How to Create a Web3 Startup

A Guide for Tomorrow's Breakout Companies

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Foreword by Daniel Roberts

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About the Author

Tom Taulli has been developing software since the 1980s. In college, he started his first company, which focused on the development of e-learning systems. He created other companies as well, including Hypermart.net, which was sold to InfoSpace in 1996. Along the way, Tom has written columns for online publications such as BusinessWeek.com, TechWeb.com, and Bloomberg.com. He also writes posts on artificial intelligence for Forbes.com and is the adviser to various companies in the space. You can reach Tom on Twitter (@ttaulli) or through his website (www.tomtaulli.com).

About the Technical Reviewer

Stijn Van Hijfte has been working at Howest Applied University College since 2017, where he teaches applied computer science and is active as an expert at Sia Partners. He has a background in economics, IT, and data science and is often called in as a translator between business and IT departments. He started back in 2012 with some first investigations in the blockchain space and had his entire living room looking like a science experiment to connect to the Ethereum network in 2015. His continued interest in digital solutions has led to him studying many extra certifications and destroying equipment in the process.

Foreword

Web3 is weird.

Its biggest supporters spend their time advocating for their favorite cryptocurrencies on Twitter and in Discord chat rooms, and proudly use cartoon NFT avatars (from Bored Apes to CryptoPunks to Cool Cats) as their profile pictures – before they flip them for profit and buy another one instead. Many of them proudly identify as members of token-specific camps, from "Bitcoin maximalists" to "Ethereans" to "LINK marines" to the "XRP army." They identify each other with in-crowd lingo like "gm," "WAGMI," "NGMI," "HODL," "down bad," and "rekt."

And yet, to dismiss Web3 as a passing fad (or, as crypto skeptics like to insist, a fraud or scam or Ponzi scheme) would be extremely short-sighted. It has already proven its staying power: Bitcoin has been trading for more than 13 years, and Ethereum for seven years, and neither blockchain has ever been hacked, nor has either coin ever gone to zero.

And after crypto had its biggest mainstream bull run yet in 2020 and 2021 during the pandemic, riding the retail investor revolution and Reddit-fueled meme stock wave, more big names are Web3 believers than ever before – both individuals and companies. Wall Street hedge fund titans changed their tune on crypto as an investment; publicly traded companies like Tesla and Square bought Bitcoin for their balance sheets; fintech giants like PayPal and Robinhood rolled out crypto buying features; consumer brands from Budweiser to Visa to Tiffany's to Gucci embraced NFTs.

All of this adds up to a very clear directive: Web3 is here to stay, and while it's still early days, the time to build is right now.

Coinbase was started in 2012 by a former Airbnb engineer and former Goldman Sachs trader; now it's publicly traded and a household name in the United States. Crypto exchange names and logos adorn the arenas of the LA Lakers and Miami Heat, and every MLB umpire's shirt. The CEO of DraftKings, the scrappy Boston startup that survived years of legal battles with state regulators to become a $10 billion sports betting behemoth, is a huge believer in crypto and told *Decrypt* this year: "Early in the internet days, there weren't a lot of mainstream ways to consume the internet… but everything eventually

centered around the world wide web, all the underlying technology was built around that. And then all of a sudden things like video, and other things that are more mainstream and easier to consume for the average person, came about."

The economist and *New York Times* columnist Paul Krugman infamously wrote in 1998 that "the growth of the internet will slow drastically… By 2005 or so, it will become clear that the internet's impact on the economy has been no greater than the fax machine's." He was very, very wrong, and the quote resurfaces every few years to get roasted by denizens of the Web.

But to ensure that the same skeptics who now dismiss blockchain technology are wrong, entrepreneurs building Web3 startups will need to build tools that have real use cases, address a need, and demonstrate what decentralized tech can do.

Many are already doing it, applying blockchain to areas like decentralized data storage and video hosting, peer-to-peer payments, lightning-fast international remittances, faster and more private charitable donations, and fairer voting for group projects. But there are also many scams and fly-by-night money grabs – like in any new tech industry. To avoid the failures of the past (remember the ICO boom of 2018?) and to onboard the next million people into Web3, entrepreneurs in the space need to be honest, patient, strategic, and above all else, build products that matter.

—Daniel Roberts, Editor in Chief of Decrypt

Why Web3?

It's a Rethinking of the Internet

Since childhood, Gavin Wood has been interested in the convergence of economics and game theory.[1] He even co-published a board game of strategy. He was also an avid computer programmer, having started at age eight.

When Gavin became an adult, he worked at startups as well as Microsoft. His main focus was on leveraging computer visualizations and machine learning for music and audio systems.

