INTERACTIVE TECHNOLOGIES: THE INFLUENCE OF AUGMENTED REALITY AND THE METAVERSE ON THE RETAIL SECTOR AND THE CONSUMER EXPERIENCE

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Abstract-*The objective of this article is to describe the impact that interactive technologies such as "augmented reality (AR) and Metaverse" would have on marketing, in the retail sector, and mainly on the consumer experience. Based on a detailed documentary review, mainly classified by different authors and expert researchers, we will address the initial theoretical foundations, the implications, characteristics, and typologies of each of them, and at the same time, how they are breaking into an increasingly digital environment. There is still a certain lack of knowledge regarding their use and meaning; however, according to surveys conducted, more people know about them than do not know about them. It is also considered a breakthrough in terms of technological development, which will change the way the user can interact with brands, and these in turn, with their customers, and that this will result in benefits for these.*
Keywords*. Augmented Reality; Metaverse; Consumer Experience*

INTRODUCTION

Currently there is much discussion about new trends that address the field of marketing, and very specifically related to the use and application of disruptive technologies, such as augmented reality (AR), and specifically a term that has been very renowned since the beginning of the year 2022; the Metaverse.

Now, the discussion revolves around different positions or assessments, it should be noted that the intention of this article is not to establish a position for any of them in particular, but to describe both as valid, since it is about analyzing a specific situation that is impacting companies, in their processes, in the general environment, and in people as the main consumers of goods and services. Thus, on the one hand, there are statements that argue that such adoptions are nothing more than a false attempt to attract new customers, and that distance the user from the real experience at the moment of truth; others, on the contrary, relate the benefits of the use of these strategies, based on the evolution and adaptation of markets, changes in customer expectations and needs, and the need for survival in an increasingly competitive and digital environment.

The truth is that with all the changes brought about by the Industry 4.0 revolution in technology, be it information and communication technologies (ICT), the Internet of Things (IOT), robotics, artificial intelligence (AI), among others, have meant a turning point in business models, especially in retail. In this sense, a very specific statement is the one made by (Viejo-Fernández, 2021, p. 518) in which he describes the use of new technologies in the retail sector: "The rise of the Internet as a shopping channel does not detract from the prominence of physical stores. Until now, retailers

created establishments such as flagship stores, pop-up stores or concept stores focused on providing positive, unique and differentiating experiences. However, the adoption of new technologies by consumers makes it necessary to include ICT within commercial establishments, providing the so-called "phygital" experience, which consists of being able to connect with today's consumer and create a good brand image."

That is, with the process of evolution of marketing, today considered as marketing 4. 0, or the era of social purpose, technology and its adaptation to the environment, allows us to offer integrated experiences that combine the physical and digital, a reality that is known as its own term expresses it, phygital, in which one of its main pillars is the small data; segmented information essential for continuous improvement, and in this new reality, the consumer is the main protagonist, and not only is communication personalized, but also is directly involved in the creation processes.

Throughout the development of digital marketing, different trends have emerged that have been exploited thanks to the rise of technologies, one of them is the Mobile marketing, which has set the standard in the use of completely innovative techniques; already a while, some formats began to be considered as a standard in communication between mobile devices; were the two-dimensional codes, also called QR (Quick Response), (Mochales & M., 2021) describes on the profile website, "which are systems similar to barcodes, but with the capacity to store much more information (7,000 characters). Its use is applied by reading the two-dimensional code with the phone camera as a scanner, and after reading it, an action such as visiting a web page is generated. To do this, an application must be installed on the cell phone that allows the scanning of this format"; however, this will be the fundamental basis for what we will later address as augmented reality (AR).

As a result of the above, giving room for innovation and the irruption of new techniques, the "Metaverse" appears, a concept that is not new, but perhaps the most controversial technological adoption of recent years and of which there has been knowledge so far; so much so, that it has not yet been put into service, since several companies are developing technologies associated with this technique, but that undoubtedly will impact on all business links and most certainly in the lifestyles of today's consumer. Precisely in this sense, (Fernandez, A. 2022), in his report through the website QuartzSales, where he states that "in the next decade metaverses will reach a billion people, will give rise to hundreds of billions of dollars in digital commerce and will represent the work of countless creators and developers". So, as mentioned above, and just like (AR), we will also address later a closer definition in relation to these metaverses, as well as the incidence of these interactive techniques, with marketing, and consumer experience.

