
ORIGINAL RESEARCH ARTICLE

The technological essence and philosophical significance of the Metaverse

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ABSTRACT

Metaverse is a word of great concern in the second half of 2021. What is Metaverse, what is its technical essence and what kind of philosophical significance? These problems are not clear at present. In terms of connotation, the Metaverse is a broader space formed by the integration of the natural universe and the virtual universe. In the future, human beings will walk freely between the natural universe and the virtual universe. From the technical perspective, Metaverse is a general term for the comprehensive integration of information space-time formed by a series of new information technologies such as Internet, big data, artificial intelligence and blockchain from the perspective of philosophical essence, the Metaverse gives full play to people's subjective initiative, so that people can use the world's data and information to reconstruct a virtual new universe, surpass various natural and social constraints of the natural universe and carry out free ideological innovation. People can even become a new "creator", resulting in new cosmology, body and mind, creation, cognition and ethics

Keywords: Metaverse; the nature of technology; philosophical significance; thought laboratory; creationism

1. Introduction

Metaverse is one of the words widely concerned in the second half of 2021. All walks of life are talking about Metaverse, especially those in the industrial and financial circles. Governments of all countries and regions dare not neglect it for fear of missing the next outlet. Therefore, 2021 is called the first year of the Metaverse. Metaverse may become the next outlet for industrial development, financial investment, academic research and changing human life. But what is the Metaverse? What is it technically? In a philosophical sense, what does it mean? We haven't had time to think about these fundamental problems, or these problems are

still in the discussion stage. Therefore, this paper attempts to think about what the Metaverse is, what its essence is from the technical level, what it means from the philosophical significance, and what profound impact it will bring to mankind.

2. Disputes over the concept of Metaverse

On March 10, 2021, Roblox, an online game company in the United States was listed on the New York Stock Exchange (NYSE). What is shocking is not that a game company is listed, but that the market value of a game company has risen from more than one billion US dollars to more than 40 billion US dollars in one day. At present, affected by the

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COVID-19, most companies around the world are in a state of depression and struggling for survival. A game company has ushered in such a highlight at the beginning of listing, attracting the attention of the world. More importantly, the company defines itself as a Metaverse company and writes it into the prospectus. Therefore, people believe that Roblox can attract the attention of the world because of its future positioning of the Metaverse. As a result, the word “Metaverse” spread widely and was recognized by many investors.

If Roblox’s listing let the investment community know the concept of Metaverse, then the renaming of Facebook, an American social networking company, in October 2021 brought the concept of Metaverse into the homes of ordinary people, forming a whirlwind of Metaverse and quickly condensing into a typhoon. On October 28, 2021, Facebook changed its company name, which has been used for many years, to Meta, and claimed that it would become a Metaverse company in the future^[1]. It was found that Zuckerberg changed the company name because he was determined to change the company from the leader of social networking to the leader of the future Metaverse. The Metaverse cyclone triggered by the renaming of Facebook quickly swept the world.

The so-called Metaverse, literally, is the Chinese translation of English metaverse, which comes from the 1992 American science fiction writer Neal Stephenson’s novel *Snow Crash*^[2]. When the Internet was just emerging, Stephenson realized that it would have a profound impact on the future of mankind, so he constructed a network virtual world parallel to the real world in the form of science fiction and called it metaverse, that is, Metaverse. Although this science fiction was widely praised at that time, its audience was limited. From the perspective of social impact, the subsequent terms such as cyberberg, cyberpunk, cyberspace, digital survival, data world and virtual space have greater repercussions than the Metaverse proposed by Stephenson.