In 2013, he met Vitalik Buterin, a programmer who wrote a paper about Ethereum, which was based on the emerging blockchain platform. Gavin was intrigued and coded the first workable client for it, which he referred to as PoC-1 (for "proof of concept"). He presented this at the North American Bitcoin Conference in January 2014.

[1] https://gavwood.com/

Ethereum would quickly get adoption. But Gavin also saw this technology as the basis for a new type of Internet. He called it "Web3."[2] According to him: "This is [the] technology that is being used to build the new world — the world that's going to drive human civilization for the rest of this century, at least."[3] He then co-founded Polkadot, a technology startup, and the Web3 Foundation, a nonprofit organization that supports the category.

So, then what is Web3? Why has it received so much buzz? And why is it important for entrepreneurs? In this chapter, we'll take a look.

Definition of Web3

Web3 is still in the nascent stages. This means that the definition of this term is evolving. In a way, it's similar to what happened with the emergence of the Internet in the mid-1990s.

But let's take a look at a few definitions:

- The Web3 Glossary: "Web3 (noun, adjective) [is] the next iteration of the web being ushered in as we speak, which leverages blockchain technology, open-source applications, and the decentralization of data and information. Web3 aims to remove control of the web from monopolistic tech companies and return ownership of data and content to its users. Also referred to as the 'read-write-trust web.'"[4]

- Ethereum.org: "Web3, in the context of Ethereum, refers to decentralized apps that run on the blockchain. These are apps that allow anyone to participate without monetizing their personal data."[5]

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[2] www.pcmag.com/how-to/what-is-web3-and-how-will-it-work#:~:text=The%20term%20Web3%20was%20coined,being%20a%20decentralized%20digital%20infrastructure

[3] https://cointelegraph.com/news/crypto-stories-gavin-wood-discusses-why-he-decided-to-code-ethereum

[4] https://unstoppabledomains.com/blog/the-web3-glossary

[5] https://ethereum.org/en/developers/docs/web2-vs-web3/#:~:text=Web3%2C%20in%20the%20context%20of,without%20monetising%20their%20personal%20data

- Digiday.com: "Web 3.0, or stylized as Web3, is the label being applied to a decentralized version of the internet that would be jointly owned by the users and the builders. Essentially, this is the antithesis to how centralized platforms like Apple, Google and Facebook operate, by monetizing data extracted from users on a daily basis."[6]

There are some common themes. First, Web3 rests on the blockchain stack of technologies. This means it is decentralized since users create the network and even own it. With it, they can engage in direct peer-to-peer interactions.

The fast-growing network is not controlled by a central entity, such as Facebook or Apple. In a sense, Web3 is a democratized version of the online world. Everyone owns their data and can monetize it themselves.

Now it's true that the Web2 Internet is based on a myriad of free protocols – and this is certainly a form of decentralization. But the reality is that – for most people – they need to use the large Internet providers to do anything meaningful, such as make connections, read or view content, and so on.

Web3 is also permissionless. This means that anyone can use it without having to create login credentials or get authorization from a central provider. When you are on the system, you cannot be kicked off.

Of course, all this only scratches the surface of Web3. But these concepts get to the high-level essence.

■ **Note**   The term Web3 has different variations. When Gavin Wood coined the term, he referred to it as Web 3.0. But it has also been called Web 3. Yet the general usage now is for Web3.

Web1

To better understand Web3, it is important to get a brief backgrounder on Web1 and Web2. No doubt, both of these periods were full of drama and rapid technological change. There was also a major impact on society.

Now the origins of Web1 go back to the late 1960s. The Internet was known as ARPANET, or the Advanced Research Projects Agency Network, and had the backing of the U.S. Department of Defense. At the core of this technology was packet switching, which allowed computers to communicate with each other. The idea was to have a network that could survive a nuclear war.

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[6] https://digiday.com/media/wtf-is-web3/

However, ARPANET would be primarily for academic purposes. For example, the first online connection happened between research labs at UCLA and Stanford. Even though the message just had "Login," the system crashed anyway![7]

During the 1970s and 1980s, programmers developed a variety of protocols that were freely available. Some examples include Transmission Control Protocol and Internet Protocol, or TCP/IP, Domain name system (DNS), SMTP, or the Simple Message Transfer Protocol, and File Transfer Protocol (FTP). All these have remained critical for powering today's online world.

But in 1990, the Internet would change in a big way. Tim Berners-Lee created the World Wide Web, which allowed for hypertext links. For him, he thought this was a much better way for searching and reading academic papers.

But it would not take long until the Internet would become mainstream, allowing for searching and ecommerce. In 1993, college student Marc Andreessen helped to create the Mosaic web browser. From the start, it got huge numbers of downloads.

A year later, tech entrepreneur Jim Clark contacted Andreesen to build a company, called Netscape. The main product was the Navigator browser – and the growth was staggering. On August 9, 1995, Netscape came public at $28 a share and the price ended the day at $58.[8] The market valuation was $2.2 billion, even though the revenues for the past six months were only $16.6 million. There was a net loss of $4.31 million.