THEORETICAL REFERENCES

Augmented Reality (AR) is nothing more than a direct or indirect vision of a physical environment of the real world, whose elements are combined with virtual elements to create a mixed reality in real time. AR consists of a set of devices and applications that add virtual information to the already existing physical information, i.e. adding a virtual synthetic part to the real. This is the main difference with virtual reality, since it does not replace physical reality, but overprints computer data to the real world; this is described by (Alesanco-Llorente et al., 2021) in their article, based on (Azuma et al., 2001, p. 34) where they state that: A system (AR) complements the real world with the virtual world. Objects (computer-generated) that appear to coexist in the same space as the real world. Although many researchers extend the definition of (AR) beyond this view, we define an (AR) system as having the following properties: o It combines real and virtual objects in a real environment. o It runs interactively and in real time; and o It registers (aligns) real and virtual objects with each other.

Thus, elements such as 3D content, the combination of virtual realities, and real-time interactions, are characteristic of (AR) as described by (Poushneh, A. 2018); however, first of all, it is necessary to specify the difference between virtual reality (VR) and augmented reality (AR); so in this same sense (Lara & Benítez, 2007, p. 4) describe that: "The integration of real and virtual objects and worlds, sometimes aggregated, combined or merged or exchanged, is the area of the creation and management of integrated worlds or mixed reality. This area of visualization is based on a

visualization and interactivity strategy that makes use of many technologies and different areas of scientific visualization; giving rise to a spectrum of modalities that move around two extremes: if the space environment (the surrounding environment) is dominantly virtual and virtual and real objects are added to it, one speaks of virtual reality; while if the dominant environment is real and virtual objects are added to it, one speaks of augmented reality."

But how does augmented reality work? In the same vein (Lara & Benítez, 2007, p. 4) state that: "A general augmented reality system starts with the registration of real world signals (video and audio, although subsystems for the synthesis of signals for the other senses continue to be evaluated). These signals are processed by an object edge enhancement system to prepare the image for object segmentation or extraction and recognition of patterns and fiducials. This process makes it possible to determine where a real object needs to be replaced by a virtual one, which virtual object should be placed over the real space (the video space) and in what position and perspective."

But without going into deeper and more technical aspects, typical of this area, since it is not the purpose of this article, it is not superfluous to expand a little with respect to the process of operation of the RA; therefore, in advance it is necessary to have prepared certain aspects already mentioned, such as the convergence of patterns, trust marks, 3D position, features of the environment, among others; This implies a more rigorous process, knowing that it is necessary to have a previous database, which avoids reprocessing calculations at the time of execution, adjust or align geometrically and in real time, the images between the two environments, virtual and real, the extraction of 3D information from the aforementioned 5 trust marks of the real world, among other additional processes. (Lara & Benítez, 2007, p. 4 - 5). Once all of the above is methodically done, an output video signal is created, which merges the original video signal with the virtual one through certain required steps, in which aspects of both worlds are mixed. This signal is what we perceive as augmented reality (Lara & Benítez, 2007, p. 5), which concentrates properties as mentioned at the beginning of the development of the literature.

The incidence of AR in the context of marketing, especially in the retail segment, and in the end-user experience will be described later; however, AR as one of the great bets of technological development in the socio-business processes, even particularizes some pros and cons; obviously more pros than cons, of which the following can be pointed out as highlighted by (Azurdy, 2020) in his Encora blog: Advantages of AR: - (AR), when used properly, can provide practical and captivating information that is superimposed on a real-world scene. - Basic AR mobile applications are already well established. - New tools have been created to assist doctors during surgeries that allow them to visualize patient information throughout the procedure. - Apple's latest phones/tablets and its AR developer kit bring significant new capabilities. Google's newest Android phones also bring strong AR functionality.

