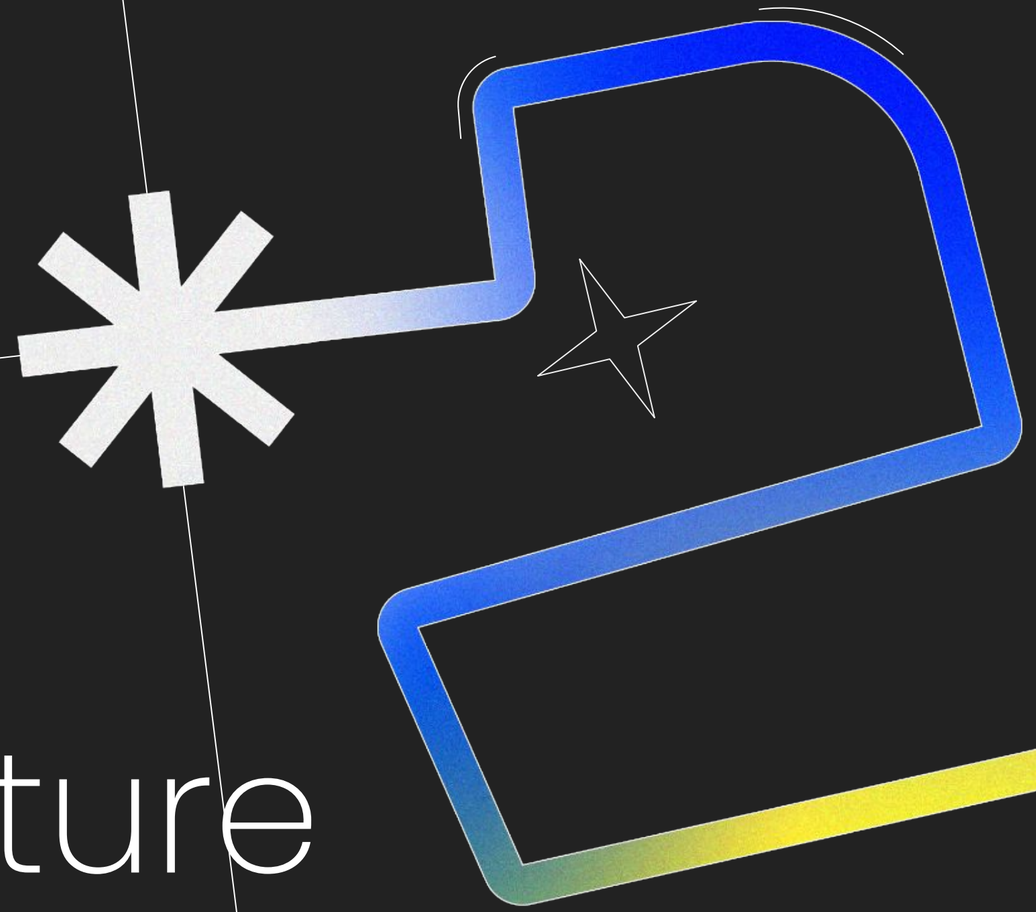
How **web3** is shaping the future of finance



A report by 11FS

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Executive summary

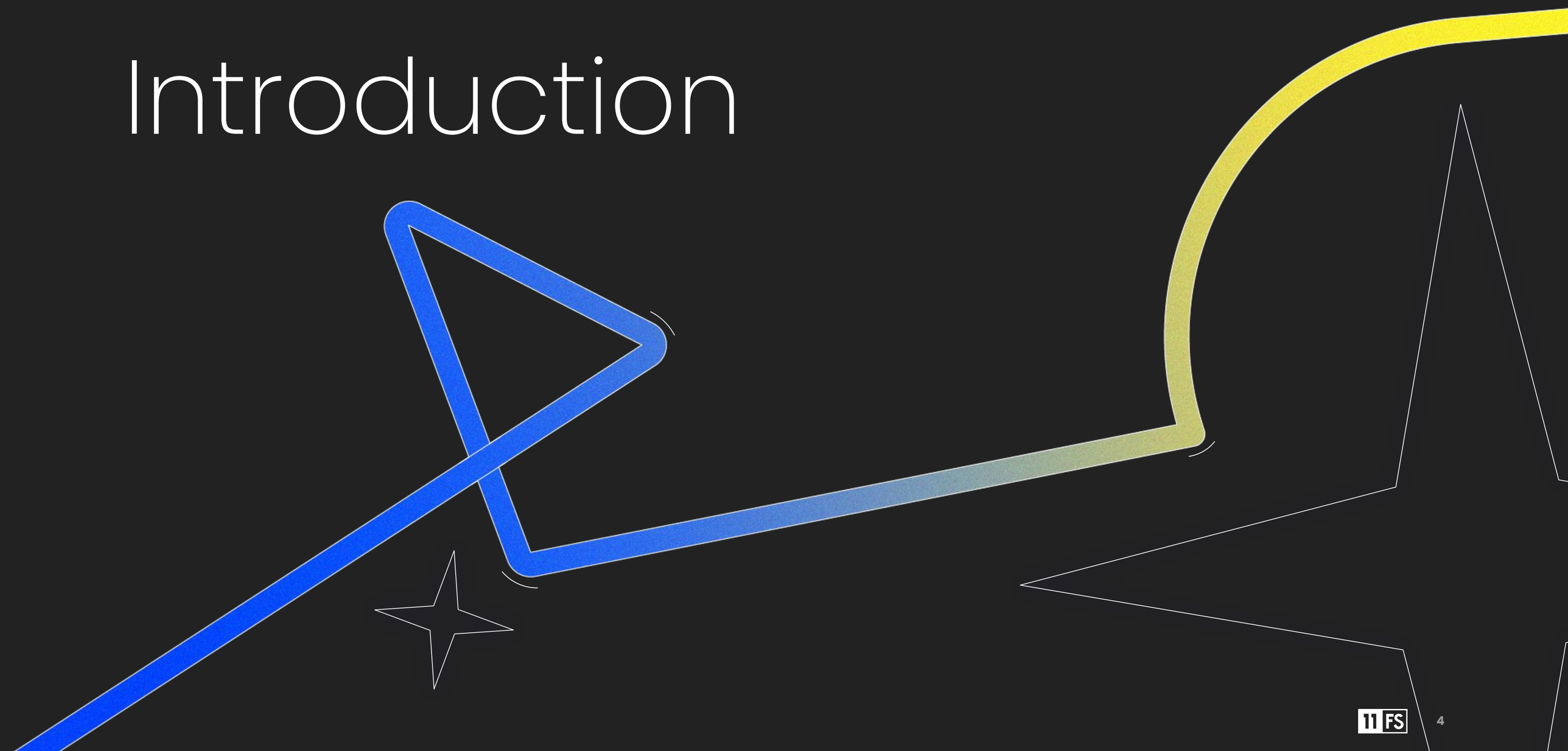
In the context of clickbait headlines, massive sums of money being invested, new projects and complicated jargon, it's important to separate hype from reality in web3. Cryptoasset price moves may have captured public attention, but the shift in opportunity for entrepreneurs and problem solvers is likely to last, even as the market corrects. Write off web3 at your peril.

We may be witnessing a generational shift in the internet as big as the emergence of social, mobile and cloud in 2010. To fully understand web3, we need to grasp the technology, concepts and use cases that will shape the next decade.

The 11:FS mission of helping to change the fabric of financial services is, still, 1% finished. How will web3 change that?

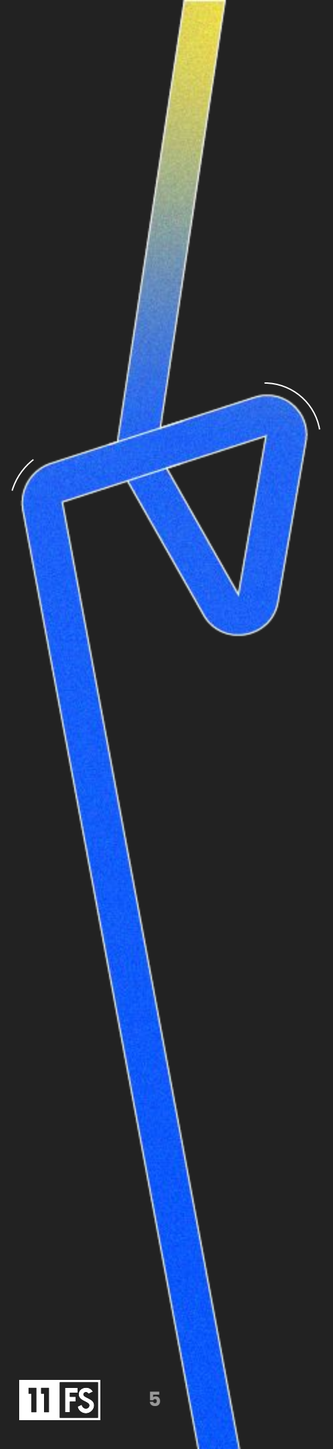
Whether you are a **banker** or a **fintech geek**, a **regulator** or a **crypto-native**, we hope that this explainer will help you understand the shift that is upon us, how it came to be, what it's made of and where all of these things come together to shape the future of finance and the digital economy.

Introduction



We wrote this report because

- Web3 will build the first truly digital, truly global economy that will underpin the metaverse - it is crucial to understand.
- Web3 is the creation of new *business models* in the same way that web2 brought subscriptions and ads.
- There was no common consensus on what web3 is, how it works and *what it means for businesses*. Too much noise, too little signal.
- The conversation about 'crypto' in financial services has focused mostly on risk, not benefit. It's time for a more balanced view.
- The conversation is so often about price, not about long-term value. This report does not cover price at all.
- Web3 has evolved quickly, meaning the language and concepts are also moving quickly and are hard to keep up with.
- All our clients are asking the same questions, so we thought we'd save everyone* some time by writing the answers.



*Yes you too, other consultancies copying and pasting our shit :)

How to navigate this report

Lots of the ideas we cover in this report refer to each other, so we encourage you to reread. We even made a ‘choose-your-own-adventure’ path to help you make connections between web3 and your business.

Stage 1: Read from cover to cover to understand the full content

Stage 2: Revisit your desired section and explore further

Use the navigation toolbar to find your desired section

Use the internal links to dive deeper

Web3 emerged as a reaction to macro trends

Web3 presents new business models and economic opportunities for a world that has less trust in institutions.

The 2008 financial crisis led many people to distrust institutions and created space for alternatives in finance. Now nearly **50% of consumers view government and media as "divisive forces".**

Social media and web2 businesses built tools to monetise data and target ads. This led to the promotion of emotional reactions to drive engagement, **creating further mistrust.**

Improvements in trustless technologies, cryptography and decentralised computing unlocked **new technical possibilities.**

Creators and independent artists are increasingly reliant on large platforms (e.g. Youtube, Spotify, Apple, Meta) for revenue, but with **limited control of their audience, revenues or IP.**

During the pandemic, people became used to working online, and increasingly in shared spaces. **Companies rushed to embrace the metaverse, a $13tn opportunity.**

Web3 protocols and infrastructure gained maturity and developer support, so builders and entrepreneurs had new tools to play with. **Major brands like Adidas, Visa and Nike embraced NFTs and metaverse land.**

Web3 is defined by a16z as the internet owned by users, managed with tokens. **VCs invest billions in metaverse, gaming and web3 projects.**

Sources: Edelman Trust Barometer, The Facebook Papers, Bitcoin.org, Citi, Blockworks, 11:FS

Web3 is a new business model for the internet, and the next evolution of the internet itself

The term web3 has brought a ton of interest from people and organisations who used to be crypto-sceptic.

While these subjects are related, they have a different emphasis. The reality is that web3 is built on the primitives of crypto. But web3 talks more to the business models and economic opportunities.

In this report, we examine both the technical concepts and the business models of crypto and web3.

Web3 is bigger than 'crypto', but this report focuses on how crypto technologies unlock web3's potential.

Crypto
- Wallets
- Tokens
- Price / Speculation
- Technology
- Arguably 'poor brand'

Web3
- 'Metaverse' and experiences
- Ownership
- Data portability
- Tokens as a business model
- 'Strong brand' with people who remember web2

Source: 11:FS

Web3 is the next evolution of the internet

Web1 was defined by protocols like http (websites) and smtp (emails).

Web2 was all about mobile, social and cloud. Advertising and subscriptions have emerged as dominant business models.

Web3 is changing ownership and access to data and assets again, to create entirely new business models.

So, the shift has gone:

From protocol, to centralised ownership, to all of us are owners.

Web1	SMS	http://		FTP	#irc
Web2					
Web3	?	?	?	?	?

Source: Not Boring, Stuffed Blocks, a16z Future, 11:FS

Web3 is growing fast, attracting talent and disrupting established structures

In 2021
$33bn
invested

VCs invested more than **$33bn** into crypto in 2021.

Ethereum
$29m
(per day)

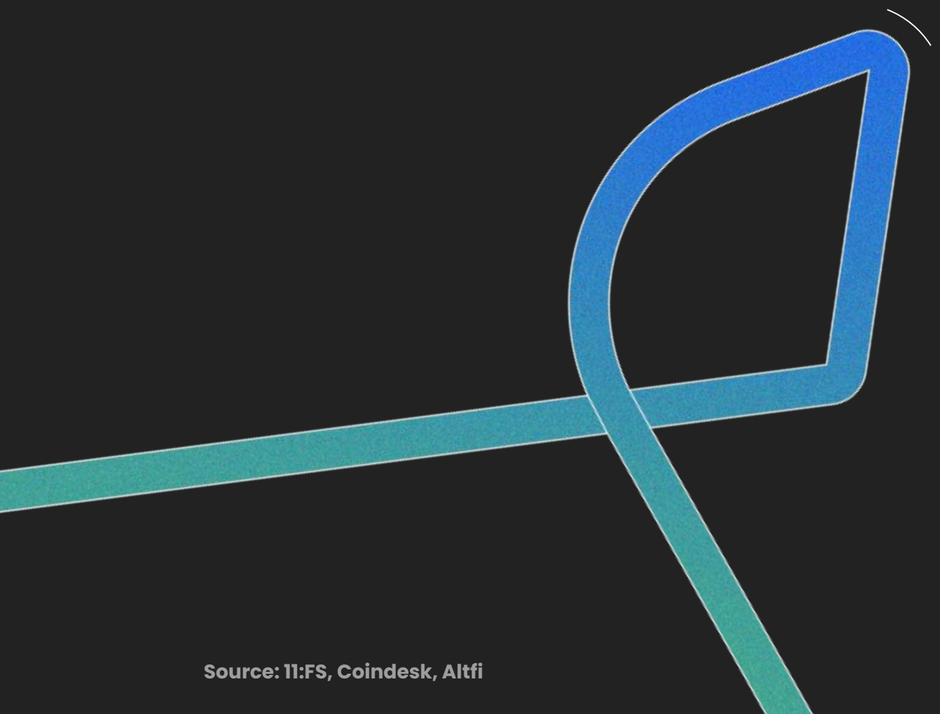
Average revenue on Ethereum was **$29m** per day in 2021 ($10.7bn total).

