What is the Metaverse? (WEEK 1.2)

Connection and work in the metaverse.

Connection and communication :

Hi, I'm Alison Campion. I'm the director of the Metaverse strategy and operations at Meta.

In this video, we're going to focus on how we will connect and communicate with others in the metaverse. We'll also talk about something I'm sure you've been wondering about: how to access the metaverse.

Let's get to it.

First, I want to talk about the question that's probably on your mind: Is the metaverse going to make us even more disconnected from the physical world? I get it. Think about how good it feels just to get outside and look up at the sky. How do you balance the time in the physical world with time spent in virtual spaces? We already spend so much time online. Putting on an immersive headset to visit a computer-generated world seems like it will only make that feeling of disconnection worse.

Vishal Shaw, vice president of the metaverse at Meta, offers this perspective. "The metaverse is not about spending more time online, it's about making the time you do spend online better, more immersive and richer."

But as you'll see from examples throughout this course, the metaverse isn't just headsets and immersive experiences. That's because augmented and mixed reality, and the many ways we can and will be able to access the metaverse experiences — which you're going to learn about in the next module — have the potential to integrate the metaverse into the physical world, such as using a smartphone to see directions overlaid on a view of a street while navigating in an unfamiliar city.

Speaking of which, I'd like to ask you now to picture yourself in a coffee shop, sitting across from someone. You might be having a work meeting, catching up with a friend, even enjoying a first date. What you're talking about is important, naturally, but the space you're physically sharing with that person is powerful, too. You can see their body language and their facial expressions, and hear the tone of their voice. These give you insights into how the other person is feeling, and enable the two of you to communicate more authentically. Whether you're negotiating a deal, discussing a difficult topic, or just getting to know each other, being together makes the experience richer and fuller.

Now think about how it feels to engage in a conversation online. A lot of digital communication is text based. I know we've all experienced what it's like to misinterpret someone's tone or misunderstand the meaning from the written word, even when emojis are included. It can be frustrating to say the least.

When we engage with each other through video — whether we're in a team meeting or on Webex or Zoom, or having a family call on FaceTime or Meta Portal — visual and audio clues help us to better understand each other. Seeing and hearing each other allows us to build rapport and gain trust.

Earlier, we talked about the metaverse as an embodied version of the internet. That embodiment is what's going to allow us to have digital conversations and interactions in the metaverse that are less like those of today and more like those we experience in the physical world. Human connection and social interaction are critical to our health and well being. As humans, we're designed to seek out and engage with others. And even though technology allows us to be more connected than ever, it can also make us feel isolated and lonely.

A potential powerful advantage of the metaverse is that because of the sense of being co-present in a shared space, we might experience social connection in a more satisfying and authentic way than we do online today. Feeling truly present with one another in the metaverse might also lessen miscommunication and misunderstanding.

Think about how much easier it is to feel empathy for another person when you're physically together. In the fully realized metaverse, you will be present, see one another's facial expressions and gestures, and talk together in a way that might enable that level of closeness and understanding, As opposed to receiving a text message or phone call or watching from a screen, virtual interactions will feel more like you're actually sharing a space with that loved one that you haven't seen in years, or visiting one of the wonders of the world in person. And digital events such as concerts, sports, and theater productions — which we'll talk about in another lesson — will give you the opportunity to connect with more people from more places in more ways.

When the pandemic brought the world to a standstill in 2020, we all had to quickly find new ways to communicate and collaborate in all the facets of our lives, especially for work and education. In-person meetings and classes shifted to video calls and online learning.

While the adjustment was certainly a challenge, we also found that, for example, a meeting held via video was more engaging and effective than one held solely over the phone. We discovered that virtual collaboration was possible.

For many people, remote jobs are here to stay, and the future is most certainly going to be a hybrid of remote and in-person work. Meeting in the metaverse, in spaces like Horizon Workrooms, Immersed, Glue, and Mesh for Microsoft Teams allows us to combine the benefits of video collaboration with the power of co-presence. The biggest downside to working in the metaverse? You have to get your own donuts.

