Augmented Reality And Virtual Reality Revolutionize Business transformation In Digital Marketing Tech Industry Analysts And Visionaries During Coronavirus (COVID 19)

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Augmented Reality And Virtual Reality Revolutionize Business transformation In Digital Marketing Tech Industry Analysts And Visionaries During Coronavirus (COVID 19)

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Abstract

Virtual Reality (VR) and Augmented Reality (AR) are among the new innovations that provide digital marketing platforms with immersive services for Companies. . While several VR/AR applications have been built to reveal details on digital marketing pages, they still lack of comprehensive models which taking into consideration the elements of informal marketing experience in the development of such applications.

This study contributes a conceptual model to serve as guidelines for developing a augmented reality that considers an foundations informal learning component in business.

This paper provides a thorough overview of new augmented reality (Ar) and virtual reality (VR) technology in ten critical areas where the application of augmented reality and virtual reality is growing at present. The aim of this research is to highlight how the consumer experience in digital marketing is changed and enriched by augmented reality and virtual reality. The authors present the subject of augmented reality and virtual reality briefly. They further describe the technological and hardware technology needed to incorporate a framework of augmented reality and virtual reality and the various types of displays needed to enhance the user interface. Also briefly mentioned is the rise of AR in markets. The implementations of AR are discussed in the three parts of the article. The use of augmented reality and virtual reality as a component of television and gaming is illustrated in multiplayer gaming, electronic games, broadcasting, and immersive films. Manufacturing, beauty industry, healthcare, planning to business, transformation marketing and fight against COVID-19 crisis. This study contributes a conceptual model to serve as guidelines for developing a augmented reality that considers an foundations informal learning component in business.

Keywords: Augmented Reality, virtual reality (VR), Digital Marketing and Coronavirus (COVID-19).

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1. Introduction

COVID-19 has spread across the globe. It has caused a large amount of deaths and has impacted the lives of the people affected by it profoundly. To deter the propagation of the virus, many countries have gone into lockout, resulting in economic collapse within them.

Many industries and schools have closed (Bellalouna, 2020). A lot of steps have been taken to minimize the impact of the virus, and in the middle of these tough times, the science community is expected to evolve new technical approaches that will support humanity. Augmented truth can be really effective in handling life during a crisis. Mastery in numerous science and technology fields would (SMEs) managers to create the strength to compete with other digital marketing site. such as the United States of America, United Kingdom, Germany and Japan (Seaman, 2020). Those countries not only intensify their efforts to master the various fields of science and technology, but also often give priority to the (SMEs) sector budget respectively (Leal Filho, Vargas, Salvia, Brandli, Pallant, Klavins, & Ayanore, 2019). Hence, these proved that a (SMEs) managers does not solely depending on the source of capital and technology development (Alam, Forhad, & Ismail, 2020). In fact, the quantity and quality of manpower and the ability to adapt to the latest technology should be considered as well. For the software sector, augmented reality is also expected to be an economic engine. According to Bellalouna, (2020), The market value for virtual reality is going to cross $50 billion by 2024, industry forecasters predict. For eg, smart augmented reality lenses are expected to ship 21 million units in 2020, with a compound annual growth rate of 78% between 2015 and 2020. In Figure 1, both VR and augmented reality have a growing demand for developers of augmented reality, knowledge of 3D creation is important for VR developers who should be familiar with common virtual reality tools and knowledge of popular managed cloud systems, expertise in developing scalable web and smartphone applications, knowledge of development, and ability to collaborate. However, the project for the development of augmented reality and virtual reality applications can be difficult, so the study suggests the industry expert development team (Wedel, Bigné, & Zhang, 2020).
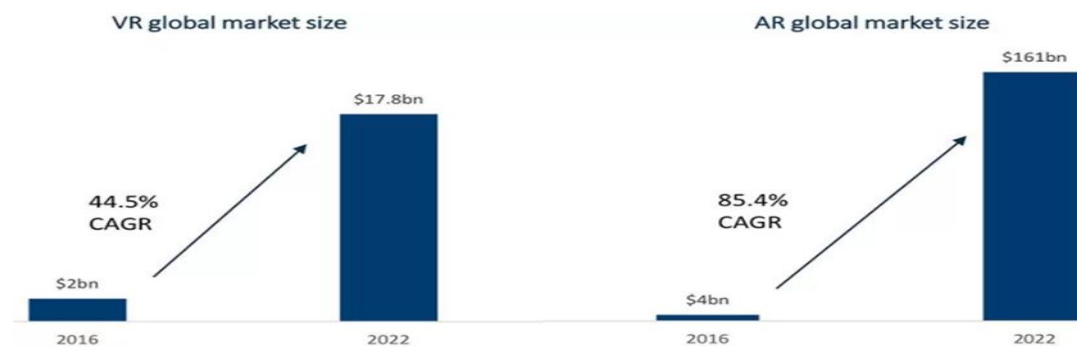
Figure 1: Augmented Reality and Virtual Reality Global Market Growing

In today's multimedia ads, augmented and virtual reality add an immersive aspect to the table, something that has become crucially essential. Today, the listener no longer wishes to be exclusively a message receiver. On the opposite, individuals are finding constructive engagement in defining the campaign and personalizing the message. This is made possible by augmented reality and virtual reality technology.

