiting factors.

GROUP 2

- Majority opined that AR/VR has to incorporate more rigid frameworks and upgrades to resolve the trust issues faced by the customer.
- AR/VR at present should try to focus on the recommendations and suggestions of the cohort of people already using it. This will help them understand the issues faced by the customers and implementing them can help resolve the limitations.
- Virtual Sales Avatars have helped sophisticate the shopping experience of the customers by providing personalized recommendations.
- With the rising demand in the home decor sector, AR/VR has a potential opportunity to lead the future of shopping towards a befitting experience.

Inference from Interview

To obtain a more personalized and individual opinion about VR/AR, an individual in-depth interview was conducted regarding the application of VR/AR in shopping and retail. The transcripts of the interviews have been cross-compared to summarize the multiple responses and opinions shared by the individuals.



This can serve as the base for the opinion shared by the general users. The insights from these in depth interviews are as follows-


- Most of the individuals are of the opinion that AR/VR has been successful in minimizing the gap between modern and conventional ways of instore shopping.
- Some were of the opinion that although AR/VR through the provision of customizable rooms and settings sophisticates the shopping, it still lacks the realistic experience provided by actual in-store shopping.
- Few mentioned that the main limitation of AR/VR is that it lacks touch and feel of the products which is provided by the conventional shopping methods. They opined that although customers in the present day scenario prefer a more convenient and sophisticated form of shopping, it is impossible not to credit the touch and feel of the physical product rather than an artificially generated image of the same.
- All of the interviewees were of the opinion that AR/VR is a boon to many industries, from healthcare to manufacturing. They further mentioned that AR/VR have a way to go ahead in making them more concrete in terms of security and providing better experience to the customer.
- VR/AR has to be economically feasible for the people. Many of the present day customers are still believing in bargaining and find spending a considerable amount of money online a challenge. While people are willing to rely on AR/VR for a better experience, there still exists skepticism about spending money online without actually witnessing the product.
- Most of the respondents are of the opinion that Virtual Sales Avatar is a better option for shopping owing to the direct and straightforward replies and a more efficient service. The rest were however of the opinion that the virtual sales avatar can never be efficient enough to replace the actual sales person in the long run. They believe that Virtual Avatars can never be as convincing as a natural person.

Interaction with Companies

In order to understand the company perception of AR/VR, a sample size of 32 companies belonging to various domains such as healthcare, education, retail, automobile etc were interviewed. To address the present as well as future scenario of AR/VR companies that have already deployed them as well as companies that are planning to deploy AR/VR in the near future were also interviewed.

Companies that have currently deployed AR/VR technologies:

A B2B survey asking company personnel about their current and future involvement in AR/VR technology has been conducted. Companies like Flutura, which uses AR/VR technology in its marketing department for promoting its computer vision products, Century Pulp & Paper, which uses AR/VR to enable the customers experience apartments virtually and also an AI-powered chatbot-LIDEA on WhatsApp to provide authentic information for evaluations of residential project development were approached for this interaction.



The reason for these companies to use AR/VR technologies are:

- The companies responded saying that they wanted to rely on AR/VR technology to augment the customer experience in terms of visualization. They aim to enable customers to explore virtual showrooms, touch, feel, and experience products, and give them a compelling reason to visit their online store –completely transforming the way of interaction.
- To stay updated with the emerging trends and to gain a competitive edge in the market, companies are intensively deploying these solutions into their functioning.
- To enhance the brand name as an innovator.
- Increased efficiency and profitability being the main goals of any company, companies are deploying AR/VR to build a better segmented as well as automated structure.

Challenges Faced

- While companies are on the positive opinion regarding these solutions and willing to deploy these solutions, there still exists a considerable gap between the skillset of the individuals and the skill required to operate these solutions. This is acting as a major challenge for the companies which have both potential as well as incentive to incorporate AR/VR into their functioning.
- The high cost of the solution and hardware is another major challenge faced by the companies. Although the returns outrun the costs incurred, the initial expenses incurred might be outside the possibility frontier of the companies.
- Low awareness in the society- While companies are willing to deploy these solutions, the customers and general public are still unaware and skeptical about the use of AR/VR. Because of this, the companies can sometimes face difficulty acquiring customers in spite of deploying updated solutions.