Likewise, among the disadvantages (Azurdy, 2020) he highlights that: - AR/MR (mixed reality) 'headsets' are expensive (Hololens: $3,500 USD; Magic Leap $2,295 USD) and in their current state are very limited. Both have a limited range of scopes and gesture controls are difficult to use. We won't see their widespread use until costs come down significantly and their form improves. - The AR/MR headsets have a very geeky look and will only be used for very specific applications; we will not see their everyday use in the near future. However, it is also worth noting that there are several ways to use AR such as in product demonstrations using tablets, with a pre-installed App, participants only need to take the tablet and interact with the demo; using participant's phones, as AR becomes more popular there are growing creative opportunities to incorporate AR in product demos, event signage or to get other information about events; finally in event walls and AR mirrors, which allows incorporating video screens and adding gesture recognition to an exhibit is a great way to captivate the audience. (Azurdy, 2020). It can be said that AR, is very advantageous for business processes, and more those that have to do with user interaction, aspects that will be highlighted below with the incidence of the retail sector.

According to what was mentioned in the previous section, in relation to the (AR), its strengths and weaknesses, it is very clear that this interactive technique and all its convergence that surrounds it, generates greater value in consumers by allowing them a more intuitive and personalized

shopping experience (Caboni, F. & Hagberg, J. 2019); however, this is reaffirmed (Pantano, E. & Timmermans, H., 2014), when he argues that AR in retail contexts, improves and enriches such experience in customers. However, the lack of information of most customers makes the online shopping experience a notable risk, since they do not have the necessary product information (Kim, J. & Forsythe, S. 2008), so that the AR comes to play a very important role in solving this lack of information about the product and also about its handling, so that the user perceives an augmented three-dimensional experience (Lu, Y. & Smith, S., 2007). In this sense, (Poushneh & A., 2018, p. 170) describes in his article based on (Papagiannidis, S. et al., 2017) that: "Direct contact with the desired products, is important for buyers because they acquire product information through sensory experience - visual, text audio, etc., which helps them in the decision-making process".

But, for many the above responds to the great advantage offered by AR, in the sense that it can provide a very significant shopping experience obviously based on the simulation of the process, which allows online users to better evaluate the alternatives of the products they prefer (Kim, J. & Forsythe, S. 2008); even, many consumers who buy online say they experience pleasant and attractive sensations when perceiving a three-dimensional and interactive image of the product to choose (Papagiannidis, S. et al., 2017); Not obviating the fact that, with RA, consumer behavior is different due to the effects of the training provided (Pantano et al., 2017). 7 It can be said then in relation to the above, that AR can provide positive experiences in its use, reaching the point of significantly influencing the purchase decisions at the moment of truth. As mentioned by (Poushneh, A. & Vasquez-Parraga, A., 2017) based on (Poushneh, A. 2018, p. 170) when he says: "Positive and high quality experiences with a technology such as augmented reality, satisfy customers and increase their willingness to purchase products from retailers equipped with augmented reality technology. Consequently, high-quality augmented reality not only creates shopping experiences, it also enriches them."

Now, but one cannot only affirm that AR positively impacts consumer decision without having data or studies that confirm it; in this sense it is necessary to bring in mention, analyses that support the previously mentioned affirmations; one of these studies has to do with what we will call "Quality in Augmentation", a study conducted by Atieh Poushned, in which in an experimental and qualitative way, develops a scale, the quality of augmentation, to measure the quality of the augmented reality output. (Poushneh & A., 2018). This study employs an interesting new concept, and that is the quality of augmentation, as mentioned above. In reference to this term in their article (Poushneh & Vasquez-Parraga, 2017, p. 171) describes that, "Augmentation quality is an aspect of the user experience that generates simply by interacting with augmented reality. It refers to the quality of the output that results from the interaction with virtual content and the integration of virtual and real content into a reality in terms of information quality, matching quality, or mapping quality".

