**What is it?**

Blockchain is a cryptographic technology. It began with Bitcoin (BTC) in 2008 when Satoshi Nakamoto released its whitepaper.

After Bitcoin's adoption, new cryptocurrencies which were based on it entered the market, such as Ethereum (ETH), which was the first programmable blockchain. Later, new currencies emerged that were based on Ethereum, as well as new designs altogether.

Ethereum was the first blockchain to introduce DApps which are apps which run on the network. It also introduced SmartContracts.

Besides coins which are designed for payments, there are a variety of different types of cryptocurrencies:

* Privacy coins such as Monero focus on making payments in a way which cannot be tracked back to the consumer
* Stable coins such as Tether are pegged to fiat in order to reduce volatility
* Exchanges commonly offer a token for use on their platform, which provides some perks such as reduced trading fees.
* Decentralised Finance coins allow users to take out loans.

(Types of cryptocurrencies: explaining the major types of cryptos, 2019)

It is rumoured that PayPal and Venmo may be planning on allowing buying, selling and storing of cryptocurrencies. (Allison, 2020)

If this turns out to be accurate, this will significantly increase adoption and simplify the process for a consumer to get into the crypto space.

Cryptocurrencies work by providing you with two important addresses: your public address (akin to your account and BSB number) which is used to send funds to you, and your private key (or address) which is like your bank's username and password; whomever has the private key has access to your wallet and the funds inside.

**What does blockchain aim to do?**

When we send payments online, we use our bank, or services such as PayPal to act as a middleman. The focus of blockchain is on decentralised processing; essentially, removing that middle man from the equation.

Using Bitcoin as an example, when someone sends a transaction, it is included in what is called a block, which is then mined by miners. The network validates blocks and makes sure that they are correct.

The consensus is achieved by the majority, thus removing any one party from making a decision about the validity of a transaction.

After the miner has mined a block, he is rewarded the fees that were paid for all the transactions in the block; he also receives a quantity of Bitcoin for mining the block.

There are various types of validation found in blockchain projects:

**Proof of Work (PoW)**

This type of validation is used by Bitcoin and many other coins. Transactions are gathered into blocks; these blocks are then linked together.

Miners try to break a cryptographic hash which gives them the right to add the next block to the chain; it is this mechanism that keeps the network safe. It works very well in facilitating consensus.

The miner that succeeds in cracking the hash is rewarded in Bitcoin. Many miners join "pools" which are large networks of miners who work together to crack the hash; rewards are divvied out proportionally based on a miner's contribution.

**Proof of Stake (PoS)**

Coin holders lock their coins in the system; the system then decides which of the holders will validate the next block. The more coins that are staked, the higher the odds of being chosen.

**Delegated Proof of Stake (DPoS)**

Coin holders lock their coins in the system, providing them with a proportional amount of voting power; holders vote for a delegate who manages the blockchain, ensuring security and consensus. (What Is Staking? | Binance Academy, n.d.)

**What could blockchain do over the next few years?**

**Supply chain authentication**

Various cryptocurrencies focus on supply chain authentication. The goal is to prove the authenticity of products and provide information about their journey along the supply chain, as well as additional potentially relevant information such as: when it was packed, where it was packed, and by whom was it packed.

According to CoinCodex the top 5 cryptocurrencies in this field include: WaltonChain (WTC); Modum (MOD); VeChain (VET); Ambrosus (AMB); Tael (WABI).

In the coming years, we may see these cryptocurrencies begin to gain traction in consumer markets and provide consumers with the confidence that their product is indeed what is advertised.

Supply chain authentication is a big deal in China due to the large number of counterfeit products that are sold across a range of categories such as food, beverages, footwear, apparel, technology and many more.

In 2013, the global trade for counterfeit products reached half a trillion dollars, with most of the counterfeit being produced in China or Hong Kong. (OECD)

It has recently been announced that Chase Shiel will be using VeChain to confirm the authenticity of its Nike shoes. According to the article, knockoff shoes are a big issue for footwear makers. (Toshendra Sharma, 2020)

**Gambling**

Another aspect which blockchain aims to improve is gambling. Blockchain removes the element of trust from the equation. Is the house cheating? Is a player cheating? Everything is recorded on the blockchain, which means everything can be verified. (Blockchain and gambling)

FunFair is one coin which aims to be an online casino, allowing users to gamble with their currency.

**Voting**

An important issue which involves much trust is voting. Some concerns with the existing system are that it is expensive to run a vote and that it is unreliable. Moving voting to the blockchain means all votes are verifiable and the costs are far, far cheaper.

Two companies that focus on this field include Horizon State and FollowMyVote.

**Payments**

Cryptocurrencies are competing with each other to become the most popular for payments and to outperform credit card systems.

One of the most significant benefits of blockchain in the field of payments is the ability to pay someone anywhere in the world without a middle man. However, at this stage, transaction speeds are not fast enough -- ranging from hours to minutes.

In the future, we will see transactions that can be processed in a matter of seconds, securely between two parties.

**Private payments**

Because the blockchain is public, meaning anyone can view it and follow a trail of transactions, that means there is a need for privacy. Privacy coins such as Monero do this by obfuscating the buyer's public address. (A low-level explanation of the mechanics of Monero vs Bitcoin in plain English, n.d.)

The overall impact of the blockchain will vary depending on the particular field in which it is being employed. In supply chain management, counterfeit products will be purchased less as consumers can verify the authenticity of genuine goods; this will help consumers stay away from potentially dangerous, counterfeit products. Over time, the massive market for counterfeit products will decrease.

In payments, as improvements to the technology occur, consumers will be able to complete high-speed transactions across the globe for minute fees.

In terms of voting, there are many benefits, including:

* Voting from any device in your own home
* Secure voting that anyone can audit
* Ability to change your vote easily
* Reduced costs for vote-holders, making votes more practical and economical

In 2017 the Australian government a postal survey to ask citizens whether or not gay marriage should be legal. The survey cost 122 million dollars which is an enormous figure. (Australia: ‘Yes’ Vote to Marriage Equality | Human Rights Watch, 2017)

**How will this affect me?**

I see much value in the improvements to the supply chain. The ability to scan a QR code to check the authenticity of a product is gaming-changing. This technology is something I will use day-to-day, even though counterfeit products are not as common in Australia as other countries.

Blockchain is gaining more and more adoption, and in turn, companies are hiring more and more developers; this creates job opportunities in an emerging market; perhaps one day, I will work in this field.

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