Now, let's shift gears and talk about something I know you've been waiting for: how you — and all the people you're going to connect with — will actually enter the metaverse. Let me guess: You just pictured someone wearing a large headset and holding two controllers. While that kind of hardware is certainly a common way to access the metaverse, there are many other devices that you can use to participate. Spaces and experiences in the metaverse are accessible right now through personal computers, mobile devices, smart displays, and, yes, virtual reality headsets and other wearables.

For example, you can visit Engage VR from a PC, Mac, smartphone, tablet, PC-supported VR device, or standalone VR device, to attend events, explore worlds, and interact with others. If that sounds confusing, don't worry: We're going to go over the devices in much more detail in the next module.

Now, while there are numerous ways to access the metaverse, it's important to understand that the way in which you connect will determine the level of the immersiveness you experience. VR headsets and other wearables provide the most immersive experiences in the metaverse, but those of us who connect in other ways will still be able to enjoy the richness and vastness of digital spaces.

Throughout this course, we're going to share examples and activities you can try in the metaverse, whether you're accessing it from your phone or computer, or you have a headset on hand.

While the metaverse is still being built and is years from being fully realized, rest assured that there will be multiple ways to access and enjoy it. We know that a critical component of building an ethical and diverse metaverse is ensuring that it is available to as many people as possible, regardless of where they live or the ways in which they are able to access it.

Coming up next, Mark's joining us again to talk more about the future of work in the metaverse, including a peek at those multiple ways people can access and engage in the metaverse spaces right now, and what virtual work might look like in the future.

I'm just going to pick up some donuts before I head over.

Working in the metaverse :

It's time for everyone's favorite: work.

Over the last year and a half, a lot of us who work in offices have gone remote. And while I miss seeing the people I work with, I think remote work is here to stay for a lot of people, so we're going to need better tools to work together.

Let's take a look at what working in the metaverse will be like.

Imagine if you could be at the office without the commute. You would still have that sense of presence, shared physical space, those chance interactions that make your day, all accessible from anywhere. Now imagine that you have your perfect work setup, and you can actually do more than you could in your regular work setup. And on top of all that, you can keep wearing your favorite sweatpants. Looking good. Let's get together real quick for a debrief.

I'm free now, let's jump in.

Hi. Hey. So what do we think?

I think it's ready. Great. I'll prep it for the presentation. All right, good luck. Imagine a space where you can tune out distractions and focus on the task at hand. When you're ready to share what you've been working on, you can present it as if you're right there with the team.

Wait, where's Mark? I think he's in the middle of something.

You can already see some of these elements in Horizon Workrooms, which we launched a couple of months ago.

Later this year, we plan to introduce room customization, so you can put your own logos and posters in your workrooms. We're also introducing a new office space in Horizon Home for when you want your perfect workspace to do some focused work, or just cross a few things off your to-do list.

We're also announcing 2D progressive web apps for the Quest Store and as a new developer framework, so they're easier to build. You can drop in and check on a work project while you're in VR using services like Dropbox and Slack, or stay connected with Facebook and Instagram. This starts bringing more of your 2D internet services into the metaverse.

And as we've focused more on work, and frankly, as we've heard your feedback more broadly, we're working on making it so you can log into Quest with an account other than your personal Facebook account. We're starting to test support for work accounts soon, and we're working on making a broader shift here within the next year.

I know this is a big deal for a lot of people. Not everyone wants their social media profile linked to all these other experiences, and I get that, especially as the metaverse expands. And I'll share more about that later. But I'm genuinely optimistic about work in the metaverse.

We know from the last couple of years that a lot of people can effectively work from anywhere, but hybrid is going to be a lot more complex when some people are together and others are still remote. So giving everyone the tools to be present, no matter where they are, Whether it's a hologram sitting next to you in a physical meeting, or in a discussion taking place in the metaverse, that's going to be a game-changer. I think this could be very positive for our society and economy.

Giving people access to jobs in more places, no matter where they live, will be a big deal for spreading opportunity to more people. Dropping our daily commutes will mean less time stuck in traffic, and more time doing things that matter. And it'll be good for the environment.

Actually, if you travel for work, and working in the metaverse means that you just take one less flight each year, that's probably better than almost anything else that you can do for the environment.

