



May 2022

# Metaverse

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The Bridge



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## Executive summary

Humans today have a digital consciousness and an identity that makes our life easy in many ways. Given the consistent increase in average daily time spent online, either work or leisure, and advancements in different technologies, we will continue to enhance our experience of interacting with this global network of collective intelligence (the internet). Metaverse, a term widely used today, is an effort to define and imagine how our world will look in the future and what potential benefits it will bring to society. In this edition of The Bridge, we will try to understand the history behind the word, how we got here, what different technologies are needed, and essential components of a metaverse before finally talking about some of the leading projects and potential downsides of this innovation.

In this edition of the Bridge, we will try to understand what metaverse means, how it has evolved over the years, some of the leading projects building the digital future we all want, and the technological challenges

## 1. Introduction

As with many of the technical terms within the crypto ecosystem, the metaverse is the latest addition to hot topics of discussion. Most businesses want a share of the pie in this new emerging trend. That said, the term metaverse was first used almost 30 years ago, and we have seen a lot of experiments to make it a reality and build a sustainable infrastructure. Still, different technologies required to do so are only coming to life now. So, this might be the best chance yet for most of the population to experience the metaverse.

In this edition of the Bridge, we will try to understand what metaverse means, how it has evolved over the years, some of the leading projects building the digital future we all want, and the technological challenges. This publication aims to help readers understand the basics of what metaverse means and how they should be thinking about it.



Source: Tumisu on Pixabay

## 2. What is Metaverse?

The term 'metaverse' is a combination of the words 'meta' and 'universe.' In simple terms, it can be defined as the bridge between physical, real-world, and virtual digital platforms. Metaverse can also be defined as the next iteration of the internet where users can interact in digital environments with the help of virtual reality and augmented reality devices that create immersive experiences.

Some people can argue that the existing user experience of the internet can also be categorised as the metaverse, and that is true. Still, the hope is to make it even more real through an open-source, decentralised platform development, where users own their data and virtual assets. Thus, it is seen as a massive business and financial opportunity that will unlock the next frontier of the internet, which can bring significant benefits to all members of our society.

Now, the range of digital experiences available to users in the future is vast. The most common use case that comes to mind is multiplayer video games with digital asset ownerships and trading marketplaces. But these experiences can also be used for work, commerce, connecting with friends, visiting ancient or remote locations, and optimised education. It can also unlock new ways of conducting business and create new economic incentive models.



Source: Dreamcast

Many innovations are needed to reach their full potential, like developing cost-efficient and convenient hardware devices such as VR headsets, digital glasses, and smartphones. It is coupled with developing easy-to-use software platforms that have the right incentives for adoption. Critical evaluation of vulnerabilities in our existing social media infrastructure, productivity, and work environments is also required. Let us understand the brief history of the word metaverse and the current implementation of the tech.

### 3. A Brief History

The term metaverse was first coined by Neal Stephenson in his 1992 novel 'Snow Crash' to describe a virtual world in his imagined future of 21st-century dystopia. Virtual real estate could be bought and sold in this world, and it had users with 3D VR goggles and multiple avatars (identities) to choose from. Surprisingly, these three elements (ownership of assets, VR hardware, avatars) still make up the central narrative of today's definition of a metaverse.

It is not just the fictional world that existed decades ago, but virtual metaverse platforms were also created a long time ago. Modern video games can certainly be considered one iteration of the metaverse that fits the more prominent corporate vision.

One of the most popular virtual worlds, which is very close to the ideal metaverse, called 'Second Life' was launched in 2003. It is a community-driven role-playing platform where users have unique avatars and hang out in virtual spaces. Users can enjoy virtual versions of real-world experiences, from business meetings to leisure activities. They can create content and services that can be traded in the local currency, which can then be exchanged for real-world money. But why is everyone talking about the metaverse now?



Source: Second Life

The argument that the metaverse is nothing more than a natural progression of the internet and how we interact with it is valid, which is possible only with consistent technology innovation. Thus, the critical reason metaverse has become the buzzword today is the progress in VR hardware and its use in today's world, the high-speed access to the internet, and some unique features of the blockchain tech that make digital asset ownership a reality.

Cryptocurrencies are transforming the landscape of digital asset ownership, and non-fungible tokens (NFTs) have made it easy to create unique objects or art that people can own and trade in the digital world. This is integral for the success of metaverse as it enables virtual real-estate ownership, which is fundamental for building value-added services on top of it.

It is important to note that many existing video games and virtual worlds already enable the owning and trading of digital assets without using blockchain technology, but that ownership is subject to license agreements of the platform. On the other hand, NFTs are publicly verifiable, genuinely unique, traded 24x7, and potentially can be used in multiple virtual digital worlds.

The final and most important reason we see a surge in interest for metaverse projects is the significantly increased time that people have spent online in the last few years, given the pandemic across the world. Content consumption and thus creation across platforms has increased, work from home culture has firmly established itself, people have been spending a lot of time on video calls for business meetings, and they are using VR devices and video games to gain exceptional experiences from the comfort and safety of their home. This has led to tech companies capitalising on the trend and started working towards making partnerships that can help their brand grow and thrive in the next iteration of internet adoption.