With the rise of computers and the Internet, Stephenson is not the only science fiction writer to capture the new atmosphere of the future. Many science fiction writers or future scholars are aware that the Internet will open up a new world. Among them, the American writer William Gibson created the *Neuromancer* trilogy based on computer and artificial intelligence at that time in 1984, and put forward the concept of cyberpunk. This trilogy has become the “Bible” of cyberpunk, and Gibson is also known as the father of cyberpunk. In the early 1990s, the Internet began to enter the civil field and gradually formed a global network, and online surfing became a trend for young people. Bill Gates, President of Microsoft Corporation, wrote “the road to the future”, which depicts the future era of information superhighway for the network world; Nikola Negolo Ponti of MIT’s “digital survival” further elevates networked life into a way of human life in the future. In the 21st century, big data and mobile Internet are gradually rising, and a new generation of artificial intelligence is gradually hot. People have put forward new concepts such as data space, data world and intelligent society. In recent years, VR, AR and other virtual reality technologies have gradually matured, and people have found a highly immersive and interactive virtual world. Therefore, virtual space has gradually entered people’s vision. Why did the concepts or ideas put forward earlier or later than metaverse get social response, and were warmly discussed by the academic community, and even began to be applied by the industrial community, while metaverse remained in science fiction for nearly 30 years?

Why did metaverse suddenly become popular in 2021? Even the author didn’t think that his metaverse would become a phenomenon, a typhoon, and might become a keyword to describe the future world? What is the relationship between the concepts of cyberspace, cyberspace, digital survival, digital space, data world, virtual space and the Metaverse?

Many concepts such as cyberspace, digital space, data world and virtual space that precede or

later than the concept of Metaverse will be responded successively because they reflect a revolutionary new technology and the changes it brings to people's world outlook and epistemology at a specific level, that is, they correspond to a single technology, or they can realize the vision with a single technology. For example, cyberspace corresponds to the online lifestyle brought about by the emergence of network technology, digital space or data space corresponds to the data world formed by the emergence of digital or digitalized technology, and cyberspace corresponds to the space formed by the integration of human and electronic machinery after networking and digitalization, which is the new concept put forward by Gibson in his book *Neuromancer*. Most of the other concepts involve a single technology, while Stephenson's imagination of the Metaverse is more complex, profound and difficult to achieve, which requires more technical support. For this reason, when other concepts are basically spread and popularized, the Metaverse has been silent for nearly 30 years. In 2021, the reason why Metaverse is suddenly popular is mainly due to the gradual maturity of various new technologies it needs. It is difficult to describe the future complex information age in various single spaces mentioned in the past. Therefore, a more comprehensive and unified conceptual and theoretical framework is needed. Therefore, companies such as Roblox and Facebook apply the conceptual framework of Metaverse. Applying the concept of Metaverse, we can unify various concepts and ideas scattered and single in the past into a large framework.

What is the universe? Literally, Stephenson's metaverse is a combination of the prefix meta and the latter half of the universe. He tries to express a new universe and a new world in the future. Meta has many meanings in Greek and English, such as "beyond", "Yuan", "above", "behind". Many people understand the meaning of meta because of Aristotle's metaphysics. When editing Aristotle's manuscripts, after editing the manuscripts of various specific disciplines such as physics and biology, the editors also had a batch of documents discussing beyond specific disciplines and specific knowledge.

At that time, it was difficult to determine an exact book title, so they named this part of abstract documents after physics metaphysics, that is, after physics. After the definition of physics at that time, it now has two meanings: one is after physics in terms of editing order. Second, in terms of research content, this part of the literature discusses the content behind physical phenomena. Now we know that this is the deep way hidden behind physics, that is, philosophy, which is translated into "metaphysics" in Chinese.

Meta can be translated into "Yuan", "super", "above" and "after". It has many meanings, but it can be divided into two kinds: one is "Yuan" and the other is "super". When translated as "Yuan", it can be understood as "source". Its basic meaning is to inquire about the root or origin of something, that is, to inquire about the root or mother of something. According to this understanding, the Metaverse is to ask the origin or original initial point of the natural universe, that is, where the natural universe comes from and what the root and origin of the natural universe are. In this way, the Metaverse should explore the root of the natural universe or the origin of the natural universe, but the current Metaverse does not explore the origin and origin of the natural universe. Therefore, the translation of "Metaverse" is easy to cause ambiguity. If meta is translated as "transcendence", that is, transcendence, then the so-called Metaverse is the transcendence of the natural universe, and the original meaning of "transcendence" is to inherit and surpass, that is, "pass it and surpass it"^[3]. Metaverse means that there is still a digital (shadow)universe behind the natural universe, that is, the so-called digital parallel universe. People should go beyond the natural universe into the digital universe, go beyond the limitations of the natural universe and walk between the natural universe and the digital universe. The author believes that metaverse translated as "super universe" may more accurately express its original meaning. If the translation method of "metaphysics" is followed, metaverse can be translated into "metaphysical universe". However, it cannot be changed now. We can only accept the translation of "Metaverse", but we should understand it as "super

