



Metaverse: The Next Stage of Human Culture and the Internet

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Abstract: The entire world is experiencing a significant shift from the actual economy to a digital economy, and integration of both these have been sped up significantly since the global pandemic. Work and life are increasingly dependent on the internet, as people are spending more time on the internet instead of offline. Today's internet is often the main gateway for many millions of people to have access to information and services, interact and socialize with each other, sell products, and entertain themselves. COVID-19 has also changed the work culture, sped up the rise of e-commerce, and transformed the way in which businesses operate. Transition to remote work creates companies giving priority to virtual environments. Thus, the pandemic has shown that tech is the key to keeping numerous jobs in action. Since COVID-19 spreads throughout the world, the growing demand for virtual reality is growing and the industry posed by Metaverse is developing. In the Metaverse, the virtual world that goes beyond reality, artificial intelligence, as well as blockchain technology are combined. With new technology linked to the development of computers, graphics, as well as hardware, the virtual world has become a reality. The way in which people communicate among themselves has changed, with the majority of communication occurring through the internet. Soon, it is foreseen the transition from the internet of information to the internet of value. Increasingly digital asset transfers will take place at blockchain by means of Avatars. The present paradigm of digital value is going to shape the new economic model. As the first attempt, this research work provides a complete framework that discusses the latest developments within the Metaverse under the dimensions of Innovative technologies and metaverse ecosystems, accounts for the digital "Big Bang" potential, explaining the new metaverse technology as well as its advantages and use, and how it would transform human society and enable to introduce a new reality.

Keywords: Metaverse, Blockchain, Artificial Intelligence, Avatars, Crypto ecosystem, Cryptocurrencies, Digital Assets and NFT's

I. INTRODUCTION

The metaverse is a hypothetical upcoming iteration of the internet, providing support to decentralized, long-lasting online 3-D virtualized environments, links between the financial, virtual, and physical worlds have become more and more connected [1]. It is a network of always-on virtual environments where many people are able to interact with each other and the digital objects while operating virtual representations or avatars of themselves [2]. This virtualized space will be available through virtual reality headsets, augmented-reality glasses, smartphones, PCs, as well as game consoles. An Example of this would be a mix of immersive virtual reality, a massively multiplayer online role-playing game (MMORPG), and the web. Devices that

are used to manage the lives of people give them access to nearly anything that is needed with the touch of a single button. Metaverse is an idea derived from science fiction that many in the tech industry imagine as the heirs of the modern Internet [3]. It has clearly defined use cases within videogames, education, business, retail, as well as real-estate sectors. The biggest limitation for widescale adoption of the metaverse is derived from technological constraints with present devices and sensors required to interact with real-time virtual environments [3]. Many companies will invest in research in metaverse-associated technologies making it more economical and more affordable [4]. Information privacy and user addiction are concerns in the metaverse that arise from the current challenges facing social media and the video game industry as a whole. The metaverse, as is the



case with the present-day Internet, requirements and creates possibilities for new technology, service providers, products, content creators, rules, and regulations, standards, and protocols, and more, which demands a community of interested parties to build [3]. Thus, a lot of the giants in the technology sector today will probably have a large role. The metaverse isn't fully existed, but certain platforms include elements similar to the metaverse. Videogames at the moment provide the nearest metaverse experience in the offer. Developers also pushed the limits of what the game is through hosting at-gaming events as well as creating virtual economies [5]. Although it is not required, cryptocurrencies may be a great fit for a metaverse. They enable creating a digital economy with various types of utility tokens as well as virtual collectibles (NFTs). It would also benefit from the use of crypto wallets, for example as a Trust Wallet as well as Meta Mask. Additionally, blockchain technology is able to provide transparent and reliable administration systems. Blockchain, applications similar to metaverse are already in existence and provide people with comfortable incomes. In the foreseeable future, big technology giants are attempting to pave the way. Though, the decentralized characteristics of the blockchain industries are letting smaller operators take part in the metaverse's development also [6]. The crypto ecosystem did not escape this either. NFTs, blockchain games, as well as crypto payments, are not restricted to crypto geeks any longer. They are now all readily available as a part of the developing metaverse. It's just a vision at this time, but the technology companies strive to make it a setting for numerous online activities, including work, play, studying as well as shopping.

