

Analysis of v-Commerce as the New Online Sales Channel

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Abstract: The modern world is changing fast due to innovative IT advancements. Online customers can benefit from technologies such as Virtual Reality and Augmented Reality since they revolutionize the interaction between them and the merchants. Research states that in 2018 there will be more than 200 million VR and AR users worldwide. They can virtually look and feel the products in real world environment before buying. Companies with large customer bases are beginning to explore how those technologies could be applied to attract new customers to their products and services. V-commerce can keep on functioning even in the case of the ever-increasing number of natural disasters due to the nature of its stores. The paper aims at analyzing the v-commerce phenomenon and defining its main features and challenges.

Key words: Information technology, virtual reality, augmented reality, online interaction, v-commerce.

1. Introduction

Augmented Reality (AR) and Virtual Reality (VR) have been have been hype words for quite some time, but now they are finding their true place into the minds of business. Even a simple search over Internet reveals more than 1,6 and 10,5 million hits correspondingly for AR and VR [1]. V-commerce can keep on functioning even in the case of the ever-increasing number of natural disasters due to the nature of its stores.

The definition of Virtual Reality is a combination of both definitions for 'virtual' and 'reality', where 'virtual' is near and 'reality' is what people experience as human beings. In this sense, 'virtual reality' basically means 'near-reality'. VR usually refers to a specific type of reality emulation. Technically speaking, VR is the term used to describe a 3-D computer generated environment, which can be explored and interacted with by a person. The person becomes part of this virtual world or is immersed within this environment and being there, is able to manipulate objects or perform a series of actions. VR is usually implemented using dedicated computer technology through special systems, such as headsets, Omni-directional treadmills and special gloves. They are used to actually stimulate human senses together in order to create the illusion of reality [2].

Augmented reality is the integration of digital information with the user's environment in real time. Unlike VR, which creates an entirely artificial environment, AR uses the existing environment and overlays new information on top of it [3]. AR adds digital imagery and data to supplement views of the real world, giving users more information about their environments [4]. In other words, AR is a live view of a real-world environment, while VR replaces the real-world environment with a simulation. Hence, AR is an enhancement to an existing reality, while VR is a total simulation.

Varieties of technologies are used to create those illusions nowadays, including [5]:

- Head mounted displays (HMDs) use a combination of multiple images, realistic optical distortion, and special lenses to produce a stereo image that our eyes interpret as having three-dimensional depth.
- Motion Tracking Hardware - gyroscopes, accelerometers and other low-cost components are used in virtual reality hardware to sense when our bodies move and our heads turn, so that the application can update our view into the 3D scene.
- New Input Devices include game controllers and hand- and body-tracking sensors that can recognize motion and gestures.
- Desktop and Mobile Platforms include the computer hardware, operating systems, software to interface to the devices, frameworks and engines that run applications, and software tools for building them.

According to forecasts the global market for AR products will surge 80 percent to \$165 billion by 2024 [6], while the global market for VR products is expected to reach USD 48.5 billion by 2025 [7].

The paper aims at analyzing the v-commerce phenomenon and defining its main features and challenges.

2. Current State of AR/VR usage

AR and VR have begun slowly, but firmly to enter major areas of industry and the following classifications have already been done [8]-[15]:

- Gaming - VR has already made a significant success and it is considered so far the main driving force behind the VR technologies;
- Fashion – The idea of being able to test clothes and match outfits without actually having to try them on resonated with an entire generation
- Entertainment - VR creates by movies, TV and music an immersive experience where the default state is belief, creating deep emotional responses from viewers;
- Travel and leisure – VR travelers immerse themselves in different hotels, taking in all the amenities, meeting spaces, sights and sounds, long before their actual arrival to the real place.
- Enterprise collaboration and videoconferencing - VR makes collaboration between remote employees seem to take place in the same room, allowing teams to be more productive and cohesive.
- Education - even the best online education systems, in which students can watch video lessons and interact with professors and other students via text or video chat, cannot compensate the feeling being in a real classroom.
- Advertising and marketing - VR will give advertisers the opportunity to go beyond 2D video and TV commercials to create unique consumer experiences around their products or brand;
- Human resource – VR-driven HR may benefit candidates just as much as companies. By spending some time in a company's office virtually during recruitment, for example, individuals will be able to self-assess whether they want to be part of the organization. Once hired, VR may be able to help remote and onsite workers interact more effectively – potentially strengthening team relationships and lowering turnover
- Manufacturing – VR and AR have the potential to be especially useful for those in manufacturing, logistics, and the skilled trades. AR can superimpose holographic images and instructions atop an individual's real-world perspective, which can be immensely valuable for educating workers to use large machinery or specialized devices.
- Medicine - Doctors wearing HMD in the operating room to give medical students a more in-depth look at the surgical procedures. Additionally, hospitals are experimenting with VR as a means of making patients feel more comfortable.

