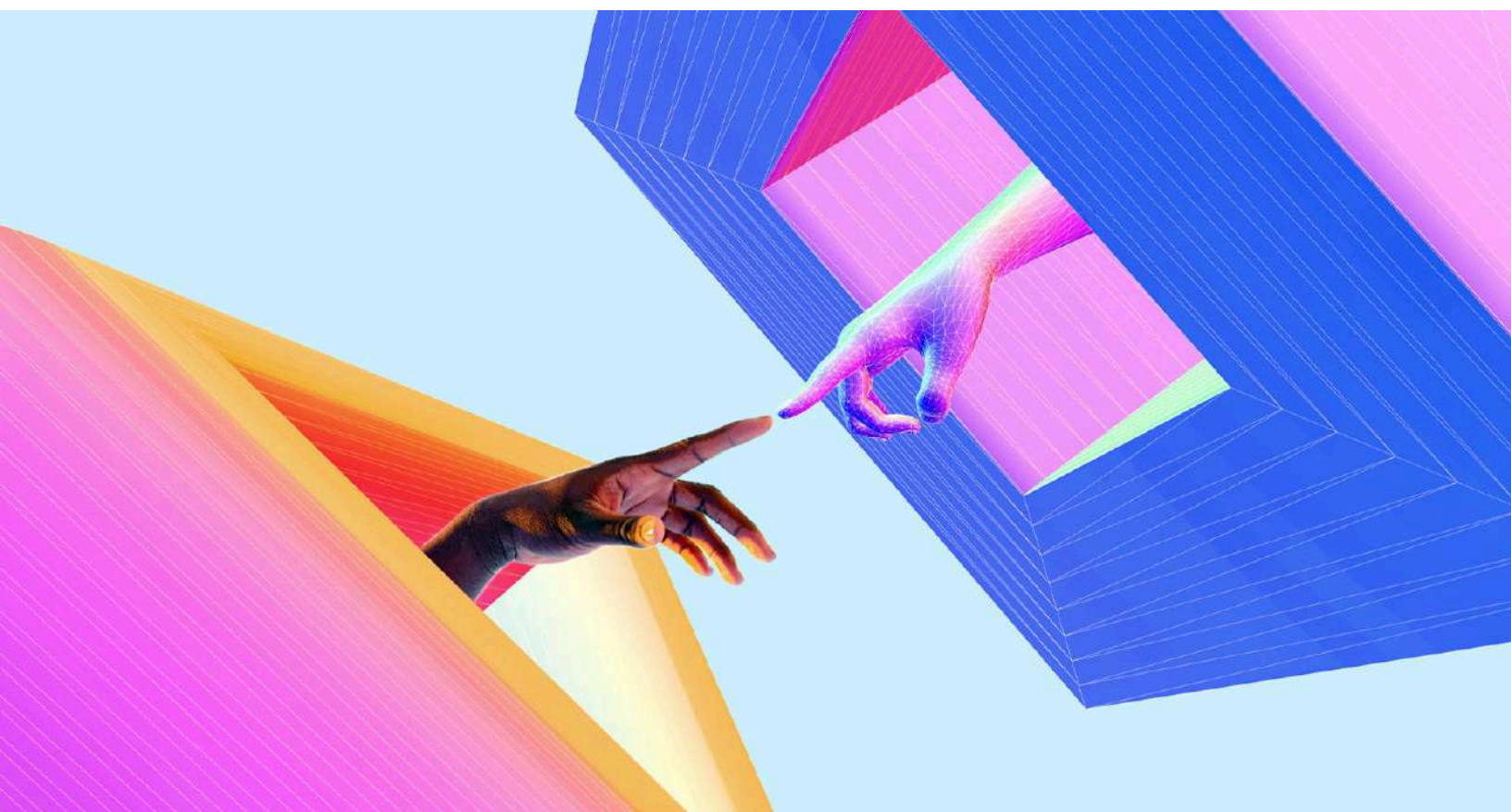


McKinsey Explainers

# What is Web3?

Web3 is a term used to describe the next iteration of the internet, one that is built on blockchain technology and is communally controlled by its users.



