

WEB 3.0

INTRODUCTION

Remember your first interactions with the internet? For some of you, this was during the Web 1.0 era, which lasted into the 2000s. Internet usage was static and was mostly limited to surfing websites and emailing.

Web 2.0, which started in the early 2000s and is ongoing up until now, is characterized by interaction—we can post our own stories on social media, quickly create websites, and even edit Wikipedia.

Web 1.0 connected people with information, whereas Web 2.0 connects people with each other. We are now transitioning into the Web 3.0 era. Since there is no clear definition of Web 3.0, for now you can see it as another way we use internet. In Web 3.0, people will be “physically” connected by emerging technologies.

Web 3.0:

- Is built on blockchain technology,
- Focuses on decentralization and greater individual ownership, and
- Is not clearly defined yet—there are many different visions for how it will operate.

Web 3.0 will affect daily life by changing the way we work, study, socialize and carry out all other day-to-day activities. There are pros and cons associated with the future virtual world— which you will learn more about in the next section.

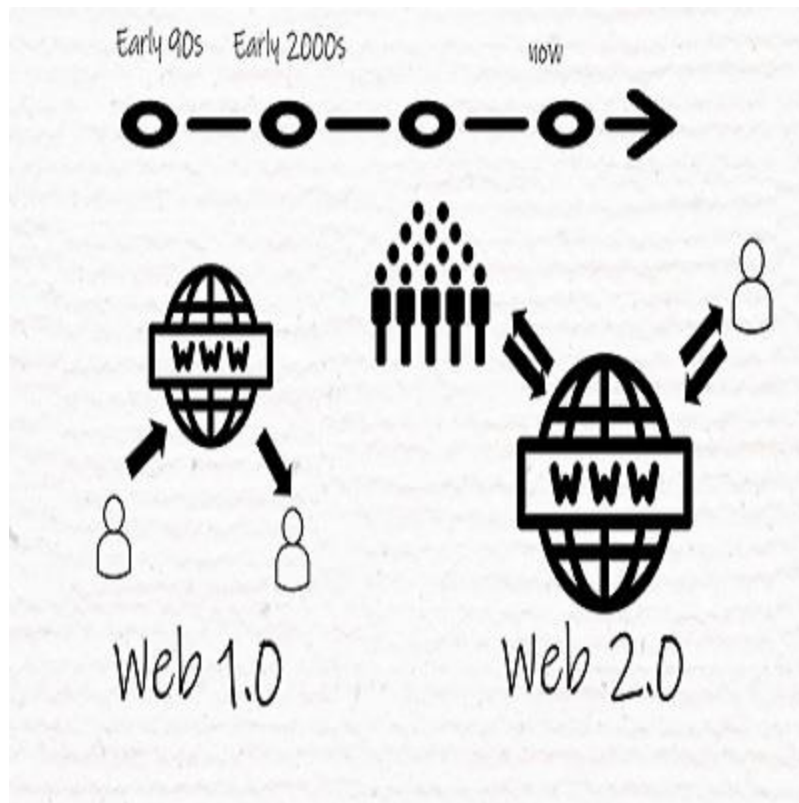


Image description: the left side shows the nature of web 1.0: it connected people to the information. There are 2 person icons linked to a globe icon. The right side shows the nature of web 2.0: it connects people to people. There are icons of a person and a group of people that are linked to a globe.

THE METAVERSE

The metaverse was first mentioned in popular culture in the early 1990s. It did not become a widely used term until 2021 when Facebook changed its name to Meta and announced that it was planning to invest \$10 billion USD in the idea.

You might be wondering: what is the difference between the internet and the metaverse? The internet is a web of computers and servers, whereas the metaverse builds on this existing network. It is not a single platform—it is not owned by a single company.

There are many different definitions of the metaverse, but the most basic definition is that the metaverse melts physical boundaries between people. The metaverse is a virtual world where people are able to do the things they normally would in real life, such as work and communicate.

The concept of “presence” is a key feature, with the technology making you feel like you’re actually in a physical location and feeling like other people are really there with you, even when you are sitting in a room connected to a computer or other devices.

There are 3 elements involved:

- Technology that activates different sensory stimuli,
- A platform provider, and
- Avatars that represent people’s identities in the metaverse.

How do we get to the metaverse? Many people hear the word ‘metaverse’ and immediately think of Virtual Reality (VR). But VR is just one of many ways to enter the metaverse. Another metaverse entry point is Augmented Reality (AR), which merges the physical with digital world through visual, auditory, and other sensory information. Although not yet widely adopted, there are many examples of metaverse technology already in use. For example, the virtual world *Second Life* was created in 2003 and it allows users to live in an alternative life as an alter-ego. Other examples include *Fortnite* and *Pokemon Go*, both video games in which the developers created highly intensified virtual worlds around the metaverse concept. Beyond games, Omniverse is a metaverse platform build by Nvidia for 3D design professionals; Meta Horizon is a metaverse platform developed by Meta for work and socializing.

