BLOCKCHAIN

Our definitive guide to Blockchain

COIN RIVET

Independent British blockchain and crypto news

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BLOCKCHAIN TECHNOLOGY EXPLAINED

A blockchain is a decentralised, trusted ledger of transactions which occur within a network. Transactions are validated by a network of separately-owned computers (also known as nodes) using a cryptographic protocol to assess the accuracy of the data contained on the ledger.

The protocol rewards accuracy in a way that ensures the data entered into the ledger cannot be wrong or subject to changes. Once validated, these transactions – and blocks of information – become part of the blockchain.

Where did blockchain technology come from?

Blockchain technology is famously associated with Satoshi Nakamoto and their Bitcoin whitepaper which emerged in 2009. The white paper put forward a vision for a "**purely peer-to-peer version of electronic cash** (allowing) online payments to be sent directly from one party to another without going through a financial institution".

The ultimate goal of replacing trusted institutions with a trustless system is underpinned by blockchain technology. Satoshi proposed a decentralised system that records all transactions in Bitcoin which can't be altered and is validated by the nodes that run its network.

Instead of a main server acting as the guarantor of the data, the idea of a decentralised network that could validate transactions based on a mathematical verification mechanism to which all computers/servers agree to uphold took hold. And so blockchain and Bitcoin were born.

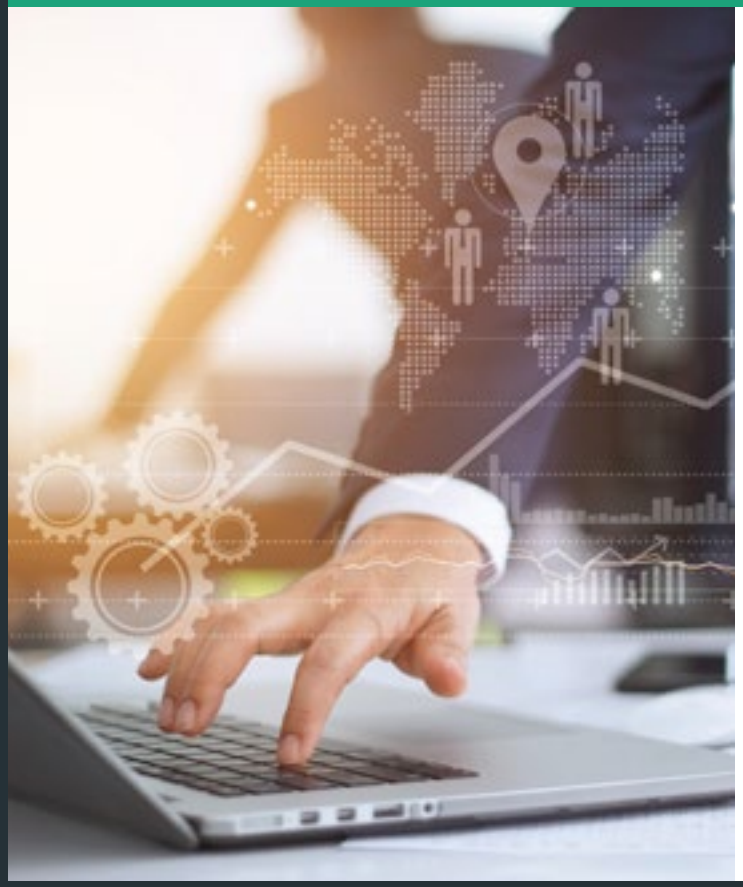
The role of cryptography in blockchain

The application of cryptographic keys to blockchain technology aims to ensure confidentiality, security, and privacy of users and the data they share. There are two types of cryptographic keys, public and private, and every user has one of each.

The combination of a user's private and public keys forms that individual's digital signature, allowing them to conduct transactions on a blockchain. This digital signature differentiates users in the network.

THE BENEFITS OF BLOCKCHAIN

Businesses in various industries, from financial right the way through to retail, are interested in the use cases of blockchain and the benefits it can offer. Some of the most attractive benefits of blockchain include security and redundancy; immutability and trust; cost reduction and accuracy.



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Security and redundancy

Every organisation in the world values security, none more so than those who deal with invaluable assets like private or highly sensitive information. If you're looking to collect, store, and manage essential data that will change over time, then blockchain is potentially your best option.

For hackers attempting to access private information, a blockchain is an ultimate deterrent. A successful hacker would have to infiltrate countless servers and tamper with all of their records to get access to the information they're after.

The logistical implications of such an attack mean that the costs far outweigh the potential benefits of a hacking attempt. In addition, there's no single point of failure within a blockchain.

Fully decentralised and replicated across thousands of nodes, blockchains are virtually unhackable. This technological feature has attracted the attention and investment of powerful organisations in banking, insurance, and legal services industries.

