

# Metaverse: What? Why? When?



*Horizon World*, the gaming world from Meta, was just released in North America on December 9<sup>th</sup>.

Have you heard that Meta also announced a plan to hire 10 thousand people in Europe to build the metaverse?

Why would you invest in the metaverse?

Wait, let us take a step back, what on earth is the metaverse?

## Universe or Metaverse

If you have seen the film *Ready Player One* and remember *The Oasis*, then you already know what the metaverse can be like. Metaverse is a word coined by Neal Stephenson in his sci-fi novel from 1992, *Snow Crash*.<sup>[1]</sup> There has been a lot of hype around the term recently after the gaming company Roblox, Corp. got listed and Facebook, Inc. got renamed. Many big techs start to see this revolutionary concept as their next direction of development. The metaverse is an imaginary, fully developed 3D virtual world that includes all kinds of content. "Meta-" is Greek and stands for "beyond" or "higher", while "-verse" is extracted from the term "universe" and often used as a suffix when describing alternative worlds or universes. Actually, if we reduce the standard of inclusiveness and broadness, i.e. the "meta-" part of metaverse, then each video game can be seen as a mini-metaverse itself, because every single game has a virtual world setting and a set of rules, no matter if it is *Fortnite*, *Warcraft*, or *Super Mario*. When you immerse yourself into the game setup, you are already in that mini-metaverse. On the other side, if we ignore the depth of virtual content, i.e. the "-verse" part of metaverse, then all the mini browser game distribution platforms, or *Chrome Web Store* also meet this loose definition of "metaverse".

The metaverse we are talking about here is the full setup. According to Roblox, there are eight features of metaverse: identity, variety, friends, anywhere, immersive, economy, low friction, and civility.<sup>[2]</sup> In a developed metaverse, it can mean different things to different people. Everyone has an avatar and enjoys his or her identity in the metaverse. Because in the end, you are the user who lives inside.

## What Can Metaverse Bring to Us?

If this explanation is hard to picture, there exists a virtual world that is quite developed, and that is remarkably close to the metaverse: *Roblox*. *Roblox* is a platform of games - or let us say that someone has put an amusement arcade online - where you have your unique and exclusive identity for all the varieties of games. You can connect and socialize with your friends online from anywhere in the world on *Roblox*, and you can even create games on it. Although the graphic style is a bit blocky or Lego-ish, its physics setting is realistic and the space for creativity is infinite. We all heard about *Grand Theft Auto*, one of the most famous open world games. Imagine there is a virtual reality (VR) enhanced version - then it is the *Jailbreak* on *Roblox*. Gaming is the first step for people to get to know the metaverse, but there are more applications than only gaming. Several virtual concerts have been held by Marshmello, Travis Scott, and Ariana Grande, attracting tens of millions of people in *Minecraft*, *Fortnite*, or *Roblox*.<sup>[3]</sup> Considering the development of metaverse devices in conjunction with an increasing user base, it doesn't sound ridiculous to bring virtual concerts or festivals to an even higher level, with more interactions and



a better user experience. After all, Dave Baszucki, the CEO of *Roblox*, said that user generated content is their focus - the metaverse will not be created by his team, but by the users.<sup>[2]</sup>

Work is an essential part of our lives. During the COVID-19 pandemic, the way we work has changed dramatically. Microsoft *Teams* introduced “together mode” in July 2020, which can bring meeting joiners together in one virtual room, allowing the speaker to more easily interact with the audience. But the ambition of Microsoft is bigger: *Mesh* will enable its users to interact virtually with each other, and also with virtual objects, to let all the meeting joiners have a feeling of presence. Organizations can build virtual worlds within *Mesh*; meeting joiners will join the metaverse with their own avatars and collaborate in a mixed reality world. Presenters can draw graphs and present their models or prototypes in *Mesh*.<sup>[4]</sup> At the same time, Meta did something similar. After Facebook, Inc. changed its name to Meta Platforms, Inc., its core service did not change: connecting people. Meta has its work collaboration product called *Horizon Workrooms*. With a work account login, you can interact with all the colleagues in the metaverse. You can even bring your desk and keyboard into the metaverse, and pin images from your computer directly to the virtual whiteboard in *Workrooms*.<sup>[5]</sup> Imagine learning new skills and gaining knowledge once the metaverse is fully developed. Getting to know complex machines, fragile objects or dangerous matters in the metaverse before seeing them in reality would be very helpful for the students.