To join the metaverse, you must first choose a platform or metaverse provider and create an account. You will need to have a VR headset, which usually includes headphones that also activate your auditory experience. Then, you need to design your avatar—or who you are—in the metaverse. Depending on the platform, designing your avatar might have a cost. So, you likely need to have Bitcoin or other cryptocurrency (which we discuss in more detail in the next section) to get set up or to participate in certain activities. Finally, you can take your time to explore the metaverse world.



Video: [What is the Metaverse](#)

Description: YouTube video by CNBC International discussing early versions of the metaverse. Includes closed captioning and a transcript.

BLOCKCHAIN

What does blockchain have to do with the metaverse? As mentioned in the previous section, the metaverse is supported by different technologies, and blockchain is one of the most important tools. Just like in the physical world, people in the metaverse own digital property, including cryptocurrency. Blockchain is the technology that supports cryptocurrency transactions, such as Bitcoin. It ensures that users cannot cheat when performing the transaction. Without blockchain, the metaverse would lack secure data storage.

A blockchain is a database that manages and stores data in groups, known as blocks, which have certain storage capacities. Once a block has reached its storing capacity, it is sealed and joined with the previously filled block, which is why it's called blockchain. With blockchain, there is no central database, nor is there a central control of information. In a blockchain-based application, participants interact with an identical copy of the supporting database that is distributed over many computers, which are referred to as nodes. People who build blockchain tie blocks through mathematics, which allows the blocks to be interconnected. This feature protects the blockchain from being modified because it is computationally impossible to modify any block without being noticed.

So, how is blockchain used? It is impossible to talk about blockchain without mentioning Bitcoin, a virtual currency designed to act as money and a form of payment outside of the control of any person or group. Bitcoin does not require a third-party (i.e., a bank) in financial transactions. There are two ways to obtain Bitcoin: by buying Bitcoin with real currencies, or someone paying you with Bitcoin.

In summary, blockchain achieves its secure architecture through network decentralization; it connects blocks through mathematics to make interference impossible without being noticed by all users.



Image description: a handshake with interlocking block shapes in the foreground

Image source: [Pixabay](#)

QUIZ

1. Go to these two links, [link 1](#) and [link 2](#). Which era do these webpages represent?

A: Web 1.0

B: Web 2.0

C: Web 3.0

Correct answer: A

Feedback: The page is static, only conveys information, there is no place for comments or user interaction, which are the features of Web 1.0.

2. Go to [Wikipedia](#) and spend some time exploring. Why does Wikipedia represent the Web 2.0 era well?

A: It's free to access

B: Anyone can contribute and edit content

C: It is run by a non-profit foundation

Correct answer: B

Feedback: Wikipedia allows everyone to edit the page, which is one feature of Web 2.0.

3. What era are we in now?

A: Web 1.0

B: Web 2.0

C: Web 3.0

D: both Web 2.0 and Web 3.0

Correct answer: B

Feedback: The Web 2.0 era started from the early 2000s and is ongoing now, we are still in the Web 2.0 era because Web 3.0 is far less prevalent.

4. Select the major difference between Web 1.0 and Web 2.0:

A The Web 1.0 era started earlier than Web 2.0.

B The Web 2.0 era represents a dynamic interaction between users, while Web 1.0 was mainly characterized by static usage of the web.

C There were no ads in the Web 1.0 time.

D Web 2.0 allows us to break physical boundaries, but Web 1.0 did not.

Correct Answer: B

Feedback: Web 2.0 represents the capability for many interactions between users, while Web 1.0 is static.

ACTIVITY

 **Purpose:** This activity gives you an opportunity to see an example of what interacting in the metaverse might be like.

 **Task:** View the [Metaverse demonstration video](#). Based on what you see, think about ways that the metaverse might be able to benefit society, as well as the possible negative consequences.

Video description: YouTube video from CBS News demonstrating the Horizons World metaverse product from Meta and interviewing experts on the future of the technology.

 **Time:** This activity should take about 10 minutes to complete.

 **Next:** If you'd like to learn more about this topic, you can also visit the [Technology Sandbox](#) at the Concordia Library to use our virtual reality headsets.

CONCLUSION

The metaverse is expected to change our lives in many ways. In addition to making gaming experiences more exciting, the metaverse may revolutionize our day-to-day experiences, such as improving online shopping so customers can virtually try on clothes or cosmetics before making their purchases. It also has the potential to improve training and education outcomes by immersing learners with AR technology. The metaverse may impact health care, for example, by allowing surgeons to operate on a patient's virtual twin before performing the real operation on the patient. With the help of the metaverse, travelers can have a thorough preview of their destination and accommodations before booking a trip.

There are also the downsides of the metaverse. Some of the issues already exist now, but with the metaverse, they can deteriorate further and have more severe consequences. For instance, with metaverse technology companies can collect personal and biological information, such as body reactions, eye movements, etc. With the rich virtual environment that the metaverse creates, associated cyber addiction and post internet depression could worsen when people transition to the physical world. Identity hacking can bring more tragic consequences. There are also new issues and grey areas emerging in the Web 3.0 era. What laws or policies should regulate our behaviours

in the virtual world? Will there be virtual crime? If people witness crime, will they be desensitized to criminal acts and more likely to commit crime in the physical world?