universe”.

To sum up, the so-called Metaverse refers to a digital virtual universe constructed by people outside the natural universe through digital technology, which reflects the natural universe but can provide people with free creation space, and more fully understands and makes use of the natural universe through the exploration of the digital universe. Therefore, human beings have transcended the limitations of the natural universe, give full play to human creativity in the digital universe, and pursue human freedom. Therefore, Metaverse means to transcend the natural universe, that is, human beings should not only live in the natural universe, but also use the digital universe to cross the limitations of the natural universe, so as to give full play to human subjective initiative and realize human freedom.

3. The technical essence of the Metaverse

Technically, what is the Metaverse? Is it a revolutionary new technology that has just emerged? Why didn't the concept of Metaverse be suddenly proposed and hyped all over the world until recently? Why is the industry especially fond of the Metaverse? To clarify all this, we need to find the root from the technical essence of the Metaverse.

3.1. The Metaverse is not a new emerging technology

Since the rise of electronic technology and computer in the mid-20th century, various new information technologies have been emerging. Integrated circuit technology, computer technology, network technology, intelligent technology, big data technology, cloud computing technology, blockchain technology, new generation artificial intelligence technology, virtual reality technology, etc. are dazzling. The emergence of each new information technology has brought significant changes and great development to human cognition, economy and society.

Now, the concept of Metaverse is put forward

again. Is there a subversive new technology like the above technology? In fact, Metaverse is not a new technology. At present, there is no new technology or revolution called Metaverse. Metaverse is an old concept that has been repackaged, that is, this concept has appeared as early as 1992. However, at present, it is used by some information companies to locate the enterprise nature of their own companies and construct the company's future vision. There are no new information technologies such as computer, Internet, big data and artificial intelligence.

3.2. The Metaverse is the comprehensive integration of information technology

Since Metaverse is not a subversive new technology. What is it? Metaverse is the comprehensive integration of various information technologies that have emerged. It is to assemble, synthesize and integrate various new technologies with relatively single functions into a larger system to form comprehensive functions with stronger functions and difficult to be realized by single technologies in the past, to achieve the system effect of $1 + 1 > 2$. Although the previous single information new technology has also brought great revolution to the economy and society, its potential has not been brought into full play, and the effect of comprehensive integration has not been fully demonstrated. However, the concept of Metaverse includes and integrates all kinds of previous information and new technologies, and realizes the purpose of integration and comprehensive effect.

Since the mid-20th century, various revolutionary new information technologies have been emerging, and the electronic technology has achieved revolutionary breakthroughs. The development of electronic tube, transistor, integrated circuit, VLSI, nano chip and other technologies has triggered a series of revolutions in the field of digital information. The development of electronic technology gave birth to a revolutionary electronic computer. Since then, the electronic computer hardware has been continuously upgraded, the software has been continuously updated, and the

computing power has been continuously enhanced, which has brought about a continuous computer revolution and laid a new generation of information technology revolution in the 21st century. In the 1990s, the rise of Internet technology connected all kinds of isolated computing devices into a network, connected to the information highway, and formed cyberspace. Mankind entered the network era and began digital life.