The ecological implications of the metaverse :

Hi, my name is Tony Parisi. I'm a metaverse and virtual reality expert, and I work as the chief strategy officer at LAMINA1.

Now that you've learned about ways you can and will be able to communicate and collaborate in the metaverse, we're going to explore the potential implications on the environment.

When we talk about the metaverse, a lot of our discussion is what it will be or might be. After all, we're in the very early stages of its development. I believe it could be a decade or more before the metaverse is fully realized. But when it comes to talking about the ecological implications of the metaverse, rather than looking forward, we're going to start by looking back.

When the pandemic struck in the spring of 2020, it caused a seismic shift around the world. While first responders and essential workers bravely answered the call to keep critical operations going, including hospitals and grocery stores, millions of people found themselves at home, no longer commuting and traveling. Meetings, conferences, and events that were normally held in person were reinvented for online participation through the use of video-based calls and streaming platforms. Museums like the Smithsonian created digital exhibits, colleges and universities like Williams College and Pepperdine University developed virtual tours, and entertainers like Billie Eilish and K-pop artist WOODZ participated in online performances.

A study shared in the National Library of Medicine in the fall of 2020 on the environmental effects of the COVID-19 pandemic showed that it caused huge global socioeconomic disruption, which directly or indirectly affected the environment like improvement of air and water quality, reduction of noise, and restoration of ecology. In other words, more of us staying home was pretty good for the environment.

If the fully realized metaverse is able to provide us with a sense of presence and shared space, it might give us the opportunity to reduce our impact on the environment by giving us options when it comes to commuting or traveling. And that might help to diminish carbon emissions from vehicles and airplanes. It's easy to think about the ecological benefits of conducting a meeting of a large multinational organization online rather than in person, or hosting a virtual global event with video-based panels and message boards. But the metaverse has ecological implications beyond just having us stay at home rather than hopping in a car or booking a flight. Digital twins and virtual cities also offer an opportunity to reduce negative effects of construction and design on the environment. And the same is true for scientific research, innovation, and training: Experimenting and learning in the virtual world can be safer, cleaner, and more ecologically responsible.

You'll learn more about both architecture and learning in the metaverse later in this course. For those who are able to participate in leisure travel, it's wonderful to get away to explore new destinations and to engage with different cultures. Those in person adventures can't be beat. The metaverse will never replace the thrill of having travel experiences in the physical world, but by simulating those in-person adventures, more of us will be able to experience more of the world without leaving home, potentially reducing some of the environmental implications of travel. Consider immersive experiences like Google Earth VR, which lets you explore — on foot or in the air — locations like the Colosseum in Rome, the Matterhorn in Switzerland, and Hong Kong Stadium.

Now, while there are many ecological positives to the metaverse, we also have to talk about the negatives.

A 2021 international study conducted by Yale University's Program on Climate Change Communication in conjunction with Facebook Data for Good showed that a majority of respondents in every country and territory are worried about climate change.

So let's talk about how the metaverse might harm the environment. It takes a lot of energy to make the metaverse happen, from cloud computing to streaming data to blockchain and cryptocurrency mining.

You'll learn more about blockchain and crypto and another module, but for now it's important to understand that these activities take an enormous amount of processing power. Metaverse data centers and networks need to be very big and very fast, and the energy required to support them will grow as the metaverse grows. Which is why we need to make sure we're building the metaverse and its infrastructure and the most environmentally friendly way possible.

One way we can reduce the ecological worries generated by the metaverse is by using renewable energy sources that will help us reduce our carbon footprint. At Meta, for example, they have reduced greenhouse-gas emissions by 94% since 2017, and in 2021 achieved net zero emissions for their global operations. They invest in enough wind and solar energy to cover all their operations. One of their ambitious environmental goals is to restore more water than they use by 2030. Microsoft has pledged to be carbon negative by 2030, and has a goal of removing all the carbon the company has admitted since it was founded in 1975 by the year 2050.

As the metaverse grows and expands, it's critical that we keep sustainability in mind. While it will give us the opportunity to replace some physical goods with digital ones, and to engage in virtual experiences rather than traveling to physical ones, we have to find a way to balance those positives with the very real ecological cost of expanding the technologies that make them possible.