Companies willing to deploy AR/VR solutions in the future

Around 20 companies belonging to various domains and industries have been interviewed regarding the potential purpose for deployment of AR/VR in the future. Their responses have been summarized below-

The reasons to use the technology in the future are:

- With technology having a potential to revolutionize the future of every industry, it poses a high return investment for businesses ready to innovate their methods of approach.
- Ed tech is constantly bettering from technology point of view. With better innovation and technological advancements, businesses dealing with ed tech can leverage on the potential of AR and VR.
- Markets are often highly competitive in nature requiring the companies to adopt utmost measures to outrun the competitors. Technology leading innovation is one such measure that can provide the nudge required to out perform the rest.
- Employment of technology in an organization will lead to a far steeper learning curve and improve the overall skillset of the members.
- Technology can substitute the numerous man spent hours on identifying the problem and resolving it as well as the designing of new products.
- Augmenting the customer experience through a better product cycle.
- To leverage on the digital blueprint of the world exploring the possibility of addressing the problems and opportunities beforehand.


Few of the companies however are still adamant about deploying AR/VR considering numerous factors.

The reasons for not implementing the technology are:

- Although the potential of AR/VR is rising constantly, a considerable portion of the customer base is still unaware or skeptical of the technology and hence might not be receptive.
- The integration of these technologies into the functioning of a business might be costly given the rising demand for them. Although the long term returns outweigh the initial expenses, few companies might still be detrimental about the same.
- With the powerful automation provided by AI, there's still the need of a well acquainted individual to monitor or integrate these systems into the organization atmosphere. The companies might be lagging in the availability of the individuals with the required skillset for this purpose.
- Due to the effect of restructuring the entire sale cycle and customer interaction, few of the companies are still skeptical about the viability of the software.
- Due to the controversial atmosphere around AR/VR due to the security issues, companies are not yet ready to bet on the volatility of these markets.
- Few of the companies who see positive potential in these technologies are not able to deploy them due to the lack of the required hardware for these software.
- Few of the companies are of the opinion that AR/VR is irrelevant to their market structure.

INFERENCES and CONCLUSIONS

- People are gradually becoming more aware of the applications of these technologies to sophisticate their daily interactions and recommendations. While a few of them are skeptical about the unknown, the majority of them are already optimistic towards the services provided by these solutions. It's crucial that the companies or brands pan out strategies to educate the consumers about the advantages of deploying AI to augment their shopping experience in an efficient and transparent manner.
- The past few years have witnessed a steep growth rate of AR/VR at both global and well as national levels. AR/VR is being slowly adopted in India into healthcare, retail, entertainment, education and various other internal structures.
- With the technology getting more handy, smarter, faster and cheaper, the cost to return ratio of these solutions is improving significantly suggesting a rising ease and preference for deployment. Creating awareness of these technologies to provide value to the brand or company beyond these two verticals can help them adopt these improvements.
- With a majority of customers and companies seeing the potential value of the AR/VR technologies in the future, it only makes sense to predict the solutions dominating the future market in most if not all of the industries and sectors. This momentum of growth if coupled with more concrete security and an empathetic understanding, AR/VR has the capability to revolutionize not just retail, but every industry.



A few key areas where AR/VR can witness improvements are :

- Current AR and VR technologies are not sufficiently secure to be used by the end customers. Thus, implementing basic data security is a must that would instill the customers' trust in the technology. Most of the VR/AR systems haven't implemented encryption for network connections, which is the standard practice in most traditional communication tools such as instant messaging apps.
- Many of the respondents were of the opinion that AR//VR lack the empathetic aspect available with conventional and traditional forms of shopping in terms of both interactions as well as recommendations. This throws light on the proposition that building Empathetic AI capable of generating empathetic virtual experiences concurrent with the customer's expectations can enable humans to escape the limitations of subconscious walls and allow a fresher perspective to be witnessed by them.



ABOUT DAVEAI

DaveAI is a visual AI platform that bridges the gap between self-assisted online discovery & salesperson-assisted offline discovery.

We help brands drive sales with advanced product discovery experiences using an interactive Virtual Sales Avatar that mimics a human sales brain, understands customer requirements & provides hyper-personalized product recommendations.

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