The IPO ignited the dot-com boom, which would last until 2000. Some interesting characteristics of this period include the following:

- Few people created content. Simply put, it was difficult to develop websites. You had to know HTML and scripting code. The dialup Internet connections made it challenging to use video and images.

- Creating startups was expensive and required the help of venture capitalists. You had to buy expensive servers and databases. It was also hard to find talent who could create the web technologies and there were not many useful development tools.

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[7] www.history.com/news/who-invented-the-internet#:~:text=The%20first%20
workable%20prototype%20of,communicate%20on%20a%20single%20network
[8] www.nytimes.com/1995/08/10/us/with-internet-cachet-not-profit-a-new-
stock-is-wall-st-s-darling.html

- A popular business model was advertising. This allowed for content sites like Yahoo! to provide their services for free. The ads were usually based on the number of views or "eyeballs."

- The Internet was still for a small part of the global population. By 2001, only about 50 million had access to broadband Internet.[9]

- Portals like Yahoo!, Lycos, Infoseek, AltaVista, and Excite became very important for the growth of Web1. They allowed many people to easily get useful information in one place.

According to Chris Dixon, a general partner at a16z: "Web1…was about open protocols that were decentralized and community governed. Most of the value accrued to the edges of the network — users and builders."[10]

The bottom line: It was very similar to the vision of Web3. Interestingly, a common notion is that Web3 is really a way to get back to the original principles of the Internet.

Yet this is likely an exaggeration. The fact is that Web1 saw centralization. And this was not necessarily a bad thing. It actually helped get a large number of people to participate in the ecosystem.

Part of this was due to the power of AOL, which was the Facebook of its era. AOL was like an alternative version of the Internet – and it held tremendous power. Because of its huge user base, the company was able to generate massive amounts of revenues from advertisements and sponsorships.

Then there was AOL's hugely popular chat system. It connected millions of users like a modern-day social network.

The Web1 world also highlighted something important that we've seen in Web2: The network effect. This is where a system gets more useful and powerful as more people join it.

A classic case of this was eBay. True, there were various other online auctions. But eBay quickly turned into the clear dominant platform because sellers were attracted to the large number of buyers and vice versa. In fact, today the company is still the leader in the space.

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[9] www.wsj.com/articles/SB10001424053111903480904576512250915629460
[10] https://future.a16z.com/why-web3-matters/

Web2

The dot-com implosion was brutal. Many companies like Pets.com, Webvan, eToys, Go.com, and DrKoop.com simply ran out of money.

Venture capital dried up. Many people left Silicon Valley and went into other industries, like Wall Street. Everything seemed hopeless.

But the tech industry would rejuvenate itself and Web2 or Web 2.0 would emerge.

IT engineer, Dracy DiNucci, coined the term back in 1999 in an article entitled "Fragmented Future."[11] Her vision was that the Internet would become much more immersive and be prevalent across platforms outside of a computer, such as the TV, car dashboard, cell phone, and game machines.

But it was not until 2004 that Web 2.0 became part of the Silicon Valley buzz. For the most part, the concept was evolving from DiNucci's concept to where the Internet would be user centric. Anyone could create their own content and share it.

The leading companies in this era included Google, YouTube, Facebook, Snap, and Twitter. And yes, they remain very much relevant today. They are also exploring how to evolve in the Web3 world.

In 2006, Time Magazine chose Web 2.0 as the Person of the Year. The story noted that the Internet had "became a tool for bringing together the small contributions of millions of people and making them matter."[12] At the time, the red-hot property was MySpace.com. This social network allowed for users to create content and connect with friends.

The belief was that Web 2.0 was the beginning of a new egalitarian Internet. It was common to think of it as decentralized, since the users had the power.

But this would eventually fade. The mega operators like Google, Facebook, and Twitter would control much of the online world – including the valuable data on billions of people.

These companies would amass enormous power. Just look at Google. In the fourth quarter of 2021, the company posted revenues of $75 billion, up 32% on a year-over-year basis, and the profit was $20.6 billion.[13] The company had ten online properties with over 1 billion users.

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[11] http://darcyd.com/fragmented_future.pdf

[12] www.oreilly.com/library/view/web-20-architectures/9780596514433/ch04s02.html#:~:text=Despite%20its%20being%20considered%20%E2%80%9Cso, Web%202.0%20was%20gathering%20steam

[13] https://abc.xyz/investor/static/pdf/2021Q4_alphabet_earnings_release. pdf?cache=d72fc76

The company also was more than search and online apps. It owned Waymo, one of the world's largest autonomous driving operators. It also controlled device companies like Fitbit and Nest.