**Third time's the charm?** You know that the internet is always growing and changing. But it's not just websites and platforms that are falling in and out of favor; the very code on which the internet is built is constantly in flux. In the past few years, some tech futurists have started pointing to Web3, a term coined by [computer scientist Gavin Wood](#), as a sign of things to come. Web3 is the idea of a [new, decentralized internet](#) built on [blockchains](#), which are distributed ledgers controlled communally by participants. Because of the collective nature of blockchains, if and when Web3 fully arrives—elements of it are already in place—it will, in theory, signal a new era of the internet, one in which use and access are controlled by community-run networks rather than the current, centralized model in which a handful of corporations preside over Web2.

Momentum around elements of Web3 has [increased significantly](#) since 2018, in areas like equity investment, online searches, patent filings, scientific publications, job vacancies, and press reports. The financial-services industry has been at the [vanguard](#) of emerging Web3 technologies and assets: at one point, the daily volume of transactions processed on so-called decentralized-finance exchanges exceeded \$10 billion. As we'll see, though, progress has come in fits and starts.

If you're still not sure what Web3 is, you're not alone. According to a 2022 *Harvard Business Review* poll, [nearly 70 percent](#) of the more than 50,000 people who responded admitted they don't know what Web3 is. In this *Explainer*, you'll learn more about Web3, its perils and possibilities, and when—or if—it will come to fruition.

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## What are Web1 and Web2?

First, if there's going to be a Web3, you should understand what Web1 and Web2 are. Web1 was the first draft of the internet, the one that proliferated in the 1990s and early 2000s. Much of Web1 was built using “open protocols,” which are ways of exchanging information that can be used by anyone, rather than just one entity or organization. Back then, people mostly used the internet to read web pages and chat with friends or strangers. As Web1 progressed, individuals and companies began using the internet increasingly for [e-commerce](#), as well as for academic and scientific research.

Web2 came about in the mid-2000s, when a new crop of internet companies—upstarts like Facebook, Twitter (now X), and Wikipedia—empowered users to create their own content. But there was a cost to these free-to-use “emergent social software platforms,” as MIT research scientist Andrew McAfee [described them](#) in a 2009 *McKinsey Quarterly* interview—a cost many users weren't aware of. These companies monetized user activity and data by selling them to advertisers, while [retaining control](#) over proprietary decisions about functionality and governance.

## What technologies support Web3?

Web3 describes what the internet could look like built on new types of technology. Here are the three main ones:

- *Blockchain.* A [blockchain](#) is a digitally distributed, decentralized ledger that exists across a computer network and facilitates recording of transactions. As new data are added to a network, a new block is created and appended permanently to the chain. All nodes on the blockchain are then updated to reflect the change. This means the system is not subject to a single point of control or failure.

- *Smart contracts.* Smart contracts are software programs that are automatically executed when specified conditions are met, like terms agreed on by a buyer and seller. Smart contracts are established in code on a blockchain that can't be altered.
- *Digital assets and tokens.* These are items of value that exist only digitally. They can include cryptocurrencies, stablecoins, central bank digital currencies (CBDCs), and NFTs (nonfungible tokens). They can also include [tokenized versions](#) of assets, including real things like art or tickets to concerts or sporting events.

Later, we'll see how each of these technologies is used in practice, with real-world examples of Web3-supported products.

## How is Web3 different from Web2?

In the Web2 era, control—over transactions, content, and data—is centralized in tech corporations. In theory, [that will change](#) with the advent of Web3. Evangelists believe that in the Web3 era, users will have the power to control their own information without need for the intermediaries we see today. Web3 could change how information is managed, how the internet is monetized, and even, maybe, how web-based corporations function.

Another difference between the two is how they approach trust. In Web2, a transaction—whether it's an exchange of money or information—relies on two parties (and usually a central facilitator as well) trusting each other with the information that's being shared. By contrast, Web3 doesn't ask users to

trust one another. Instead, the technology is designed so that a transaction goes through only if certain criteria are met and data are verified.

