Research on the Impact of the Metaverse on the Future of Social Networking

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Abstract. As a technological concept that promises to seamlessly connect the real and virtual worlds, the concept of the Meta universe has been hotly debated by a large number of Internet users even before it was implemented. Considering the particularity of this concept, it is not difficult to imagine that this new industry, once launched, will have a near revolutionary impact on the entire social network. This paper will list case studies and questionnaires as survey methods. This article summarized the industry's status and investigated regional opinions about the Meta Universe, which gives an industry profile to the relevant company or the company that intended to participate in the production of Meta universe. Thus, they can decide the direction of development and which strategy to utilize in the program. In addition, some suggestions for potential problems in the metaverse field in the future, the aspects that need to be paid attention to for the anti-addiction mechanism and legal regulation are all includ in this paper for the reference of relevant enterprises, so as to bring better user experience for the masses.

Keywords*:* Metaverse, Social networking, Future market.

1. Introduction

1.1 Research background

As innovations in computer science that are important to our daily lives, they have changed the way we interact, communicate and trade with each other. At present, there are three main technological innovations, which are introduced around the Internet and mobile electronic devices. Today, a fourth trend of innovation is unfolding around spatially immersive technologies such as virtual reality and augmented reality. This trend holds great promise to revolutionize different industries -- education, business and entertainment among them. This new world is the Metaverse. The Metaverse is a portmanteau of the words Meta and universe. It is mainly used to refer to the expected future iterations of the Internet. This concept can also be referred to as Web 3.0. The hyper universe can be defined as a post-real world. It is a multi-user, permanent environment that combines the real and the technical virtual. Not only that, Meters have the potential to break the limits of the Internet-based 2D tools currently on the market.

This is a critical point because communication has always been a socially and economically important condition, the core implementation of which does not change and is able to connect individuals in different areas at the same time. At present, the competition to build social media platforms is fierce. Everything's gonna be different in the hyper universe. To attract customers, big tech companies are building their own proprietary software, hardware and ecosystems. Different policies and system approaches collide on concepts such as user privacy and openness. The extent of users' privacy rights and Meatier's security will be determined by the outcome of this collision. This article aims to raise awareness of the Metaverse social media revolution.

1.2 Literature review

Cross reality (XR) is an umbrella term for a range of technologies that provide users with immersive experiences, including data representation, projection and digital environments. Virtual

reality (VR), augmented reality (AR) and mixed reality (MR) are included in XR . In the above XR, the environment for human exploration and interaction is a digital virtual environment constructed and synthesized by technology.

VR is an artificial environment created digitally. This completely independent world will enable users to experience immersive experience in VR, and its authenticity and the physical environment similar to the real world will make users feel that they are in a new world. With the help of special multi-sensory equipment, users will be able to experience the amplified interactive experience brought by immersive helmets, VR devices and omnidirectional treadmills through visual, auditory, tactile and other senses [5-6].

To create special physical Spaces, AR takes a number of different approaches; To enhance it, both digital inputs and virtual elements will be included in its own proprietary physical environment. The physical world and the virtual digital world will be merged. The final digital space projection layer is mediated by devices (such as smart phones, tablets, glasses and other transparent surfaces). In addition, AR can be implemented in VR devices with pass-through mode capability through input from camera sensors.

As a even complex concept whose definition changes over time, MR can largely reflect current technological trends and mainstream language meanings and narratives [10]. MR is understood as an advanced replacement of AR because of its real-time interaction between the physical environment and projection data [10]. For example, NPCS in MR games -- non-player characters -- can recognize the specific physical environment of the game and react to objects such as tables and boxes that exist in that space, such as hiding behind them. Like AR, MR requires special eyes, but MR is an arbitrary combination of AR and VR, because AR is mature and has the basic technology of long-term technological evolution.

1.3 Research framework

Milgram and Kishino's one-dimensional reality-virtual continuum can be used to understand the way these immersive technologies interact with the environment. A straight line with two ends can be used to describe it. In this line, the physical environment exists at the left of the line, while the right part represents the completely artificial virtual digital environment. Therefore, at the left end of the spectrum is AR, and at the right end of the spectrum is VR. MR is a combination of the two, or a superset.