II. METHODOLOGY

This research topic is intended to produce novel knowledge or to deepen understanding of the topic and its challenges. This study uses mainly secondary data. In this study, the information was exclusively obtained from secondary sources from different publications. Information from a wide range of published sources can be gathered, including books, magazines, journals, reports, publications, and websites of many online journals, as well as Google Scholar. For this study, articles were gathered from online newspapers, online articles, online blogs, as well as industry-based sources. In order to locate appropriate source articles using Keywords, we used "metaverse", "metaverse technologies" "metaverse media", "metaverse marketing", "media and education", "augmented reality and education" "virtual reality and student learning," "mixed reality and

education" and "metaverse AR", "metaverse VR". As well as "metaverse society" in every text.

III. METaverse - A SOCIAL TECHNOLOGY

There are indications that the Metaverse may become the leading social technology of the future. Many companies have invested heavily in augmented and virtual reality. From creating committed virtual spaces for hangouts with their friends to playing Augmented Reality-based games. An intriguing emphasis in the basic idea of the company's commitment to creating virtual working spaces that feel as socially robust as their true peers. People must imagine a virtual workspace in which they can achieve more than they'd have in a normal office with the advantages of wearing your favored sweatpants. The metaverse has the capability to create reserved spaces where one is able to store digital depictions of furniture as well as images etc. It seems that the digital decor parts might be included in the list of amazing things to gather in the coming future. The Metaverse experience is intrinsically social. Shopping is a key part of this. Currently, most online purchases can only be made through one app, website, or game. It is not possible to export or use custom costumes or skins for virtual characters in some other gaming ecosystems. Through the metaverse, buyers can purchase products and services from vendors which can be used across multiple virtual worlds [16].

IV. IN THE FUTURE, THE METaverse WILL BE A MAJOR PLATFORM FOR COMPUTING:

Technologists would say that the internet would ultimately develop into the metaverse, which would enter to represent its next important computing platform. If the concept may be realized, it is anticipated to be as transformative for society as well as the industry as cell phones. Today's internet is frequently the main entry point to millions of us to gain access to information as well as services, communication, and interaction with one another, sell products, and entertain ourselves. It will be much harder to delineate between being offline and online due to the metaverse projecting to replicate a value proposition. This can express itself in different ways, but many experts consider extended reality (XR) a combination of augmented, virtual, as well as mixed reality will play a significant role. Central to the notion of the metaverse is the concept that virtual, 3D environments which are accessible or interactive in real-time would become the transformative environment for social and business commitment. If they would like to



become practical, these backgrounds will depend on widespread acceptance of extended reality. Till now, extended reality technologies were largely limited to the subset of video games as well as particular enterprise applications [8]. Though, as the games increasingly become a platform for social encounters, the probability increases that their features detectable and constant virtual worlds, ways for an open and creative expression, as well as channels for popular culture may and will be applied to other contexts.

V. THE METAVERSE WILL CHANGE SOCIETY

The total number of opportunities around the metaverse is unlimited, but it is possible to simply imagine how it could alter the way people interact just as mobile devices have altered society today. In the present, people largely interact in an app-based layer, where they interact with each other and content by apps that are downloaded to smartphones. The following layer which will be placed at the top of the world today is the metaverse. Many of these might seem familiar, or similar to others in raw technological form. Under the metaverse technology, individuals will be connected to the digital world more so for consuming entertainment or playing a video game. Digital currency is going to be more reliable, akin to hard currency in everyday life. Furthermore, people will be linked to other borderless, whether in the aspects of society, culture, or economy. The metaverse is theoretically, an open world where one's age, race, sex, or religion does not matter. In large part because one is able to hide their identity behind an avatar. Individuals can trade, cooperate, create assets, invest in virtual real property, personalize their world, exchange identities, and are able to achieve much, and they just need internet access, a smartphone, as well as a Virtual Reality headset [17]. Numerous real-world events like music concerts, corporate meetings, types of auctions, campaigns, fundraisers, as well as even marriages have begun to take place in the virtual world as well. Currently, various activities are performed on the internet and monitored by the authorities or institutions. The metaverse is going to change this, as important activities will happen in a virtual world, in which a relation to reality is fragile [18].

VI. THE METAVERSE WILL ALTER THE WAY PEOPLE COMMUNICATE.

The technology companies firmly believe that the Metaverse is the future of technology and, as a result, will make people come together [20]. The Metaverse can change

the way in which people interact, with both the technology they are using regularly with individuals they must interact with to complete their work. With so many individuals looking for remote employment opportunities, as well as many companies that invest in remote opportunities for their employees, the Metaverse can potentially enhance relations and connections, placing some of the human factors back into those other two-dimensional virtual meetings. It is a step towards the future, and it may be here before it is expected [19].