Next up, you're going to read about the concepts of decentralization and open-source platforms, and what those mean for the metaverse. As with this conversation about how it will affect the environment, you'll see how we're always thinking about how to ensure the metaverse is ethical, inclusive, and accessible for all.

Correct

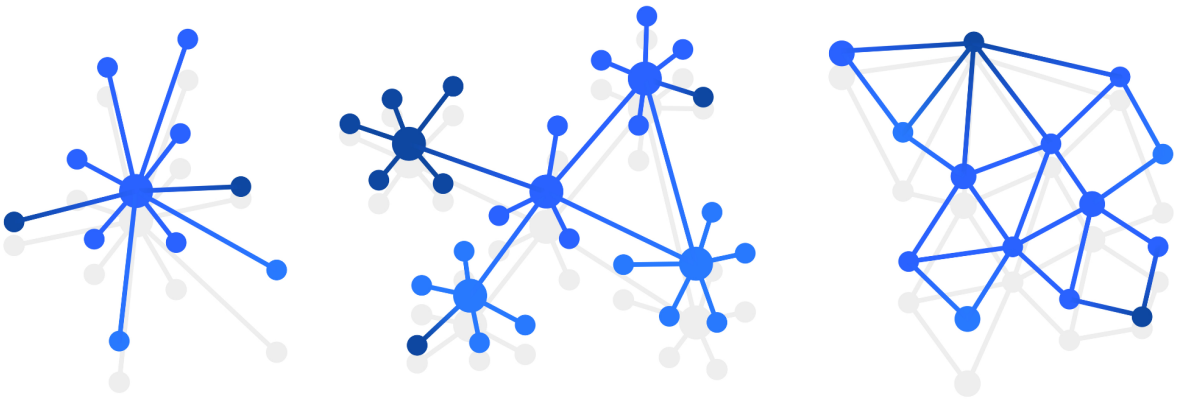
Using the internet to research a destination can provide a lot of good information, but it can't give you a sense of what it feels like to visit. Immersive, interactive, embodied experiences may provide the opportunity to feel what it's like there without leaving home. Ready to learn more?

What decentralization means in the metaverse :

In this course, you've learned some key terms relating to how the metaverse will function, such as copresence, continuity, and interoperability. Another word you'll see throughout this course—and often in news and information about the metaverse—is decentralization.

Let's start by going over some concepts that will provide a framework for decentralization as it relates to networks.

Central, distributed, and decentralized networks



The data and applications in a centralized network are controlled and managed by a single entity, such as a server, from one location. If two machines want to communicate across a centralized network, they have to go through the central authority. Information is saved and deleted from a single source and if the network fails, the whole system—including all of its data—might be lost.

A distributed network is one that is spread across many servers or nodes. The workload of completing tasks and providing services is spread equally among the servers, and they communicate with each other, rather than with a central server. A distributed network can be scaled as needed. If information is added or deleted, the change is reflected on all devices that access the distributed network, and if one node fails, the whole network doesn't go down.

A decentralized network uses multiple servers like a distributed network, but each operates independently. No node tells another what to do, and all share the same data—not a copy of the data, but the same exact data. Information is added and deleted based on consensus from the group. If one node fails, the data still exists on every other node in the network.

From the distributed internet to a decentralized metaverse network

Today's internet is essentially a distributed network—a massive, global resource that billions of people agree to share, accessible by everyone and existing across millions of devices, including the one you're using to take this course.

The internet exists in data centers in various locations, which are owned by service providers, while you—as a customer of that provider—access the network, and own and manage your personal data. The internet is created, owned, and regulated by a multitude of organizations, governments, universities, and businesses.

The metaverse is designed to incorporate greater decentralization. There are multiple benefits to structuring the metaverse this way, including that users of the metaverse will not have to trust in a single authority.

Earlier in this lesson, you learned a bit about blockchain (and you'll learn more about it in an upcoming module). Blockchain is an example of a decentralized system. A receipt for the purchase of a digital item—the data that details what was purchased, when, and who owns it—is written to the blockchain. This proof of purchase and ownership is validated by and stored in every node in the blockchain.