- Events – Since VR enables individuals to be places virtually, it provides an avenue for organizers to welcome more individuals into in-person events
- Earth and Space exploration – The use of VR increases Earth and Space exploration effectiveness in comparison with traditional methods.
- Military - VR/AR is used to create large-volume simulation environments – providing an immersive way to train recruits and optimize operations.
- Museums and zoos - Going to museums and zoos gives people the opportunity to experience art collections and wildlife.
- Constructions – AR and VR help designers more precisely view their constructions, optimize living, commercial, and warehouse spaces.
- Real Estate – Real estate companies use VR applications that offer prospective buyers the chance to walk through a property and survey of every room without actually leaving their own homes.

Fig. 1 shows the forecast size of the major components of the VR/AR market worldwide in 2020 and 2025 by segment [16].

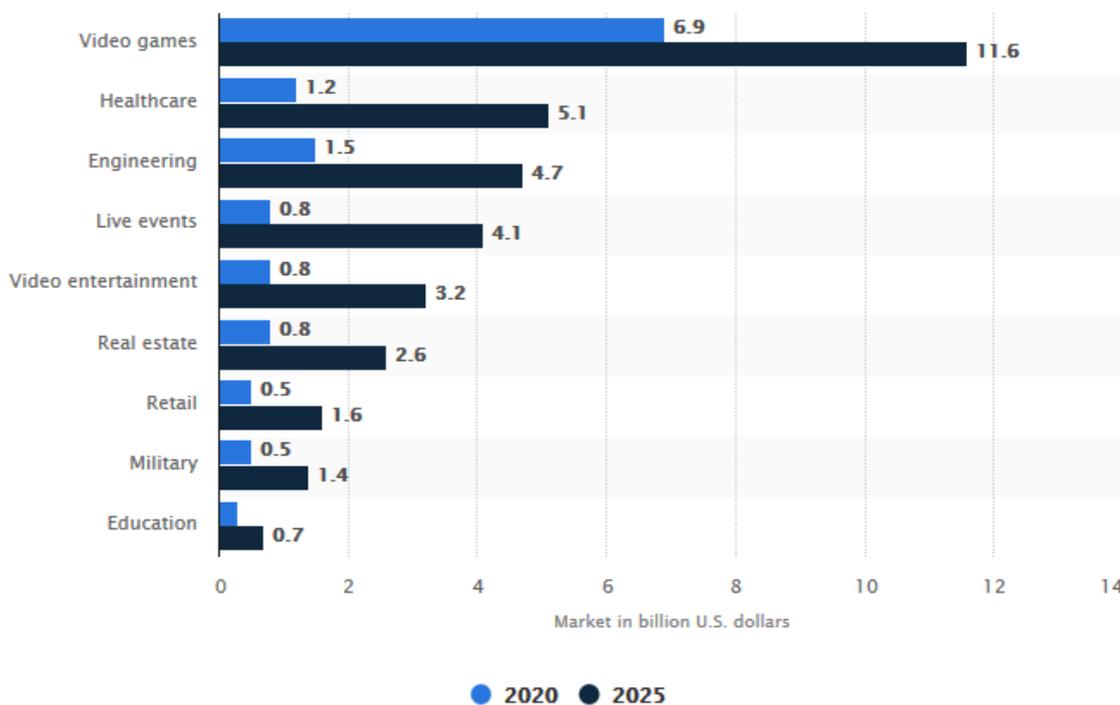


Fig. 1. Forecast size of the VR/AR market worldwide in 2020 and 2025 by segment.

3. Defining v-Commerce

The e-commerce revolution ago has brought the freedom of buying goods and ordering services online. What started as a novelty quickly became a way of life and now is something most of the people use. However, according to Statista, about 77.3% of shoppers abandon their carts before completing a purchase because of their doubts [17]. Customers are unlikely to risk when buying goods online. Instead, they want to get a better look and feel before purchasing anything. VR and AR e-commerce can help businesses solve the problem by letting buyers experience truly immersive shopping [18]. The real power of using virtual and augmented reality as e-commerce tools is that users can experience the product before purchasing it. While VR can never replace real-world shopping, the shoppers can browse an online store by looking around instead of clicking on links [19]. They can explore an ecommerce site and to be completely immersed in the

experience from virtually anywhere [20].