VII. CONNECTING DIGITAL ASSETS IN THE METAVERSE TO REAL-WORLD ECONOMIC ACTIVITY

The metaverse is expected to have a strong link to the real-world economy and will ultimately turn into an expansion of it. In other words, businesses and individuals must have the ability to participate in economic activities metaverse in the same way they do today. In simple terms, this means the ability to build, trade, and invest in commodities, products, and services. To some extent, this may depend on non-fungible tokens as the basis for creating value. A non-fungible token is a demand for ownership for the unique, non-interchangeable digital resource which is stored in a blockchain [8]. If non-fungible tokens develop into a generally adopted tool for the trade-in of such goods, they may help quicken the use of extended reality ecosystems as places people are going to combine the items of the digital economy along with their offline lives. It is possible to envision this process as to how the App Store helped businesses digitalize its operations, so consumers could face and pay for its products and services from anywhere. This process legitimized the notion that retail and digital do not have to be separate, clearing the way for a whole range of use cases that may not initially have rendered sense. For instance, it is likely that a company that produces exercise equipment and the video-streamed exercise classes, would not have existed without the App Store. Without using a widely accepted medium for the digital consumer experiences, a service literally rooted in physical activities will have a weak business case to go online. A successful concept of the metaverse finds transformations such as these occurring at a faster rate and on a universal scale.

VIII. AN OVERVIEW OF THE METAVERSE'S MARKET

This topic is about the value chain of the metaverse, it describes the various levels of the ecosystem, from experiences people are looking for the allowing technologies that make it possible. Even more important is the



prescription for a concept for a future metaverse that is powered by creators and constructed on top of decentralization. Investments, as well as decisions that are made now, will determine whether the future which is established is one that provides the greatest variety of knowledge, driven by creators who make a living at it or just one that is identified by the next generation of gatekeepers as well as rent takers. It is likely that the former will come true, which is the more egalitarian market [10].

A brief overview of what every one of these level signifies:

A. Experience of Metaverse

Experience is what people actually engage with: social experiences, games, live music, Parties etc [9]. There are lots of people who think of the metaverse as a 3Dimensional space that will encircle them [10]. However, the metaverse is neither 3Dimensional nor 2Dimensional, nor even essentially graphical. It is about the relentless dematerialization of physical space, distance, as well as objects. It comprises 3Dimensional games including game consoles, virtual reality headsets, and even computers. It also contains a voice-controlled virtual assistant in the kitchen, virtual offices, phones, and home gyms. If physical spaces are dematerialized, then previously rare experiences could become abundant. In a physical space, a concert can only sell a small number of seats in the first row. On the other hand, a virtual concert can produce a customized plane of existence around every individual that can be enjoyed by everyone in the form of the best seat in the house. The metaverse technology will develop to include more events that will be informed by live entertainment, like music concerts as well as the engaging theatre which has already emerged. Online communities will be further augmented by social entertainment. For now, traditional industries like education, travel, and live performance are going to be redesigned around mindset and a virtual economy of abundance. In the content-community complex, the live events discussed in this topic have led to a different point of view on metaverse experiences. Although once the clients were only consumers of content, those consumers are now content creators as well as content amplifiers. Previously, there was the concept of user-generated content when referencing normal features like blog comments or uploading videos. Presently, content is not just generated by individuals it is apparent from their interactions and feeds into the substance of the discussions in their own communities. Content gives rise to other content- leading to more content, events, as well as social interaction. When immersion in the future is discussed, it refers to not only

immersion inside a story-world or a graphical space, but also to the social immersion and the way it sparks interaction and also drives content [10].



Fig. 1. Experience of metaverse

B. Creator Economy of Metaverse

The Creator Economy of Metaverse is all which helps creators make and earn money on things for the metaverse: Animation systems, designing tools, graphical tools, revenue-generating technologies, etc [9]. Metaverse experiences are becoming more and more engaging, social, and real-time, as well as the number of creators shaping them is growing at an exponential rate. This level includes all of the technologies that creators are using on a daily basis to create the experiences which individuals enjoy. Earlier creator economies evolved inconsistent patterns, be it in the metaverse, games, e-commerce, or web development. In the Creator Era, designers and creators do not want the coding limits to stall them and coders would prefer to add their skills to particular aspects of a project. This age is determined by a drastic and exponential increase in the number of creators. The creators acquire tools, templates, as



well as marketplaces of content that refocus development from within a bottoms-up, the code-centered process for a top to bottom, innovatively centered process. At present, it is possible to start an e-commerce website in a few minutes without knowledge of a single line of code. Websites can be built and managed. 3Dimensional graphics experience may be created within game engines without touching the lower tier rendering Application programming interface utilizing visual interfaces in their respective studio environments. In the metaverse, experiences will increasingly be social, live, and constantly updated. So far, creator-driven experiences from the metaverse have largely been centered around centrally controlled platforms. With its comprehensive set of built-in tools, social networking, discovery, and monetization features, it has enabled an unprecedented number of people to create experiences for others [10].