In the 21st century, the pace of information technology revolution is accelerating, cloud computing, big data, new generation artificial intelligence, blockchain, virtual reality and other information technologies are emerging, and mankind has entered the era of big data. Cloud computing technology gathers all kinds of isolated data through the network, and uses distributed computing technology to solve storage, computing and other problems, which gives birth to big data technology and brings a series of problems such as data acquisition, storage, computing and transmission. Based on the blessing of cloud computing and big data technology, artificial intelligence is rising again in the 21st century, ushering in the sine tide of the development of a new generation of artificial intelligence. In recent years, the new blockchain technology has updated the storage mode of big data, and the virtual reality technology has developed and entered the application stage.

Although only one information technology can depict the whole information world, or a series of new information technologies can solve the dazzling information world. For decades, people have been overwhelmed by the appearance of various new information technologies. What is the relationship between these new information technologies? What problems do they solve respectively? Why are there so many new technologies? It is necessary to clarify the relationship between them and then integrate them into a whole up to now, all kinds of new technologies that depict the information world have basically arrived at the scene and comprehensively depict the information world. Therefore, it is

necessary to integrate the above new information technologies into a whole. Some people who are good at comprehensive integration have seen the needs of this era and the trend of technology, put forward the technical program of comprehensive integration and named it Metaverse.

Metaverse is to integrate various existing new information technologies to form an information technology whole and uniformly describe the new information world in the future, to achieve the overall purpose and vision of integration and comprehensive effect.

3.3. The Metaverse is a panoramic description of the vision of information revolution technology

Since Metaverse is not a new technology, but a comprehensive integration of existing new technologies in the past, why did it cause great repercussions all over the world once it was proposed? Why do people place their future hopes on the Metaverse? This is mainly because the Metaverse more comprehensively and deeply describes the future trend of the information technology revolution and the unified vision of the future of the information world.

All kinds of new information technologies point to the new information world described by the Metaverse. What is the new world of information in the future? In the technology cluster of information revolution, each technology seems to have its own goal, direction and vision. Internet, mobile Internet, Internet of things and other technologies try to establish an interconnected world of all things. People and things, things and things can be connected with each other to form a huge interconnected world. Cloud computing technology attempts to integrate various computing capabilities distributed all over the world to form a world of super data storage and computing. Big data technology attempts to digitize everything and turn the world into a data world. Blockchain technology depicts how a digital integrity society and integrity world are possible virtual reality technology

immerses people in a virtual world by means of helmets and realizes many dreams that are difficult to realize in the real world. Artificial intelligence technology extends and enlarges people's intelligence and wisdom, and makes machines think like people, thus depicting the future intelligent brain. It can be seen that various new technologies in the information technology revolution have different goals and visions, and seem to be developing in different directions, while the Metaverse gives a unified technology vision.

Metaverse integrates the above different goals, directions and visions into a whole and forms a unified technical vision. The Metaverse depicts the future information world and information society for mankind if all kinds of new information technologies over the past decades have described a line or surface they can describe, then the Metaverse will assemble different lines or surfaces to form a three-dimensional technological vision of the future information world. From this three-dimensional vision, we can see the panorama of the future information world. At present, some critics emphasize that Metaverse is an empty concept and has no own technical connotation at all. Therefore, putting forward the concept of Metaverse has no meaning and belongs to concept hype. However, from the above analysis, it is necessary to put forward the Metaverse. Various individual information technologies in the past fought on their own to depict the future technology picture, which gives people a dazzling feeling. However, the proposal of the Metaverse forms a whole and jointly depicts the future technology picture. Therefore, technically speaking, the proposal of the Metaverse is very meaningful, both necessary and possible.

4. Philosophical significance of Metaverse

Although the Metaverse only integrates the existing new information technologies, the comprehensive integration will also have new philosophical significance. In a philosophical sense, the concept of Metaverse will bring a lot of

revolutionary significance to mankind's outlook on the universe, body and mind, creation, cognition and ethics. The author only makes a preliminary outline from five aspects: cosmology, body and mind, creation, cognition and ethics. The more profound philosophical significance needs to be further explored.