The promise of augmented and virtual reality for the production of animated videos is now being realized during the Coronavirus Covid 19 crisis in the tourism sector. These innovations have been studied by other companies already (Mohanty, Hassan, & Ekis, 2020). In addition, they are becoming even more widespread today in the field of banking, real estate, and even B2C service delivery. In the years to come, because the handset is the mainstream user medium, virtual reality would be much simpler to introduce in promotions, according to Rauschnabel, Felix, and Hinsch (2019). The future of Virtual Reality is also a little shaky because of the technology needed to execute the message.

2. Literature Review

2.1 Augment Touring And Assistance

Using AR, prospective clients without having to communicate personally with them will model and try on makeup, clothing pieces, and a wide variety of home-related goods. The need for a broad physical inventory to encourage shoppers to try on or sample thousands or even hundreds of products in search of the one that best suits their needs is negated by augmented reality and virtual reality (Shelke, & Chakraborty, 2020). In addition, virtual reality provides organizations with the ability to incorporate a visual dimension on top of their physical locations and goods. Customers may search

a product or object to gain an interpretation in augmented reality and virtual reality designed to either include enhanced product details or some sort of supplementary brand-related experience.

2.2 Marketing Using Virtual And Augmented Reality Branding Materials

By incorporating a visual dimension, augmented reality will take branding materials such as business cards and brochures to the next level. Through their mobile devices, consumers can search printed materials to access a variety of features that give them more knowledge and ways to contact the brand (Udayan, Kataria,Yadav, & Kothari, 2020). For example, in order to pull up a video illustrating any part of the information being transmitted, a user should search a brochure in the right place, bringing a dynamic feature to bring up a video that shows some of the information being exchanged, adding a dynamic aspect to the brochure's static text.

2.3 Create Brand Buzz In The Augmented And Virtual Reality Branding Materials

As part of an indirect sales and promotion approach, virtual reality may also be used. As the previous apps for augmented reality and virtual reality focused on direct approaches to promote sales, it is now possible to use augmented reality and virtual reality to boost the brand's status (Kowalczuk, Siepmann, & Adler (2020).

If performed correctly, an unusual or enjoyable augmented reality experience will result in a major hype for a company. For most individuals, augmented reality and virtual reality are a comparatively recent phenomenon, ensuring that a well-designed experience in augmented reality and virtual reality can have people talking and create lifelong memories. When individuals choose a brand that leaves them happy and fulfilled, permanent rewards can be paid from that kind of exposure and consumer goodwill.

A Pepsi advertisement located at a bus station will be a great instance of using virtual reality to generate hype. Pepsi allowed users to enter, alongside the wall of the bus station, an augmented reality and mixed reality virtual window. Users were introduced to the sight of a marauding tiger, UFOs and robots roaming wild within the vista of augmented reality and virtual reality. Pepsi helped to stimulate controversy

and boost their reputation by leavening the tedium of waiting for a bus with a virtual reality experience.

Sales applications for augmented reality and virtual reality will allow clients to see and engage with items as extensively as they want, from a high-level summary to a granular examination of individual parts. Augmented reality gives clients better access to the knowledge they need to make a decision by getting the product into the conference space.

2.4 Virtual And Augmented Reality Interaction

When it comes to coping with customization possibilities, virtual reality is also a big blessing. As a general rule, clients are searching for as much customization as they can offer, and precisely customized goods and solutions. It's not always convenient to manage such demands from the vendor side.

Augmented reality software will make it possible for clients to engage directly in the creation of their products. In real-time, this information can then be delivered digitally to the retailer, creating a clearer feedback chain that leads consumers to get just what they want, and vendors can deliver it for them (García-Pereira, Vera, Aixendri, Portalés, & Casas, 2020). Augmented reality will create a connection between consumer preferences and supplier satisfaction. In comparison, in the customer service arena, virtual reality technologies are just beginning to come to fruition, but the early results are highly positive. Augmented reality provides the possibility to make customer care more engaging and receptive, from virtual and augmented reality guides to the possibility of remote tech help using virtual and augmented reality.

