To what extent will the metaverse replace social media in our daily lives?

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Abstract

Over the past few decades there has been a significant rise in the use of the word 'metaverse', and this new iteration of the internet as we know it can be expected to weave its way into our lives over the next few years at an unprecedented scale. People have been speculating that metaverse would replace social media, one of the most important resources available for today's generations, as the primary source of online interactions and also change the way certain elements of society operate. With this there are several questions or doubts can be posed and therefore is an inevitable comparison to be done between the two. In this paper I present the perspectives through which the advantages and disadvantages of both platforms in an individual and grouped context can be analyzed. I discuss these in tandem with the factors that made social media stand out to the point that it became an integral part of most of our daily lives, and also how the metaverse is highly likely to remodel several elements of society as we know it. In this discussion I have also made sure to consider the effects of the COVID-19 pandemic and the 'online' scenarios that were created during the pandemic in these discussions as it has without a doubt been an important stepping stone in social media's use and significance for the current generations. To compare this to metaverse in a fair manner, the ever-growing capabilities of VR and the artificial physical presence that they can create while working together is also a point of interest. This research paper hopes to clear any doubts people might have regarding either of the two topics being discussed, and also help people formulate their opinions and expectations based off valid, relevant and important arguments from a variety of reputable resources which would help them to wisely choose between the two platforms for themselves based on how they would fit their lives. In order to collect relevant and appropriate resources, after some initial research I created codes for my research paper that would help shape the real content of my research paper. I shortlisted resources that would contain important information and then create annotated bibliographies from the same. From this, it became evident which sources were not appropriate to be used as it became clear which aspect they lacked credibility in. If the information they were providing was vital, I tried to find similar information on a different resource that would prove to be a credible resource after the annotated bibliography. The main resources that were used were other research papers and articles but use of certain statistical databases to retrieve figures regarding some trends discussed proved to be very helpful in justifying the point stated.

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I. Introduction

Social Media can be defined as interactive technologies that facilitate the creating and sending of information through different means of digital communication. Applications that fall under the classification of social media started gaining traction in the 2000's and have since been constantly increasing in popularity. These apps are internet based and as of 2022 are the most popular and actively used mediums of sharing information in the world. Information shared through these mediums can be as simple as texting friends and family to important announcements from large organizations. It has also become an important source of advertisement worldwide.

The metaverse can be defined as a "post reality universe" where multisensory interactions between humans and technology are possible. It is effectively used in tandem with Virtual Reality (VR) and Augmented Reality (AR) set ups to simulate the digitally generated world in a more realistic manner. Similar to the social media, it has the potential to become a frontrunner in terms of communication mediums and technologies, however its widespread use is yet to start. The potential of this technology seems limitless and its digital advancements and achievements are hence often compared to those of social media. In terms of capabilities, metaverse is already ahead due to it being a newer technology, but the more important point to address is if in the future it will be able to match the impact social media once made on this society.

The factors that can be considered to understand if metaverse will surpass the impact made by social media are-

- Growth of the metaverse
- What metaverse has and what social media lacks

- Improvements in the metaverse
- How metaverse remodels the world
- Things that make metaverse stand out

When all of these are understood in detail while respectively being compared with what social media offers, or once offered, can help establish the extent to which one may be better than the other.

II. Findings

Growth of the metaverse

"2022, the metaverse is a digital world created using different technologies like Virtual Reality (VR), Augmented Reality (VR), and cryptocurrency, and the Internet.

However, a lot happened in these 30 years, from Philip Rosedale's 'Second Life' online virtual world in 2003 to Mark Zuckerberg's 2021 announcement of Meta's (formerly Facebook) metaverse plan." – (CNBCTV, 2022)

"The term metaverse can be traced back to Neal Stephenson and his dystopian cyberpunk novel Snow Crash. The novel was released in 1992, and it's considered a canon of the genre, along with William Gibson's Neuromancer, which describes a virtual reality dataspace called the matrix." - (What Is the Metaverse: Where We Are and Where We're Headed, 2022b)

The true birth of the metaverse is hard to gauge as it is nothing short of a culmination of phenomenal technologies that have been developed up until now, including social media. But as metaverse is usually defined as an interactive artificial world it can be justified that its beginning was from the creation of VR in 1970's. Since then, the word metaverse has been adding more and more meaning to it by constantly evolving.