Opensea
$14bn
(NFT GMV sales)

Opensea saw **$14bn** of NFT marketplace gross merchandise volume (GMV) sales in 2021.

Source: 11:FS, Blockworks, Token Terminal, Boardroom

Web3 is growing fast, attracting talent and disrupting established structures



Web3 is disrupting more than financial services:

- There are numerous potential business models from entertainment, gaming, fitness, sports, health and telecoms
- For instance, Helium is a decentralised telco network with clients including Salesforce and Lime

Major brands have entered crypto:

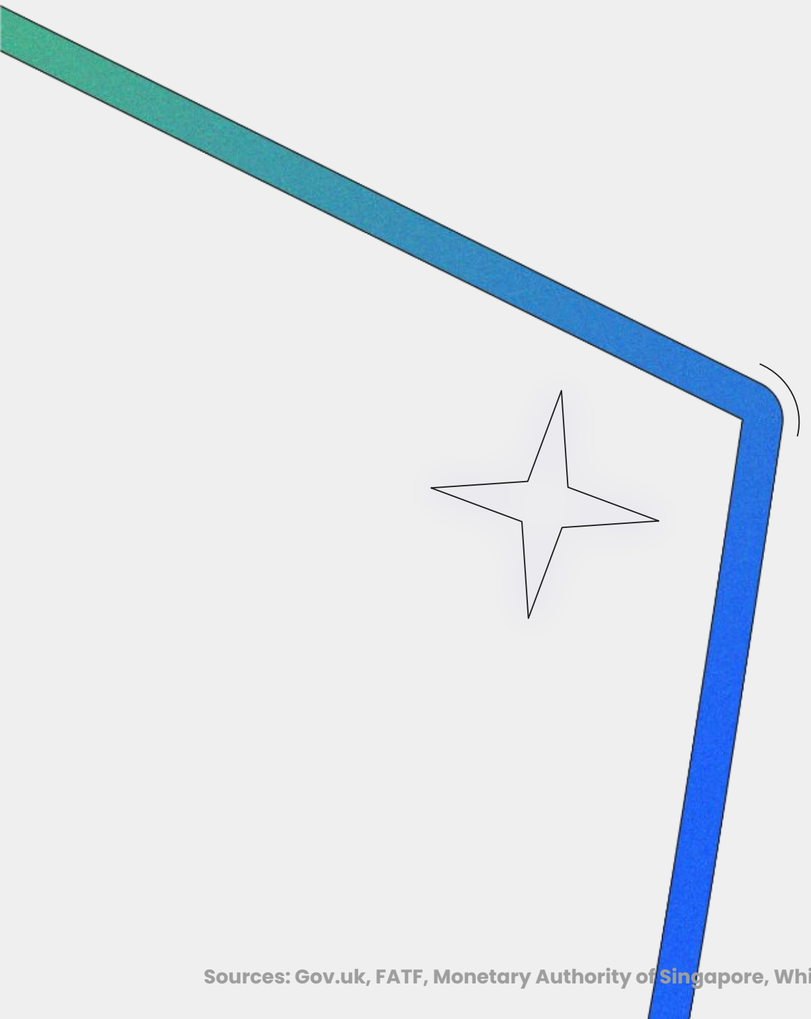
- Visa and Mastercard support crypto-branded debit cards
- Nike acquired NFT design studio RTFKT
- Robinhood, Cash App, Revolut and PayPal all support crypto offerings in their apps

Some of the world's best talent is heading into crypto:

- Former regulators from the SEC, CFTC, Bank of England, FCA, Monetary Authority of Singapore have secured roles at major crypto businesses as well as ex-Goldman, HSBC, Citi, BNY and more
- Leadership talent from Meta, Google, Airbnb, Amazon have moved to web3 projects

Source: 11:FS, Coindesk, Altfi

Web3 is an increasingly regulated and well understood sector



Globally, there are moves to regulate this industry into further legitimacy.

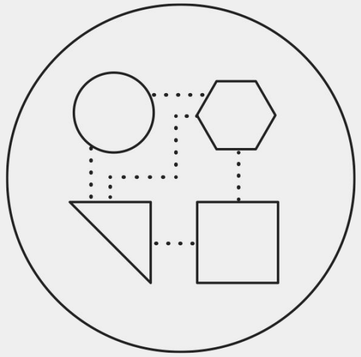
For example:

- The European Union's Markets In Crypto-assets regulation (MiCA)
- The US President's Executive Order on cryptocurrencies
- Dubai's specific Virtual Assets Law
- The Monetary Authority of Singapore's tokenisation guidelines
- The UK's plans to become a hub for cryptoassets and recognition of NFTs as legal property
- The Financial Action Task Force's Guidance for Virtual Assets Service Providers

Leading governments and regulators are forming a consensus that chasing away crypto will simply push talent, innovation and prosperity away from their jurisdictions and result in missing the web3 opportunity. But there *are* risks that need to be managed to drive mainstream adoption.

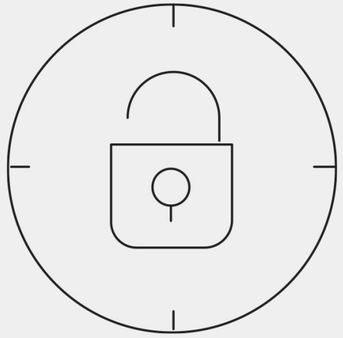
Sources: Gov.uk, FATF, Monetary Authority of Singapore, Whitehouse.gov, Government of Dubai, The Art Newspaper; 11:FS

The 3 ways to look at web3



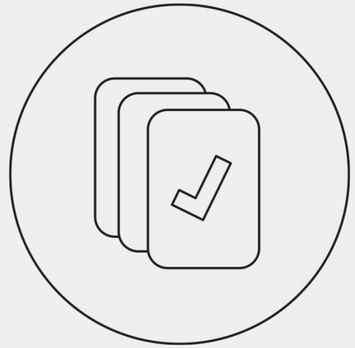
Technologies

In web3, open, permissionless and composable technology is used to...



Concepts

...unlock concepts that enable programmable, global and 24/7 economies and markets...



Use cases

...creating new use cases for finance, shared ownership and digital communities.

Source: 11:FS

The technologies and concepts of web3 come together to create new business models and new opportunities

Technologies	
1. Wallets 	The primary way users interact directly with blockchain networks.
2. Tokens 	A token is a digital representation of value or assets stored on a blockchain network.
3. Smart contracts 	Smart contracts are software that create a series of transactions or token movements.
4. Blockchain networks 	Distributed network of computers that ensure data is secured and software executes as programmed.

Concepts	
1. Ownership 	User control over assets, data and content they create or buy on the internet.
2. Programmability 	Assets with functionality. Developers can make any transfer of value or ownership automated.
3. Composability 	The ability of any web3 service to consume or interact with any other that is permissionless.
4. Decentralisation 	The lack of central authority, making data, software and assets portable between platforms and services.

When combined, these primitives unlock new use cases and benefits from web3.

Source: 11:FS

The technologies of **web3**

Web3 wallets let users access and govern assets and data

Wallets are the centre of gravity in web3. They allow users to interact with **smart contracts** and **tokens**.

Wallets work by storing a user's data and private keys which prove that the user owns and controls their digital assets.

Source: 11:FS

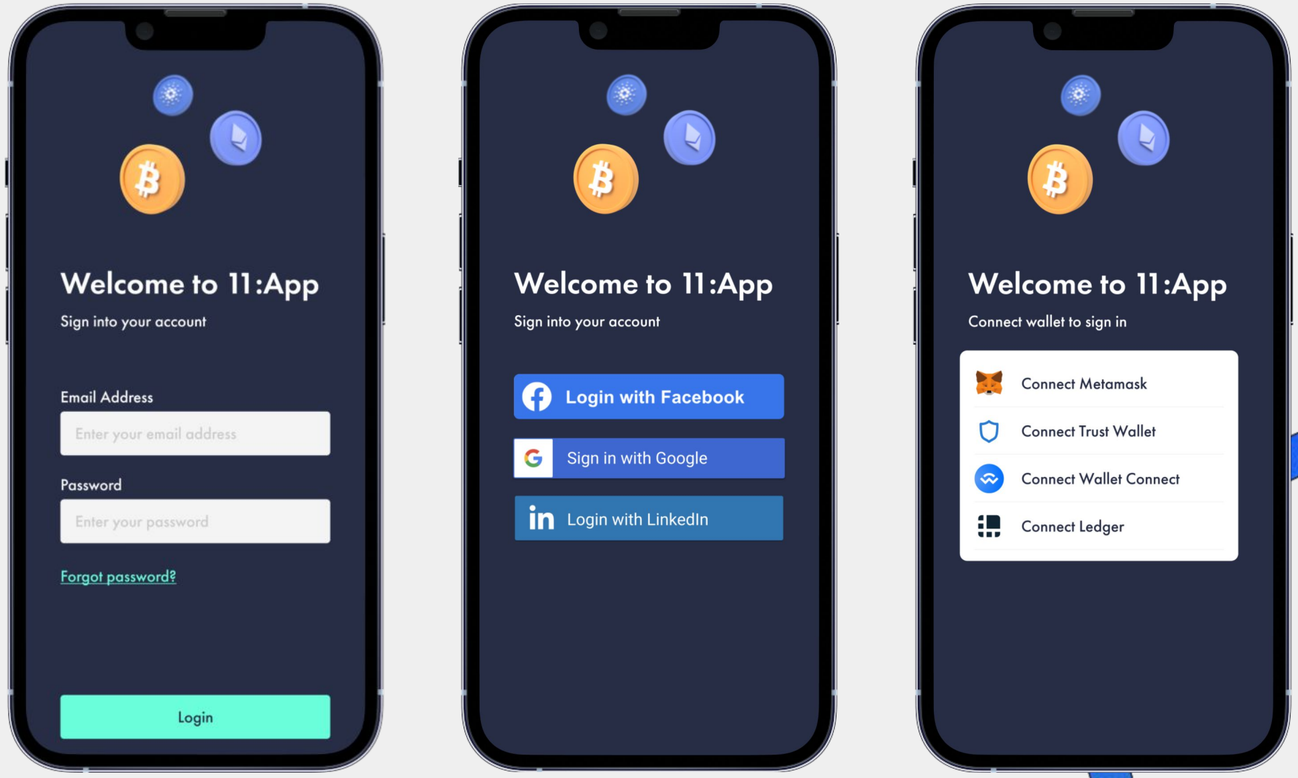
Wallets are how users access web3

A ‘wallet’ is a misleading term. It’s really ‘an account everywhere’.

You can see this in the design pattern.

- Web1 - Create an account for every service
- Web2 - Use a centralised account to access services
- Web3 - YOU ARE THE ACCOUNT

Like a physical wallet (which holds IDs, photos of your kids and pets, money, credit cards, loyalty cards, the grocery list, other random stuff) it can see more about you than any one centralised service can, because it’s yours.



Source: 11:FS, concept adapted from tycooperaow

Understanding web3 wallets and keys...

...using a real world example: Property

Icon Legend

- Asset
- Access to the asset
- Control of the asset

	House example		Web3 example
	A house has a location, address, square footage, bedrooms, bathrooms, etc.	▷	An NFT has an address and unique token reference number.
	A key lets you enter a house and use it. But it is not 'control' of the house.	▷	A wallet lets the holder interact with the NFT (if it has functionality).
	The deed recognises a legal owner, who can sell, extend or change the house as they choose.	▷	The owner of the NFT is the only one who can sell (or borrow against) the NFT (which is considered property in UK law).

Source: 11:FS, The Art Newspaper

In web3, a wallet is how you access and control assets

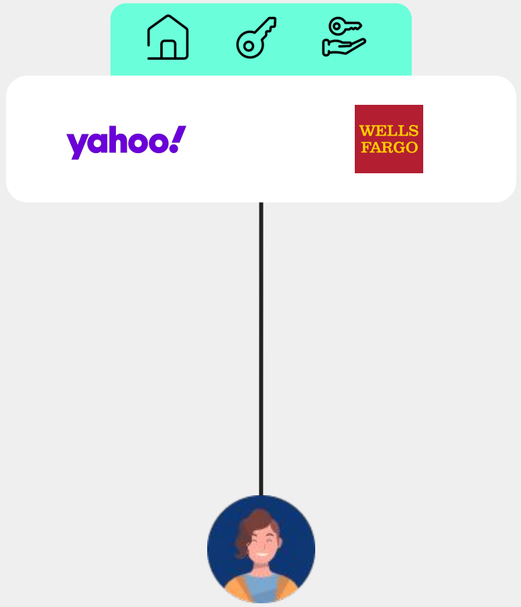
Asset

Access to the asset

Control of the asset

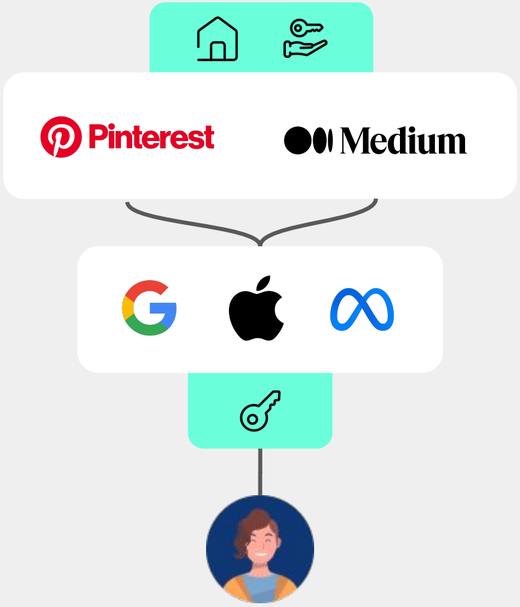
Web1

On the web, you access your data on a server. The server controls it.



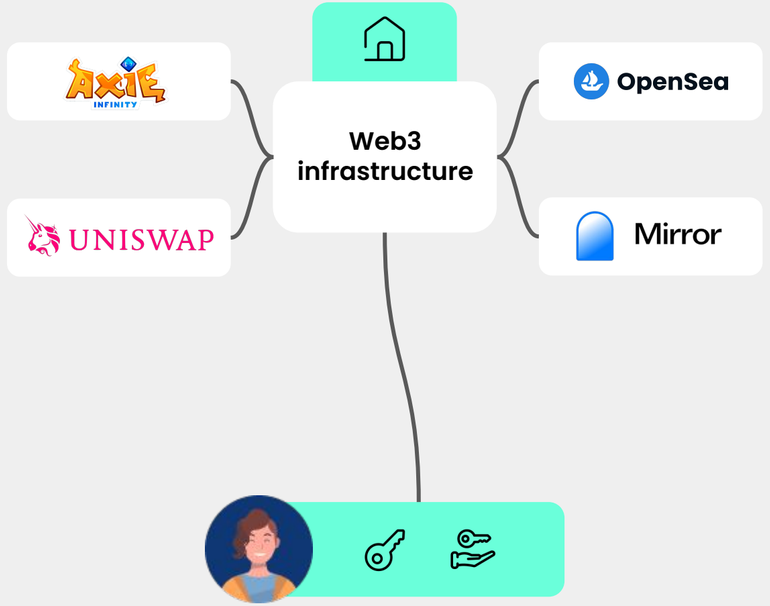
Web2

On social networks, you access your data on a server. The server at the intermediary can control it.