2. Method

2.1 Case study

This article investigated the annual report, earnings release, and the stock price of Meta. It clearly shows every revenue and expenditure of Meta company. Meta is an application that first announced they would apply the Metaverse to people’s social life. These data help to predict the future of Meta and Metaverse, and it summarizes the gains and losses of Meta. Since Meta company is applying the concept “Metaverse” into their application, then it could be a representative of Metaverse. Through this analysis, this paper can conclude whether or not Meta will be the most successful company in the future. First, this paper analyzes the stock price of Meta. From the official data that Meta shows: before February 2022, its stock price is within the normal range, and the closing price before February 2022 is ranged from 382.18 USD to 323 USD. However, after February 2022, its closing price presented a cliff drop. In the continuous 4 months, its closing price was initially 323 USD, but now it is falling to 160 USD. According to the earning release of Meta. It’s DAU (daily active users) presented a constantly increasing. Meta has 1.929 million active users in quarter 4 of 2021, but now it has 1.960 million active users in quarter 1 of 2022. In quarter 1 of 2022, Meta’s reality Labs reported a loss of $2.96 billion. From the data above, the future of Meta is pessimistic [11].

2.2 Questionnaires

This study researched the opinion about the Metaverse from different groups of people. The questionnaire includes investigations of the ages, occupations, and expectations about the future Metaverse of these people. There are 119 people have completed the questionnaire. 30 people are under 18, 25 people are aged between 18-30, 30 people are between 30-40, and 34 people are above 40. 30% of the group under 18, 36% of the group aged between 18-30, 40% between 30-40, and 26.47% of the group above 40 answered that they understand the Metaverse. People from the group aged between 18-40 knew Metaverse better than the people from other groups. 60% of the group under 18, 72% of the group aged between 18-30, 56.67% between 30-40, and 68.57% of the group above 40 think metaverse will be applied to social media in the future. 53.33% of the group under 18, 76%. of the group aged between 18-30, 83.33% of the group aged between 30-40, and 68.57% above 40 disagree that Metaverse will take an important role in the future. 50.83% of people expect that Metaverse can bring a better gaming experience. 46.67% of people expect that Metaverse can bring a better work experience. 52.5% wish metaverse could bring a better social life experience. According to the data, the concept of "metaverse" is not well-known in the student group but in the group between 18-40. Most people think Metaverse can be applied to social media. More people disagree with the Metaverse and will not influence people's life largely.

3. Result

Metaverse comes from the 1992 science fiction avalanche. The author depicts a three-dimensional digital space parallel to the real world. At present, the definition of Meta universe in a general sense refers to a virtual universe form built through a variety of technologies. People can use brain-computer interfaces, VR or AR, and other science and technology to immerse themselves in the data world.

Relevant technologies supporting the Meta universe include cloud computing, 5G network, visual interaction technology, artificial intelligence technology, etc. From 2017 to 2021, the market size of many technologies like AR, VR or cloud computing were expanding. The rapid development of technology in various fields provides comprehensive technical support for the metaverse industry. As the technical foundation of the Meta-universe, VR, AR, and AI will also usher in a period of rapid growth. The presence of term "Meta universe" arise quite frequently on the network. According to the survey data, all net citizens interviewed have heard of Meta-universe, of which nearly 50% of net citizens "know it better", and 15.9% know it very well. Net citizens have a greater acceptance of something new and emerging; those people are also willing to "predict" the emergence of these rising concept-- Metaverse

At the interactive hardware (social platform) level, Meta is the leading representative. Sony, Microsoft, Pico, VIVE, etc. have entered the game one after another to seize the dividends of the times.

In the segmented field of Meta-universe, net citizens' expectation of virtual community space is as high as 4.12 (the full score is 5), ranking third. More than 60% of net citizens said they would participate in Meta-universe social networking in the future. Under the background of the high popularity of the Internet, promoting the Meta-universe social model is less difficult. After the users of Meta Universe reaches a certain scope, it will form a herd effect. There is a great possibility that social interaction could appears in Meta Universe.

However, according to the survey data, 69.8% of net Chinese citizens were worried about the Meta Universe is easy to let people obssessed with the virtual reality. In addition, 48% of users are worried that the Meta Universe will aggravate users' social fear of reality.