"The global metaverse market is estimated to rise from USD 100.27 billion in 2022 to USD 1,527.55 billion by 2029 at 47.6% CAGR during the forecast period. Fortune Business InsightsTM has delved into these insights in its latest research report titled, "Metaverse Market Forecast, 2022-2029." As per the report, the global market size stood at USD 63.83 billion in 2021."

- (Fortune Business Insights, 2022b)

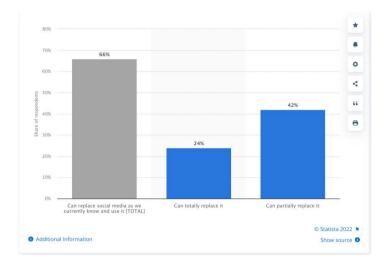
"The global social networking app market size was valued at USD 39.7 billion in 2021, and it expected to reach 50.4 billion USD and continue its expansion at a compound annual growth rate (CAGR) of 23.4 from 2022 to 2028"

- (Social Networking App Market Size Report, 2028, n.d.-b)

"Last year, the metaverse market attracted \$13 billion in funding from private equity. "In 2022... investment into the metaverse space is more than double what it was in all of 2021""

"This year, businesses that range from large technology organisations, start-ups, venture capital and private equity companies have already allocated more than \$120 billion to tap into the metaverse, more than double the \$57 billion investments made in 2021, consulting firm McKinsey & Company said. " - (Maceda, 2022b)

The overall rise in popularity, demand and importance of metaverse can be seen in the above excerpts where the increase in finances can be seen in respect to the situations metaverse has been in. The observed growth for such a relatively new term is commendable and also challenging to other industries as when compared to their current growth rates, and speculated charts, they fall behind by a significant number.



"Share of adults in the United States who think that the metaverse could totally replace social media as of December 2021"

- Statista.com

What metaverse has that social media lacks

"However, applications operating in 2D, web-based environments have well-documented limitations and inefficiencies. The daily extended use of synchronous online platforms leads to phenomena such as Zoom fatigue. Asynchronous platforms are often plagued by emotional isolation, a detrimental emotion for participation motivation. Consequently, e-learning courses in the above-mentioned platforms face high dropout rates.

This phenomenon reaches its extreme in MOOCs where typical completion rates have been fluctuating around or below 10%. The use of social media and collaborative applications (e.g., blogs, wikis) can improve active engagement but not necessarily address natural communication and users' emotional stress.

2D platforms have the following limitations that impact education negatively:

• Low self-perception: Users experience a very limited perception of the self in 2D environments. They are represented as disembodied entities through a photo or a live webcam head shot feed with no personalization options.

• No presence: Web conferencing sessions are perceived as video calls to join rather than virtual collective meeting places. Participants in long meetings tend to lean out and be distracted.

• Inactivity: 2D platforms offer limited ways of interaction among participants. Unless instructors initiate a learning activity, students are confined to passive participation with few opportunities to act.

• Crude emotional expression: Users have very limited options to express their feelings through smileys and emojis. All these limitations can be addressed with 3D, immersive spatial environments" - (Mystakidis, n.d.-b,2022)

"Online learning in its entirety is dependent on technological devices and internet, instructors and students with bad internet connections are liable to be denied access to online leaning. The dependency of online learning on technological equipment and the provision of the equipment was a big challenge for institutions, faculty and learners. D. Yates (personal communication, March 17, 2020) while answering a question posted on Research Gate, by John R. Yamamoto-Wilson a retired professor from Sophia University, on the effects of Covid-19 and online learning on instructors and teaching stated that students with outdated technological devices might find it hard to meet up with some technical requirements of online learning"