The study sought, among other things, to address the concern that users who shop online through AR would keep their personal information private, and likewise, control it to avoid frustration at not having access. As well said, it is important for users to have access to personal information, as this would strongly impact the user's use of RA (Poushneh, A., 2018. P. 181). Moreover, he concludes that the quality of augmentation is not only limited to the quality of the virtual information generated by an AR application, (Jung et al., 2015), but also to the quality of the objects, virtual images, and how these are integrated into the real-world context. 8 Finally, the author makes some considerations that involve several fronts, among the most prominent are the considerations at the level of technical development, and the implications at the level of management in the retail sector; the latter being the most impactful for being the subject of analysis of this article. So, that at the technical level, one of the most important concerns, has to do with the privacy of personal information, consumers are reluctant to give their data today, whether it is mail, date of birth, identification numbers, location, etc., so although it is necessary that the user provides this key information, it is not known what will be done with it ultimately (Poushneh, A., 2018, p. 180).

In the same way, the quality of the information is another relevant factor that must continue to be worked on at a technical level, and this refers to the virtual and relevant content offered by the (AR). Finally, there is the recognition of images, and the quality of the correspondence; in reference to the first, the AR must accurately recognize the objects to which the smart devices are pointing. As for the second refers to the ability of the (AR) to overlay and map the virtual content in the precise place to which it belongs. (Poushneh, A. 2018, p. 181) But there are other expert analyses that go far beyond a technical aspect regarding the use of AR and the incidence of this, in consumer behavior. This is established by (Heller, J. et al., 2019) referring to "Mental Intangibility" as the inability of a consumer to imagine the experience of using a product or service that he/she buys online; but that through some applications such as multisensory augmented reality (m-AR), considerable solutions can be offered for the retail segment. In this sense, (Heller, J. et al., 2019) highlight that the sensory experience is null in online shopping, unlike traditional sales; therefore, it becomes difficult for users to buy an item, move it, feel it, and evaluate its suitability in its use experience, as stated by (Hultén, B. et al., 2009), while at the same time describing in their research that, "these sensory deficiencies decrease the perceived value of online offerings and often result in product returns and dissatisfaction with the shopping experience."

To give an example based on the above, it can be said that it is normal that, at some point, when buying a product online, the product that is finally delivered, is not exactly as imagined based on the limited sensory interaction offered in online environments (Ketron, S. 2018); however, this is corroborated by studies or research conducted, which revealed with certainty the existence of mental intangibility, and how it affects the perceived risk (Laroche, M. et al., 2004). But emphasizing on perceived risk and intangibility, he highlights that both concepts are key in today's marketing strategy, because both influence the final consumer's decision making; however (Laroche, M. et al., 2004, p. 373 -374)state in relation to intangibility that: "it is the main characteristic that distinguishes goods from services, and affects the consumer's ability to judge the quality of the good/service". In the same vein, the more intangible the product, the more difficult its evaluation will be (Zeithaml, V. 1981); consequently, the perceived risk, the lack of certainty and the consequences of the decision, affect the degree of search and the search for information (Bauer, R. 1960). This, in short, concretizes that intangibility and perceived risk on the part of the consumer are directly proportional variables, the greater the former, the greater the latter (Laroche et al., 2004, p. 374) based on (Murray, K. & Schlacter, J. 1990).

This analysis also emphasizes a theoretical contribution in which it implies that intangibility is composed of three dimensions according to (Laroche, M. et al., 2001): physical intangibility, generic intangibility and mental intangibility, as discussed above. However, physical intangibility refers to the degree to which a product cannot be touched or seen, it lacks physical presence; generic intangibility refers to the difficulty for the user to precisely define a specific good (Laroche et al., 2004, p. 374). Now, the study sought to describe the impact of these three dimensions on various types of perceived risks in different types of products and brands of goods and services through a rigorous and detailed methodology, so that important conclusions were reached on several fronts; in terms of theoretical construction, the concept of intangibility and its dimensions could contribute to the marketing of services; also through scales provided by other experts, which could be established as a basis of measurement for the perceived risk. 10 With regard to the field of business management, it can be said that intangibility contributed to perceived risk, so it is worthwhile for organizations, and in this case the retail sector, to have marketing strategies that increase intangibility, especially mental intangibility.