2.5 Estimate Budget For Augmented Reality And Virtual Reality

Both augmented and virtual reality are inexpensive technologies, but when you quantify a virtual reality and an augmented reality software creation project, you will have to weigh the costs of labor, technology, and tools development. There may even be other operating expenses (de Oliveira, Martinelli, Bello, Batista, da Silva, Rodrigues, & Schimidt, 2020).

2.6 Key Use Cases Of Augmented Reality And Virtual Reality

Technology helps industries to develop sophisticated goods, and this is extremely useful in the industrial, military, and aerospace fields. With augmented reality, engineers can quickly test products and virtual reality can aid in developing workplace layouts in the automotive industry, which lets businesses prevent safety hazards. Another example of increased reality and augmented reality use in the automotive industry is remote maintenance and maintenance of facilities. Many manufacturing jobs are complex, and providing hands-on training can be costly. Augmented reality and augmented reality help to reduce engineering firms' training expenses. With the help of mixed reality and virtual reality, companies can greatly boost their sales and marketing (Brunner, Perey, Rauschnabel, & Sage, 2020). They will build simulations powered by augmented reality and virtual reality that help their customers get a hands-on sense of their product. In the travel and tourism industry, advertisers may make use of augmented reality and virtual reality to give prospective visitors a sense of the destination. In order to offer advice on makeup and advertise their activities, beauty and fashion companies will use augmented reality and virtual reality. Brands for home renovation will use augmented reality to support clients who choose to take a DIY approach to home improvement. Augmented reality and augmented reality can be used by retailers to create a virtual shopping environment for their clients. Using augmented reality and virtual reality-based applications running on their devices, clients will test out their products.

2.7 Augmented Reality And Virtual Reality In Manufacturing

They will expedite the processes of design and assembly. In order to address shop floor challenges, repair workers can use mixed reality and virtual reality, and they can also minimize maintenance time. Augmented reality and augmented reality can help educate workers, minimize downtime in production and avoid mistakes (Jung, tom Dieck, & Rauschnabel, 2020).

2.8 Augmented Reality And Virtual Reality Beauty Industry

With the assistance of artificial reality and virtual reality, makeup fans will digitally check out different beauty products and this allows marketers to effectively market their products. AR also helps to provide makeup coaching to brands. Augmented Reality and

Augmented Reality are now being used by many top beauty brands such as L'Oréal, Maybelline, Yves Rocher, Smashbox, etc. to engage their customers (Zak, 2020).

2.9 Augmented Reality And Virtual Reality In Healthcare

In order to construct 3D visualizations of patient anatomy, healthcare professionals may use augmented reality and virtual reality combined with medical images. During operation, this can be really useful so doctors can view this in order to recognize a patient's particular human makeup. The use of augmented reality and virtual reality to display 3D imagery allows to achieve a more realistic perception that encourages doctors to be educated (Gerup, Soerensen & Dieckmann, 2020).

2.10 Planning To Business Value With Augmented Reality And Virtual Reality

Examining the popular use cases of augmented reality and virtual reality can help you determine which one fits well for your company venture, and you can even use both. Having said that, it can be difficult to execute a software development project to implement augmented reality and virtual reality solutions. The research indicates that for such programs, you employ a reputed product development firm. In addition, Space has provided various solutions for companies in augmented reality and virtual reality. Its developers are kept up to date on all the new technology and are reviewed for consistency to ensure that only the best quality code is delivered. A fast Google Trends search shows that the interest in augmented reality and virtual reality has grown over the past five years and shows that we are now seeing the popularization and consolidation of augmented reality and virtual reality. Tech businesses will develop new worlds through augmented reality and virtual reality that are easily incorporated through the networks where users spend much of their time. Nonetheless, while augmented reality and virtual reality are frequently put into the same grouping, they provide multiple advantages for enterprises. There is a need to look at augmented reality and virtual reality as distinct entities. Around the same time, virtual reality is a more interactive environment and can simultaneously hit groups of individuals (Hagl, & Duane, 2020). Both types of encounters are a treasure chest of knowledge for tech firms that can be ethically gathered and processed to offer even better experiences in the future or target consumers with targeted advertising according to their tastes.