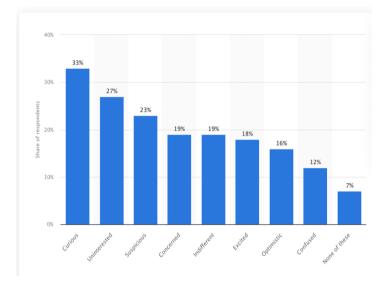
- (Covid-19 Pandemic and Online Learning: The Challenges and Opportunities, n.d.-b, Olasile Babatunde Adedoyin & Emrah Soykan, 2022)

"The metaverse has the potential to extend the physical world using augmented and virtual reality technologies allowing users to seamlessly interact within real and simulated environments using avatars and holograms. Virtual environments and immersive games (such as, Second Life, Fortnite, Roblox and VRChat) have been described as antecedents of the metaverse and offer some insight to the potential socio-economic impact of a fully functional persistent cross platform metaverse."

- (Yogesh k Divedi, 2022)

"Risks related to AR can be classified into four categories related to (i) physical well-being, health and safety, (ii) psychology, (iii) morality and ethics and (iv) data privacy [60]. On the physical level, the attention distraction of users in locationbased AR applications has led to harmful accidents. Information overload is a psychological challenge that needs to be prevented."

- (Mystakidis, n.d.-b,2022)



"Feelings toward the metaverse according to adults in the United States as of January 2022" - statista.com

Over time, the limitations of social media as we know it today have become more and more evident. The newer technologies are being introduced into peoples' daily lives on a regular basis and the old social media technology is gradually becoming out of date, with the cracks in the design becoming more pronounced by the second. The COVID-19 pandemic that forced the world back onto these platforms on a never before seen scale made it so that there was lot of room for people to find faults and previously overlooked shortcomings. These developments are countered by the developments offered by the metaverse and its seemingly limitless potential. The fact that it can make up for a number of issues that have been identified has given its popularity a massive boost, however the as people grow more aware of it by day, the downsides of its capabilities become a bit clearer.

How metaverse remodels certain elements of the world as we know it

"Pertaining to Metaverse's potential for educational radical innovation, laboratory simulations (e.g., safety training), procedural skills development (e.g., surgery) and STEM education are among the first application areas with spectacular results in terms of training speed, performance and retention with AR and VR-supported instruction [9,63,64]. Thanks to the ability to capture 360-degree panoramic photos and volumetric spherical video, the Metaverse can enable immersive journalism to accurately and objectively educate mass audiences on unfamiliar circumstances and events in remote locations [65]. Moreover, new models of Metaverse-powered distance education can emerge to break the limitations of 2D platforms."

"The potential for organisations to adapt their business models and operational capacity to function on the metaverse is significant, with transformational impacts on marketing, tourism, leisure and hospitality citizen-government interaction, health, education and social networks." – (Yogesh k Divedi, 2022)

"Gen Z travelers are increasingly interested in transformational experiences. Virtual Reality (VR) enables them to have more engaged and diverse encounters. More than 84% of consumers around the world would be

interested in using VR or Augmented Reality (AR) for travel experiences, and 42% believe that VR and AR are the future of tourism."

- (Buhalis & Karatay, 2022)

"In addition to being spaces for competitive games, these become spaces for Gen Z to socialize and spend time with friends, follow news trends, and consume news and event media through apps, websites, and podcasts. These activities, including interactive play, viewing, and socializing, are all integral to this generation's augmented reality experience." – (Lamba, Malik, 2022b)

"Facebook is not the only tech company that is invested in exploring a 3D virtual reality where people interact with others using avatars of themselves. Video games are already popular among Gen Z, where they create and interact with each other within their universe. And also they believe this will be the successor to the mobile internet. It can be stated that many different companies may enter the field in this future, enterprises operating in technologically parallel or related sectors are only 3-5 steps ahead of the race at this point, but the sector is fresh and appetizing for entrepreneurs at this point. Metaverse is not a single product that a company can handle alone. Just like the internet, the metaverse will exist with or without Facebook. It will also not be built overnight. Many of these products will only be fully realized in the next 15-20 years. This situation strengthens the possibility that the subjects will be evaluated from many different aspects in the literature in this development process."