Apart from an immersive experience, the metaverse can also have significant impact on economics. The play-to-earn gaming model can be seen widely used, to encourage the users' engagement. Professional gamers selling in-game items such as character skins for virtual currency or even fiat money is not a new business model. Apart from commerce within the metaverse, we can also expect a boom of digital art tokenization into non-fungible tokens in the metaverse, accompanied by virtual art auctions. Even the “real” estate business in the metaverse has started, as people can buy virtual property and virtual land. *Sandbox*, a gaming metaverse, has already attracted \$86.56 million in non-fungible token land sales.<sup>[6]</sup> But when there is trade, there is scam. *Adopt Me!* in *Roblox* has introduced a trade license to fight against increasing virtual pet scams in early 2020.<sup>[7]</sup> It will not be surprising if a more complex financial regulation system or a taxation system will eventually be set up.

## Why Are Some People Worried?

Skepticism towards innovative technology is not rare. After overcoming the uncertainty, the metaverse can move one step forward.

The algorithms of social media platforms drive the echo chamber effect - that people are insulated with people who share the same views in different bubbles.<sup>[8]</sup> Louis Rosenberg, the inventor of the first interactive augmented reality (AR) system, argued that the metaverse can manipulate our daily experience of reality even more than social media, if labelling such as “Atheist” or “Republican” are publicly linked to users' virtual identity. It might make the situation worse if users may not even be aware that others can see those labels. This can amplify division, ostracize groups, or even drive hatred and mistrust. Eventually it could make the online society more polarized and may spill it over to the real world.<sup>[9]</sup>

The metaverse will also alter the sense of our surroundings and replace it with virtual content, but we are not sure of the full effects on human beings yet, neither physically nor mentally. In *Arkangel* (Season 4 Episode 2 of the TV series *Black Mirror*), parental control can be implemented directly onto children's eyes, and their vision



can be extracted in real time and also stored for parental supervision. The application has led to an unfortunate result, although the filter application was designed to protect adolescents from unsuitable views.

There is also criticism from another direction, namely that human beings should focus on exploring outer space, rather than focusing on the virtual world. Buzz Aldrin, the second person who landed on moon, said in 2012, "You promised me Mars colonies. Instead, I got *Facebook*." <sup>[10]</sup> According to astronomer Nikolai Kardashev, the technological advancement of a civilization can be measured by its energy usage level. Projecting innovation and creativity for usage in the real world, such as researching renewable energy or nuclear fusion power, can bring mankind into a Type 1 Civilization. Liu Cixin, a Hugo Award winning sci-fi writer, emphasized the importance of space exploration and criticized the metaverse as an involution of mankind civilization. <sup>[11]</sup> Elon Musk also recently trolled Mark Zuckerberg and Meta via his meme on *Twitter*. <sup>[12]</sup>

Calling the metaverse a dystopian nightmare is too exaggerated, but these concerns are reasonable. No one wants to replicate the existing worst effect of social media to the new enhanced version. To answer the questions above, we need the assistance of technological involvement to push the development of the metaverse, as well as more users to let the concept develop in a healthier way.

Human beings have tried to explore how we perceive the surroundings and interpret the world for thousands of years. With the help of technology, the metaverse has evolved from a sci-fi concept to a user created virtual world. As there are more investors and users noticing the metaverse, we can expect that the metaverse will develop and improve at a faster rate, and finally reach an ideal metaverse that benefits all of us.

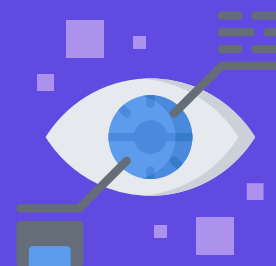
The metaverse concept can be invested in business areas of the following:



Platforms



Devices



Software

### When Will the Metaverse Get Here?

The idea of a freely moving metaverse is still far from being realized, commented Neal Stephenson. <sup>[1]</sup> Bloomberg Intelligence estimated that the metaverse market could reach USD 800 billion in 2024, representing a compound annual growth rate of 13.1%. <sup>[13]</sup> We consider that the following related industries will be most helpful for the development of the metaverse. Similarly, the metaverse will help these industries grow in turn.



**Metaverse Platforms:** Metaverse platforms provide the foundation of virtual environments and digital worlds that all users can connect to and interact in. Meta, Microsoft and Roblox all have their different focus on the metaverse future.

**Metaverse Devices:** Extended reality (XR) companies are involved in the provision of devices. The relationship between virtual reality (VR) devices and the metaverse is self-explanatory, as without devices there is no immersive experience for users. Augmented reality (AR) devices are similarly important for the metaverse, especially when it comes to work collaboration. Components of XR devices include but not limited to sensors, smart glasses, haptic motors, and other interactive solutions. Given significant parts of the metaverse need to be rendered in 3D, a high demand of graphics processing units cannot be overlooked.