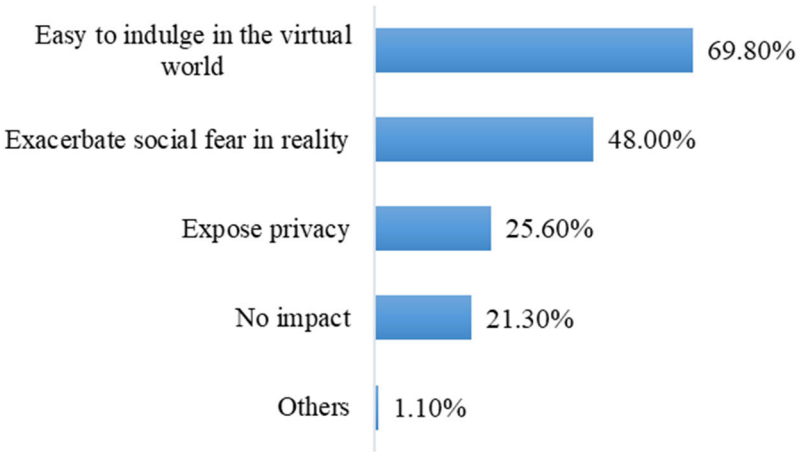

Figure 1. Survey of Chinese net citizens' worries about Meta-universe in various fields in 2021 (Data source: strawberry pie, Sample size: n=1282; Research time: 2021)

This may be mainly accounting for users' lack of understanding about the incomplete Meta-universe and the extension of the current defect of the Internet. The next step of the Meta universe needs to consider general about users' concerns of their pain points and focus on constructing an anti-addiction mechanism so that it can protect immature users.

In addition to users' perspective, there are other things to consider. On the one hand, 5G network, cloud computing, artificial intelligence, blockchain, AR and VR technology around the world are gradually maturing. The market is also enlarging yearly, laying a good foundation for developing the Meta universe industry. The complete industrial chain, as well as the huge market size, give Meta universe industry a strong development drive. In the demand of Meta Universe industry, three-dimensional interactive facility, such as audio-visual technology, has also been developed accordingly. Through the combination from different application of AI audio-visual technology, users can receive an immersive experience.

The virtual ecology derived from the prevalence of the Meta universe exists more in the form of concepts and has not yet landed. But it also drives the progression of many industries and promotes the construction of virtual platforms. For example, the AR detection face service of the New Oxygen Platform, the AR virtual shoe test function of the Dewu App, and so on all illustrate this point. Under the drive of wearable devices like AR or VR, and other technologies, more and more immersive consumption may spread universally and will no longer be limited to basic consumption such as shopping and walking in the real mall. AR house decoration, remote viewing, and even simulated tourist attractions will become possible, thus driving consumption growth and promoting economic development.

On the other hand, the embryonic industries of the Meta universe, such as VR, AR terminal hardware, virtual idols, and sandbox games, have a good development momentum. In addition, the market size is amplifying, and these products were appeared before the "Meta universe" concept. The meta-universe is still in the initial stage, and there is no explicit using scene or product. The concept can drive technological development but needs attention to potential industry risks.

Taking NFT and digital currency as examples, many blockbuster products were finally proved to be the Ponzi model, transmission from virtual world to real world about the economic benefits and risks can be possibly happen.

At the same time, as the Meta universe is developing, the related policies are still unclear, and the legislative supervision is ambiguity. It is necessary to prevent financial fraud and other legal issues.

4. Discussion

4.1 Building anti-addiction and authenticity social simulation mechanisms

According to the requirements of the concept of Metaverse, technology such as high-speed network, cloud computing and artificial intelligence will be included in this concept, and its completion will bring an immersive experience to users. This advanced three-dimensional interaction technology has a great chance to attract many users, among which immature users may invest too long in product experience and even produce adverse reactions such as cognitive bias. In order to prevent users from over-relying on virtual worlds, it is necessary to build anti-addiction mechanisms.