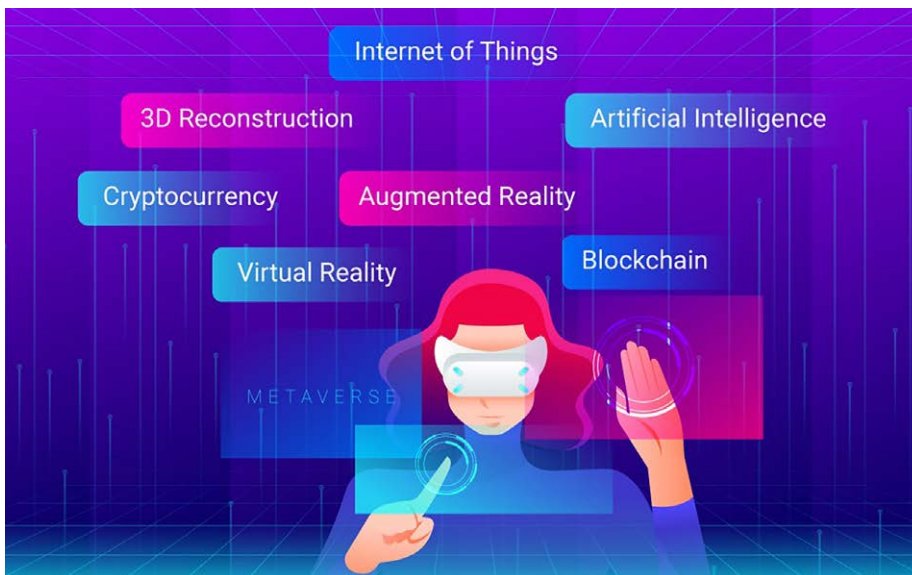
## 4. Key Technologies

The metaverse is not a single platform but rather a combination of multiple implementations of different ecosystems, with each offering some unique features over others. Further, for metaverse to realise its full potential, it is not one technology that must work but rather a combination of multiple approaches that need to work in coordination with each other. Following are several technologies that are key for building the metaverse of the future.

### Augmented Reality (AR) & Virtual Reality (VR)

AR applications in various digital devices use visual aspects, features, and characters to modify the real world. Users can interact with their surroundings with added virtual visuals and elements like sensory stimuli that enhance the experience.

VR is an immersive virtual environment that can be accessed and explored using hardware devices such as VR headsets, sensors, and gloves that provide physical, real-world stimulation or feedback while exploring. Connecting with other users will get closer to reality as the technology improves every aspect of the interaction and utilises all human senses.



Source: Dreamcast

### Blockchain & Cryptocurrencies

Blockchain enables the development of metaverse in a decentralised and transparent way. The community is responsible for the governance of the ecosystem, and users have complete ownership of their assets and the value that they create, along with the freedom to access different marketplaces for trading virtual assets. Value creation is tied to the underlying cryptocurrency that can act as an ecosystem currency for conducting commerce and creating unique NFTs of digital land, in-game assets, accessories, and much more.

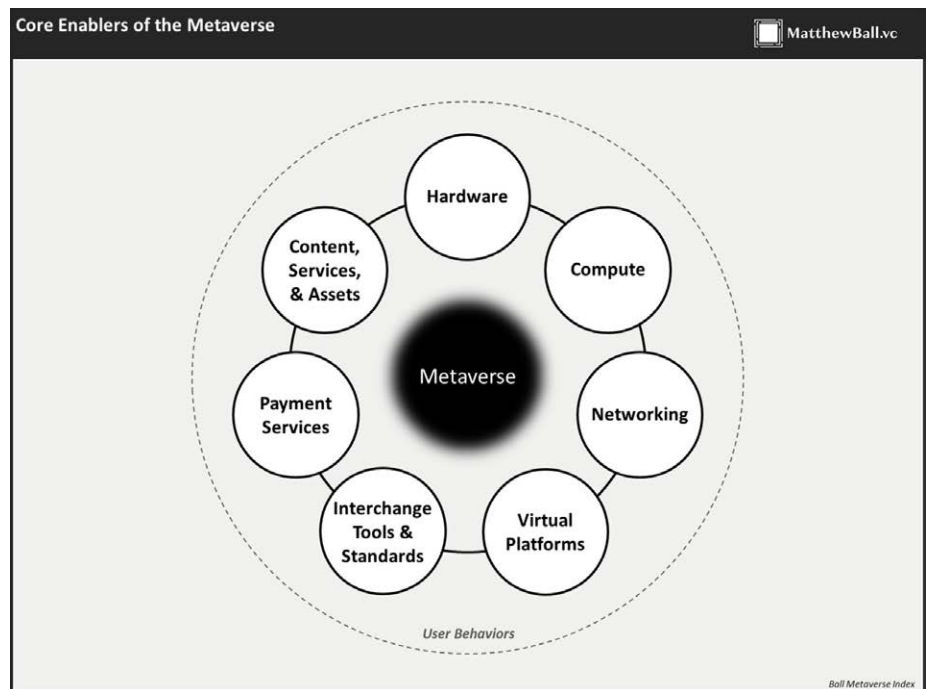
### Artificial Intelligence (AI) & Internet of Things (IoT)

Not everything in a metaverse will be created or operated by actual humans, but AI will play a significant role in every aspect of it. It can be as simple as facial recognition software commonly used today to create different avatars and have lifelike conversations with non-player characters (NPCs).