4.1. From the perspective of the universe, the universe will expand from a single natural universe to a dual universe with the coexistence of virtual reality

Traditional cosmology holds that all things exist in the universe and human beings are only a part of the universe. Therefore, the cosmology is the most basic starting point of philosophical research. Traditional cosmology refers to the universe as a natural universe. In Chinese philosophy, "the universe is called from top to bottom in all directions, and from ancient times to modern times", that is, the universe in traditional cosmology is the time and space of matter. In fact, the material world should be composed of material, energy and information. Academia once focused on the two substantive dimensions of material and energy, but paid insufficient attention to the virtual dimension of information. In other words, in the past, human beings paid more attention to time and space, which led to the great geographical discovery of earth space in the era of great navigation and the exploration of extraterritorial space such as the moon and Mars in the modern space age.

With the in-depth understanding of information, it can be found that information can not only completely describe the material, energy and other information parameters of the natural world, but also use information to reconstruct an information world associated with and mapped to the natural world. Data is an important expression of information. With the rise of information technology such as big data, everything in the natural world is gradually digitized. Therefore, human beings begin to use relevant data to reconstruct a data world corresponding to the natural world and everything. The data describing all

things in the world come together to form a huge “soup of data”. In the early days of the natural universe, chaos began to open by relying on the “soup of the universe”, and gradually formed a natural universe world. At present, the massive “soup of data” formed by the digitization of the natural world is gradually forming a data universe. As a mapping of the natural universe, the data universe not only depicts the natural universe, but also has relative independence. Therefore, it is called virtual universe or digital universe.

The so-called Metaverse is to use information technology, especially digital technology to expand the natural universe into physical universe and virtual universe, that is, to change a single universe into a dual universe. Through the virtual digital universe, on the one hand, we can more deeply understand and make use of the natural universe. On the other hand, it can get rid of the bondage of the complex structure and complex laws of the natural universe, give play to human creativity and build a virtual universe. Therefore, in the Metaverse era, in addition to continuing to explore outer space and looking forward to marching to Mars and moon like musk, human beings will pay more attention to inward expansion, recognize the mysteries of the natural universe through the digital virtual universe and enrich the connotation of the natural universe. The digital virtual universe will not only hide the secrets of the natural universe, but also stimulate and emerge more secrets of itself, to give full play to human creativity. If people are still interested in the natural universe of outer space at present, future humans will be more likely to explore the digital universe internally and deeply.

Plato once told the story of a cave metaphor in the Republic: A group of people who were bound in a dark cave at birth have never left the cave or even seen the sunshine outside because they have been bound for a long time. They have only seen the shadow of all kinds of objects in the light of fire, so their world is only a world of shadow^[4]. One day, a bound man broke free from his shackles, walked out of the cave and found the outside world, but he

thought the outside world was unreal and difficult to accept. On the contrary, we seem to have been “bound” in the external world of the natural universe. Although we have seen the secrets inside the black box of the natural universe through various cognitive means (especially science and technology), we have not immersed in the “cave” inside the natural universe and experienced the colorful world mapped by the natural universe data. At present, human beings go deep into the “cave” composed of digital shadows from the external natural universe to see a broader Metaverse, but will human beings accept the Metaverse calmly?

4.2. From the perspective of body and mind, the Metaverse will become an innovative laboratory of human thought

Since the natural universe changed from chaos to an orderly world, after countless variations and evolutions, human beings finally appeared. With human beings and human thoughts, there will be physical and mental problems, that is, material and spiritual problems. In today’s computer language, human beings are also composed of hardware and software. The physical body is human hardware, and the spiritual mind or thought is human software.

If a person wants to live a normal life, both hardware (body) and software (heart) are indispensable. As a hardware body, it has been “cast” since birth, and the elements and structure composed of various organic substances will not change much, which belongs to the research object of natural science. However, human thoughts are constantly developing and changing in the process of growth, just as computer software is constantly installed and updated. More importantly, the activities and contents of thought and mind are invisible, untouchable, complex, active and changeable, and have not been expressed in an appropriate way. As traditional expression tools, language, words, sounds and pictures are used to express people’s thoughts. However, due to the complexity and dynamics of thoughts, these expression tools are difficult to accurately, accurately, real-time and immersively

express human thoughts completely and vividly because of their simplicity and staticity.