Web3

In web3, conceptually, the user controls their data and assets. The data may continue to live on other servers.



Source: 11:FS

There are many different web3 wallets for many different users and use cases

Some wallets can fit into more than one category, so our focus here is on their primary use case.

While these examples are largely available to consumers, enterprises may choose to work with a dedicated custodian.

Custodians can either manage your keys for you, or help you manage your keys.

Note: There are many excellent wallet projects that we haven't shown here. These logos are for illustration and example purposes only.

Mostly online vs mostly offline

Hot wallets stay mostly online and grant easy access to DeFi, NFTs and other DApps. This does, however, make them more susceptible to fraud.

Living mostly offline, **cold wallets** are harder to use with DeFi or DApps. It does make them more secure.

One person vs many people control

Single-key wallets are used by individuals, leaving the responsibility of security to the individuals themselves.

By contrast, **multi-key wallets** have multiple approvers and have enterprise level security. These are used mostly by institutions, funds or DAOs.

Software vs hardware

Software wallets are normally only activated for transactions and can live both online and offline within internal applications.

Hardware wallets are external devices used to store keys. They are only connected to the internet when being used to, for example, sell an expensive NFT.

3rd party vs user-controlled

Custodial wallets are user-operated wallets, but the keys are held and managed by the third party custody provider.

Self-custodial wallets are directly managed by the owner, who holds and manages the keys themselves.

Source: 11:FS

What do wallets mean for users?

An account everywhere

If you hit a paywall on The Economist, FT or Wall Street Journal, you need to enter your personal information and sign up before you can access the content you wanted.

In web3, you just connect your wallet and approve the contract.

Digital ownership

A physical DVD works regardless if the company that made it no longer exists. If a streaming service revokes access or closes, your film won't play.

Web3 wallets make assets behave more like they do in the physical world.

What do wallets mean for businesses and entrepreneurs?

Better data

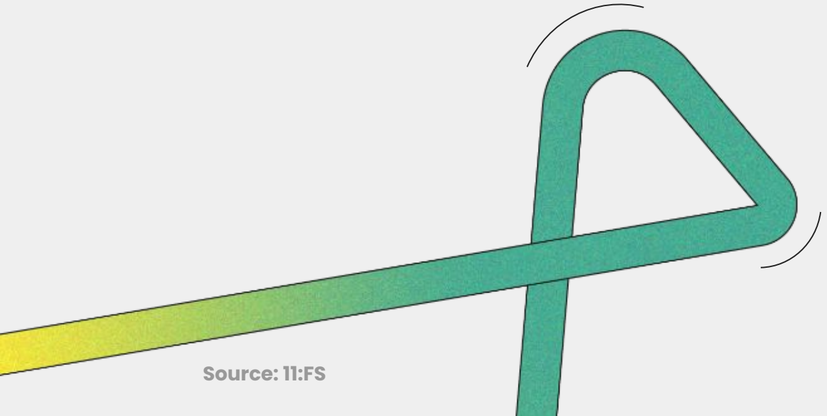
In web2, the platforms that built the largest data moats won. But no single platform has more data about a user than they do themselves - not the government, Meta, Google, etc.

Web3 means users can let algorithms run on *all* of their data, creating new competitive opportunities.

A CRM for assets

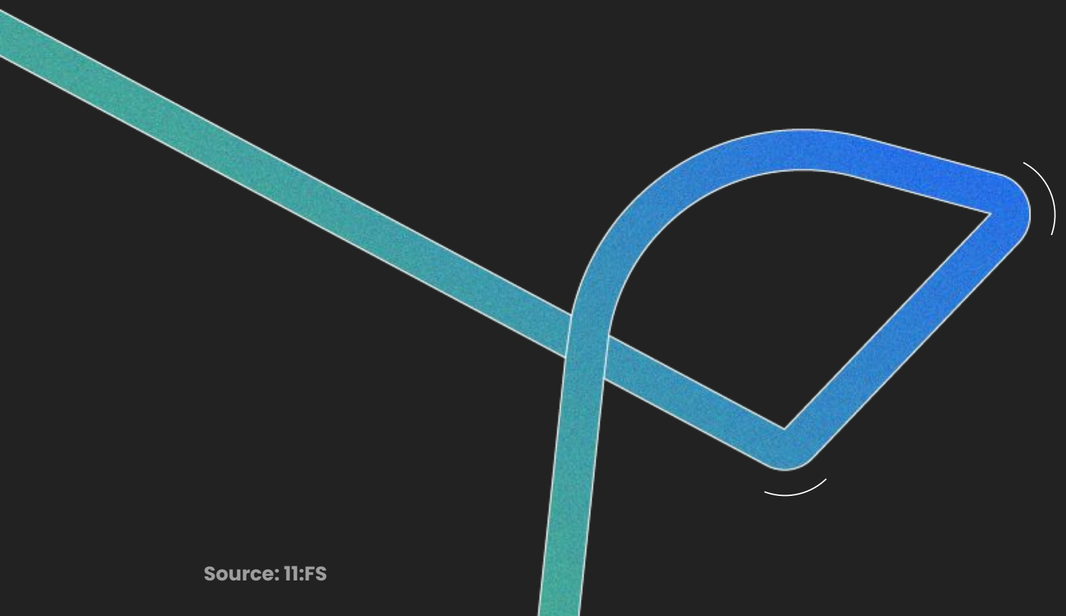
The wallet that owns an NFT (e.g. a Cryptopunk) is recorded publicly for all to see.

Imagine being able to directly interact with everyone who bought a product from your brand. Or better yet - a competitor's brand. Imagine being able to engage with your NFT-holders simply by knowing which wallets hold the corresponding assets.



Source: 11:FS

Tokens are the digital representation of value



Tokens are the digital representations of assets in web3. They exist in the **blockchain network** and represent value, be it monetary or rights, natively-digital or from the 'real world'.

They are stored in the **blockchain networks** that record the **wallet** address that 'owns' the token.

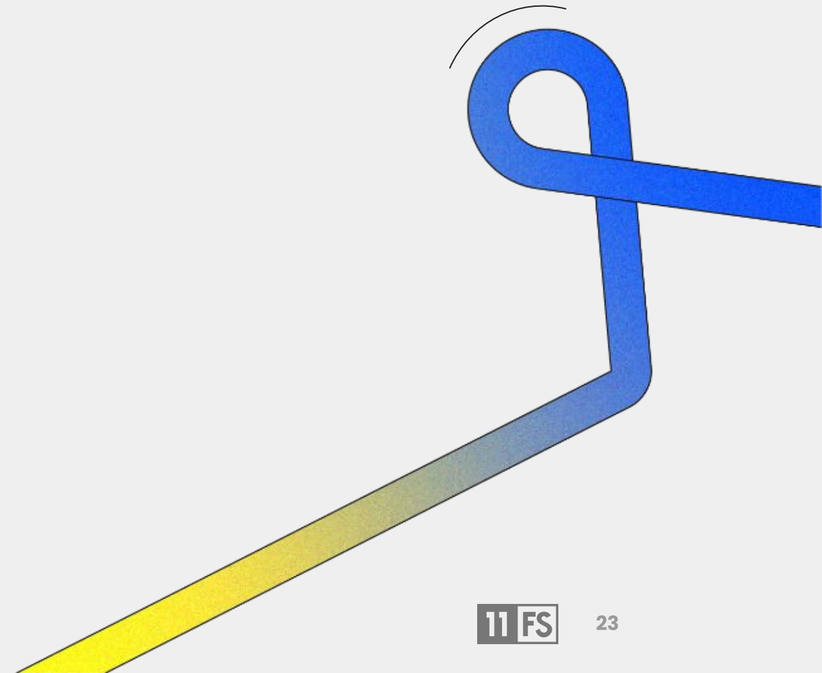
The token may have behaviours defined by a **smart contract** that increases their functionality.

Source: 11:FS

Web3 tokens exist in 2 primary forms

In web3, tokens are uniquely identified and registered on blockchain networks and take two primary forms: Native-network tokens and contract-defined tokens.

	Native-network tokens	Contract-defined tokens
Description	These can only be used on their network to make transactions. For example: ETH, BTC and SOL.	Tokens are defined by smart contracts, giving them unique utility. For example: WETH, UNI, COMP, USDC.
Utility	These tokens are used to pay for the network processing fee, so that the network can securely process transactions.	*Anything a software engineer can imagine!* Programmable money and assets.

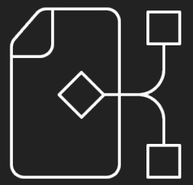


Source: 11:FS

Web3 tokens are also split into fungible and non-fungible

	Native-network tokens	Contract-defined tokens	
			
	Fungible tokens	Fungible tokens	Non-fungible tokens
Definition	They can be exchanged one to one.	They can be exchanged one to one. Trading one BTC for another leaves both parties equal.	They have individual values and can't be traded one to one in most cases.
Example use cases	Trading one BTC for another leaves both parties with one BTC (minus fees).	Use of a platform (e.g. DeFi exchange) Discounts and loyalty Community access Game currencies Governance and voting Sports club access	Digital collectibles Content In-game assets Wrapping specific DeFi strategies for monetisation Access credentials to digital environments (metaverses)

Source: 11:FS



Smart contracts are the programs that run web3

Smart contracts are computer programs that run on **blockchain networks** to determine the behaviour of **tokens**. They help create complex, decentralised software like token swaps, NFT projects and more.

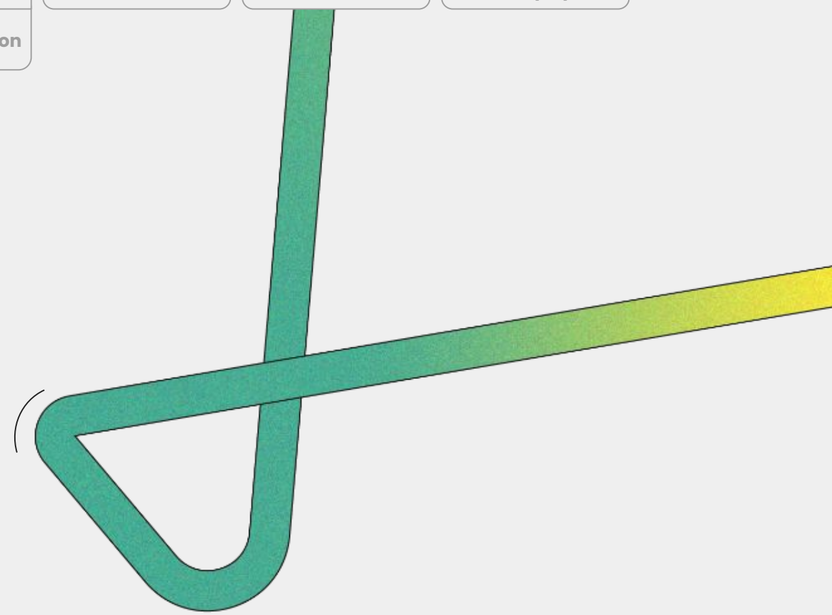
The programming language and environment varies between blockchain networks.

(Note: Some blockchain networks do not use smart contracts as a term, nor technically, but we still find the term helpful as a broader category).

Source: 11:FS

Here's a simplified example of how smart contracts mint web3 tokens

Let's use NFTs as a case study. Part 1: Creating an NFT collection. All of this happens automatically. No matter how many times the NFT is sold, and no matter on which marketplace, because moving the NFT always requires interacting with the smart contract and is enforced by the blockchain network.



Create

A developer writes software to create a collection of 100 NFTs and deploys it to their chosen blockchain network. They include code to **receive a 10% cut of *any* future sales.**

Mint

When a buyer chooses to 'buy' the NFT, their web3 wallet will interact with the smart contract. **Let's assume they buy the NFT for $100.**

Code-executed

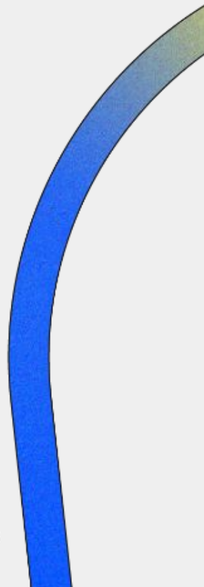
If the wallet has enough funds to buy (mint) the NFT, the smart contract asks the blockchain network to **assign one of the 100 unique token references to the buying wallet address.**

Validation

The blockchain network performs the computation then the network comes to consensus. When complete, the **buyer has moved $100 to the NFT creator and in return has the NFT.**

End

Complete!



Source: 11:FS

Smart contracts enable automated royalties payments from web3 token sales

Taking our example from before, now let's imagine the NFT is re-sold. We can see that no matter where an NFT is sold, the NFT creator is collecting royalties. This wouldn't work for most assets and secondary sales today. When you sell your car, the car manufacturer you bought it from gets no benefit.

Buy

An NFT holder wants to sell their NFT from their collection and agrees to **sell for $1000.** This transaction is sent to the smart contract.

Asset swap calculated

The smart contract calculates that the seller should get 90% ($900) and **the NFT creator should get 10% ($100).**

Code-executed

The smart contract asks the blockchain network to assign the NFT to the buying wallet address, send $900 to the seller and **$100 to the creator.**

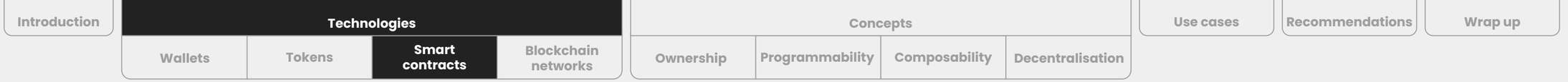
Validation

The blockchain network performs the computation, then consensus, and when complete **the buyer has their NFT, the seller has $900 and the NFT creator has $100.**

End

Complete!

Source: 11:FS



What do smart contracts mean for users?

Shared ‘ownership’

While tokens do not imply legal ownership of a company, platform or entity, they are designed to allow users to participate in the governance of an application or service.

Get rewarded

New models of engagement, like Airdrops or token distributions, allow early adopters to benefit from a token’s price appreciation as more users enter the network.