Likewise, reducing perceived risk should be a watchword for companies seeking a competitive advantage and thus generating value for the consumer; therefore, the recommended marketing strategies that help to reduce the associated risk are those of intangible offers (Laroche, et al., 2004). As for the service sector, the issue is a bit more complicated because many aspects of service production are not visible to production; however, it is important to allow users to evaluate the service, thus increasing the mental tangibility and thus reducing the perception of risk (Laroche, et al., 2004).

In this section, we will approach the metaverse as it is known, through the compilation of some expert scientific sources on the subject, in order to understand from its concept even more, the impact that this interactive technology will have on organizations, marketing, retail, and especially on consumers. However, although much has already been said about this term, it has become more important in recent years, mainly as a result of the pandemic generated by COVID-19. First of all, it is necessary to make clear the origin of the concept, as well as its definition itself; therefore, (Herrera, 2021) describes that: "Metaverse is an acronym of the prefix "meta" (meaning beyond) and "universe", giving a virtual, collective and persistent shared space" Its origin dates when the term was first coined by the writer Neal Stepheson in his science fiction novel "Snow Crash" published in 1992, in which humans spend their time in a computer "generated universe", (Herrera, 2021, p. 2). In Stephenson's own words, the metaverse refers to a fictional virtual world or a collective and shared virtual space often created by convergence and compatibilization with an aspect of external reality (Stephenson, 2003). Not far from the above, other experts give their contribution in relation to the concept of metaverse; it is the case (Fernandez, 2022), which was well named at the beginning of this article and that in his report on the website of QuartzSales indicates that this technique:

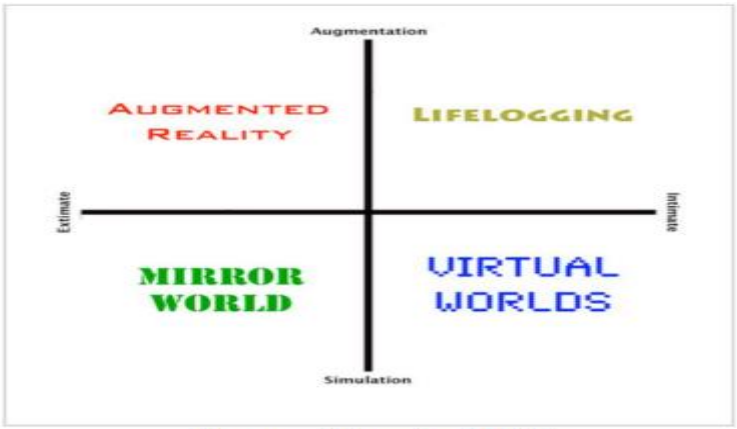
It is a set of virtual experiences generated with augmented reality and virtual reality technologies where the individual can interact with other people and/or objects, and even acquire virtual goods. With the development of the metaverse, the aim is to extend the real world to the virtual world, making everyday actions part of it". So do other portals dedicated to modern technological advances and techniques, as described in the site's blog (Teamwork Commerce, 2022), which states: "The metaverse is a virtual world in which people interact with avatars. In the metaverse, people can interact with each other, using virtual reality viewers, such as Oculus Rift, to enter a simulated reality in which social and economic interactions take place. It also combines several technological innovations that operate together in an integrated way. From NFTs to Social Commerce with Augmented Reality (AR) and Virtual Reality (VR), which together with many more backend technologies such as Artificial Intelligence and advanced analytics, have a huge potential to create new realities not only virtual, but hybrid between virtual and real.

According to this, the metaverse gathers very particular characteristics that must be taken into account in order to understand the concept in depth; this is how (Márquez, 2011, p. 155) identifies 3 important premises that can be summarized as follows: - Interactivity. The user is able to communicate with other users, as well as to interact with the Metaverse. This also implies that their behaviors can influence objects or other users. - Corporeality. The environment that is accessed is subject to certain laws of physics and has limited resources. In addition, such access is done in first person. - Persistence Even if no user is connected to the metaverse, the system continues to function and does not stop. In addition, the positions in which the users were when they closed their sessions will be saved, in order to load them again at the same point when they log in again. However, (Márquez, 2011) describes in his article that the concept of metaverse is often used as a synonym for a three-dimensional virtual world, but that this "virtual world", as it is referred to, should not be used alone, so it should be accompanied by another term that identifies its digital character.

