



The LEAD Simple Glossary to Web 3.0

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A changing world

The LEAD Simple Glossary to Web 3.0 is a quick one stop shop for all things Web 3.0. It's designed to help you for quick reference when terms and concepts get thrown at you that require an instant refresh. We get it, Web 3.0 is a bit like biology class, there are so many baseline concepts that you need to know but are easy to forget. Here, we have the key critical to know definitions so you can speed through and find out what you need to know - at the flick of a page or swipe of a finger.

Because the world of Web 3.0 is an ever changing place, our digital version of this document changes regularly. So, if you have a printed copy, make sure you regularly download the latest digital version at www.beinthelead.com for the most current version of this document. You are currently reading version 1.0.

While this document helps with the basics, we totally get that Web 3.0 represents a genuinely tricky place to navigate for companies. We're here to help you understand this world, so for all your Web 3.0 questions and needs, reach out to us at info@beinthelead.com to set up some time to speak with our consultants.

Happy reading,
The LEAD Team

The A-Z of Web 3.0

Augmented Reality (AR)

Where digital experiences are overlaid onto real world experiences. A user typically requires a device like a VR headset or mobile phone, and as they look through the device (which, via its camera, is showing the real world), digital additions are viewed through the device as well.

An example may be using AR during surgery, where surgeons are given digital information in real time about organs in a person's body.

Avatar

Is a digital representation of a real-world person. For example, a user who wants to interact with an immersive metaverse will likely need an avatar to do so. They typically control a virtual, visual representation of themselves (the avatar) which is used to engage with a metaverse.

Engagement can be as simple as talking and interacting with other users' avatars, to physically playing a virtual game, or, to using your avatar to purchase items in a metaverse. The possibilities for engagement are set by the rules of that particular metaverse.

Bitcoin

The first major cryptocurrency to become popular in the mainstream. Bitcoin became popular initially in 2009 and has had major price fluctuations which has impacted its use as a store of value. In order to generate more bitcoin, users can mine for the currency by solving verifiable, yet complex maths problems, using a lot of computing power.

There is a limited supply of Bitcoin at 21 million units, however individual units are divisible. The smallest divisible unit is 100 millionth of one Bitcoin. Because of these limits, bitcoin is theoretically fixed in supply. However, this could change if miners of bitcoin accept to allow more division. Bitcoin is commonly used for payment transactions as well as for the digital equivalent of forex trading.

Block

Is a data packet that holds a collection of records on a given blockchain. Blocks have cryptographically authorised data and in most blockchains, cannot be changed. They receive a hash code (blockhash) which makes each block unique.

Each block will also hold the blockhash of the previous block, unless the block is the original block known as the 'Genesis Block'. An example of the information a block may hold could be transaction data from one person paying another in a given cryptocurrency. The block would give all the key information like the amount, time, sender and receiver and can also include the reason. A block can also hold code for smart contracts which can automatically authorise transactions.

Blockchain

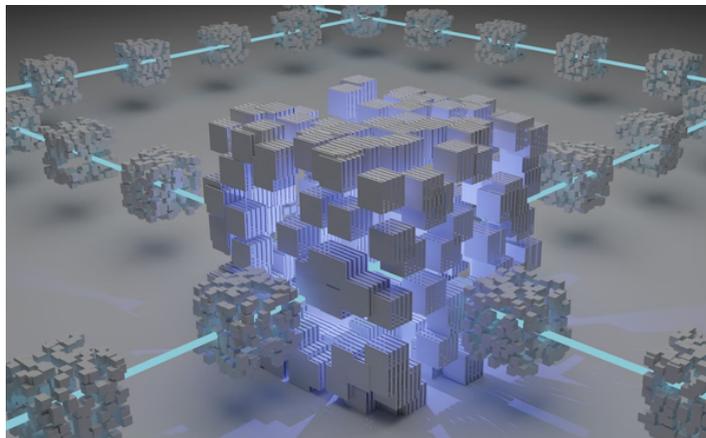
A code driven system for storing data in a way that is decentralised, distributed amongst many users and is often public. Individual records are termed blocks that cannot be changed.