- (Damar, 2021)

The possibilities of metaverse are seemingly infinite which is the reason behind the massive traction that can be observed. The newer generations, more specifically gen-z, are trying to make the most of these opportunities and get involved with the projects. The prospect of revolutionizing the world as it is seen today into something completely different is greatly wished for by youngsters and investors who would like to help contribute into creating metaverse in a way they would benefit most from.

Things that made metaverse stand out

"Terms, such as social media addiction, problematic social media use, and compulsive social media use, are used interchangeably to refer to the phenomenon of maladaptive social media use characterized by either addictive-like symptoms and/or reduced self-regulation. Among these terms, social media addiction (including its variations, such as, Facebook addiction, SNSs addiction, and addictive SNSs use) is most commonly used and is defined as a maladaptive psychological dependency on SNS to the extent that behavioral addiction symptoms occur."

- (Y. Sun, Y. Zhang, 2022)

"In a similar vein, influencer parties can be held almost exclusively in the metaverse for the same reasons. In the metaverse, party attendees are limited only by their internet connections, not their location. Access can be easily restricted to NFT ticket holders, preventing random people and bad actors from sneaking their way in. We must also consider the fact that interactions in the metaverse are simply more personable than on social media. Conversations aren't through text or a one-way video call, but are virtually in-person, bringing with the nuances of natural conversation that social media platforms lack." – (Ilman Shazhaev, Editorial Team, 2022)

Social Media was and has been a major point of interest due to the addictive nature of the platforms. The algorithms and overall product design encourage the user to return to the platform as they have produced it to become an integral part of their lives. The metaverse's abilities to control and improve the previous features established by social media is the basis for the much-anticipated growth of the platform.

III. Discussion

Growth of the metaverse

The true birth of the metaverse is hard to gauge as it is nothing short of a culmination of phenomenal technologies that have been developed up until now, including social media. But as metaverse is usually defined as an interactive artificial world it can be justified that its beginning was from the creation of VR in 1970's. Since then, the word metaverse has been adding more and more meaning to it by constantly evolving.

Looking at its growth from a financial standpoint, metaverse has only started to explode. According to information from Bloomberg and PR news wire, the market for metaverse for 2022 can be valued at over 27 billion USD. Considering that the initial concept of metaverse, as a digital world, was popularly created only in 1992 in a sci-fi novel, this is an impressive feat. Social media apps' 2021 market size is estimated to be around 43 billion USD, about 50% more than the current size of the metaverse market, and its projection for the end of 2022 is expected to be around 50.4 billion USD. However, the amount of investment increase in metaverse shows that the numbers can increase at an exponential rate. According to CNBC, the overall investment in metaverse related business was only 13 Billion USD in 2021 but has already been surpassed by an investment increase of almost 10 times in 2022. The 120 Billion invested into the metaverse market in 2022 support the steep financial growth slope metaverse has the potential for. Additionally, the market size for the metaverse is projected to become 1525 Billion USD by 2030, an exponential increase in its size in the span of 8 years with a CAGR (compound annual growth rate) of 47.6%. This is worth noting as currently social media's current CAGR is about 25%. This shows that even though social media has a very significant lead over the metaverse, the growth rate of metaverse, the newer technology, is higher than that of the aging social media and hence can be expected to surpass social media. However, most reliable sources for predicting metaverse market size and social media market size do not predict further than 2030 and hence these strong trends may for metaverse and weaker trends for social media may change after that point.

In terms of popularity and traction, metaverse has clearly already outperformed social media. As seen in figure1 (*"Share of adults in the United States who think that the metaverse could totally replace social media as of December 2021" - Statista.com*), from the 1000+ adults that were asked their opinon about metaverse being a replacement for social media, 66% of them suggested that metaverse can prove to be a replacement, where 24% said completely replace. Considering that social media is an integral part of most of the adults' lives and has been for quite a few years, the chart shows the influence it has had on the people who know of it.