New ways to earn

New models of contributing or engaging with products may reward users with tokens (e.g. ‘learn-to-earn’ or ‘contribute-to-earn’).

Users can monetise their contribution to a network, community or marketplace.

For businesses and entrepreneurs?

New marketing approaches

Users are more than just consumers. They can help influence the product with their usage and votes.

New competitive moats

An engaged community will do the marketing via word of mouth because they have more to gain than people using the same services without ownership.

Remix the competitor

A project called SushiSwap was able to launch by almost entirely copying the open source code of its competitor Uniswap. When it launched, it gave users more ownership of the platform, and this allowed it to gain early traction.

Source: 11:FS

Blockchain networks are the transactional data infrastructure layer of web3

Blockchain networks are a decentralised network of computers running the blockchain software and storing its transactional data. They are the foundational infrastructure layer of web3.

These computers are incentivised to validate the transactions with the use of digital assets that are native to each blockchain (see **tokens**).

Different 'blockchain networks' have different technical solutions for scaling. Not all blockchains follow the 'chain of blocks' data structure.

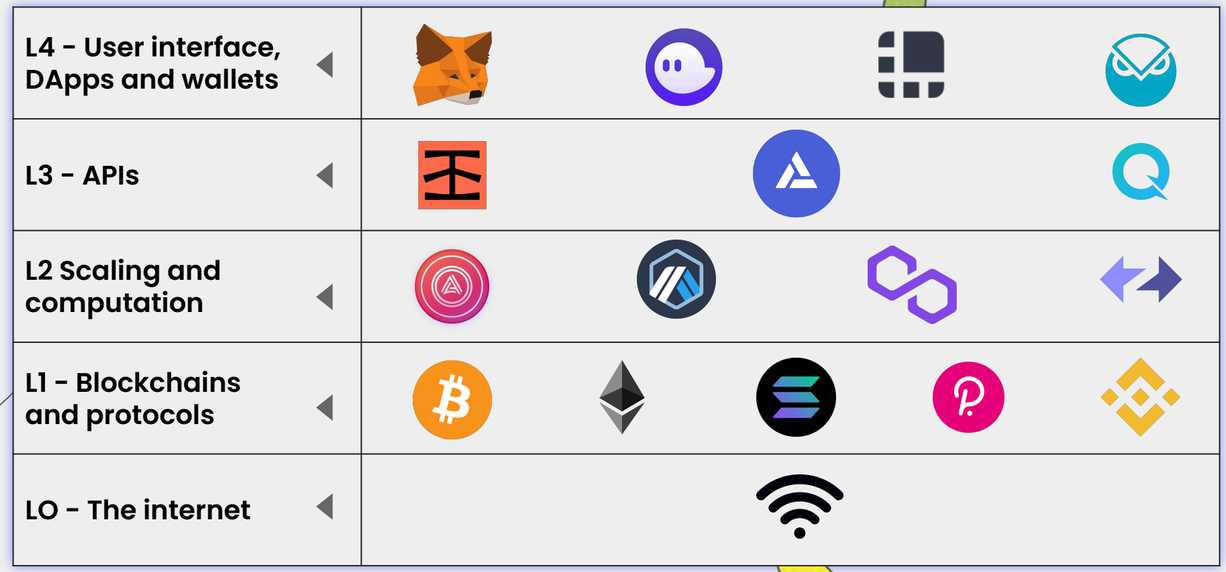
Source: 11:FS

Remember: The blockchain network is part of a wider web3 stack

Web3 has an architecture and blockchain networks are just one piece. This is often called the 'web3 stack'.

However, blockchain networks are often considered the base for moving and storing value.

Simplified web3 stack: Many different blockchain networks and supporting platforms enable what we call web3.



Non-exhaustive, illustrative only, lacking technical nuance(!)

Source: Web3 Foundation, Multicoin Capital, 11:FS

Here’s a simplified example of how blockchain networks operate

Broadcast

A wallet broadcasts a message to the network about an imminent transaction it wants to make.

Work

Miners or nodes solve a computational problem for the right to ‘confirm’ the transaction and add it to the block.

Code-executed

The completion of a ‘proof’ by a blockchain network gives a node the right to execute the smart contract (or equivalent) code.

Consensus

Eventually every ‘full node’ in the network will show the same transactions.

Data stored

Miners and full nodes then store the outputs, which can be viewed by anyone, globally, 24/7 to maintain a permanent record.

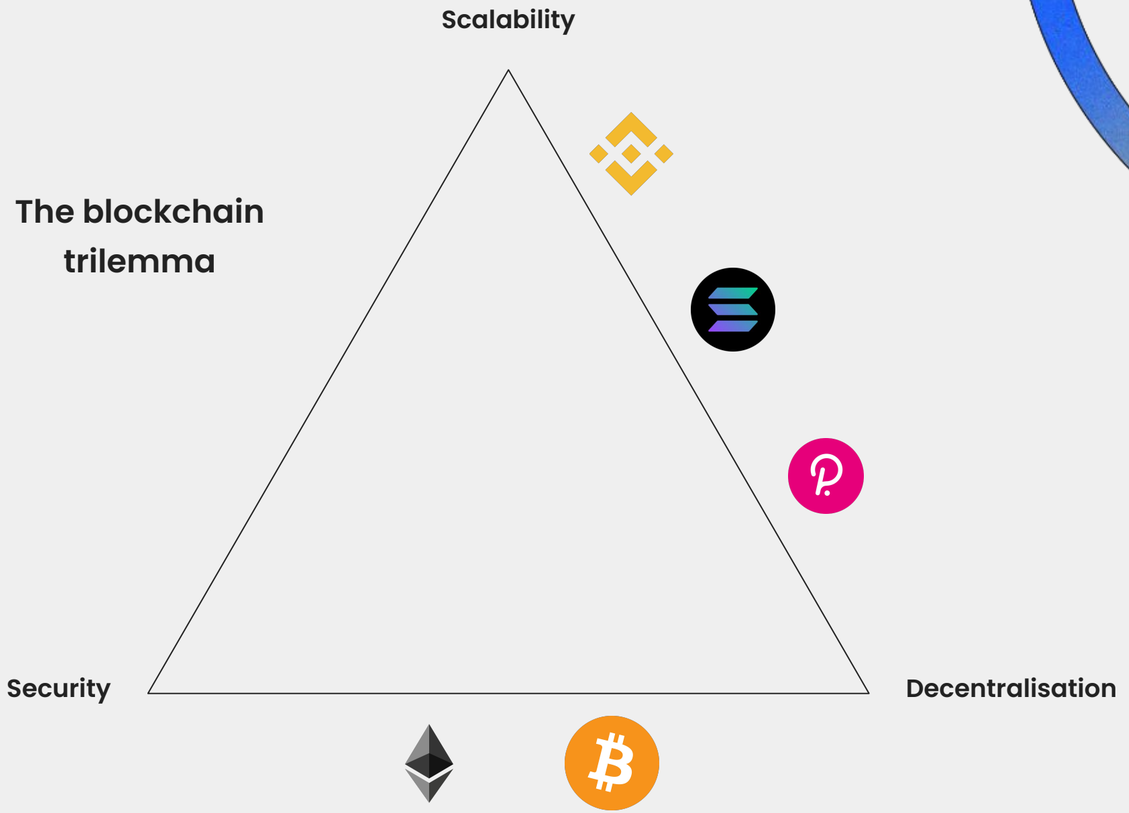
Source: 11:FS

Blockchain networks make different design choices for scalability, security and decentralisation

Things that are true about some networks (e.g. Bitcoin has a low transactional rate) are not necessarily true about others.

Some networks are also planning improvements to balance scale, security and decentralisation (e.g. the Ethereum merge or introduction of the Lightning Network to Bitcoin).

Remember: Not all blockchain networks are slow. And different networks may suit different use cases.



Exact placing for illustrative purposes only, nerds can argue for days about this kind of thing. The concept is what matters.

Source: Vitalik.ca, 11:FS

Blockchain networks are a different kind of construct

They're global & 24/7

The networks are not region-locked. The networks operate and transact 24/7, unlike key financial institutions and exchanges that keep business hours.

They're transparent

Any user can view a real-time copy of the entire state of the blockchain network. This includes which wallets may hold a particular token or NFT.

They're antifragile

At current market cap, hacking Bitcoin is a $700bn prize for hackers. Blockchain networks become stronger as they are attacked.

Source: 11:FS

What do blockchain networks mean for users?

My data follows me

Imagine if a content creator could take all of their content, likes and comments from Youtube or TikTok to some other platform. Impossible in web2, possible in web3. Now imagine this for your banking transaction history.

A new investment asset class

Consumers can back their favourite projects earlier than traditional venture-backed companies. For example, Coinbase went from founding to IPO in nine years. By this point most of the value had already been created.

For businesses and entrepreneurs?

Customer acquisition

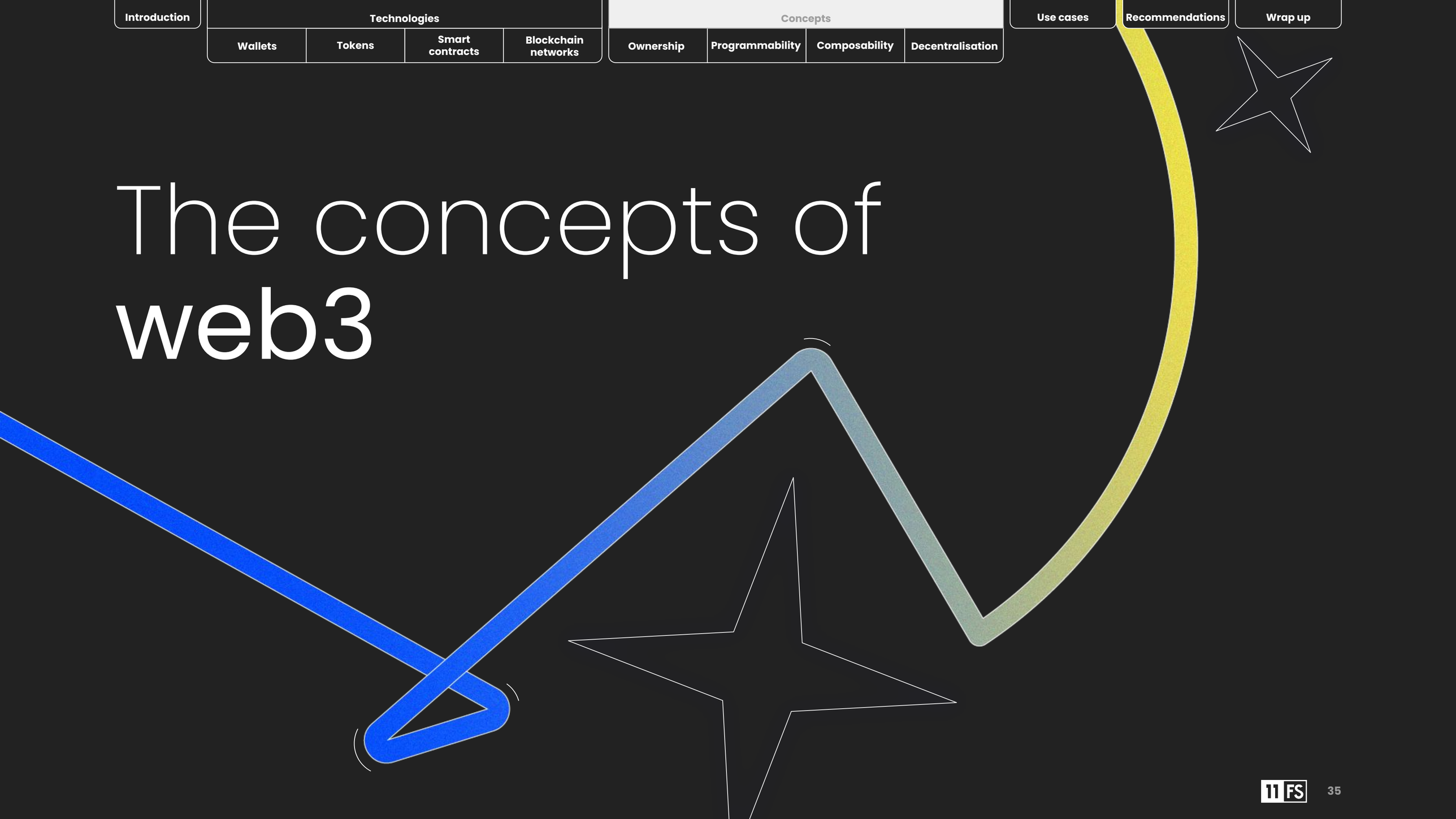
Consumers and businesses are increasingly attracted to cryptoassets and DeFi yield. Fintech companies add crypto to attract new users.

New products & revenue

'To-earn' models like play-to-earn or contribute-to-earn create new ways to monetise engagement. DeFi and NFTs give fintechs and consumer brands new products to sell to consumers, and new ways to deepen engagement.

Source: 11:FS

The concepts of **web3**



Ownership

Ownership is web3's ability to unequivocally prove that digital assets are owned by users.

When a token or asset is created in a blockchain network, only the owner(s) of the web3 wallet can move that token or asset.

The blockchain network has a record of every token held by every wallet at the current time (and historically). It functions as a complete record and history of ownership.

Source: 11:FS

Web3 changes ownership

Icon Legend

- Asset
- Access to the asset
- Control of the asset

Web2

Platforms control assets and users access them

—---

Content (images, music, blogs) have attributes like length, artist name, etc.

—---

A username / password lets you create / upload content to a platform (e.g. Instagram, Substack)

—--

The platform has master access to the content and data, and controls it (e.g. Twitter has no edit feature)

Web3

Wallets control assets and platforms access them

—---

Content (images, music, blogs) have attributes like length, artist name, etc.

—---

The web3 wallet lets you create / upload content to a decentralised file store (e.g. Arweave or blockchain networks)

—---

Platforms access decentralised file stores, controlled by your web3 wallet (e.g. NFTs in Metamask)

Source: 11:FS

What if you could trade Pokémon for real value on any marketplace?

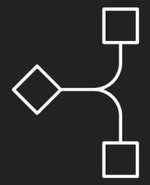
Axie Infinity is a cute online game (like Pokémon) where Axies are bred and battle each other.

It's unique because it has its own digital economy. 95% of the revenue from the service goes to players of the game.

Players can trade their Axie or items they win in game ANYWHERE.

Source: Axie Infinity

Source: Axie Infinity, 11:FS



Programmability

Programmability is web3's ability to move tokens, data or value between wallets under a set of conditions.

Sometimes called 'programmable money', but it also applies to programmable assets like NFTs (e.g. pay royalties to an artist on a secondary sale).

Source: 11:FS

Programmable assets, data and value let developers build new functionalities

Programmable means any developer can build a new functionality that uses a token or asset. Developers can make payments or money that moves on conditions like 'if x happens, then do y'.