So, was there too much power concentrated among too few companies? Many in the tech world believed that the answer was yes. And this was leading to major problems. After all, could a startup take on Google search? Or go after the Apple iPhone? Or dethrone Facebook's massive social network?

It would not be easy. The fight would also take huge amounts of resources.

As a result, the tech industry wanted to create a new paradigm – one that was truly decentralized and in control of the users. It was the Web3 paradigm.

"Web3 appeals to so many different kinds of people that have been slighted in one way or another by corrupted centralized parties," said Josh Neuroth, who is the head of product at Ankr. "Platforms like Facebook used and manipulated user data in ways we never thought possible. Governments failed citizens with economic policy, sanctions, hyperinflation. Now, people see ways to regain some privacy, autonomy, and freedom in Web3."[14]

■ **Note**   Despite the criticism of Web2, there are definitely some key benefits. Keep in mind that centralization was necessary. The reason is that it would not have been possible to have enough scale to allow billions of people to become part of the online world. The advertising model was also key, as it meant much less friction for users to participate.

Catalysts for Web3

One of the biggest drivers for Web3 is definitely the threat of the megatech companies. But there are other factors at work. Here's a look:

- Composability: This is similar to an API (Application Programming Interface), which allows for Lego-like components to build programs and systems. In the Web3 context, composability uses the blockchain to evolve the applications – to build on each other. It's a way of "not reinventing the wheel."

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[14] From the author's interview with Josh Neuroth on March 12, 2022.

- Need for a new platform: Today's Internet is similar to the one that existed in the early 1990s. But over time, there have emerged many new innovations. So shouldn't the foundation of the Internet better reflect this? Definitely. For Web3, this is essentially using blockchain as the core for a new architecture. But the platform will not just be limited to this. Web3 will also leverage other technologies like Virtual Reality (VR), Augmented Reality (AR), artificial intelligence (AI), IoT (Internet of Things) and 5G.

- FOMO (Fear of Missing Out): Yes, there are many entrepreneurs and investors who do not want to miss out on the next big thing.

- New business models: The monetization approaches for Web2 include advertising, subscriptions, and usage. But Web3 offers interesting new options. With the growth of cryptocurrencies and tokens, these may ultimately be the new way for monetizing the online world. Users will also essentially become the "shareholders" of the platform that they participate on. This could perhaps be the biggest motivator to get people to adopt Web3.

- Utopian Vision: Some influencers believe that Web3 will have a seismic impact on society. For example, Vitalik Buterin, who is the cofounder of Ethereum, believes that the technology will improve housing, voting, the distribution of goods, city planning, and even lifespans.

- Venture Funding: The interest has quickly reached fever levels. In 2021, venture funding in Web3 and crypto deals hit $27 billion.[15] This was more than the amounts raised during the prior ten years.

- The Metaverse: This is essentially a part of Web3. This is an immersive Internet, which involves VR and AR. Facebook CEO Mark Zuckerberg has bet his company on the Metaverse. He even changed the name of the company to Meta. In 2021, Zuckerberg spent $10 billion on his vision of the Metaverse – with a big focus on VR technologies.[16]

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[15] www.nytimes.com/interactive/2022/03/18/technology/web3-definition-internet.html

[16] www.nytimes.com/2022/02/02/technology/meta-facebook-earnings-meta-verse.html

Microsoft was also looking to the Metaverse. To this end, the company agreed to pay $70 billion for Activision. "The metaverse is no small matter, with investors projecting that it could bring in $30 trillion in revenue over the next decade," said Marie Tatibouet, who is the CMO Of Gate.io. "The metaverse is part of the next evolution of the internet (Web 3.0) and has many avatars such as gaming, online communities, businesses, etc. It combines entertainment, traveling, business, and more with virtual reality and augmented reality, allowing users to live in a digital space. The metaverse marries both the physical and digital worlds."[17] However, with mega tech taking the lead in the development of the Metaverse, this is likely to lead to centralization. This could mean little choice and control of data for users.

In 2022, YouTube CEO Susan Wojcicki published a blog that set forth the video giant's priorities for 2022. And yes, Web3 was a major theme:

We're also looking further ahead to the future and have been following everything happening in Web3 as a source of inspiration to continue innovating on YouTube. The past year in the world of crypto, nonfungible tokens (NFTs), and even decentralized autonomous organizations (DAOs) have highlighted a previously unimaginable opportunity to grow the connection between creators and their fans. We're always focused on expanding the YouTube ecosystem to help creators capitalize on emerging technologies, including things like NFTs, while continuing to strengthen and enhance the experiences creators and fans have on YouTube.

Ironically, when this letter was published, several of YouTube's executives departed for Web3 startups.

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[17] From the author's interview with Marie Tatibouet on March 18, 2022.