Decentralization of metaverse data means that many companies and individuals can have the same information about what you own if you choose. This will allow them to validate the information and confirm you are the owner of that data.

The benefits of open-source platforms

You've likely heard the phrase open source, which is typically used to describe certain types of software. Open source means that the creator or owner of the software has granted others certain rights, such as the right to use, modify, and distribute the software and its source code without restrictions, depending on the specific type of open source license associated with the software. Examples of open-source software are the web browser Mozilla Firefox and the productivity software suite LibreOffice.

A lot of the metaverse will likely be open source. In the next module, you'll learn about the technologies that make the metaverse possible, including platforms and game engines. For now, it's important to understand that the development of open-source technology and software can support the creation of a diverse, accessible, and inclusive metaverse.

Not everyone has the knowledge and ability to develop metaverse technologies, while others may lack access to the powerful hardware and servers required for creating metaverse worlds and digital items. Open-source platforms can help to put that power into more hands—and the more people building metaverse spaces and experiences, the better a reflection it will be of the physical world, with all of its variety and diversity.

QUIZ ~ what is the metaverse? :

1. What are some of the ways to describe the metaverse? Select all that apply.

    - A series of interconnected, immersive digital spaces

    Correct
    That's right. The metaverse is described as the next generation of the internet; a series of interconnected, immersive digital spaces and an embodied internet. This can be found in the video *This Is the Metaverse.*

    - The next generation of the internet

    Correct
    That's right. The metaverse is described as the next generation of the internet; a series of interconnected, immersive digital spaces and an embodied internet. This can be found in the video *This Is the Metaverse.*

    - An embodied internet

    Correct
    That's right. The metaverse is described as the next generation of the internet; a series of interconnected, immersive digital spaces and an embodied internet. This can be found in the video *This Is the Metaverse.*

2. What is the primary way that identity will be expressed in the metaverse? Select the best answer.

    - Through the use of avatars

    Correct
    That's right. Self-expression and identification in the metaverse can be expressed through the use of avatars. This can be found in the video *Avatars in the Metaverse.*

3. What feature of the metaverse will allow you to take your avatar and digital goods from space to space? Select the best answer.

    - Interoperability

    Correct
    That's right. Taking digital items and avatars from space to space within the metaverse is defined as interoperability. This can be found in the video *Interoperability in the Metaverse.*

4. How do you imagine co-presence in the metaverse will affect how you will connect and communicate with others?

   The emotional and social connection that tends to be lost in online meetings could be mitigated, allowing for a more natural, dynamic interaction between people whilst also providing a layer of protection and self-expression in regards to one's identity. In addition, the gamification of design and availability of special features would provide entertainment purposes and encourage more open discussions instead of stressful office spaces.

5. Which of the following are true about the potential ecological implications of the metaverse? Select all that apply.

   - It might give us the opportunity to reduce our impact on the environment by giving us options to avoid or reduce commuting or traveling.

   - **Correct**
   - That's right. Engaging in the metaverse in lieu of commuting and traveling might reduce our impact on the environment, and digital twins and virtual cities might give us an opportunity to reduce the negative effects of construction and design on the environment. This can be found in the video *The Ecological Implications of the Metaverse.*

   - It might give us the opportunity to reduce negative environmental effects of construction and design.

   - **Correct**
   - That's right. Engaging in the metaverse in lieu of commuting and traveling might reduce our impact on the environment, and digital twins and virtual cities might give us an opportunity to reduce the negative effects of construction and design on the environment. This can be found in the video *The Ecological Implications of the Metaverse.*

6. What features should help to create a metaverse that is more ethical, inclusive and accessible? Select all that apply.

- Open-source platforms

Correct
That's right. Decentralization removes reliance on a single authority or source of data, and open-source platforms should enable more people to both build and participate in the metaverse. This can be found in the reading *What Decentralization Means in the Metaverse.*

- Decentralization

Correct
That's right. Decentralization removes reliance on a single authority or source of data, and open-source platforms should enable more people to both build and participate in the metaverse. This can be found in the reading *What Decentralization Means in the Metaverse.*