Fig. 2. Creator economy of metaverse

C. Metaverse Discovery

Discovery is the way people will learn that a particular experience exists [9]. Push and pull are the mechanisms that introduce people to new experiences at the discovery level. Many businesses, including some of the largest in the world, find this ecosystem to be lucrative. As a general rule, the majority of discovery systems are all either inbound - the individual actively looking for information on an experience or outbound - marketing which people do not expressly request, even if they decide. A community-driven content strategy is a far more cost-effective way to be discovered than many forms of marketing. If people really worry about the contents or events they participate in, they will spread the message. As actual content gets more easy to trade,

exchange, as well as share inside more metaverse situations, the actual content will also be a marketing resource. Major advantages are the comparative ease at which they can be delivered to decentralized exchanges as well as the economics which favors more straightforward creator community involvement. As a method of discovery, content marketplaces will replace application marketplaces. Real-time presence features are a specific form of community surfacing. Rather than concentrate on what people like, this is all about what people are currently doing. This is very relevant in a metaverse where so much of the worth will come from interaction with friends through common experiences [10]. Through dematerializing material reality, the metaverse is digitizing the social structure. While the earlier stages of the Internet were identified by the social media presence around some monolithic providers, a decentralized character ecosystem can change the power in the direction of the social group itself, which allows them to move without friction across the collective experience. A circle of friends jumps from experience to experience. The content-community complex has marketing implications. Creators have a great deal of opportunity to discover new things when they detect real-time presence in the metaverse. Applications will completely transition from asynchronous social networking to real-time social activity. Experiences that give community leaders the necessary tools to launch activities which people really want to join into will be leading the way [10].



Fig. 3. Metaverse discovery



D. Metaverse Spatial Computing

Metaverse Spatial computing is the digitalization of the functioning of people, machines, objects, as well as the environments in which they occur, allowing and enhancing actions and interactions. Such technology has the ability to digitally transform the way in which industrial enterprises improve operations for front workers in their plants, worksites, as well as warehouses [11]. Spatial computing proposes a dual real/virtual computation that breaks down the barriers between the physical and the ultimate worlds. The machine in the space and space in the machine should be permitted to mix with each other. Sometimes that means taking up space on a computer. At some point, this means inserting computation into the objects. Mainly it stands for designing systems that push through the usual boundaries of display and keyboard without becoming hung up there and fused into an interface or meek simulation. Spatial computing has enlarged into a vast category of technology that allows people to come into and operate 3D spaces, as well as to augment the real world with additional information and expertise. This divides the computer software of spatial computing from the allowing hardware layer. For key aspects of software, this information includes 3D engines to show the geometry as well as animation, Mapping and interpretation of the inside and outside world geospatial mapping as well as to object recognition, Voice and gesture recognition, integrating data from a device (Internet of Things) and biometrics from individuals for identification purposes and measured self-applications in health/fitness. The Next-generation user interfaces support parallel information streams as well as analysis [10]. Spatial Computing means the software that brings objects to the 3D, computing into objects worldwide, and will enable us to communicate with them. It comprises 3D engines, motion recognition, space-based mapping, and Artificial Intelligence to back it up [9].



Fig. 4. Metaverse spatial computing

E. Infrastructure of Metaverse

The Metaverse infrastructure level includes the technology that allows the devices, connects them to a network, and provides content. 5th Generation (5G) networks will greatly improve bandwidth while simultaneously reducing network contention and delay. 6th Generation (6G) is going to increase speeds through yet another order of magnitude. Allowing the released functionality, high efficiency, as well as miniaturization needed by the next generation of cellular devices, smart glasses, as well as wearables will need to be increasingly potent and smaller hardware: semiconductors which are soon dropping to 3nm procedures and beyond; micro-electro-mechanical systems (MEMS) that allow small sensors; and more compact, long-lasting batteries. Next-generation Internet: This is the next generation of the Internet: a multiverse. Plentiful adventures in this metaverse space will surround people both socially as well as graphically [10]. Infrastructure has semiconductors, material science, cloud computing, and telecommunications networks that enable the construction of any of the higher layers [9].