We are increasingly surrounded by smart devices around us that are connected to the internet and can perform a predefined set of actions without our intervention. As we spend more time in the virtual worlds, the need for communication between the physical world and the internet continues to grow. IoT fulfills that gap through data transfer using sensors. This connection between the two ecosystems can be significantly improved with IoT devices' help to create a more accurate virtual representation.

## 5. Metaverse Components

It is important to understand that the metaverse is essentially the next generation of the internet made of multiple layers of technological advancements and will require several components to work in coordination with each other. It will also need a robust regulatory framework, updates in policies, and changes in consumer behaviour. Let us briefly look at critical components that make up the entire ecosystem, each of which requires constant innovation.



Source: MatthewBall

### Network Infrastructure

High bandwidth low latency connectivity is at the core for accessing real-time applications. This must significantly improve for service providers and data exchanges, along with last-mile connectivity for users. 5G networks will substantially enhance the bandwidth while reducing latency.

### Computing & Programming Tools

The availability and constrain of computing power will determine the development and adoption of the metaverse. This will be fulfilled with cloud computing and local machines to optimise for the best user experience.

Developers are to be provided with programming engines that make it easy to build 3D models, map the real world, voice and gesture recognition tools, data integration from multiple devices and biometrics, and an interactive user interface for real-time data analysis.

### User Interface & Devices

These tools will enable us to interact with virtual worlds. It combines applications that will allow content creation, multiplayer games, commerce, productivity, live events, etc., and devices that enable these use cases, like smartphones, AR/VR headsets, sensors, displays, etc. There will be some integral services for the maximum utilisation of these applications like asset marketplaces (for example, OpenSea) and payment or financial service providers (DeFi).

## 6. Leading Projects

In the last year, technology companies have started working towards building their products and services for the upcoming metaverse ecosystem. Leading there is Meta, formally known as Facebook, intending to make its virtual world and integrate NFTs on their existing platforms. Not much behind is Microsoft, with their significant investment in gaming company Activision Blizzard.



Source: Decentraland

But there are also entirely new companies leveraging the blockchain technology from the group up to build their versions of metaverse that seem promising. Let us briefly look at some of the leading projects.

### **Decentraland (MANA)**

It was started in 2020 and is a virtual reality platform built on Ethereum that allows users to create, experience, and monetise content and applications. Users can purchase pieces of virtual land (NFTs called LAND) using the native currency MANA, which can be developed to provide unique experiences for other participants.

### **The Sandbox (SAND)**

It is a decentralised platform on Ethereum built for the gaming community that utilises the power of decentralised autonomous organisation (DAO) and NFTs to create, build, and trade digital assets in the form of a game.

### **Enjin (ENJ)**

The company Enjin provided an ecosystem of interconnected, blockchain-based gaming products and launched its platform on Ethereum in 2018. Their flagship product is the Enjin Network, a social gaming platform that enables users to create digital assets and integrate them into various games and applications.



## 7. Pros & Cons

**Table 1: Metaverse Pros & Cons**

#	Pros	Cons
1	Immersive Experiences	Less Human Connection
2	New Ways of Commerce	Addiction to Virtual World
3	Virtual Tourism	Increased Distance from Nature
4	Accessibility to Events	Compromised Privacy of Data
5	Productive Remote Work	Enhanced Health Issues
6	Optimised E-Learning	Lack of Real-World Perspective
7	Engaging Gameplay	Mental Health Issues
8	Enhanced Healthcare Attention	Reduced Memory

Source: SEBA Bank

## 8. Conclusion

It is safe to assume that the metaverse is the next iteration of the internet and a new way to interact with the virtual world that creates immersive experiences like never before. It will completely change the way people interact with each other online, enabling new economic models and business opportunities for individuals from all sectors of society. These innovations will undoubtedly make life easy for everyone, but the potential downsides are always an important consideration.

The metaverse vision will be possible through a series of integrated technology innovations in various fields, as mentioned above, which takes time. Much of the excitement in the market is created by leading tech and social media companies. It isn't easy to fully visualise what the interconnected physical and virtual worlds might look like in a few years. It will most likely be multiple technology implementations, with each offering unique values to the end-users, much like the internet service stack of today. Investors need to be cautious and patient.

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