In essence, the author states that virtual worlds are not new, they have been around for a long time and examples of this are literature itself, creating various stories of virtual worlds that encompassed myths and legends, which were absorbed by man; this is how he describes it (Echeverría, 2000, p. 23-24), when he argues that "virtual entities have been part of social life in all cultures" (Márquez, 2011, p. 156) describes in relation to the distinction between virtual worlds: "we should not speak of virtual worlds without further ado, since we run the risk of confusing them with pre-digital virtual worlds, but rather of virtual worlds. 156) describes in relation to the distinction of virtual worlds: "we should not speak of virtual worlds without further ado, since we run the risk of confusing them with pre-digital virtual worlds, but of 3D virtual worlds, digital virtual worlds, synthetic virtual worlds or infovirtual worlds". Likewise, he argues that the concept of the metaverse is more diverse, therefore, it could be classified into several types as described

(Cascio, 2007) in the website Kurzweil. Acceleraying Intelligence, representing them in Figure 2. According to this author and regardless of the hierarchical order, in first place are the games and virtual worlds (Virtual Worlds); these are immersive virtual environments in which the user is immersed in an experience of contact with other users and elements within a 3D virtual world; in second place are the mirror worlds (Mirror World), which virtually represent diverse and detailed aspects of the real world. Thirdly, there is augmented reality (AR), which has been discussed a lot in this article, mainly in previous sections; finally, there is lifelogging, which is more than systems that record data from everyday life to analyze them later and statistically. (Márquez, 2011, p. 156).

Figure 2: The four worlds of the metaverse



Fuente: (Cascio, 2007)

But to bring the reader a little closer to this metaverse, we can say that in June 2003 Second Life was launched by its founder Philip Rosedale, a virtual community on the Internet for free, in which its users called residents could access through the use of multiple programs called viewers (viewers) which allowed them to interact with each other through avatars (Golf-Pape et al., 2022). Second Life, it can be said that it has been one of the first massive experiences that have applied or approached this concept of metaverse, and that it is located within the typology of metaverse worlds, in the Virtual Worlds or virtual worlds (Cascio, 2007), since it makes much more precision in the interaction between users, contributing positively to sectors such as education (Márquez, 2011). Leaving behind the theoretical conception and emphasizing the relevance of the metaverse in modern business strategy, it can be said that the digital acceleration that retail has had in recent years, does not compare at all to the progress it will experience with the metaverse according to (Fernandez, 2022); also notes that this new technology portends a new way to connect with the consumer in which retailers and brands will have to be present if they want to communicate better with the younger generations. According to the website QuartzSales, (Fernandez, 2022) points out through his article, and in the same order of ideas that:

"The opportunities offered by the metaverse are endless, especially in the field of commerce; the technology company Wilbytes assures that at least 70% of major brands will have a presence in it. Brands such as Gucci, Ikea or Nike are already preparing to venture into virtual spaces. In fact, Gucci has already started selling its own virtual clothing; Gucci Virtual 25 sneakers, and H&M recently launched its first virtual collection through Nintendo's social simulation game "Animal Crossing". As for large retail chains, they also began to address actions based on the use of metaverses; as is the case of the giant low-price chain Walmart, in which they initiated sales of virtual and non-virtual products with their own cryptocurrencies, using avatars, and other applications such as blockchain. Carrefour also joins this initiative by opening its first store in the metaverse, and as indicated in the QuartzSales report, The plot that the retailer has acquired is located at coordinates 33,147 of The Sandbox.(Fernandez, 2022).