2.11 Future Of Transformation Marketing In Augmented Reality And Virtual Reality

The majority of advertisers and developers see augmented reality and virtual reality as fantastic tools to bring value to their consumers, but there are different opinions on the subject. Augmented reality and augmented reality, for example offer an ability to integrate point of sale communications into a simulated and interactive shopping environment in real life (Hagl, & Duane, 2020). This could go from presenting consumers with the ability to try new goods in augmented reality for tech brands to introducing a new degree of interactivity to apps, all in their own homes, using their own computers. Nonetheless, everything that glitters is not gold. For augmented reality and virtual reality to be the future, there are already certain obstacles to conquer. Consumers would need to have the necessary hardware available to effectively build this experience (Shelke, & Chakraborty, 2020). Augmented reality and virtual reality can be implemented on any device, creating more accessible avenues of access for consumers. Both implications cannot be overlooked for tech companies looking to utilize mixed reality technology. The need for proper hardware to enjoy virtual reality is still a situation that brands of all shapes and sizes need to circumvent, but with the shareability of augmented reality and virtual reality experiences brands could still reap some benefits from the added interactivity.

2.12 Applying Augmented Reality And Virtual Reality In Fight Against COVID-19 Crisis

The path to recovery from the pandemic is going to be incredibly challenging. Technology and technology for mixed reality and virtual reality can be used to counter these consequences well when a long-term pandemic has stopped. Because of learning and implementation methods, augmented reality and virtual reality can be used to shape functional awareness. Using an AR headset, a trained technician will direct fellow staff and instruct students effortlessly. Companies may also train their staff using AR, thereby develops the workplace and the performance.

2.13 Augmented Reality And Virtual Reality Challenges And Future Scope

It is important to remember that AR faces a huge amount of obstacles that must be addressed for it to succeed before augmented reality and virtual reality can be embraced by all on a large scale. Each technology consists of a well-defined business model that produces investments dependent on it. Nevertheless, there is no especially established

business model for augmented reality that will function long-term. The viability of an AR-based enterprise is still very early to be measured since the technology is already in its implementation phases. In addition, AR technology faces a challenge related to compliance with the overall scenario due to the absence of augmented reality development and device design requirements. In the virtual reality industry, security and privacy are also major concerns. Weak content consistency is an emerging challenge in augmented reality games, in addition to some technological software and hardware constraints in each game design. Accuracy is of prime importance for particular procedures and in the medical industry, since it is important for surgeons to provide tangible knowledge about how and where the equipment is used (Shi, Wang, Shi, Wu, Wang, Tang, Z., & Shen, 2020). There is scant literature on augmented reality for apparel retail, and its effect on the industry has not yet been greatly understood. Many brands are also also reluctant to participate in virtual reality. In the near future, virtual reality has an immense potential for improving multiple sectors, considering the various obstacles. AR may have the potential to revolutionize the entire market in any sense by removing the above-mentioned barriers. In fields such as education, medicine, military, building, automotive, transport, retail, sculpture, and architecture, it has immense potential (Naudé, 2020). Augmented reality is a groundbreaking concept that can modify and reshape a range of market techniques built by businesses. With industry competition growing, consumers trust only businesses that deliver high quality goods and excellent support. This means that more firms will prioritize the incorporation of augmented and virtual reality, as it promises a customized product interface that will draw more consumers. It is also speculated that mobile AR apps, which will grow in the coming years, will contribute to greater social awareness. It will be easier for many people to switch to modern technologies when they are familiar with running cell phones. In addition, as mentioned in the previous segment, in the current COVID-19 crisis, augmented reality and virtual reality can be very useful Similar scenarios could occur in the future of the predicted scenario of augmented and virtual reality in various industries in 2025.

3. Conclusion

Augmented reality and augmented reality offer new viewing opportunities for common forms of digital media that are not available. Future augmented reality and virtual

reality technologies are bound to be considerably more sophisticated with recent research, compared to those currently available. Interactivity and material quality are distinctly distinct thanks to augmented reality and virtual reality, and personalization is possible. The technology is modern, and despite being around for a downside. The technology is modern, and despite having been available for a significant period of time, due to issues such as technology, societal recognition, and accessibility, it has not been thoroughly and functionally integrated in day-to-day operations such as retail and pharmacy. However, as these obstacles are solved, augmented reality and virtual reality have the potential to redefine gaming in real time through improved content. However, augmented reality and virtual reality have the potential to redefine gaming by enhanced entertainment in real time after addressing these obstacles. In medicine, the use of augmented reality and virtual reality will alter the way operations are conducted. Using virtual reality displays, medical training and post-operative procedures can be carried out with ease. Using virtual reality displays, medical training and post-surgical procedures can be done with ease. Consumers are more likely to embrace augmented reality and virtual reality with enthusiasm because they want new technologies that will simplify shopping trips and make them more relaxed. We have also analyzed the new AR methods that are being introduced and explored their importance for pandemic recovery. In nearly all fields, Enhanced Truth thus plays a very significant role in supplying consumers with technical insight like never before.