What metaverse has that social media lacks

During the global COVID-19 pandemic, the world learnt the importance of presence. As almost all locations places were in lockdown and stepping outside was no longer permitted, people had to switch to online mediums to conduct their work and go on with their lives. Meetings started becoming g online, schools were taught using online notebooks and boards, interactions with friends and family became hard and mental health of people declined. The reason why this was so impactful to people was not only the fact that they could not themselves move around, but also that they had minimal to no interaction with other people. The presence of people in the 3-D real world cannot truly be made up for by the 2-D laptop screens that were used. This is one of the main limitations of social media. According to the research conducted by Stylianos Mystakidis, use of 2-D social media platforms causes issues such as low self-perceptions, no sense of presence, limited personalization and representation and lack of expression. All of these are important aspects of a healthy lifestyle that ensure the mental health of people and must be maintained else, as seen, they can have detrimental effects on the mental health. However, metaverse can minimize the effect of these by enhancing some of the factors that social media already tried to make up for. For instance, having face to face meetings instead of phone calls was customary for important decisions, hence during the pandemic video calls became much more prominent. This however can be enhanced even more by metaverse's use of VR and AR to simulate a workplace environment for the mind. The interactions in metaverse will have a 3-D, realistic feel to them and hence prove to be effective. The free nature of metaverse life can make up for lack of presence, perception, expression and customization to some extent.

Another thing COVID-19 pandemic did was show the comfort of living life online. It opened the perspective that almost everything one wants to do can be done from home and hence opened peoples' mindsets to a lot of such things. Social media apps as we know today can only advertise and display the objects and activities people can indulge in. Even though some social media apps have some AR capabilities, it can only simulate so much. On the other hand, metaverse can allow experiences that would ordinarily require physical presence to be done from home in a much more realistic fashion. Virtual shopping malls could be visited, and people can look at and purchase various items from various brands, such as Adidas and Gucci, who have already established a presence and market in these earlier stages of the metaverse. Similarly, events such as concerts or house tours can be experienced in intricate detail from one's home, rather than on a 2-D TV screen.

Another aspect that metaverse surpasses social media is the opportunities for people it put forth. Even though this is not something that social media essentially needed given its limited nature in terms of interaction, metaverse has the ability to use this to the fullest. It opens up an entire new domain of potential occupations that can be accessed such as digital real estate agents and brokers. Other occupations for other elements of metaverse, such as retail store employees for the aforementioned virtual malls also open up which makes it so that people have a lot more options.

However, certain elements of the fact that metaverse surpasses social media's capabilities can be concerning. Cyber bullying is an ongoing problem that has been increasingly causing problems. With the 3-D environment and expressiveness offered by the metaverse, the danger of lack of regulation is eminent. Social media can regulate these more easily due to the need to cover less ground, while regulating such acts in the metaverse would be hard given its scope. Another element social media has the advantage in, possibly the biggest advantage, is the ease of access. Social media can be accessed from almost anywhere through mobile phones and computers whereas metaverse in its current state needs AR and VR equipment to help with setting up the artificial world, which would not only be difficult to use outdoors but also dangerous. Lack of personal presence and attentiveness as to what is going on in the real world is also lesser in social media than what would be presented by metaverse, hence, the risks of accidents happening, even though mostly users will be at home, while using metaverse would be higher. Lastly, metaverse lacks the outreach and awareness needed for it to become a worldwide phenomenon as of now. As seen in figure 2 (Feelings toward the metaverse according to adults in the United States as of January 2022- statista.com), the awareness regarding the capabilities of metaverse are not well known. People are not yet sure about this new technology and hence do not feel like wanting to know more either.

How metaverse remodels certain elements of the world as we know it

As stated before, metaverse gives us online interactions on a totally different level, and hence, can completely change the way people interact with each other in a professional workplace. Other aspects of life are also greatly influenced by the potential this technology holds.

Education will also take a great leap forward in terms of the facilities and capabilities that are made available to them once they can use metaverse for simulating more risky tasks such as surgeries and piloting an airplane. Although they can already be done using simulators, using VR and AR in the metaverse, the sensory elements of these experiences can also be considered. Rendering and designing apps will also be looked at from a completely fresh perspective through improvements in their technical abilities, tools, flexibility and accessibility. The domain of virtual worlds also gives new options to 3-D art and creativeness than what is already available. The social media apps can mainly enforce education through attempts at boosting and enhancing interactions in that limited 2-D world scope.