Blockchains are typically used as the foundational platform to maintain cryptocurrency or other transaction-based systems that require ledgers to record data.

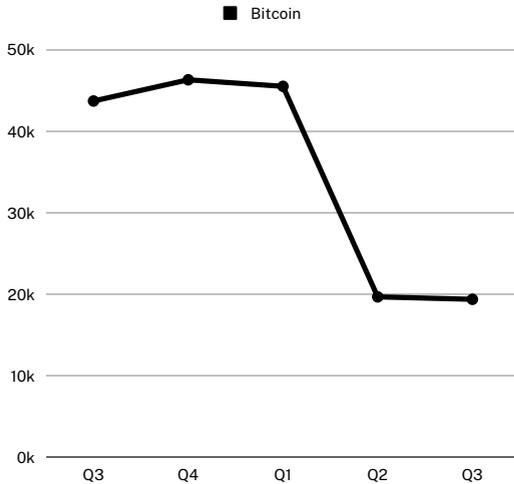
Blockhash

Is a unique cryptographic identifier given to a given block on a blockchain. This identifier is what is used to partly ensure transactions have not been fraudulently interfered with on a given blockchain.

The blockhash itself is a series of numbers and letters that do not resemble the original data in the block. A blockhash is created when a miner completes a complex mathematical problem to verify a given transaction.



Bitcoin prices Q3 21 - Q3 22 (in USD\$)



Consensus

Is when a transaction on a blockchain is required to have all participants in the blockchain agree on the transaction as being valid. This is done with various mechanisms including proof of work and proof of stake systems.

Consensus mechanisms ensure a given blockchain is distributed, prevents fraud and can help improve trust in the blockchain.

Cryptocurrency

A digital currency that leverages cryptographic and distribution processes to store and verify transaction data. This helps to greatly secure the currency and reduces its reliance on middlemen like banks. Cryptocurrencies tend to be built on a given blockchain and typically have different rules for verification of transactions. When a transaction is done, a cryptocurrency generally requires its network of users to verify the transaction using a proof of work or proof of stake system.

Once verified this transaction is stored in a block that can no longer be edited or changed. Cryptocurrencies are traded regularly, similar to forex trading, and they are commonly used to transact for other Web 3.0 technologies like NFTs. To convert cryptocurrency to fiat currency and vice versa you typically require a coin wallet.

Decentralised Autonomous Organisation (DAO)

Is a form of entity that is not governed by a central authority but is rather governed by its members who share a common goal to act in the interest of the entity itself.

A common application of a DAO is cryptocurrency. A DAO is built on a blockchain and usually use smart contracts to support automatic governance of activity.

Decentralised Finance (DeFi)

Is peer-to-peer financial services that are cryptocurrency backed. Examples include where users can undertake normal banking functions like taking out loans or setting up term deposits. However, this is done via a given cryptocurrency and without the need for a bank or broker.

Various third parties exist to facilitate a peer-to-peer exchange, for example you can use a third party to lend your cryptocurrency to someone else. However, this process is secure because most currencies are built on blockchains and therefore have the infrastructure to facilitate these banking functions at a 1 to 1 level.

For example, a loanee does not need to fill out paperwork to get a loan, they can just apply via a automated smart contract on a blockchain.

You can buy some Microsoft products with Bitcoin



Distributed Ledger

Is a database that is distributed amongst many users instead of being centrally organised by a server or single system. This allows for removal of middlemen like banks. This type of ledger is typically accessible by all participants on this network.

Any changes made to a distributed ledger is available to all participants. A blockchain is a type of distributed ledger. A distributed ledger is theoretically less prone to cyber attack and fraud because of its decentralised nature as it has no single point of failure.