Due to the revolutionary development of information technology, innovative technologies such as big data technology, intelligent technology and virtual reality technology can better express people's ideas, but these technologies have their own advantages and disadvantages. Therefore, they need to be integrated together to express people's ideas more completely and vividly, and the Metaverse integrating various information technologies just meets this demand. The research of nature (including human body) can be carried out through observation and experiment, but the emergence of Metaverse provides experimental conditions and means for elusive human thought through virtual technology, human thought can be reproduced in virtual space, and the whole process of human thought development, evolution and blending can be observed. In other words, due to the emergence of the Metaverse, human thought has become an observable, measurable and even controllable variable. Therefore, the Metaverse is an innovative experiment of human thought^[2].

German philosopher Kant once pointed out in his three criticisms that natural phenomena can be recognized and grasped through pure rationality, while human thought can only be practiced because of its subjectivity, which is difficult to recognize and grasp. Therefore, Kant divides the world into the world on this side and the world on the other side, and the two worlds are difficult to communicate and surpass. However, the Metaverse builds a bridge between the world on this side and the world on the other side, and brings the phenomena that are difficult to recognize and grasp into the scope of observation, cognition and experiment. Lu Jiuyuan, a neo Confucianism scholar in the Song and Ming Dynasties, was regarded as the representative of idealism because he proposed that "my heart is the universe, and the universe is my heart". Now it seems that he realized the way and reason of the heart hundreds of years ago, believed that man's heart is a universe, and regarded the heart as the

connection node between the inner universe and the outer natural universe. The proposal of Metaverse confirms Lu's thought.

4.3. From the perspective of creation, the Metaverse will open up a new era of human creation

Where does the world come from? Where does everything come from? Religion, philosophy, science and folklore of various countries have their own creation theory. For example, the Bible holds that the world was created by God. Chinese folklore holds that Pangu (chaos family) created the world and created all things. The scientific community generally accepted the big bang cosmology and believed that the universe originated from a big bang. According to the big bang cosmology, the universe is formed by the expansion of a dense and hot singularity after a big bang 13.7 billion years ago. No matter how the world came from, human beings now live in this established universe. Human beings are excluded from the creator. Therefore, human beings can only understand the world, master the laws of the existing material world and act according to the laws. Although human beings can appropriately imitate nature by understanding the laws of nature and using the laws of knowledge, they are limited by the laws of nature and cannot surpass the laws of nature.

Mankind has always had the dream of surpassing nature. All other things in the world can only adapt to nature (for example, other animals and plants can only rely on the existing things in nature), while human beings can understand nature, imitate nature and even partially transform nature based on respecting nature. Starting from observing nature, human beings gradually understand the laws of natural operation, use these laws to create science and technology, and use science and technology to transform the living environment and improve the quality of life although human beings show their own subjective initiative and creativity in the process of understanding, adapting to and utilizing nature, they must carry out various dynamic and creative

activities under the constraints of natural laws. Descartes, a French philosopher, believes that human initiative and existence can only be proved through “thinking” or cognition, that is, “I think so I am” Are humans willing to be completely bound in the cage of the laws of nature? Mankind still has bigger dreams and more visions to surpass. The advent of the Metaverse era provides a broad space for human greater creativity, and even allows human beings to create a new world and experience the pleasure of creating the world.

In order to surpass the natural universe and realize their subjectivity and initiative, although human beings cannot get rid of the complete control of natural laws physically and physically in the earth world, they still try to realize spiritual freedom ideologically. At first, people expressed their yearning for this transcendence and freedom through fantasy novels and science fiction, such as journey to the west, three bodies, avalanche, etc., but the expressiveness of words is difficult to vividly express people’s desire for creativity. With the rise of film technology, people begin to use the combination of sound and light to express human creative desire, such as the number one player, avatar, matrix, etc. But except the creator, others can only watch and can’t immerse themselves in participation. The rise of electronic technology provides a means for human beings to express their creative desire. In addition to the sound, light and electricity of movies, games can also participate in and immerse themselves in various creative activities for example, second life games, boblox games, Tencent games, etc^[5]. Young people have a strong desire for creativity, and it is difficult for traditional forms such as words, pictures and films to fully express their creative ability. In electronic games, players can transcend reality, break through restrictions and indulge in expressing^[5] their thoughts. More importantly, in the era of Metaverse, games will become the most feasible means to communicate virtual reality and express people’s creative passion.