Fig. 5. Infrastructure of metaverse



Fig. 6. Metaverse decentralize

F. Metaverse Decentralize

Decentralization is all that is moving more of the entire ecosystem towards a permissionless, allocated, and more democratized structure [9]. The perfect outline of the metaverse is the exact opposite of the present market leaders, in which it is governed by a single entity. Experiments and progress dramatically increase when possibilities are increased, and systems are interoperable and constructed within a competitive market where the makers are dominant over their data as well as creations. Distributed computing, as well as microservices, offer a highly scalable ecosystem for creators to utilize online features including commerce systems, specialized Artificial Intelligence, and different game systems without having to concentrate on constructing or incorporating the back-end capabilities. Blockchain technology liberates financial wealth from centralized management and custody of decentralized finance. With the emergence of non-fungible tokens as well as blockchains optimized for the sort of micro-transactions needed by games and metaverse experiences, there will be a wave of the invention all over the decentralized markets as well as applications for game assets. The far edge computing would push the cloud nearer to the homes of people in order to allow robust applications at low latency, without overloading our devices with the whole of the work. Processing power will be similar to a utility on the grid and not similar to a data center [10].

G. Metaverse Human Interface

Metaverse Human user interface (HUI) refers to hardware that helps us gain access to the metaverse anything from the mobile device to Virtual Reality headsets for future technology such as advanced haptics as well as smart glasses [9]. Computing devices are ever closer to human bodies, transforming them into cyborgs. Smartphones are no longer phones. They're very portable, always connected, and most powerful computers which happen to have a mobile phone application preinstalled. They are only becoming more powerful; and with additional miniaturization, the correct sensors, built-in Artificial Intelligence technology, as well as low-latency access to powerful edge computer systems, they will accommodate increasingly more applications and experience from the metaverse. There is a growing industry that is experimenting with new methods to bring people nearer to the machines: In the future 3D-printed wearables embedded into fashion as well as clothing, and Miniaturized biosensors, some have even printed on the skin, even consumer neural interfaces can be made possible in metaverse [10].



Fig. 7. Metaverse human interface

IX. THE METAVERSE THREE MAIN ASPECTS

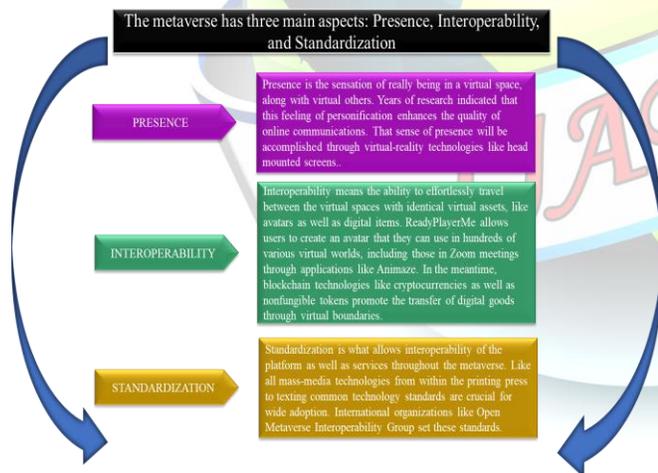


Fig. 8. The Metaverse three main aspects

Challenges of the Metaverse

Technology has been rapidly evolving and shifting over the past few decades. People today are experiencing innovation that was previously unimaginable. Metaverse is one of the most popular examples of these innovations, a

unique, immersive virtual environment that is rapidly taking over the Internet [12]. The Metaverse ensures a hopeful full future for businesses, but certain challenges are unavoidable, and businesses must prevail along the path. Although the Metaverse is winning in its popularity, it still requires more footing. As a result of the high technological demands, availability is a major concern. Not everyone can access the gadgets vital to experience the Metaverse, like high-end systems as well as VR lenses. This significantly restricts the potential market for the brands and blocks efforts towards mass marketing. Organizations must also be vigilant in navigating through the Metaverse. Smooth integration is absolutely essential in presenting an outsider to the Metaverse. Since the technology is new, companies may find it difficult to locate their position in the Metaverse and could come off as particularly straightforward or deceptive in their messaging [12].