The first thing that can help prevent cognitive bias is the icon set of the visual interface. One of the core aspects of the metaverse concept is that the virtual world is extremely "realistic", so it is not appropriate to reduce the realism of the visual images to make the player aware of the difference between the VR interface and the real world. It would be better to have a permanent, visible icon on the screen to remind the player. For example, put the logo of a technology company in the top left corner of the player's interface, adjust the logo size as the player moves from page to page, or use appropriate flickers to emphasize the player's state. Not only that but the icon can also be used as a reminder interface. VR developers can incorporate a human perception into the device, allowing it to detect a user's heart rate and blood oxygen levels, just like the existing Apple Watch. When the user's blood oxygen level is too low or the heartbeat rate is abnormal due to physiological or emotional factors, the persistent page will be closed only after all the physiological indicators of the player return to normal.

In addition to the above, the interface can also pop up with mandatory reminders when the player has been using VR for too long. If the player is a minor, the system will send a confirmation text message to the guardian or ask the player to enter a password created by the guardian to close the screen. In order to avoid a negative impact on the game experience, the time interval for the system to issue warnings will be customized according to the holidays and working days of the user's country.

Secondly, in order to avoid negative emotions such as rejection or fear of social interaction in real life caused by users who have been accustomed to traditional forms of online communication for a long time, a simulated social simulation mechanism should be put into the consideration list of developers. Players can create their own avatars and even import their looks into the system as avatars. By highly recreating real-life buildings and events, players can join other players in celebrations, parties, or clubs in the Metaverse. This can go a long way in relieving anxiety about social interaction in real life.

4.2 Issue regulations or laws about the Meta Universe

Since Meta Universe is a newly-developing industry, related regulations to limit or avoid risk are still not stipulated clearly. Without legislative supervision or relevant policies to manage virtual reality will expose users and industry to huge risks. Problems like security or economics can happen and create a far-reaching impact on reality. Society now has already occupied by the Internet. More than half of people use the Internet to complete some things. Since many things need to be processed online, there is also much private information of people exposed on the Internet. Lots of companies have been doing a terrible job working on protecting the privacy of their users. The only company that announced they would put their enterprise into the Meta Universe has been famously known by people for privacy exposure. Thousands of private information of users are exposed by this company and possessed by people who had potential menace. These are major problems that should be considered crucially. Otherwise, it can lose the trust of users for Meta Universe. Therefore, the development of Meta Universe will be hard to pursue. With more and more users participating and using the Metaverse, digital currency or NFT will be common in the Meta Universe. However, there are many dangers are accompanying digital currency.

Digital currency is highly volatile, it doesn't like the currency in the real world, and digital currency didn't control by the bank in the real world. The Meta Universe has a wider range of

investments and trading space, which is easy to provide channels for new forms of money laundering, gambling, fraud, and other illegal and criminal activities. In order to solve these problems, governments should issue laws or regulations for virtual reality that are more preciseness than the real world. There should be more limitations on the transaction between people and access to some information. Thus, some mechanisms like a user credit score can be adopted, and credit scores can increase or decrease with every behavior on the Meta Universe. It gives people a means to judge whether or not other people are reliable. When one's credit score has been decreased by some behavior that person did, the activity or the right to access some website should be limited more severely than other normal people. Since people's range of activity has been restricted, they will manage themselves better. This is a useful way to limit people's activity in Meta Universe.

5. Conclusion

According to the data analysis, it shows that Meta universe has become a very popular topic among the net citizen, and people are willing to accept and take it as a tool that can highly possible to adopt the future life of humans. Many countries worldwide have promoted the relevant industries of Meta Universe, and its market size enlarged annually to an unprecedented height. This article summarized the industry's status and investigated regional opinions about the Meta Universe, which gives an industry profile to the relevant company or the company that intended to participate in the production of Meta universe. Thus, they can decide the direction of development and which strategy to utilize in the program. Also, there are suggestions that this article concluded, aspects to improve are listed, and related companies can refer to those recommendations.

This paper lacks primary data. Although there is a questionnaire about the Meta universe, it still contains some bias. Because the data are collected from several specified regions, these data can only represent a small proportion of the people. More people from different regions or who accept different education levels should be questioned about the Meta universe to obtain objective results. This paper takes only one company to research, using the stock price and annual report from the Meta website to predict the future market of Meta universe, but it still lacks pieces of information. More companies with different techniques can be researched, such as artificial intelligence, networking, and VR production Industry.

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