Fintech companies have started to make the old infrastructure more programmable, but that doesn't make it permissionless *and* **composable.** In web3, *any developer* can interact with *any token* or **smart contract** as programmed.

Example:

IF

<0xSELLER> sells NFT for <sales price>

THEN

Collect <sales price> from wallet <0xBUYER>
Pay <$USDC royalties as 10% of sales price> to wallet <0xARTIST>
Pay <$USDC revenue as 90% of sales price> to wallet <0xSELLER>
Send NFT to wallet <0xBUYER>

The smart contract will check the conditions as the sale is performed and will execute the corresponding instructions EVERY TIME a sale is made, no matter which marketplace it is sold in.

Source: 11:FS

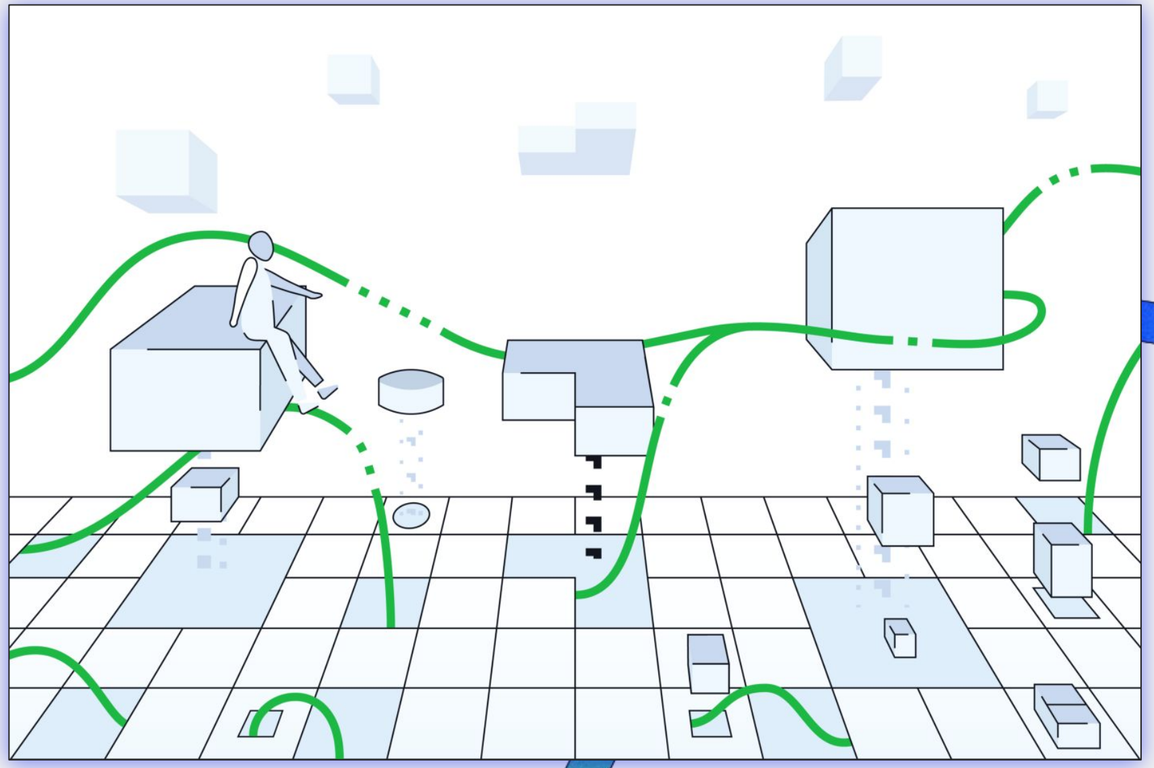
What if we could stream cash flows like data?

Superfluid sets up a transaction that can be paused, edited or continuously streamed by its user.

Imagine if your salary was streamed to you in real time? Imagine if businesses could have a real-time balance sheet?

Streaming removes the need to make multiple payments and moves value back or forth based on conditions.

Because it's programmable, the cash flows can be linked to ongoing work or proof. For example, continue to stream cash as long as x activity is true (e.g. device is doing work).



Source: Superfluid

Source: Superfluid, 11:FS

Composability

Composability is the ability to combine digital assets and their corresponding behaviours in the world of web3.

Developers can make use of functionalities created by other developers, building on top of existing software (without a contractual or commercial relationship).

This enables new use cases, and interactions between ‘competing’ services on a blockchain network.

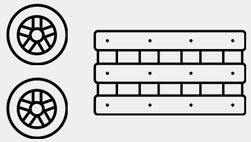
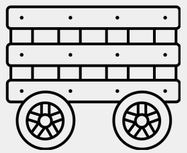
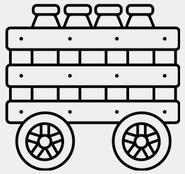
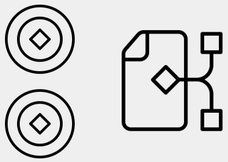
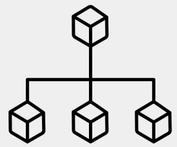
Source: 11:FS

Web3 software is composable, enabling developers to select and assemble building blocks to build their service

Composable means that anything a developer builds in their application can be used (consumed) by another developer or application.

A16z's Chris Dixon has said "composability is to software what compounding is to finance".

Put another way - this is a powerful idea that may take a long time to grasp, but when you do, it changes everything.

2 simple ideas	Create a 3rd idea	Add a 4th idea	And a 5th idea emerges
Wheels and a box 	A cart 	Bottles of milk 	Milk delivery service 
Digital currency & a smart contract 	A lending process 	A derivative for that lending portfolio 	A financial strategy monetised by investors 

Source: 11:FS

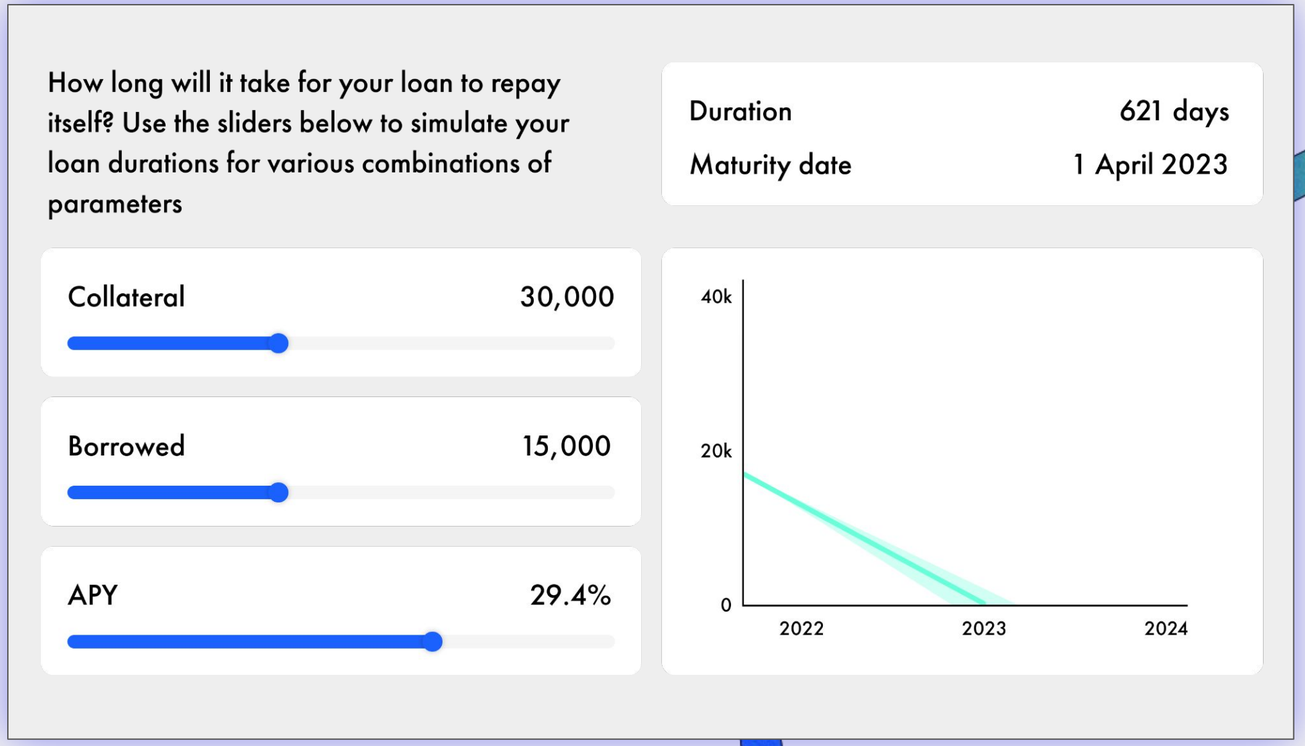
What if loans repaid themselves?

Because DeFi is able to generate high yields, traders can borrow against their deposits in the knowledge that their deposit yield will repay their loan in time.

Alchemix takes simple ideas (a Stablecoin with a yield and lending), and combines (composes) them, so the yield from the Stablecoin repays the loan automatically.

Then the application gives (mints) the borrower a new Stablecoin that they can use like any other currency, to invest, spend or cash out.

Essentially borrowing against existing assets like the ultra-high net worth individuals would.



Source: Alchemix, 11:FS

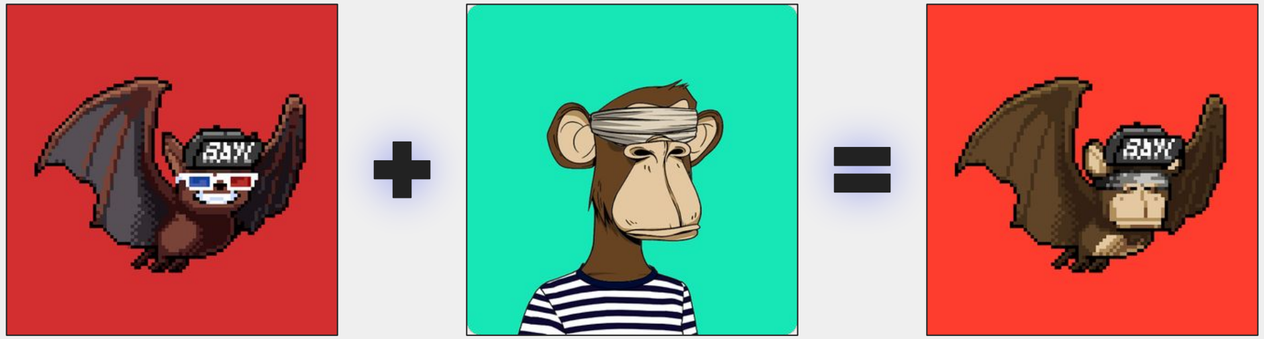
Unlike APIs, software in web3 is largely permissionless, letting developers remix and create new ideas

Permissionless means that web3 components and assets can be freely remixed by other services. Imagine if Cash App released a feature and it was instantly available to Venmo users. Or if Stripe had a product that was open to Adyen customers.

(Permissionless sounds scary to some banks and regulators, who mistakenly think 'not secure'. That's not the case - it can be very secure, safe and regulated).

For example: CryptoBatz is an NFT collection with a built-in feature that interacts with other select NFT collections. So if you have one Bat and another NFT, you can 'bite' it to spawn a third NFT composed of features from the two originals.

No one in the target NFT collections had any involvement with the development of the 'bite' smart contracts.



Source: CryptoBatz

Source: CryptoBatz, 11:FS

Decentralisation

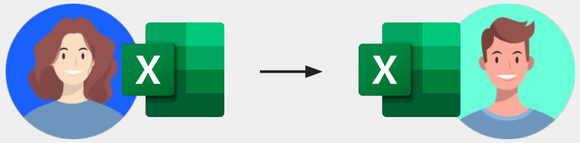
Decentralisation is web3's ability to operate without a central authority, providing immutable records of transactions. Decentralisation is not always absolute and doesn't just apply to technology.

Projects use economic and legal decentralisation to share decision-making and information openly.

Source: 11:FS

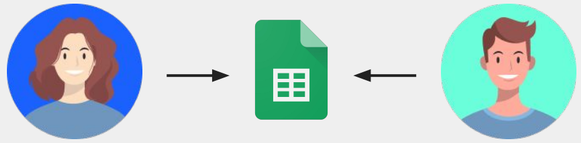
An example of decentralisation

20 years ago, if Alice and Bob wanted to collaborate on a spreadsheet, she'd make her edits, save them and email the document over to Bob. Now there are two copies.



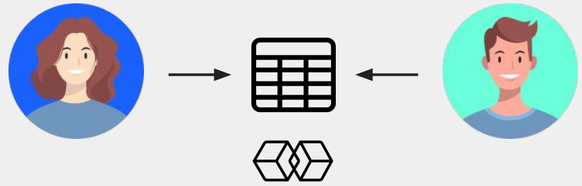
Any further changes made in document one won't show up in document two.

Then centralisation came along and offered a remedy to this. Alice logs onto Google Sheets and makes her changes, and Bob can see them and interact with them in real time.



Everybody wins. Until the central operator fails or starts acting up. Then you've got a problem.

Decentralisation also has one record, but crucially no single operator. It's slower and more expensive, but it offers greater security and transparency.



This is referred to as the **blockchain trilemma**.

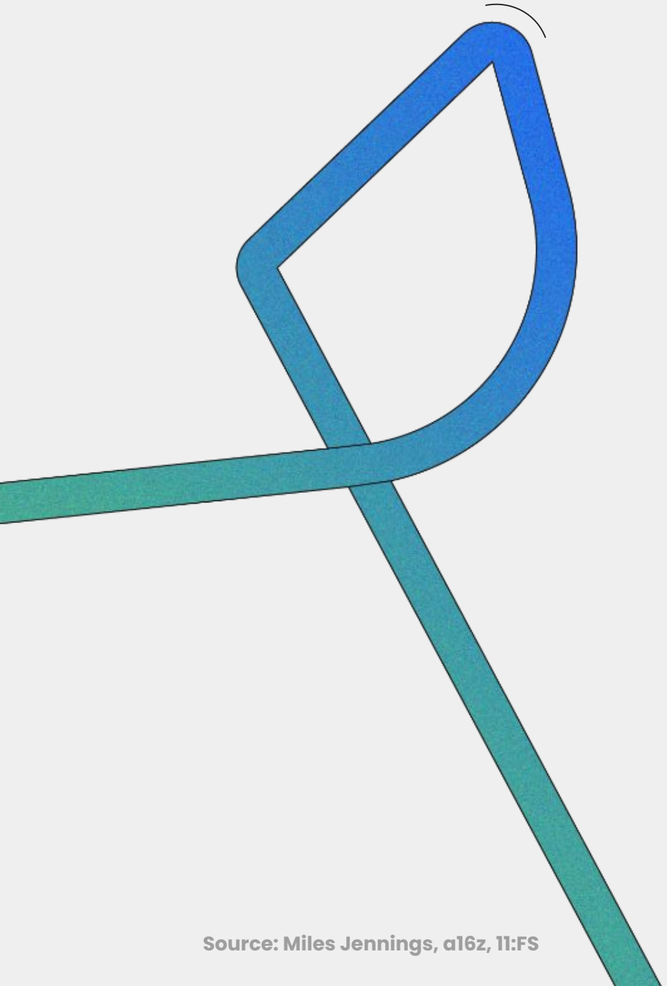
Source: 11:FS

It's helpful to think of decentralisation as a spectrum

It's not a binary choice between one or the other. What you need to do (which customers' Jobs to be Done need solving) dictates where you fall on the scale.