Here's a theoretical example to help illustrate how a Web3 transaction might work. Imagine that someone is looking to buy a concert ticket on the resale market. This person has been scammed before by someone selling a fake ticket; she trusted that the person was selling a real ticket and sent the person money, which the person then stole. This time, she decides to try a Web3-enabled, blockchain-based ticket exchange service. On these sites, every ticket is assigned a unique, immutable, and verifiable identity that is tied to a real person. Before the concertgoer purchases her ticket, the majority of the nodes on the network validate the seller's credentials, ensuring that the ticket is in fact real. She buys her ticket and enjoys the concert.

## Crypto has faced some trouble. What does this mean for Web3?

The cryptocurrency market is facing an uncertain future: in 2022, it lost more than 50 percent of its market capitalization, as several currencies lost value and multiple cryptocurrency exchanges closed. It's true that cryptocurrencies and Web3 are both built on blockchains. But don't throw the Web3 baby out with the cryptocurrency bathwater: other areas of Web3 experience continue to push forward. Check out these [2022 numbers](#):

- The sales count for NFTs increased 68 percent, despite a [slowdown](#) in the second half of the year. NFTs are digital representations of an asset stored on a blockchain. Because an NFT is, by definition, nonfungible, meaning it can't be replicated, it serves as digital proof of ownership that can then be bought or sold.

- Core tool downloads for Ethereum increased by 87 percent. Ethereum is a [smart-contract blockchain](#); core tools are what developers need to work with it.
- On-chain stablecoin payment volume grew more than 50 percent. A [stablecoin](#) is a private, stabilized cryptocurrency pegged to another currency, commodity, or financial instrument.
- The number of active users of Web3 gaming increased 60 percent.
- The global tokenization market grew by about 23 percent. Tokenization is the process by which NFTs are created and has the potential [to affect the structure of financial services and capital markets](#).
- 100 Thieves, an esports and lifestyle brand, offered an NFT of a diamond necklace to fans if they created a digital wallet on the platform within 75 hours. More than 300,000 people redeemed the NFT.
- After acquiring the Web3 studio RTFKT in 2021, Nike launched its own Web3 platform in 2022 called .Swoosh and has since offered blockchain-based NFTs to customers. The .Swoosh platform is meant to serve as a hub for new product launches, as well as a space for customers to share virtual apparel designs.

## What are some examples of Web3 in the real world?

The number of Web3-supported transactions is still growing. Here are [four examples](#) that were noted in the McKinsey Technology Trends Outlook for 2023:

- In November 2022, JPMorgan Chase made its first cross-border blockchain transaction, involving tokenized Singaporean dollar and Japanese yen deposits. The trade was part of Project Guardian, a partnership between JPMorgan Chase and DBS Bank.
- Securitize, a digital-asset securities firm, partnered with global investment firm KKR to launch a tokenized fund issued on the Avalanche blockchain. Tokenization opens up private equity to more individual investors by digitizing operations and lowering investment minimums.
- *Evolving regulation.* Authorities are developing their approaches to governing issues such as consumer and investor protection, legality and enforceability of blockchain-based contracts, and know-your-customer and anti-money-laundering standards.

## Is Web3 the same as the metaverse?

Not quite. According to [technologist Matthew Ball](#), Web3 refers to decentralized databases and systems architecture, whereas the [metaverse](#) is a [new paradigm](#) of computing and networking. They both may succeed what we experience as the internet today, but there's a long way to go before that happens.

## What are some concerns around Web3?

Web3 technologies are already being taken up by tech pioneers. But early Web3 adopters face several challenges, with more likely to crop up as Web3-enabled tools become more widespread. At present, [challenges](#) include the following:

- *Evolving regulation.* Authorities are developing their approaches to governing issues such as consumer and investor protection, legality and enforceability of blockchain-based contracts, and know-your-customer and anti-money-laundering standards.

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- *Value proposition and user experience.* Compared with Web2 products, which have been fine-tuned over two decades of development, Web3 has relatively poor user experience standards. The utility of Web3 products, such as NFTs, also remains unclear to many consumers and enterprises.
- *Consumer protection.* Amid recent failures of several Web3 projects, consumer and investor protection is becoming a focal point for regulators and the general public.

Web3 isn't a fix-all for the problems that plague Web2. In fact, we'll likely have to work harder to address the same old problems in new ways necessitated by this new generation of the internet.

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## Get to know and directly engage with senior McKinsey experts on Web3

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