**Metaverse Software:** The software technology is the base for immersive experience. Software technology includes software framework or game engines, physics engines, real time 3D content solutions, vision solutions, XR service, interactive sound system, and video compression, among others.

Here are some representative companies that cover different metaverse areas:

- **Meta, Inc.** (United States) is the parent company of many social media apps including *Facebook*, and *Instagram*. The company's vision is to help bring social technologies to a new level. For instance, Meta has its Reality Labs that researches AR and VR technologies, and has launched *Horizon Worlds*, which resembles their vision of the metaverse.
- **Microsoft, Corp.** (United States) has leveraged their artificial intelligence and cloud technology to connect users via mobile phones, tablets, PCs or VR devices, and launched *Dynamics 365 Connected Spaces* and *Mesh for Microsoft Teams*, two products helping the evolution of the metaverse.
- **Roblox, Corp.** (United States): Founded in 2004, it went public in 2021 and is known for its online game platform and game creation system - *Roblox*. It has an online community of 47 million daily active users globally.
- **Nvidia, Corp.** (United States), provides GPU chips, one of the most important components for metaverse devices. Nvidia also set up a simulation platform as the metaverse for engineers - *Omniverse*.



## References

- [1] A. Lee, "'Still a long way from being realized': A Q&A with author and metaverse inventor Neal Stephenson," 5 November 2021. [Online]. Available: <https://digiday.com/marketing/still-a-long-way-from-being-realized-a-qa-with-author-and-metaverse-inventor-neal-stephenson/>.
- [2] D. Takahashi, "Roblox CEO Dave Baszucki believes users will create the metaverse," 27 January 2021. [Online]. Available: <https://venturebeat.com/2021/01/27/roblox-ceo-dave-baszucki-believes-users-will-create-the-metaverse/>.
- [3] R. Babajide, "The Metaverse Is Becoming a Massive Revenue Stream for Artists," Medium, 20 October 2021. [Online]. Available: <https://medium.com/our-world-tomorrow/how-the-metaverse-is-becoming-a-massive-revenue-stream-for-artists-7beb6d668c04>.
- [4] J. Roach, "Mesh for Microsoft Teams aims to make collaboration in the 'metaverse' personal and fun," 2 November 2021. [Online]. Available: <https://news.microsoft.com/innovation-stories/mesh-for-microsoft-teams/>.
- [5] "Introducing Horizon Workrooms: Remote Collaboration Reimagined," Meta, 19 August 2021. [Online]. Available: <https://about.fb.com/news/2021/08/introducing-horizon-workrooms-remote-collaboration-reimagined/>.
- [6] C. Shumba, "Just 4 metaverse projects sold \$106 million in virtual land last week, with The Sandbox taking a massive lead: DappRadar," 2 December 2021. [Online]. Available: <https://markets.businessinsider.com/news/currencies/metaverse-virtual-land-sales-record-last-week-sandbox-decentraland-2021-12>.
- [7] B. Stevens, "New 'Adopt Me' Update Adds Features To Help Stop Scammers," 5 November 2020. [Online]. Available: <https://entertainment-focus.com/2020/11/05/new-adopt-me-update-adds-features-to-help-stop-scammers/>.
- [8] M. Cinelli, G. de Francisci Morales, A. Galeazzi, W. Quattrociocchi, and M. Starnini, "The echo chamber effect on social media," *Proceedings of the National Academy of Sciences*, vol. 118, no. 9, p. e2023301118, no. doi: 10.1073/pnas.2023301118., Mar 2021.
- [9] "Metaverse: Augmented reality pioneer warns it could be far worse than social media," BigThink, 6 November 2021. [Online]. Available: <https://bigthink.com/the-future/metaverse-augmented-reality-danger/>.
- [10] J. Pontin, "Why We Can't Solve Big Problems," MIT Technology Review, 24 October 2012. [Online]. Available: <https://www.technologyreview.com/2012/10/24/254875/why-we-cant-solve-big-problems/>.



- [11] 首席商业评论, "元宇宙会不会将人类带向死路? ", 36 氪, 15 November 2021. [Online]. Available: <https://www.36kr.com/p/1482840012177792>.
- [12] E. Musk, "If you die in metaverse, you die in real life," Twitter, [Online]. Available: <https://twitter.com/elonmusk/status/1454268228490850309>.
- [13] N. N. Matthew Kanterman, "Metaverse may be \$800 billion market, next tech platform," Bloomberg Intelligence, 1 December 2021. [Online]. Available: <https://www.bloomberg.com/professional/blog/metaverse-may-be-800-billion-market-next-tech-platform/>.

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