In the Metaverse, since most things in the real universe are mapped in the virtual world in the form

of digitization, a unified digital world is formed. In this digital world, human beings can temporarily surpass the limitations of the natural world, arrange, combine and create massive data in a variety of ways, give full play to people’s subjective initiative and maximize people’s creative desire and ability. In other words, in the Metaverse, human beings play the creator, and all kinds of innovative desires that cannot be realized in the natural world can be fully expressed in the virtual Metaverse world^[6]. At present, there is no convincing explanation for the origin of the natural universe and all its things, but with the advent of the Metaverse era, mankind may finally become a “creator”, who can give free play to imagination, give full play to man’s subjective initiative and create all things imagined by himself in the digital world. Therefore, the Metaverse will open up a new era for human beings to create the world instead of the creator, and thus bring a virtual new world. Therefore, it is also necessary to construct and explore new creative philosophy^[6].

4.4. From the perspective of cognition, the Metaverse is a new world of universal data language and data philosophy

Epistemology is an important field of philosophy, which mainly focuses on human cognitive ability of the world and the objective regularity of the world. Traditional cognition mainly describes various phenomena presented by the research object through natural language (including supplemented by a small amount of data), and finds hidden laws from the phenomena. At the beginning of the 20th century, with the rise of mathematical logic, philosophers found that describing phenomena in natural language is often vague and polysemy, and it is difficult for different countries and nations to communicate due to different languages. Therefore, they introduced mathematical logic language to describe phenomena and their laws more clearly, which is the famous language turn of analytical philosophy movement and scientific cognition in the 20th century.

In the natural universe, human beings mainly

describe phenomena through natural language and describe the logical relationship between them through mathematical logic, that is, natural language is the popular language in the natural universe. Although different countries and nationalities may use different languages, these languages are mainly human languages. In the Metaverse, cognitive subjects include not only human beings, but also various intelligent subjects. Therefore, in the Metaverse, human natural language is no longer popular, but data language is popular. In other words, data language is the general language of the Metaverse, and everything is represented by data. Human learning and machine learning are carried out through data mining, processing and calculation. Any law can be found in data and represented by data and algorithm. Therefore, in the Metaverse, scientific cognition must realize data transformation^[7].

The advent of the Metaverse era will bring the data turn of scientific cognition and provide conditions for the construction of a new data philosophy. In the Metaverse, everything is presented in the form of data, and integrates the past, present and future, as well as the present and absent. Everything is online and present in the form of data, that is, everything is present in the Metaverse. Therefore, scientific cognition will become present cognition. Traditional epistemology is always divided between subject and object, and heaven and man are different, which is easy to lead to different ends and self-centered. Data philosophy transforms all things into data, and all data are fused into one furnace to form an online data field, to realize the ideal of the integration of all things and the unity of heaven and man pursued by Chinese philosophy.

Taking data as the object, algorithm as the tool and synthesis as the method, data philosophy comprehensively explores a series of new problems, such as data and the world, data and language, data and algorithm, data and knowledge, data and truth, data and ethics, so as to promote fundamental changes in Philosophy in the 21st century and form a new field of philosophical research. The proposal of

the concept of Metaverse and the advent of the era of Metaverse will provide good conditions and opportunities for the rise of data philosophy. At the same time, the rise of data philosophy will also provide strong philosophical support for the philosophical exploration of Metaverse.