Ethereum

Is a popular decentralised blockchain that is used for a variety of functions. Primarily it is the blockchain for the (current) second most popular cryptocurrency (by market capitalisation), Ether.

Ethereum supports the use of smart contracts that allows for greater functionality than other blockchains. This has driven its popularity for multifunctional blockchain usage.

An example being that Ethereum is a popular blockchain for NFTs as Ethereum can automatically pay royalties to the original artist via its smart contracts system.

Fiat Currency

Real world currency like the British Pound or the US Dollar.

"The future of money is digital currency" - Bill Gates

Gas

Is a small amount of cryptocurrency paid to the Ethereum network when performing any function on the Ethereum blockchain.

For example, gas is paid for every currency transaction that involves Ether. The amount of Gas you pay changes based on demand.

Immutability

Is one of the key features of most blockchains and means that data cannot be changed or deleted. This typically means that once a block containing data is created, that record is permanent.

This does not mean, for example, that a transaction cannot be reversed, it can, but the reverse transaction simply creates another block within the blockchain.

Initial Coin Offering (ICO)

Similar to an Initial Public Offering, where a company can raise money by selling a new cryptocurrency.

There is a risk however with ICOs as they are broadly unregulated and are open to scams such as pump and dump scandals. Famous celebrities have been accused of endorsing cryptocurrencies at their ICO date to inflate the value and then quickly sell their own currency holdings, causing the total value to precipitously decline quickly.

Metaverse

A virtual world that is typically built on a blockchain and has a digital economy. Users can access metaverses using their computers or phone, or in more immersive cases will require a VR headset.

These virtual worlds can have a variety of uses including gaming and education and for allowing experiences in a world that has different laws of physics to the real world.

There are many different metaverses and they tend to have their own different niche focus as well as their own governance for their digital economies. Users tend to interact with a metaverse using their avatar.



USD \$501 million spent on metaverse real estate in 2021

Mining

This is how transactions are typically verified on some blockchains. Miners engage in proof of work or proof of stake activity to verify transactions. Miners who successfully verify transactions typically get some cryptocurrency as payment for their mining.

Non-Fungible Tokens (NFTs)

A concept that allows for digital items to be verified as original and unique. Just like real world original items, these digital items can be bought and sold. NFTs exist on blockchains which which verify the authenticity of originality and are bought with cryptocurrency.

For example, NFTs allow a user to verify if the digital artwork is indeed the original and not just a digital copy. NFTs are commonly used today as a sales vehicle with users hoping to make money off fast appreciating artistic assets. Smart contracts typically govern the sale of NFTs allowing the original artist to typically make a commission each time the artwork is sold.

Node

Nodes are participants in a blockchain where participants act as stakeholders in the blockchain by broadcasting data, storing and receiving data and validating transactions using consensus mechanisms. By doing these functions, nodes form the infrastructure of a blockchain by providing computational resource to validation, storage and broadcasting.

All nodes are connected to each other and constantly share all the latest blockchain data. A node can be a computer, or even a server. A miner who validates transactions is always a node, but, a node is not always a miner. A node that does not mine is one that just stores, receives and broadcasts data but does not validate transactions. For most blockchains, any individual can become a node.



USD\$69.3 million - the price of the world's most expensive NFT

Pixel Density (in VR)

Is the number of pixels in a certain amount of space. It is used to describe clarity of an image in a VR display/head mounted unit (HMD).

Pixel density is important in VR because it's believed that a higher pixel density will allow for much more immersion in VR applications by contributing to a more realistic image.

Proof of Stake (PoS)

Is a method to derive consensus to validate cryptocurrency transactions. PoS gives a cryptocurrency holder the ability to run specialised software that creates and verifies blocks being added to the blockchain. When a new block is meant to be created, an algorithm can select a person to run the speciality software which in turn performs the required calculations to then create the new block.

Upon successful completion of validation, the person running the specialised software is rewarded with some cryptocurrency. proof of stake is considered a more energy efficient way to validate transactions than the proof of work system.