In other words, the Web 3.0 era has the potential to bring advancements in technology that can change our lives in many aspects. Meanwhile, individuals and society need to be ready for the challenges associate with these changes.

FURTHER RESOURCES

YouTube Video: [Web 3](#). In this video, you'll learn about Web 3.0 and how it differs from the past versions of the internet.

Website: [What is blockchain technology?](#) A collection of blockchain resources from IBM, including an overview, case studies, and podcast discussions.

Udemy: [Metaverse Masterclass- Learn Everything about the Metaverse!](#) Online course about the metaverse, particularly for investing.

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VIDEO TRANSCRIPT

Jingjing Li

Student Librarian

Intro slide: Concordia library logo

Interviewer: I have some questions about web three in the metaverse, since it seems like everyone is talking about it. Could you give us a quick introduction? [question displayed on the screen]

Jingjing Li: Oh, sure. First, there isn't a clear definition of web three. So I'm going to give you a rough definition of what web one and web two are. Then I will explain what web three is. Web one is what the internet was, since its beginning until early 2000s. You can load some pages, read information—and that's it. The Internet, most of the internet did not make profit. Now we have web two, which is from early 2000s until now. The biggest change is that internet users start to interact with each other. We're all creators—that means we post our story on social media and leave comments on others' stories and more.

Visual image description: the left side shows the nature of web 1.0, it connected people to the information. The timeline icon shows Web 1 lasted from the early 90s until early 2000s. There are 2 person icons being link to a globe icon. The right side shows the nature of Web 2.0, it connects people to people, there are icons of a person, a group of people, an icon of people within a screen, and all icons are linked to a globe. The timeline icon shows that Web 2 started around the early 2000s until now.

Jingjing Li: Not only can we get information from the internet; the internet is also getting information from us, so they can serve us better and make sure we stay on their websites longer. The Internet also makes profit from ads. Web three is the time we use all sorts of technologies to somehow melt the physical boundary between people.

Visual: video clip shows 3 circles represent individuals' data, which belong to platform/service providers during the Web 2.0 era

Visual: video clip shows that many internet users have their data exposed to big companies like Amazon, Google, and Meta.

Interviewer: I see and what about the metaverse? Why is everyone talking about the metaverse? [question displayed on the screen]

Jingjing Li: Well, that's a good question. The Metaverse is actually a graphically rich virtual world. It's not a new concept; it first appeared in a novel called *Snow Crash* in the early 90s, and then it became popular recently. There are many definitions of 'metaverse'. Basically it is a virtual world where people do things we usually do in real life. With augmented technology, AR, it makes you feel that you're really there with others, even if you're just sitting in the room connected to a computer or other devices.

Visual: video clip shows what the metaverse looks like, from a video game called *Decentraland*.

Visual imagine description: the cover of the book named *Snow Crash*.

Visual imagine description: a girl using augmented technology and her avatar in the metaverse.

Interviewer: It sounds amazing. So how do I get into the metaverse? [question displayed on the screen]

Jingjing Li: Well, it's easy. First you choose your platform providers, such as Meta, Microsoft, Unity Software. Then, you choose and customize an avatar that we will be in the metaverse. Last, you put your AR goggles on and take your time to explore.

Visual slide text: a platform, an AR headset, and an avatar.

Visual: video clip shows a person using an AR headset

Interviewer: Cool, so I'm curious—how do these relate to me? The web three-point-oh and the metaverse? [question displayed on the screen]

Jingjing Li: Well, that could really change our life. Just a few examples: In the future, a surgeon can practice on the virtual twin of a patient before operating on a real patient.

Visual imagine description: a doctor using an AR headset and with brain images appearing in front of him on the screen

Jingjing Li: It also changes the way teachers teach. For example, when we train firefighters, we can bring them to the metaverse let them have the first-hand experience of a fire accident with all the sensory, visual, auditory stimuli, and then we teach them what to do. So those are just a few examples of potential that the metaverse can bring to us.

Visual imagine description: fire fighter and flame in a virtual simulation

Interviewer: So, it sounds like the metaverse is magical. Why don't we just live there now?
[question displayed on the screen]

Jingjing Li: Well, not just yet. There are a few things we need to figure out. First, in terms of technology, we're not quite there yet. The AR goggles or headset are either really big or very expensive for many of us to buy.

Visual imagine description: a person using an AR headset while touching an element in the metaverse.

Jingjing Li: Second, there are many grey areas in terms of the metaverse regulations. For example, if I commit a crime in the metaverse world, should I be sentenced based on what I did? What law is there available to make such a judgment?

Visual imagine description: a person with a hoodie in a dark background with data and screens appearing in front of them.

Jingjing Li: Also, you know, there are things that already exist in the real world such as identity hiking, those will be even worse in the metaverse. So before we get in there, we need to get things figured out.

Visual: thank you and credit. CREDITS: This presentation template was created by Slidesgo, including icons by Flaticon and infographics & images by Freepik. Music: Lofi Summer

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