Immutability and trust

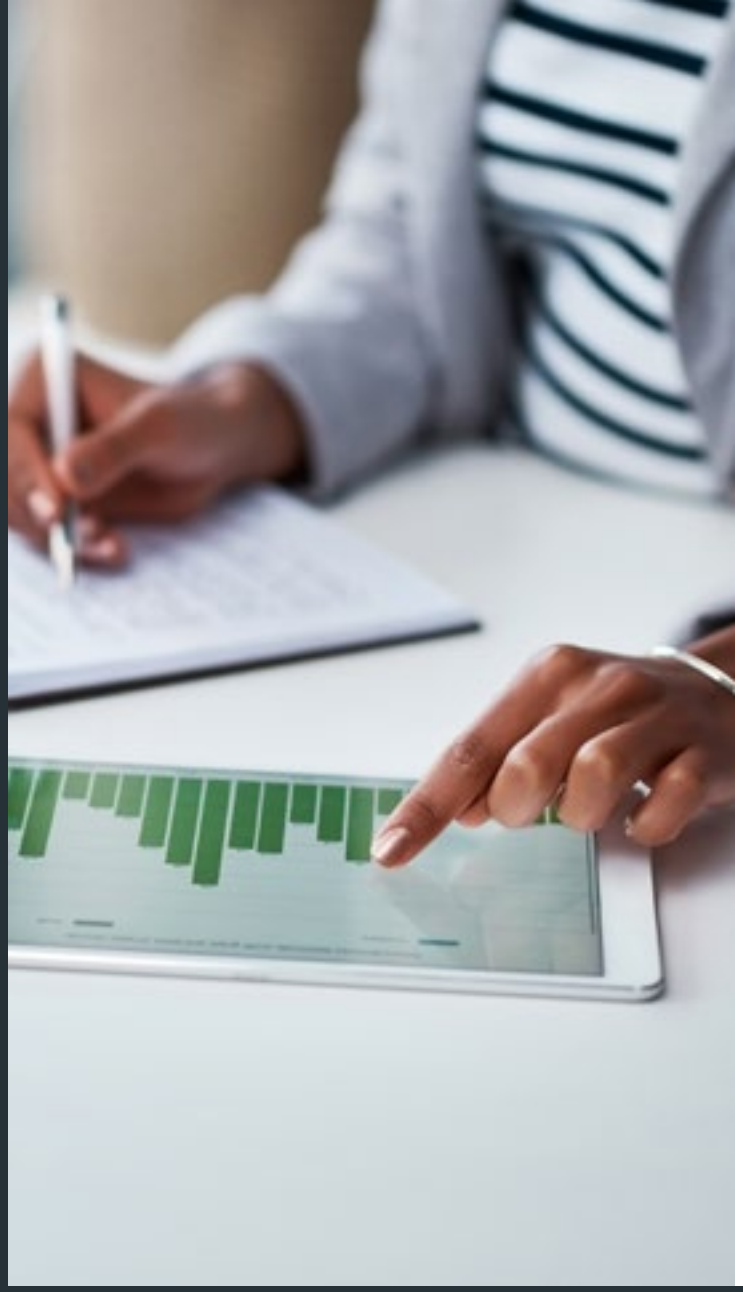
Another defining feature of blockchain technology is the immutability of the data it contains. In simpler terms, once the data is recorded and validated by the whole network, it can no longer be changed.

The strength of data immutability in blockchain is thanks to the synergy of three technologies:

- Cryptographic keys
- A shared, distributed ledger
- A validation protocol

This means records kept on a blockchain can be considered reliable and trustworthy on their own. No central bank or regulatory agency needs to stand by them.

Unlike people, data can be trusted. For organisations that deal in trust, this feature alone justifies a move into blockchain.



Cost reduction

Businesses employ a variety of software programs and databases, which can sometimes be a problem even within a single company.

For example, if each department has its own database, the organisation may face a delay in the flow of information to management, which in turn means management may not have the most up-to-date information they need to make quick decisions.

When you factor in suppliers, customers, and regulatory bodies, the transaction costs of reconciling information across a company can start to add up. Organisations can lose a lot of money in these clunky exchanges.

With enough successful implementations across interdependent businesses, blockchain can vastly reduce transaction costs, increasing profits for investors. This explains why a lot of institutional money is flowing towards blockchain.

Accuracy

The world has evolved to a stage where we rely mostly on data. Businesses large and small recognise the huge importance of reliable, accurate data.

Blockchains run a protocol that rewards the accuracy of the information they contain. They also keep a historical record of all these entries (transactions) and can be trusted to operate with dynamic data at speeds organisations simply haven't seen before.

Blockchain could revolutionise the way businesses work. In short, businesses can really benefit from the multiple benefits blockchain can offer. It offers a suitable replacement for centralisation and can improve a business's reputation.

Blockchain could revolutionise the way businesses work

The technology continues to gain traction, with **four out of five companies wanting to be more involved in blockchain** and wanting to apply the technology throughout their business, their processes and even their relationships with customers. Blockchain technology is gathering momentum right across the globe, with **demand for blockchain skills in the US outstripping all other skillsets** in Q2 of 2018.