4.5. From the perspective of ethics, the Metaverse is a new world that needs moral reconstruction

Human beings have lived in the natural universe for thousands of years. In order to survive and develop, on the one hand, human beings should follow the laws of nature and act in accordance with the laws of nature. On the other hand, human beings, as a group, must also formulate rules for communication between people. Therefore, human society has gradually formed a set of relatively stable game rules, including mandatory laws and regulations that must be followed and non mandatory ethical and moral norms. In the natural universe, human beings are divided into different nationalities, countries and other social organizations. An organization included in it is required to abide by its ethical norms, laws and regulations. In other words, in the real world, human beings are not only limited by the laws of nature, but also constrained by various social norms, ethics, laws and regulations. Under the dual constraints of nature and society, it is difficult for mankind to achieve transcendence. Human beings always have the dream of transcendence and the desire to realize freedom, which is difficult to meet or realize in the natural universe. The virtual world in the Metaverse is a new world. Here, people are presented in the form of virtual avatars, crossing time and space. The previous physical boundaries of countries, nationalities and communities have been completely broken. Human beings may be unrestrained and free to live a completely free virtual life. This is also why young people are addicted to the Internet and like the online virtual life.

In the Metaverse space, because the space-time is broken and everything is present, a more complex

world is formed. In this new world, we must face not only human beings, but also various intelligent subjects and other new subjects. In a new world, how do humans organize and construct the rules of the game? In the Metaverse world, human beings in the virtual world will repeat the past history of thousands of years in the natural world. The Metaverse is a decentralized self-organization system. All kinds of subjects have lost the sword of Damocles above their heads and rely more on human self-discipline. Therefore, the Metaverse will become a new testing ground for ethics, laws and regulations to explore how human beings should establish rules and order without the restriction of central power. Without supervision and compulsion, human beings and other intelligent agents organize themselves consciously and freely to form a complex self-organizing system. This is not only a test of human nature, but also an experiment on the origin and evolution of laws and regulations, ethics and morality in human society. It is a great challenge and opportunity for ethical research that how various virtual subjects organize themselves to form an open and complex giant system of co-creation, co-governance and sharing, and evolve order and organization. At the same time, all kinds of virtual subjects should be fully free and creative.

The Metaverse is a world where virtual and reality are interlinked and compatible. People cannot live in the virtual world forever. They must be interlinked and compatible with the real world and return to the real world. Therefore, although as a virtual subject, it can temporarily get rid of the restrictions of natural laws and social laws and regulations in the virtual world, virtual reality connects reality after all. Virtual reality not only reflects reality, but also reacts on reality, and has an important impact on reality. On the one hand, the virtual field can be used to do various experimental scenes that are difficult to provide in the real world. On the other hand, even the virtual world cannot completely get rid of the shackles of natural laws, law and morality, because it will eventually return to reality from virtual, which is only a test ground and laboratory. Virtual can help human beings give better

play to their subjective initiative and enjoy their freedom. However, the Metaverse is not a place outside the law, and it will eventually be bound by the laws, regulations and ethics of various countries^[8].

5. Conclusions

The concept of the Metaverse began to be warmly discussed by all walks of life. At present, there is no unified understanding and there is no need to make a unified interpretation. The interpretation of a new concept shows that a hundred flowers bloom, which is the performance of the healthy development of the concept or discipline. In terms of connotation, the so-called Metaverse refers to the use of digital technology to construct a digital parallel universe outside the natural universe. The concept of universe faced by human beings is extended, and the cosmic space-time is derived from natural space-time to virtual and real space-time. From the essence of technology, Metaverse is not a new technology, but the comprehensive integration of various new information technologies. The concept of Metaverse is used to uniformly describe the new picture of the future information world. In terms of philosophy, the proposal of Metaverse not only challenges human's outlook on the universe, body and mind, creation, cognition and ethics, but also provides various opportunities. In short, the Metaverse is an innovative laboratory of human thought. Human beings can incarnate as virtual subjects, temporarily get rid of various constraints of natural laws and social norms in the ideological laboratory, and can imagine and create more freely, providing a new time and space for the release of human freedom and the promotion of creative desire.

Conflict of interest

The author declares no conflict of interest.

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