Source: The Gendal Continuum by Richard Gendal Brown, 11:FS

Decentralisation has 3 lenses:



Technical

Technology that operates without a single actor or entity. Storing **data,** coming to **consensus** and promising users that code will **execute** as designed.

See: **Blockchain networks**

Economic

Economic decentralisation creates a set of incentives for developers, users and businesses to continue to **build, adapt** and **use** a blockchain network.

Legal

Distributing **governance, ownership** and **information** about the protocol's future. Unlike companies, decentralised projects have no single management, and all information is publicly available.

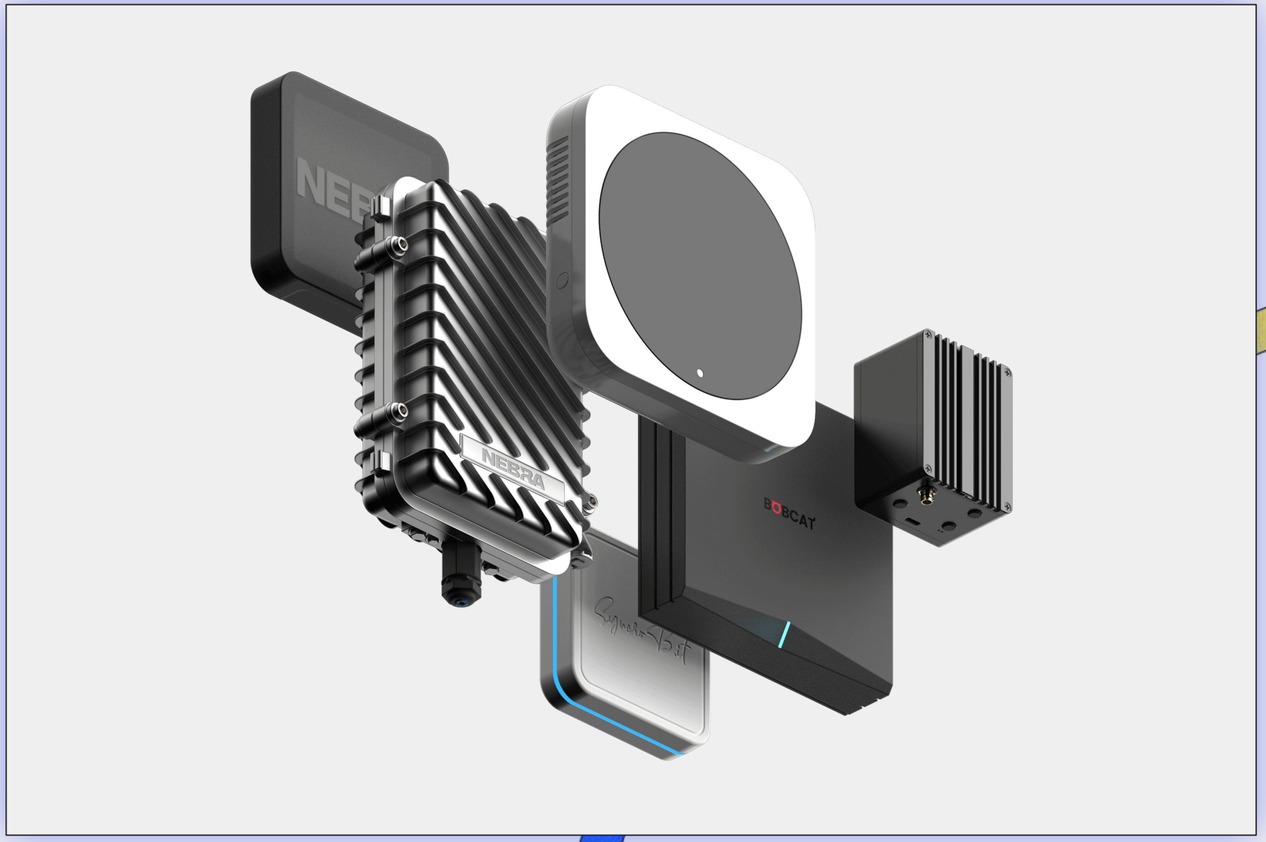
Source: Miles Jennings, a16z, 11:FS

What if we didn't need telcos?

Helium is used by Salesforce and Lime as a much cheaper alternative to building citywide LAN networks for devices.

Anyone can buy or install the Helium equipment, and in return receive a Helium token (HNT) for contributing to running the network.

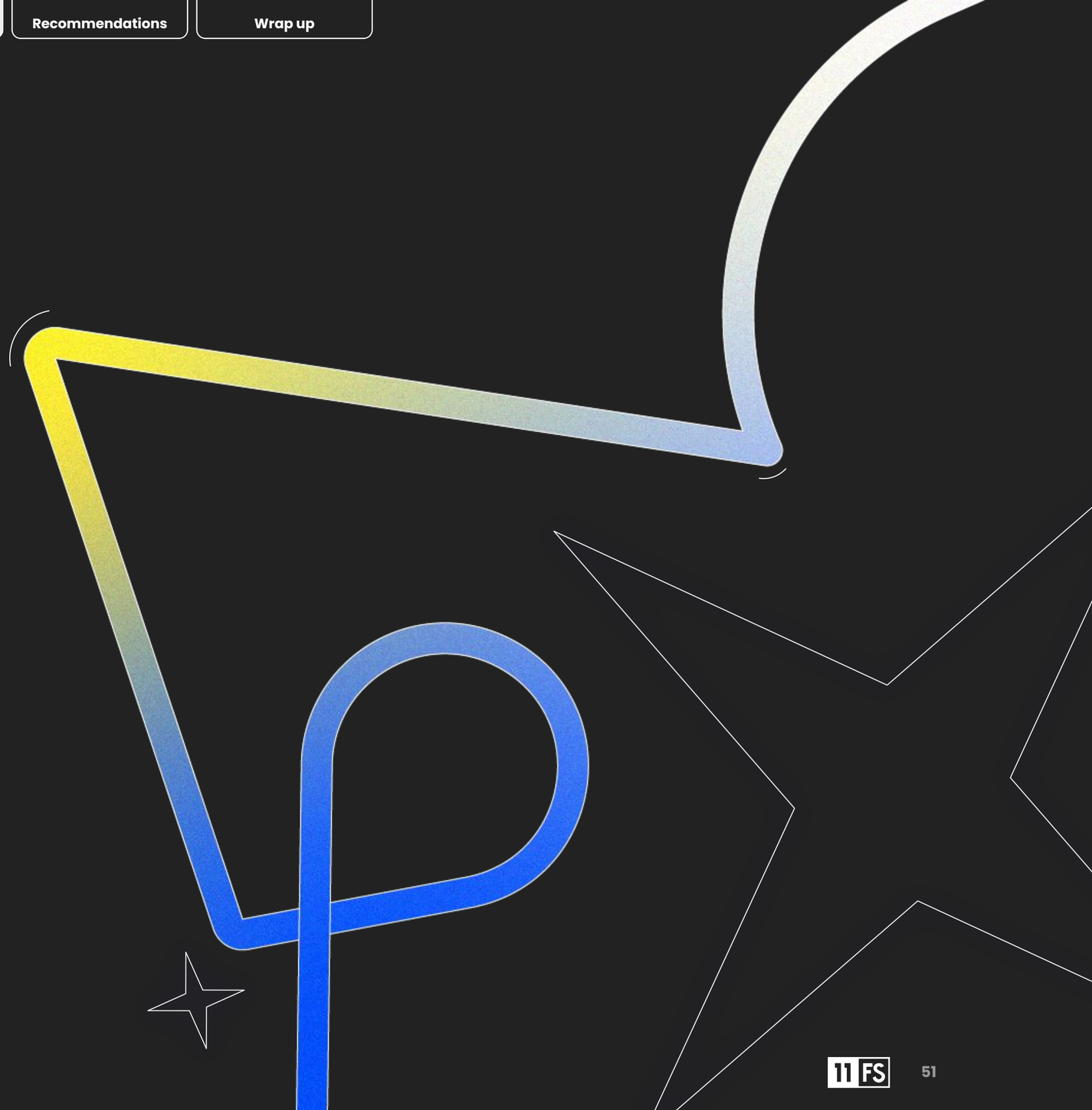
Customers like Lime or Salesforce pay in HNT to run the network at ultra-low cost and high availability.



Source: Helium

Source: Helium, 11:FS

Use cases



Web3 has some big ideas that are often used as the basis for other use cases

- **Stablecoins** are a form of token issued on the blockchain. Their price is almost always equivalent to one unit of the corresponding fiduciary currency.
- **Decentralised finance**, or DeFi, refers to applications implemented using smart contracts. They behave like financial products and services, such as investing, lending and derivatives.
- **Non-fungible tokens**, or NFTs, are tokens that are not interchangeable with one another, like real world collectibles. Where uniqueness and digital scarcity are required, they enable a number of different use cases.
- **Decentralised autonomous organisations**, or DAOs, create a new labour relationship between entities and contributors. They're managed through governance tokens and enable a different kind of community tool for companies and organisations.
- **Facilitating value transfers** where programming to pay or be paid can be done cheaper and with less friction.
- **Transparency** in near real-time analysis creates opportunities for actionable insights at individual and market level.
- **Monetisation of virtual assets** takes a new form when users actually own their digital goods and create their own digital economy.
- **Remix the competition,** incentivising the community to participate in product improvements and share the business models.

Source: 11:FS

Stablecoins let people store, move and collect value globally, 24/7 and without volatility

Definition: A token with stable value relative to a benchmark, e.g. USD.

Examples: USDC, USDT, USDP, where $1 = almost exactly $1.

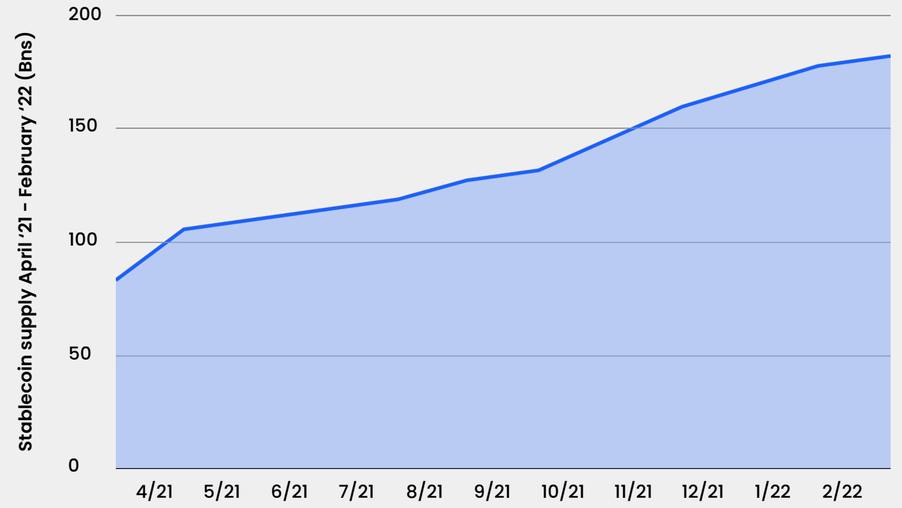
Use case: Store value, make and collect payments, high-yield 'savings' or treasury.

Benefits:

- Customer acquisition
- A new investment class
- An account everywhere

Compared to other cryptocurrencies, Stablecoins are less volatile and function in a global, 24/7, near-instant settlement process. Deposits are stable and generate high yield, allowing for trading with stable pairs, easy USD remittances and savings where local currencies are unavailable.

Over $180bn of Stablecoins have been minted & the space continues to expand



Fiat-backed
Tokens with stable value relative to fiat currency.

Crypto-backed
Tokens with stable value relative to cryptoassets.

Algorithmic
Tokens with a stable value relative to cryptoassets, managed with software.

Source: 11:FS, Statista

DeFi lets users save and lend without the need for intermediaries

DeFi definition: Applications with similar functions to other financial services, without a single institution in the middle.

Examples: AAVE, Compound or Uniswap use algorithms to set deposit and lending rates.

Use case: Saving and lending without the middleman.

Benefits:
- Digital ownership
- A new investment asset class
- User rewards

Investors benefit from higher returns, allowing for borrowing and lending at variable or fixed rates without an intermediary actor. They can also combine various DeFi protocols to create advanced return profiles.

Traditional lending
When you save in a bank, the reality is you're lending money to the bank.

They take your money and lend it to someone else, making money from the difference between the interest it pays you and the income it makes from having lent your money out at a higher rate.

This income minus any fixed costs is the bank's profit. Banks have high fixed costs from staff, buildings, technology etc., so returns are low.

DeFi lending
With DeFi, 'saving' is lending to other wallets through a protocol to a liquidity pool (LP).

The protocol sets a price for someone else to borrow that asset and collects fees for connecting lenders and borrowers directly.

It makes a profit from those fees minus its fixed costs - of which there are almost none.

DeFi protocols can also reward active users by issuing 'shares' (governance tokens).

Source: 11:FS

NFTs offer provably unique tokens with functionality

Definition: A non-fungible token that is provably unique, and the wallet address ownership is publicly verifiable.

Examples: Cryptopunks, Bored Apes and Generative Art.

Use case: Ownership and access, art with functionality.

Benefits:

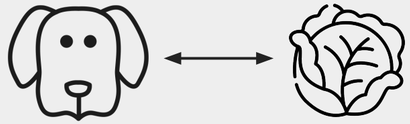
- New marketing models
- New ways to earn
- A CRM for assets

NFTs embed functionality in art (royalties paid whenever a token is transferred, for example). They're also provably scarce, which means pieces can be continuously used or transferred even in the absence of their issuer or developer.

A Bitcoin is fungible

A BTC is fungible. One BTC = one BTC. If you send me one, and I send you one, we're in exactly the same place we started (minus fees).

Most things are not



If I tried to swap your dog for a cabbage, you wouldn't be impressed. Because they are obviously unique.

NFTs are tokens that are provably unique
While the image can be copied, only one wallet can have the token on its blockchain at any one time.

Developers can then use the wallet + token + blockchain to do new things, e.g. only the owner of that token can access new online content, or a real world event.

Source: 11:FS

DAOs create new org structures for global problem solving

Definition: A decentralised autonomous organisation is a collective of people aligned around a shared purpose, using blockchain networks to coordinate, vote and build solutions.