As for brands, the website (PuroMarketing, 2022) highlights, based on the study conducted by Wunderman Thompsom Intelligence, that 89% of the people surveyed believe that the metaverse will change ads, 86% in the retail sector, 85% in fashion and 82% in finance. For the food sector, fewer are those who expect changes. Thus, all actors (consumers and suppliers) surrounding the metaverse will have to adapt to the new situations and conditions it provides. In terms of retail, online and offline shopping, the metaverse will have a major impact, as summarized in an article in (Forbes, 2022); "The metaverse will be a seamless experience that will make it easier for shoppers to find exactly what they want, exactly when they want it. And unlike the current limitations of personalized digital shopping experiences, the metaverse will allow brands to personalize the shopping experience at scale to reach more shoppers than ever before." With the metaverse, it will be possible to build a co-creation strategy, in which the consumer is no longer a passive entity, and becomes collaborative, something that in digital marketing is called Pro-consumer; however the social gap between the metaverse and e-commerce will continue to close, since the star rating and comments will go far beyond; communities will be the key, since they will allow interaction with brands and other users. (Forbes, 2022)

(Teamwork Commerce, 2022), highlights that the history of retail changed forever when in 2014, Twitter enabled the buy now button, a fact replicated by each of the social platforms, giving rise to Social Shopping, a key element for purchases in the metaverse. Finally, the metaverse will impact the interactive video games industry, even some research such as that of (Bonales Daimiel et al., 2022,) describes the relationship of the metaverse and advergaming, and how it impacts new advertising strategies for brands. However (Bonales Daimiel et al., 2022, p. 158) points out in his article in relation to digital gaming platforms that: "platforms such as Roblox, Minecraft, Halo or Fortnite, which are perceived as the most fun way to hang out and an interesting means of social interaction by younger players have well-established platforms that operate in the metaverse".

METHODOLOGY

This article is based on a documentary review described by different expert authors; taking as secondary sources, related articles in specialized databases such as Science Direct, Scopus and specialized web portals, the aim is to elucidate and theoretically relate the metadata described at the beginning of the document.

CONCLUSIONS

While the retail segment was in sharp decline and in crisis, with the arrival of the pandemic generated by COVID-19, it worsened even more, closing establishments and preventing social contact, and describing new commercial modalities (AlesancoLlorente et al., 2021). However, it would be the ideal opportunity to consider the development of interactive techniques such as augmented reality (AR) and metaverses, taking advantage of changes in consumer behavior, technological advances in recent years, the massification and growth of the Internet. Augmented reality (AR) as it is known, arises as a response to the evolution of digital marketing considering the use of mobile devices as its main vehicle. Augmented reality as an interactive technique solves the information problems that the consumer has when selecting products through online shopping, which improves the shopping experience, making it more intuitive and sensory. As far as metaverses are concerned, although the term apparently sounds like something modern, virtual worlds have been used since biblical times to express myths and legends, as was mentioned earlier in this article. However, the metaverse is one of the trends in digital marketing that will have a strong impact on socio-business processes.

Although there are four types of metaverses, the virtual world is of great relevance since it is there where most interaction between users is established. The purchase of products in traditional physical stores gives shoppers the ability to physically touch or try on products before buying them. E-commerce shopping forgoes the physical aspect of traditional physical shopping, but offers unprecedented convenience, speed and access. The Metaverse is where these two previously separate worlds of commerce converge to create an experience that will redefine e-commerce

forever. (Forbes, 2022) Metaverses will undoubtedly be driving the new era of the internet in the coming decades, where consumers will have more intuitive experiences as they play a creative and participatory role with suppliers, producers and distributors in the commercial and business processes. However, it is expected that with the exponential changes that surround all this Industry 4.0, the inclusion of artificial intelligence (AI), the internet of things (IOT), among others, will be the breeding ground for the development of the technologies that metaverses need to put them into service on a massive scale.

ACKNOWLEDGEMENT

The authors express their gratitude to the Cooperative University of Colombia, University of Sinú, University of Córdoba and National Unified Corporation for Higher Education CUN, for giving us the time and opportunity to participate in the development of these projects that have to do with interactive technologies: the influence of augmented reality and the metaverse on the retail sector and the consumer experience

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