CONTROVERSY VS POPULARITY

With so many benefits on offer, it begs the question: why hasn't blockchain been adopted in the mainstream yet? Well, there are a few reasons for this. Resistance to blockchain adoption often centres around a lack of education, a lack of scalability and a lack of visible progress.

A lack of education

Recent research shows that while businesses might be warming up to blockchain technology, their customers and users aren't so keen. **35% of Brits would not trust an organisation using blockchain technology** to keep their information secure – as they don't know what it is. Even more shockingly, 53% of Brits surveyed acknowledged that they had never heard of blockchain before.

Businesses that are looking to adopt blockchain technology have a duty to explain how it works to their customers and how it will directly benefit them.

Key figures in the industry are also **calling out for better access to education** about blockchain. Experts highlight that the technical jargon surrounding the technology often deters individuals who are new to the world of blockchain. With bias-free and jargon-free educational resources, people with no pre-existing knowledge of blockchain will be better encouraged to participate in the conversation.

A lack of scalability

Blockchain is known for its lack of scalability. This limits the amount of daily transactions that are made in any given amount of time. Blockchain currently doesn't stand up against payment systems such as Visa – a payment network that can process approximately 24,000 payments per second.

This lack of scalability limits the likelihood that blockchain will achieve mainstream adoption. The transaction speed on a blockchain is determined by the time taken to add a transaction to block and verify its accuracy.

A lack of visible progress

Blockchain technology has come under fire from reputable firms publicly denouncing its value. McKinsey & Company have questioned **whether the blockchain revolution itself is fake**. By claiming that the technology is still stuck at phase one, and is struggling to compete with other emerging technologies, doubts in the technology across wider businesses can be easily spread.

APPLICATIONS OF BLOCKCHAIN

Blockchain, despite some of its controversy, is creating huge changes across multiple industries. Practical blockchain applications can be seen across the energy sector, the retail industry, the gaming industry, the financial sector and the education sector.

The energy sector

Blockchain is starting to play a fundamental role in the decentralisation of energy networks. It will help to give consumers more choice and control over their electricity supply as blockchain will move them away from centralised bodies that dictate large bills. Blockchain will also accelerate peer-to-peer trading platforms, boosting transparency and efficiency across the network.

The retail industry

The use of blockchain in retail is becoming imperative due to all the added benefits it provides the industry. Over time, blockchain is going to have a massive impact on the retail industry. The authenticity of luxury brands has been, and most likely always will be, an issue for some businesses, with many convincing knock-offs available at much lower prices. Blockchain can help by tracking data all the way from the sourcing of materials to the customer's purchases. This will then allow the customer to confirm authenticity and know what they are buying is genuine.

The gaming industry

Blockchain technology looks set to disrupt the industry, and enable a new way for players and developers to interact with gaming platforms. It will give gamers full control over their virtual assets, reward them for their interaction with video games, and help gamers to build credibility and accountability. Through blockchain technology, gaming can become an economic endeavour.

The financial sector

As most core banking systems are built on a centralised database, they have one point of failure rather than many, making them vulnerable. Blockchain's distributed ledger would eliminate some of the current crimes being perpetrated online as it stores, encrypts, and verifies every single bit of data in a transaction. In the event of a breach or fraudulent activity, it would be made immediately obvious to all parties that have permission to access the transaction data on the ledger.

The transparency and traceability of blockchain technology can also improve the effectiveness of loyalty and rewards schemes as part of performance management systems.

The education sector

Education is a multi-faceted sector where different systems need to adapt to prepare students for the jobs of tomorrow. Having a fool proof system that records a student's academic history before and during a working life can not only help in battling dishonesty, but can also help to tackle the issues of bespoke learning.

Blockchain technology has the ability to be the backbone of educational proof, giving employers the information required to determine whether a candidate's CV is accurate. Crucially, technology can determine if qualifications needed to get that all important foot in the door for a dream job are valid.

CONCLUSION

Blockchain technology is experiencing unprecedented levels of media interest and capital investment. When you look at the institutional landscape of our society with an understanding of how reliant on data we are, blockchain's success starts to make a lot more sense.

As it continues to grow in popularity and its use cases prove successful, the adoption of blockchain should become far more common. Education around blockchain, and keeping conversations jargon free, will be pivotal to its future.

Blockchain is always evolving, with different countries and industries finding new applications for it. At Coin Rivet, we're always **reporting the latest news, use cases, and insights when it comes to blockchain technology** and how it positively impacts you.

Bringing you news, analysis, opinion and insight from the fast-moving blockchain world. Our team of journalists and contributors cover the likes of cryptocurrencies, wallets, exchanges and ICOs across a wide range of sectors including retail, fintech, banking and gaming. We go beyond the press releases and marketing hype to tackle all the industry topics that matter.

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