There is also still a great deal of confusion that surrounds the metaverses. People frequently think of them as a regular game for children [12,13]. Few people understand the value of metaverses, so brands have a potential risk not addressed seriously for their efforts in setting up a presence inside these platforms [12]. As with any technology, engineers and scientists alike must be careful and examine the consequences that this technology could bring. With regard to the metaverse, some important issues need to be addressed, namely privacy and security [13]. Concerning security, the metaverse intimately links real-life together with virtual and augmented worlds. Although this dimension of reality will be placed in headsets and silicon chips, it can lead to real-life devices and systems being likely to be affected by the metaverse. For instance, hackers might take full advantage of the extensive integration of technologies for their own purposes, including stealing personal data, tracking, data mining, as well as gaining illegal access to restricted areas.

Furthermore, another challenge to be considered is data privacy and security in the Metaverse. New technologies require more advanced security measures [14]. This calls for new approaches for data privacy and protection that are currently not available. Privacy will be another main concern for users being an augmented reality device would be similar to a monitoring device. Such a wearable would also have camera capabilities, know the precise location of the user, and store details about the user. Additionally, the metaverse would recognize others like each user must be a uniquely recognizable connection akin to an IP address. In other words, people could be tracked and located against their will using a headset. Camera equipment connected to hardware



and metaverse services may be used for data mining. Data privacy and security continue to be challenging in the metaverse. With new technologies comes the need for greater developed security measures [13]. This will require building new ways of data privacy and protection in which there was nothing. For example, in-person verification may require more data from users, thus increasing data privacy risks.

Finally, since metaverses are free for all, brands must be careful to protect their image. As users gain more control over a metaverse, the greater the likelihood of questionable content appearing alongside a brand. Additionally, the placements run the risk of being vandalized or disrespected by users. As a whole, the metaverse could launch a new technological breakthrough by connecting all the aspects of life by using internet technologies [14]. Still, this technology could easily be defective, and users must proceed with caution if they choose to select into the metaverse. Eventually, metaverses offer a bright future for computing and the internet. Even further, they provide plenty of space available for innovations for sellers or advertisers equally. Despite these challenges, the ability to be experimental, offer an engaging experience and be innovative succeeds [15].

X. CRITIQUES AND CONCERNS

This term started in the early 1990s and came critiqued as a way of public diplomacy building using a strictly theoretical, much-touted idea based on existing technology. Information privacy in the metaverse is an area of fear because the participating companies will probably gather users' personal data through wearable devices as well as interaction with the user. Social media companies are planning to persistently target advertisements inside the metaverse, growing further concerns that are associated with the spread of false information and loss of individual privacy[21]. Consumer addiction and difficult social media usage are yet another concern for the growth of the metaverse. Internet addiction disorder, social media, as well as video-game addiction may have psychological and physical consequences for an extended period of time, like depression, anxiety, as well as obesity. As with any existing technology, experts fear that the metaverse might be abused as a form of escapism. The metaverse may enlarge the social effects of the online echo chamber and a digitally isolating space. Due to the fact that metaverse improvements could be made to the algorithmic personalized virtual worlds on the basis of each individual's beliefs, the metaverse can further

alter user's experiences of reality by biased content to preserve or increase commitment. The estrangement of the human personality, as well as the digitalization of human experiences, is proven to cause further alienation of social human connections [21].

XI. CONCLUSION

The next generation of the internet is the metaverse. It is structured around activities all people enjoy with friends and colleagues. The exponential growth of creators is leveraging the new age of creator-oriented tools, mixing and matching, embedding, and connecting. This will lead to places people never thought possible. New worlds discussed above can be hard to imagine and will radically change the way people will live, learn as well as work. This change is called the New Reality. The metaverse appears to be filled with promises along with many useful capabilities. Though, this is a massive project which requires huge investment but also needs years of research. The evolution of new technologies will also be required and the establishment of various standards and protocols to make it all work. Newcomers might also exploit this technology by adding new regulations, a break-up of the multinational Meta, etc. Still, it is also a real chance for cryptocurrency as well as the blockchain world to offer lasting solutions to the metaverse and attempts to restrict the monopolization of the metaverse by several large centralized multinational companies. Additionally, a major challenge will be the capacity of the players in the industry to produce bulk acceptance through actual value-added services for people and companies. As a whole, the metaverse could begin a new technological revolution by linking all the aspects of life through internet technologies. Nevertheless, such a technology can be easily damaged, and users must proceed with caution if they choose to opt into the metaverse. The dream of a user-friendly metaverse is not so far away.

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