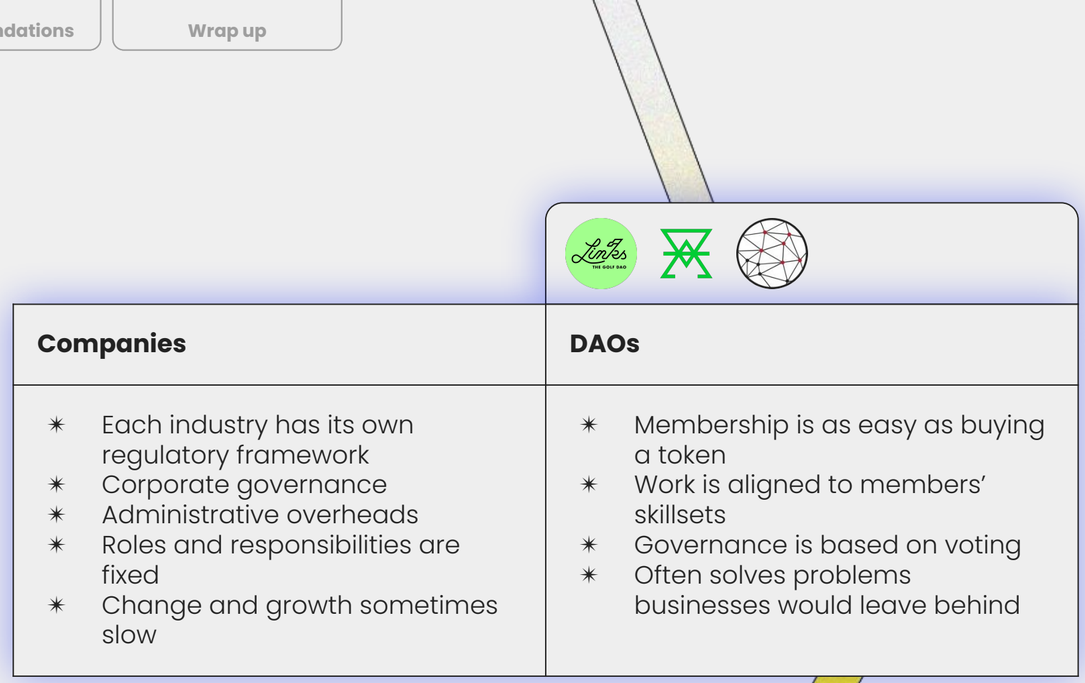
Examples: LinksDAO, KlimaDAO, TalentDAO.

Use case: Investing clubs, social clubs, open source software development.

Benefits:

- Customer acquisition
- Shared ownership
- New competitive moats
- New marketing approaches

DAOs are borderless, allowing anyone to participate in developing and growing the community. They're also openly governed, so that any member can vote on what the DAO can do.



Source: 11:FS

Crypto and Stablecoins offer another payment rail

Definition: Paying or getting paid using Stablecoins may be preferable, faster (and in some cases cheaper) than traditional rails.

Anyone with a web3 wallet can collect a compatible Stablecoin in near-real time. Often being paid in Stablecoins allows non-US consumers and businesses to hold a stable asset vs their home currency, and also generate a yield (% return).

Benefits:

- Customer acquisition
- A new investment class
- An account everywhere

Faster, automated payments that can generate yield or income, running globally, 24/7.

	stripe		VISA
Example	**Stripe**	**Twitter**	**Visa**
Use case	Stripe released 'Crypto payouts', which allows merchants to get paid in Stablecoins. Their first partner, Twitter, allows creators and influencers to be paid in USDC, one of the top US dollar Stablecoins. Visa has implemented Stablecoin clearing for merchants and recorded over $2.5bn of payments made using crypto-backed cards in the first quarter of 2022.		

Source: 11:FS, Visa

Real-time auditability and transparency creates new analytics

Definition: The availability of all transactional data on-chain allows for more advanced types of monitoring and the creation of data services.

Every transaction posted on a blockchain network can be seen in real time. That makes real-time fraud, anti-money laundering (AML) and sanctions detection and reporting possible.

Benefits:

- Better data
- New product and revenue
- My data follows me

These solutions are capable of on-chain AML and KYC, of producing near real-time financial and regulatory reports, as well as accessing data across various blockchains that can ultimately generate irrefutable business performance analysis.

Example	Dune	Chainalysis	Sardine	Elliptic
Use case	Dune has become the go-to platform for market analysts and researchers looking to understand broad market movements and the behaviour of specific participants. Chainalysis, Sardine and Elliptic are well-placed to help companies prevent money laundering - addressing one of the biggest institutional concerns when it comes to on-chain activity. Illicit activity in 2021 reached about $14bn, which represented a record low 0.15% of all transactions monitored by Chainalysis.			

Source: 11:FS, Chainalysis

The open metaverse creates an economy and true ‘ownership’ of virtual spaces or items

Definition: ‘Metaverse’ was first mentioned in Snow Crash, a 1992 book by Neal Stephenson and, while past generations’ closed metaverses like Second Life and Roblox still exist, a new generation has emerged.

The web3 version is often referred to as ‘the open metaverse’ and creates open economies, where assets can be owned and traded on any marketplace.

Benefits:

- Digital ownership
- Better data
- New ways to earn

These open, virtual worlds allow users to provably own their digital goods, monetise their in-world activities and resist censorship from a centralised actor.

Example	The Sandbox	Decentraland	SuperWorld
Use case	Virtual worlds in VR (The Sandbox, Decentraland) or AR (SuperWorld) let users buy plots of land and establish themselves as part of this virtual community/economy. This functions like real world property. You could host an event with a celebrity, and then sell tickets to that event. That ticket could be bought on any marketplace, and would allow access to that event, in that virtual space at that time. Owners can later sell the land, and truly control it. By the end of 2021, open metaverses counted almost 50,000 active wallets.		

Source: 11:FS, Grayscale

New marketing models allow challengers to hack attention by offering ‘ownership’

Definition: Developers can quickly get attention by taking a project that is successful and doing something different that rewards users more.

Both LooksRare and SushiSwap used token distribution as a form of marketing.

By making tokens available to users, they quickly gained adoption and popularity. Users had a new token with value, that also gave them benefits on the platform.

Benefits:

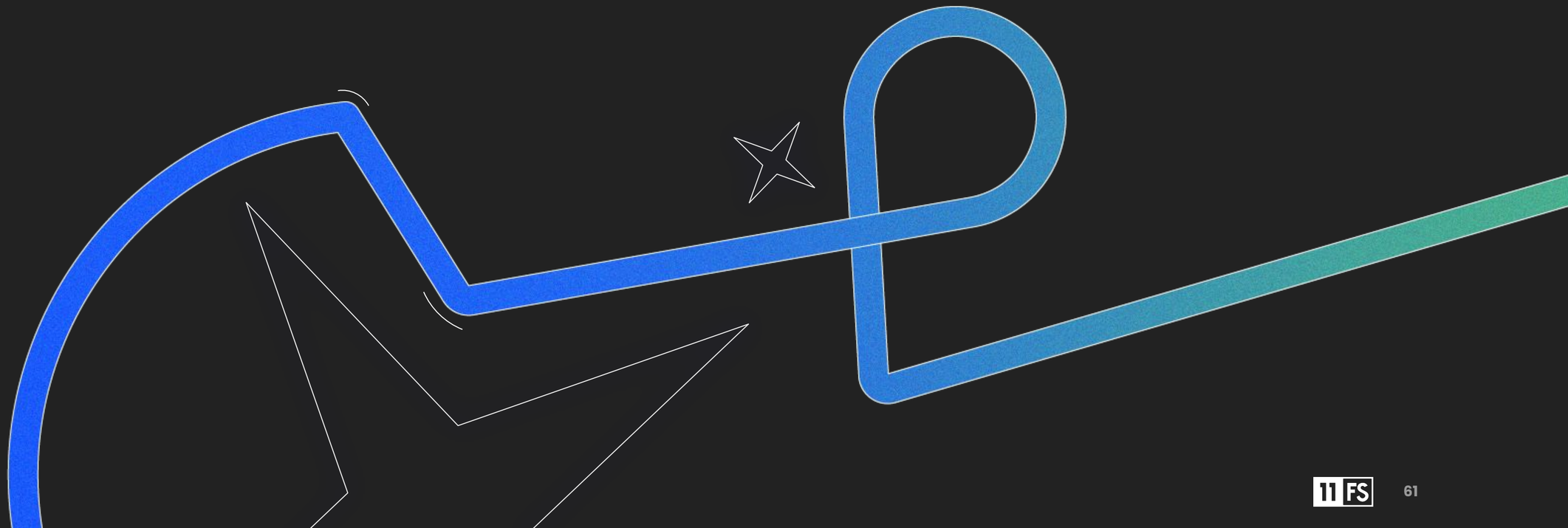
- Customer acquisition
- Shared ownership
- User rewards
- Remix the competitor

These new models enable more aggressive customer acquisition, reward users for convergence and let the community own the direction of the platform.

Example	LooksRare	SushiSwap
Use case	The NFT sales marketplace was dominated by Opensea, which is privately held, and users cannot benefit from. As a response developers built LooksRare, which Airdropped tokens to major users of Opensea. Holders of $LOOKS tokens can participate and get 100% of the platform fees generated by LooksRare.	Uniswap, the largest decentralised exchange, did not easily allow its users to vote on platform changes. A developer known as Chef Nomi forked the code base from UniSwap to build SushiSwap, enticing liquidity providers with the offer of governance tokens - which Uniswap quickly copied and added. SushiSwap attracted $700m in deposits from Uniswap within three days of launch.

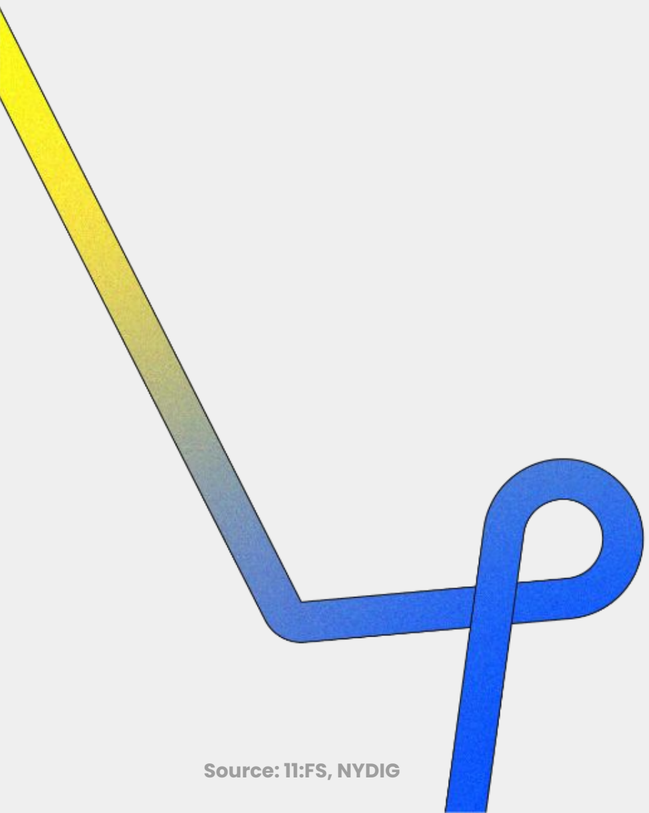
Source: 11:FS, The Block

How to capture the web3 opportunity



Consider where you're starting from and where you want to get to

- A lot of businesses feel the need to rush to do *something* because web3 is the new hype.
- But the web3 space rewards one thing above all else - authenticity.
- This means not only is it okay to learn in public, it is encouraged! *(But please don't 'launch an NFT' unless you have a really good reason / it is well thought through).*
- There's a lot of jargon, so we hope this report helps simplify that and make it real.
- The space is moving incredibly fast, and the best way to learn is by getting started. If you don't have a web3 wallet yet, what are you waiting for?
- If you're an incumbent bank or fintech company, we encourage you to explore web3 by combining what you know from web2, creating your own journey through a web2.5 - the DeFi mullet (*h/t BanklessHQ*).
- The opportunity for trusted institutions is significant. 22% of Americans and 1 in 5 UK adults own crypto. In a survey by NYDIG, 81% would move their crypto to a bank if the bank offered that service.
- If you're in web3 trying to use the TradFi rails and wrestling with compliance, remember these things can take time and patience. But you're not alone.



Source: 11:FS, NYDIG

Beware that web3 isn't without risks that you need to manage

Lack of regulatory clarity

- Most activities and risks are subject to existing regulation and jurisdictional laws.
- However, web3 presents new activities and risks that jurisdictions are in the process of understanding.
- **But:** The industry has already made significant strides here!

Environmental sustainability

- Bitcoin and Proof-of-Work mining is considered wasteful.
- This presents negative PR and ESG risks for businesses involved.
- **But:** Many blockchain projects are now carbon neutral or negative and we expect this trend to continue as the industry matures.

Scams, hacks and fraud

- DeFi and crypto have a history of scams, exchange hacks and fraud.
- This damages consumer trust and prevents mainstream adoption.
- **But:** This presents an opportunity for trusted institutions and brands to make the space safe for the mass market. The difference between Mt Gox and Coinbase (et al) is significant!

Speculation vs 'investing'

- 10,000s of crypto tokens have launched and have almost no value beyond speculation.
- This makes finding the true value difficult.
- **But:** The cream rises to the top, and the older projects have traction and momentum. Those are better places to start out.

Scalability and speed

- Many blockchain networks are considered slow for everyday use.
- This could create negative user experiences and prevent adoption.
- **But:** Many scaling solutions are being deployed, and many new networks are faster. The right network depends on the use case.

Being your own bank

- The vanilla version of web3 requires you to manage your own keys.
- If your wallet is compromised you will likely lose all of the value stored in it.
- **But:** There is now an ecosystem of specialists who can help (like crypto custodians).

Source: 11:FS

And if you're stuck, drop us a line **web3@11fs.com**

When looking to capture web3 opportunities, 11:FS can help you to:

Understand web3 with an executive education workshop answering:

- What is web3?
- What makes web3 different?
- What are the new business models?
- How will this impact our business?