As time goes by, Gen-z's involvement in the world has been increasing and hence the conventions used by them have started becoming more of a standard practice day by day. Social connections and values that are reflected in the behavior and interactions of Gen-Z are key in looking at how interactions in the future using metaverse are going to be like. Advertising in the metaverse would already have evolved due to the new technology, but with these new norms shaping the virtual world, the direction advertising is going to take will completely shift from what it is right now.

In terms of remodeling the world, metaverse might achieve to do so but only if it can ensure its reach to almost the entire world. As the development in various parts of the world is at different rates, with each country having its own rate of growth, research and advancements, the technology levels do not match. For instance, a technologically advanced country such as Japan would likely gain access to metaverse technology much sooner than an LEDC like Indonesia. Even if Indonesia manages to get their hands on the technology eventually, Japan would have already advanced its metaverse technology basis to another level, hence the gap sustains. If this gap is produced, and the world shifts from social media, which is without a doubt a more accessible resource in current times than metaverse, it would mean that certain parts of the world will get 'disconnected' from the connections rest of the world has established.

Things that made metaverse stand out

When comparing metaverse as a phenomenon to social media as a phenomenon, it is important to see what makes both of them stand out to the point that they are extremely addicting and influencing. With this it could be established how metaverse might outperform social media in terms of unique selling points.

Social media apps are mainly used to make connections and involve with people nearby and around the world. Interacting from behind a digital screen in a very self-tailored way is what made these apps gain traction. The traction gained then further attracted business and their advertisements to gain some attention during the peoples' sharing of information. Now that all of these no longer seem impressive, the selling point from metaverse must be more advanced to steal social media users to come and interact in this virtual world. The new rules and capabilities are always the initial standing out factor that gets peoples' attention. Unlike social media, its ability of sharing information surpasses merely sending and receiving information to the point where it can be done in a manner where it feels the information is personally being delivered by oneself to the person as the metaverse allows a shared environment to interact even if the people aren't physically near each other. The

metaverse also offers the chance to live to some extent two lives, one online and one in the real world as it is more than likely that the way people interact and communicate with each other would be different when they are face-to-face and when they are on the metaverse.

IV. Conclusion

By evaluating the various factors, it has become evident that metaverse has built upon many of the unique aspects of social media and made them its own. The use of technology in the metaverse has greatly shaped its capabilities and made it so that a world where almost anything is possible can be made a reality. Due to its incredibly flexible and diverse nature, the virtual world created will most likely remodel most aspects of our lives due to the extent to which it will impact numerous industries and respective parts of the society as we know it today. While social media does have the upper hand over some things as of now, it would not be wrong to say that the reason social media has the advantage in most of the cases is due to the lack of awareness regarding this new technology. First of all, as the world is not growing at the same rate in all regions, and secondly most people are not even aware of the fact that a technology called "metaverse" exists. However, once addressed, the seemingly ambitious speculations of its growth can be justified.

The metaverse is able to do 'too much' and hence can produce more negative results than what would have been ideal/ acceptable. As it is to some extent, an upgrade to social media as we know today, and as it is going to enhance its elements, the negative aspects that are causing issues in the modern day such as fraudulent information or cyber-bullying can also be magnified. Tackling these is already a prevalent challenge, and hence this threat of it becoming "permanent" is there. Although, it is worth mentioning that the technology will also diversify into the security, healthcare and similar public industries, which may aid in tackling such issues more directly and efficiently than what is plausible today. The natural resistance of people towards change is also another threat that metaverse faces due to people having now become comfortable and very dependent on social media as we know it today, meaning that risking losing the balance at multiple levels of their daily lives would be extremely risky. The element of expanding to lower developed regions would be a key concern, as the technology would need to be prevalent there in order to work effectively as a source of communication.

Overall, the market and growth of metaverse from the ongoing and past trends show impressive numbers and records that this new world will set financially and socially. It is still a bit soon to tell how quickly and effectively the replacement, if happens, will take place given the very situational requirements that must be met. However, its integration into the various aspects of peoples' lives is likely to start becoming more and more noticeable by the day, as by the second the world gets closer to the end goal.

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