There are plenty of e-Commerce retailers already taking advantage of VR/AR to let customers virtually try their products without physically visiting a store, or waiting days for a sample to arrive in the post [21]. Providing a 360-degree view of a product lets customers see it from all angles and can help store owners bridge the gap between physical and online retail. While there are applications that can give website a 360 degree product view, seeing a product on screen doesn't quite compete with virtually testing the product [22].

Data gathering is a major step in any VR initiative. Collecting information about how users are engaging with seller's program will not only give a feedback on how it can be enhanced, but also it will allow gaining valuable customer information that can be used to improve sales, marketing, and support strategies [23].

VR could redefine the shopping experience, allowing the creation of immersive experiences that re-enact the physical shopping journey, but from the customer's own home - or from anywhere. This has the potential to completely change the way people shop, and online sellers should start planning for the VR revolution before they get left behind [24], [25].

One of the most promising areas from a business standpoint could be v-commerce. Once synonymous with 'e-commerce', the term v-commerce has been re-appropriated for virtual reality shopping.

Virtual commerce (sometimes known as vCommerce, v-commerce, or vCom) is a type of application, service, or product feature that helps enterprises implement strategies and design Web sites for e-commerce [26]. The term "virtual commerce" is sometimes used as a synonym for e-commerce itself. V-commerce stands for virtual commerce, also known as "digitally-native vertical brands" or DNVBs. Instead of traditional retailing or an e-commerce approach, v-commerce brands focus primarily on social media and one-on-one attention to customers. This model allows them to offer prices that are often significantly lower than their competitors, boosting sales and maximizing profits [27].

For both customers and business owners, v-commerce offers numerous potential benefits over e-commerce. While nothing will ever quite replace the physical shopping experience, browsing a real 3D environment eliminates some of the issues with online shopping. Customers can see the item for themselves before they buy it, increasing trust in the quality of the product and helping to ascertain features like size and color. The speed and simplicity of e-commerce is not likely to disappear either, but v-commerce looks set to complement existing shopping services [28].

With a possible audience of hundreds of millions of mobile phone users, the VR landscape is full with ideas, experimentation and promise. Retail is thereby evolving and reinventing itself at an ever-faster pace via e-commerce, m-commerce, social networks, and now v-commerce, centered on the use of virtual reality; a virtual reality, which fosters a human and emotional dimension. Retailers have everything to gain by seizing this information to improve their customer experience and optimize their points of sale (physical or virtual). With big data becoming increasingly widespread, it is now easy to save and analyze it. Data represents an immense source of relevant information on consumers - their desires, tastes, payment preferences, experiences, etc. [29].

AR/VR benefits for v-commerce [30], [31]:

- AR/VR are still considered an innovation, so in order to attract customers and provide them with a new personal experiences AR and VR can be used.
- AR/VR makes the content more exciting and motivates customers to choose products repeatedly.
- VR can create rich, immersive and memorable customer experiences.
- It's a social media goldmine, which is fantastic for brand awareness. VR is an experience, and a share-worthy one at that - it gets customers talking about you and sharing their experiences on social media.

- 360 degree product views give the user a much better perspective of what they are buying as it allows them to see it from all possible angles.
- It is much easier to demonstrate a product's worth by showing rather than telling, and this can be extra helpful in demoing complex products.
- AR/VR can replace scale models, simplify the reconstruction and redesign.
- AR/VR customize every surface - anything can be changed for a specific buyer: walls, flooring, fabrics, counters, models and layout.

Main AR/VR advantages in v-commerce [32], [33]:

- Store location does not matter – the virtual stores do not need an actual construction, and the related with them energy costs and rent.
- No actual permanent employees are necessary.
- More customers - people who usually do not have time to actually go to the store and try out products are now able to do so.
- It creates engaging personal experience for clients. Integration of VR/AR technology brings a unique and fascinating feel to the whole process of shopping, so customers will be most definitely interested in trying out your proposal.
- With AR/VR customers are able to try out more items than they usually would. Therefore, it increases the chances of actual purchase and inspires customers to buy more.
- The right choice - the possibility of trying out more items the chance of buying the most suited one is increasing.
- Decrease of returns - with the ability to actually try out products, online shops can minimize returns.
- Even in the grim cases of natural disasters, v-commerce can keep on functioning due to the nature of its stores.

Evidently, there is a bright future to v-commerce from point of view to customers and sellers.

4. Conclusion

What is more engaging, reading a product description, or virtually trying that product in different colors and with different accessories? The natures of AR/VR and v-commerce go together and they compliment each other well. As society becomes ever more digitized, data is also becoming increasingly widespread in all sectors. More is now known about consumer trends, purchasing and consumer behavior. Retailers are increasingly turning to AR/VR and including them in their sales strategy. This phenomenon is known as v-commerce and is about to transform the retail sector.

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