Act now by identifying:

- Adjacent opportunities to create momentum
- Big bets and moonshots to find differentiation
- Partnership opportunities to drive execution

Design your strategy to define:

- If it's the right thing for you
- Where to play and how to win
- What skills you need
- Which partners you should pick
- Your business case

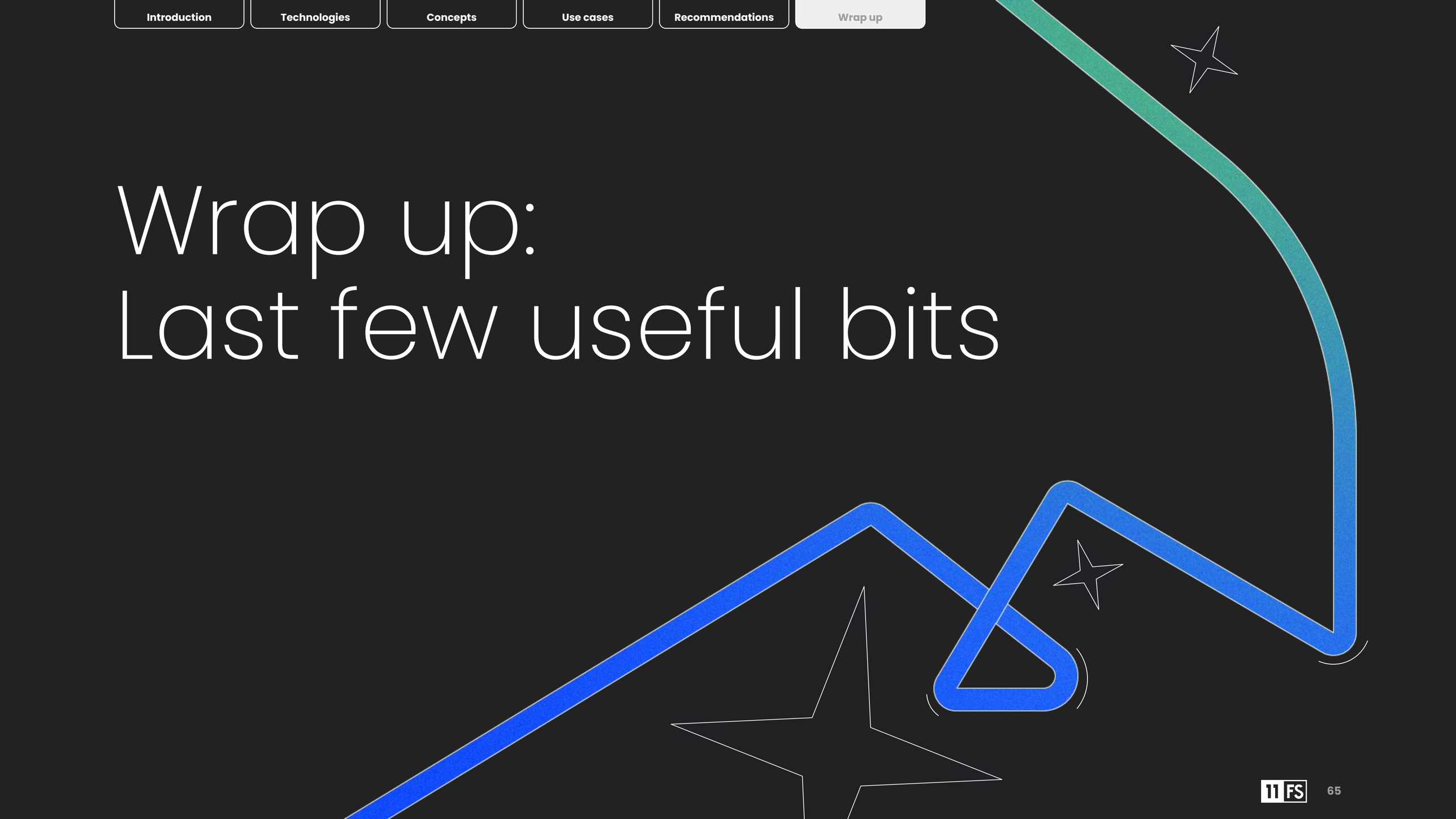
Execute on it with:

- Research, product, design and engineering talent with experience building where crypto and TradFi infrastructure meet for some of the largest crypto and fintech businesses

11:FS is here to provide a balanced perspective: Helping you to understand the journey, saving you from FOMO and stopping you from mindlessly jumping on the bandwagon. We bring curiosity and pragmatism, with lots of depth to match.

Source: 11:FS

Wrap up:
Last few useful bits



Glossary: Decrypting web3 jargon

Term	Abbreviation	What it is	Examples
Airdrops	-	Airdrops are used when projects want to mobilise the community to adopt a new product or service, and consist of a smart contract assigning tokens directly into pre-qualified wallets.	$APE, LooksRare
Blockchain network	-	A blockchain is a distributed software that runs over a network of computers owned or operated by many validators (sometimes miners) that validate transactions. The network uses different types of cryptography to record transactions and track assets. Blockchains play a crucial role in cryptocurrency systems, like Ethereum, by maintaining a secure and decentralised record of transactions. In this report, we sometimes refer to 'blockchain networks' and include networks in that term that would not historically 'chain blocks'. As such, it's helpful to view the term as a category rather than a precise description.	Bitcoin, Ethereum
Centralised exchange	**CEX**	Centralised exchanges (CEXs) are cryptocurrency marketplaces or exchanges owned by a central operator. Centralised exchanges enable fiat currencies to be traded for crypto (and vice versa) or trading crypto-crypto pairs (e.g. BTC for ETH).	Coinbase, Kraken, FTX
Cryptoasset	**Crypto**	An asset that exists on a blockchain network (or a 'real world' asset that is recorded on a blockchain network). They can be accessed and traded via a web3 wallet or a centralised exchange.	$APE, BTC, ETH, USDC, NFTs and more
Cryptocurrency (legacy)	**Crypto**	A cryptocurrency is a term historically used to describe assets such as Bitcoin and Ether. However, these assets behave less like currency than Stablecoins. As such, this term is less often used.	USDC, DAI
Decentralised applications	**DApps**	A decentralised application (DApp) is an autonomous app that runs on a blockchain. Like conventional software applications, DApps provide function or utility to users.	Uniswap, LooksRare
Decentralised autonomous organisation	**DAO**	A decentralised autonomous organisation (DAO) is a decentralised organisation where power is shared among members. Access and voting rights are usually granted through token ownership.	AAVE DAO, Gitcoin DAO, Uniswap DAO, LinksDAO

Source: 11:FS

Glossary: Decrypting web3 jargon

Term	Abbreviation	What it is	Examples
Decentralised exchange	**DEX**	A decentralised exchange (DEX) is a P2P cryptocurrency marketplace where transactions occur directly between crypto traders. Unlike CEXs (e.g. Coinbase), DEXs don't enable exchanges between fiat and crypto — they only trade cryptocurrency tokens for other cryptocurrency tokens.	Uniswap, Sushiswap
Decentralised finance	**DeFi**	Decentralised finance (DeFi) refers to a variety of financial services applications that have no clear central operator and are community-owned and governed.	Uniswap, Compound, Yield, Curve Finance, MakerDAO
Forking	**-**	Forking allows developers to create new software from an existing code base. They can be 'hard' or 'soft' depending on how disruptive you want to be. Soft forks are incremental changes, while hard forks break with the common thread of the original project.	Soft fork: Bitcoin Taproot Hard fork: Bitcoin Cash
Minting a token	**-**	The first time a token is bought (for example, from a smart contract) it is 'minted'. Stablecoin issuers 'mint' Stablecoins, and NFT collection creators allow users to 'mint' a new NFT.	Stablecoins, NFTs
Non-fungible token	**NFT**	A non-fungible token (NFT) is a type of token that cannot be exchanged one to one with another. Each token is unique. This is unlike a fungible token, where one can be traded for another and the value exchange is equal.	Cryptopunks, Bored Apes, Moonbirds
On-chain	**-**	Whenever data is stored or an activity or process runs on a blockchain, it is said to be on-chain.	'Dune allows for on-chain analysis'
Proof-of-Stake	**PoS**	Proof-of-Stake (PoS) is a consensus mechanism for processing transactions and securing a blockchain. Cryptocurrency owners stake coins as collateral for the right to validate transactions. It is faster than Proof-of-Work but considered less secure by some, given its economic nature.	Tezos, Ethereum (post-merge)

Source: 11:FS

Glossary: Decrypting web3 jargon

Term	Abbreviation	What it is	Examples
Proof-of-Work	**PoW**	Proof-of-Work (PoW) is a consensus mechanism that requires network members to solve an arbitrary mathematical puzzle to prevent anybody from gaming the system. It's highly reliable and secure but considered energy-intensive and slow.	Bitcoin, Ethereum (pre-merge)
Stablecoin	-	Stablecoins are cryptocurrencies whose market value is tied to a 'stable' reserve asset, like the USD.	USDC, USDT, DAI, UST
Token	-	A token is a common term used to describe an asset or form of value represented on a blockchain network. This could be a network token (ETH, SOL), a fungible token (UNI, SUSHI) or a non-fungible token (Cryptopunks, etc.).	ETH, BTC, UNI, Cryptopunks
Wallet	-	Software used to buy, sell or hold cryptoassets and tokens (may be custodial or non-custodial).	BlockFi, Coinbase (main), FTX, Metamask, Rainbow, Phantom
Web3 wallet	-	A term used to describe wallets that directly interact with blockchain networks.	Metamask, Rainbow, Phantom

Source: 11:FS

Acknowledgements

We've tried to cite sources when directly referencing prior work as much as possible, but there are countless other influences on this report that you should take the time to follow up with. Here are a handful that we reference often.

- Vitalik Buterin's Blog
- Packy McCormick's not boring - The Value Chain of the Open Metaverse
- A16z - Why Web3 Matters
- Web3 foundation - Web3 stack
- Multicoin Capital's - Web3 stack
- Chris Mccann - DeFi infrastructure 101
- Richard G. Brown - The Gendal Continuum
- Patrick Rivera - Come for the creator stay for the economy
- Jesse Walden - NFTs make the internet ownable
- A16z's Miles Jennings - Web3 decentralization models
- Outlier Ventures - The Open Metaverse OS
- Matthew Ball - The Metaverse Primer
- Luca Prosperi's Dirt Road - From Coin to Stablecoin

Additionally, a16z pulled together 'Crypto Canon' as a collection of great works.

And, of course, this report wouldn't be possible without the amazing design, editorial, production and distribution team at 11:FS - Gus, George, Irina, Sacha, Ali, Alex, Sofie, Adam, Tom and Mariette.

Source: 11:FS

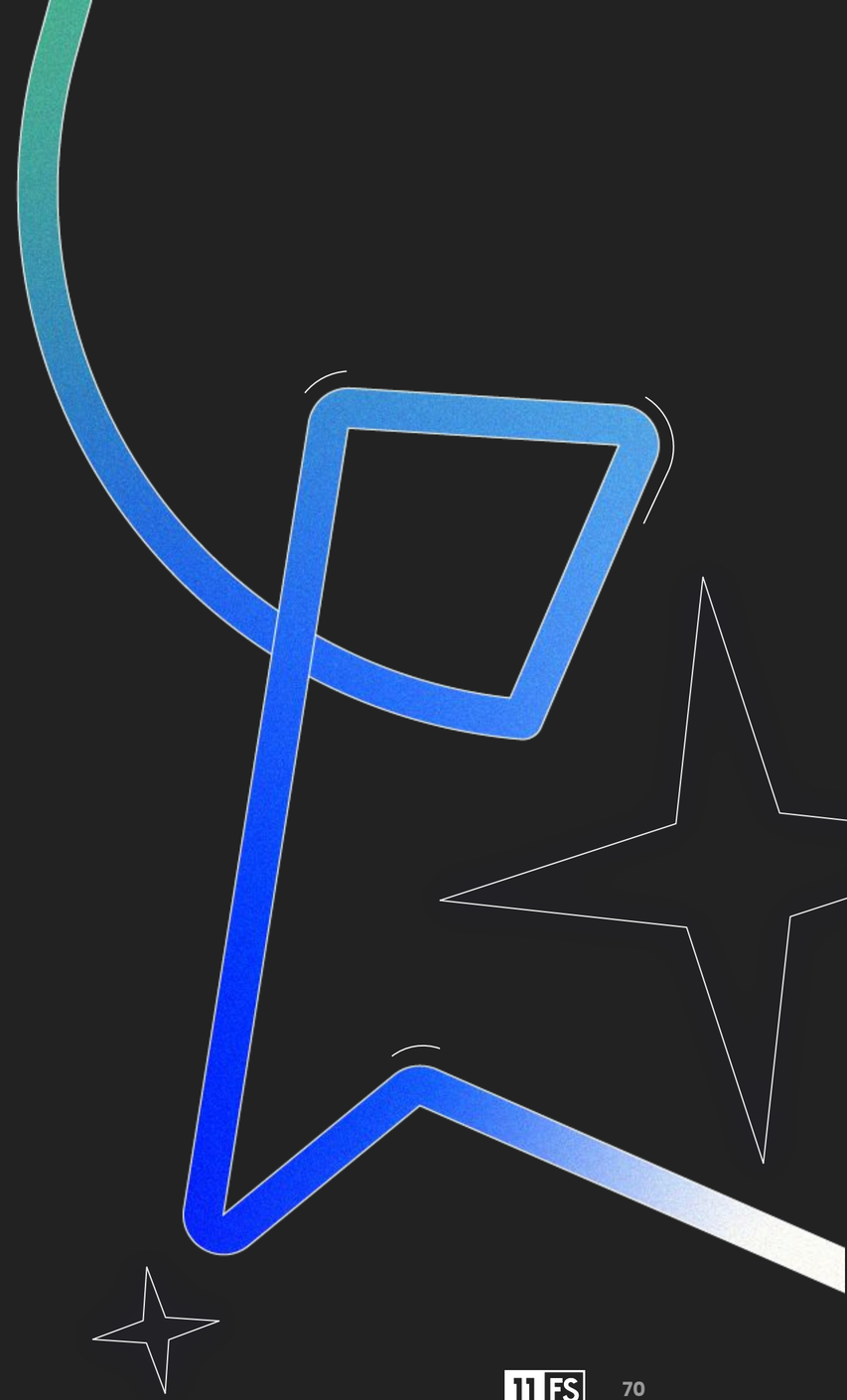
A word of caution

The world of crypto can be a scary place. You can lose all of your money by clicking the wrong thing or making the wrong transaction.

So please be careful out there, people. It's exciting, it's innovative, but only spend what you can afford to lose (and for many, that's not much!).

With all of that said, we love the potential of web3, and hope you will at least try installing a web3 wallet and using one of the services.

This report and its contents does not constitute financial or regulatory advice. So always do your own research before buying anything!



Source: 11:FS

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Author:

Mauricio Magaldi
Strategy Director, Crypto
mauricio.magaldi@11fs.com

With support from:

Simon Taylor
Co-founder & Foundry CPO
simon@11fs.com

Benjamin Ensor
Head of Research & Strategy
benjamin.ensor@11fs.com

Gus Mallett
Content Writer
gus.mallett@11fs.com

Tash Lal
Ventures Lead
natasha.lal@11fs.com

Gwera Kiwana
Product Manager
gwera.kiwana@11fs.com

The end.

Stay rare, stay weird, LFG!