Proof of Work (PoW)

Is a method to derive consensus to validate cryptocurrency transactions. proof of work requires miners to compete against one another to be first to solve a difficult mathematical problem. The problems are difficult to solve but relatively easy to verify so that when a miner has solved the problem, other miners can quickly see that it is the correct answer and validate the solution by consensus.

This system then validates transactions that occur within a given cryptocurrency. Its value is that it both reduces fraud risk, by placing a significant barrier on authenticating transactions and it engages the network to act as validators by giving a small amount of bitcoin as fee. This in turn drives the popularity of the currency itself. In order to solve these problems, a miner usually requires a powerful computer which does require a large amount of electricity.



Smart Contracts

Are computer programs that exist on a given blockchain. They automatically work when pre-determined conditions are met. For example, a smart contract may be triggered when an NFT is sold again. The sale triggers the smart contract (essentially just some code on the blockchain) which ensures that a commission is automatically paid to the original artist using some of the currency in the transaction of the most recent sale.

Smart contracts are particularly valuable in decentralising industries given they reduce the need for middlemen. For example, in a situation where you would normally need a lawyers' escrow account, a smart contract removes this requirement. Instead a smart contract recognises when a condition is met, and simply actions the movement of the currency to the right recipient. This works because the currency is also stored digitally on a given blockchain.

Stablecoin

Is a cryptocurrency that is typically pegged to a reserve bank backed asset like the British Pound or gold. This allows a cryptocurrency to be less volatile and may be a way for reserve banks to enter into the cryptocurrency world by having such assets backed fiat currencies.

An example is the USD Coin, which is built on the Ethereum blockchain and is pegged exactly to the US Dollar, so for 1 USD Coin, you receive US\$1.

Transparency

Many Web 3.0 technologies are built on blockchains that allow for everyone to have access to their ledgers of transactions. This allows for a large amount of transparency over what is happening on a given network. An example of this is where a programmatic media buying platform is built on a blockchain.

Theoretically, an advertiser could see how the media is bought and what all the cost implications are allowing advertisers to either action the activity themselves without middleman fees or renegotiate with middlemen for more appropriate fees.

Utility

The theoretical additional value-add to an NFT. For example, a utility for a NFT could be that you receive a pair of shoes in the real world for a specific NFT you buy in the digital world.

Utility does not have to be real world added value, it can be anything including digital utility. Having utility with an NFT can add to its value.

USD \$372 billion - Q3 22 market cap of bitcoin



Virtual Reality

Is a simulation of reality that a user can experience using a device called a Virtual Reality headset. This device covers the eyes and allows users to interact in a digitally created world using their body. VR is commonly used in the gaming world to allow people to use their body as opposed to just a controller to interact with a video game environment.

It also allows a more immersive experience into metaverses. VR has the potential to also be used for a variety of applications beyond gaming that include more dynamic virtual communication, to risk free training for dangerous jobs.

Wallet

An account typically run by a third party that stores cryptocurrencies. These currencies can then be used however the account owner sees fit – just like a normal bank account. However, the wallet typically acts as a transition point for fiat currency and cryptocurrencies allowing users to transfer fiat currency into cryptocurrency and vice versa.

In some cases, users who want to protect their wallets even further than a normal account may opt to take their wallet off the internet. Meaning they will only connect to update their accounts and then take their wallets offline by storing the most recent data on a USB drive for example – this is called a 'Cold Wallet'.

Web 3.0

A general term for a series of new technologies that work on the principle of a decentralized internet.

Web 3.0 technologies can include blockchains, metaverses, NFTs and cryptocurrency.

About the author



Amar Mehta is a cognitive neuroscientist who looks at human behaviour in the corporate environment. He has extensive experience in applying cognitive science into the marketing landscape and is now currently investigating the application of Web 3.0 technologies and how humans interact with them. Prior to retraining as a scientist, Amar working in the media and creative industry for several years. You can contact him at amar@beinthelead.com



Thank You.