The new developments are indicative of the increasing advances in augmented reality and virtual reality. In Pokémon Go, which also makes use of GPS, virtual reality can be used in games, and is therefore a location-based technology. On the other hand, Snapchat is an example of a marker-based application which in addition to AR, uses image recognition. There are several software development kits focused on augmented reality and virtual reality, and the considerations deciding the option of an acceptable SDK include the cost, platforms, technology for image recognition, and the likelihood of 3D tracking and recognition. Unity and the toolkit for augmented reality are some of the engines that can be used to build applications for augmented reality and virtual reality. Google and Android, Google Augmented Reality Center and Augmented Reality Spark Studio, have also supplied their respective kits. The cases that have been addressed illustrate the rising market base of virtual reality applications and their

market relevance. Therefore it is not possible to overemphasize the significance of a study that gives insight into three main areas where augmented reality and virtual reality technologies are used.

References

Bellalouna, F. (2020). Industrial Use Cases for Augmented Reality Application. In *2020 11th IEEE International Conference on Cognitive Infocommunications (CogInfoCom)* (pp. 000011-000018). IEEE.

Brunner, K. E., Perey, C., Rauschnabel, P. A., & Sage, M. (2020). Implementation of Augmented Reality in Manufacturing: A Case Study Exercise. In Augmented Reality and Virtual Reality (pp. 85-97). Springer, Cham.

de Oliveira, T. R., Martinelli, T. F., Bello, B. P., Batista, J. D., da Silva, M. M., Rodrigues, B. B., ... & Schimidt, M. Q. (2020). Virtual Reality System for Industrial Motor Maintenance Training. In *2020 22nd Symposium on Virtual and Augmented Reality (SVR)* (pp. 119-128). IEEE.

García-Pereira, I., Vera, L., Aixendri, M. P., Portalés, C., & Casas, S. (2020). Multisensory Experiences in Virtual Reality and Augmented Reality Interaction Paradigms. In *Smart Systems Design, Applications, and Challenges* (pp. 276-298). IGI Global.

Gerup, J., Soerensen, C. B., & Dieckmann, P. (2020). Augmented reality and mixed reality for healthcare education beyond surgery: an integrative review. International journal of medical education, 11, 1.

Hagl, R., & Duane, A. (2020). Exploring How Augmented Reality and Virtual Reality Technologies Impact Business Model Innovation in Technology Companies in Germany. In *Augmented Reality and Virtual Reality* (pp. 75-84). Springer, Cham.

Jung, T., tom Dieck, M. C., & Rauschnabel, P. A. (Eds.). (2020). Augmented Reality and Virtual Reality: Changing Realities in a Dynamic World. Springer Nature.

Kowalczuk, P., Siepmann, C., & Adler, J. (2020). Cognitive, affective, and behavioral consumer responses to augmented reality in e-commerce: A comparative study. *Journal of Business Research*.

Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on virtual reality and augmented reality in tourism context: A text-mining approach. *Tourism Management*, *77*, 104028.

Mohanty, P., Hassan, A., & Ekis, E. (2020). Augmented reality for relaunching tourism post-COVID-19: socially distant, virtually connected. *Worldwide Hospitality and Tourism Themes*.

Naudé, W. (2020). Artificial Intelligence against COVID-19: An early review.

Rauschnabel, P. A., Felix, R., & Hinsch, C. (2019). Augmented reality marketing: How mobile AR-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, *49*, 43-53.

Shelke, Y., & Chakraborty, C. (2020). Augmented Reality and Virtual Reality Transforming Spinal Imaging Landscape: A Feasibility Study. IEEE Computer Graphics and Applications.

Shi, F., Wang, J., Shi, J., Wu, Z., Wang, Q., Tang, Z., ... & Shen, D. (2020). Review of artificial intelligence techniques in imaging data acquisition, segmentation and diagnosis for covid-19. *IEEE reviews in biomedical engineering*.

Udayan, J. D., Kataria, G., Yadav, R., & Kothari, S. (2020). Augmented Reality in Brand Building and Marketing–Valves Industry. In 2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE) (pp. 1-6). IEEE.

Wedel, M., Bigné, E., & Zhang, J. (2020). Virtual and augmented reality: Advancing research in consumer marketing. *International Journal of Research in Marketing*, *37*(3), 443-465.

Zak, M. (2020). *Augmented Reality try-on adoption in the Online Clothing Industry: understanding key challenges and critical success Factors* (Master's thesis, University of Twente).