Blockchain technology

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Introduction

A blockchain is a distributed database that is shared among the nodes of a computer network. As a database, a blockchain stores information electronically in digital format. Blockchains are best known for their crucial role in cryptocurrency systems, such as Bitcoin, for maintaining a secure and decentralized record of transactions. The innovation with a blockchain is that it guarantees the fidelity and security of a record of data and generates trust without the need for a trusted third party.

One key difference between a typical database and a blockchain is how the data is structured. A blockchain collects information together in groups, known as blocks, that hold sets of information. Blocks have certain storage capacities and, when filled, are closed and linked to the previously filled block, forming a chain of data known as the blockchain. All new information that follows that freshly added block is compiled into a newly formed block that will then also be added to the chain once filled.

A database usually structures its data into tables, whereas a blockchain, like its name implies, structures its data into chunks (blocks) that are strung together. This data structure inherently makes an irreversible timeline of data when implemented in a decentralized nature. When a block is filled, it is set in stone and becomes a part of this timeline. Each block in the chain is given an exact time stamp when it is added to the chain.

KEY TAKEAWAYS

- Blockchain is a type of shared database that differs from a typical database in the way that it stores information; blockchains store data in blocks that are then linked together via cryptography.
- As new data comes in, it is entered into a fresh block. Once the block is filled with data, it is chained onto the previous block, which makes the data chained together in chronological order.
- Different types of information can be stored on a blockchain, but the most common use so far has been as a ledger for transactions.
- In Bitcoin's case, blockchain is used in a decentralized way so that no single person or group has control—rather, all users collectively retain control.
- Decentralized blockchains are immutable, which means that the data entered is irreversible. For Bitcoin, this means that transactions are permanently recorded and viewable to anyone.

History of Blockchain Technology – Timeline Infographic

It is important to know about the history of Blockchain for Blockchain enthusiasts and Blockchain aspirants. So, to help our reader know the Blockchain history and understand the Blockchain evolution, here we bring a detailed guide to the history of blockchain technology with its detailed evolution.

1991-2008: Early Years of Blockchain Technology

How did blockchain emerge? Stuart Haber and W. Scott Stornetta envisioned what many people have come to know as blockchain, in 1991. Their first work involved working on a cryptographically secured chain of blocks whereby no one could tamper with timestamps of documents.

In 1992, they upgraded their system to incorporate Merkle trees that enhanced efficiency thereby enabling the collection of more documents on a single block. However, it is in 2008 that Blockchain History starts to gain relevance, thanks to the work one person or group by the name Satoshi Nakamoto.

Satoshi Nakamoto is accredited as the brains behind blockchain technology. Very little is known about Nakamoto as people believe he could be a person or a group of people that worked on Bitcoin, the first application of the digital ledger technology.
Nakamoto conceptualized the first blockchain in 2008 from where the technology has evolved and found its way into many applications beyond cryptocurrencies. Satoshi Nakamoto released the first whitepaper about the technology in 2009. In the whitepaper, he provided details of how the technology was well equipped to enhance digital trust given the decentralization aspect that meant nobody would ever be in control of anything.

Ever since Satoshi Nakamoto exited the scene and handed over Bitcoin development to other core developers, the digital ledger technology has evolved resulting in new applications that make up the blockchain History.

A very common question, when was blockchain invented? we see can say Blockchain was invented in 1991.

Blockchain Structure

In simple terms, Blockchain is a peer-to-peer distributed ledger that is secure and used to record transactions across many computers. The ledger's contents can only be updated by adding another block linked to the previous block. It can also be envisioned as a peer-to-peer network running on top of the internet.

In layman or businesses term, blockchain is a platform where people are allowed to carry out transactions of all sorts without the need for a central or trusted arbitrator.

The created database is shared among network participants in a transparent manner, whereby everyone can access its contents. Management of the database is done autonomously using peer-to-peer networks and a time stamping server. Each block in a blockchain is arranged in such a way that it references the content of the previous block.

The blocks that form a blockchain hold batches of transactions approved by participants in a network. Each block comes with a cryptographic hash of a previous block in the chain.

Read our previous article Ultimate Blockchain Guide to know more about blockchain technology.

Evolution of Blockchain: Phase 1- Transactions

2008-2013: Blockchain 1.0: Bitcoin Emergence

Most people believe that Bitcoin and Blockchain are one and the same thing. However, that is not the case, as one is the underlying technology that powers most applications of which one of them is cryptocurrencies.

Bitcoin came into being in 2008 as the first application of Blockchain technology. Satoshi Nakamoto in his whitepaper detailed it as an electronic peer-to-peer system. Nakamoto formed the genesis block, from which other blocks were mined, interconnected resulting in one of the largest chains of blocks carrying different pieces of information and transactions.

Ever since Bitcoin, an application of blockchain, hit the airwaves, a number of applications have cropped all of which seek to leverage the principles and capabilities of the digital ledger technology. Consequently, blockchain history contains a long list of applications that have come into being with the evolution of the technology.

Evolution of Blockchain: Phase 2- Contracts

2013-2015: Blockchain 2.0: Ethereum Development

In a world where innovation is the order of the day, Vitalik Buterin is among a growing list of developers who felt Bitcoin had not yet reached there, when it came to leveraging the full capabilities of blockchain technology, as one of the first contributors to the Bitcoin codebase.
Concerned by Bitcoin's limitations, Buterin started working on what he felt would be a malleable blockchain that can perform various functions in addition to being a peer-to-peer network. Ethereum was born out as a new public blockchain in 2013 with added functionalities compared to Bitcoin, a development that has turned out to be a pivotal moment in Blockchain history.

Buterin differentiated Ethereum from Bitcoin Blockchain by enabling a function that allows people to record other assets such as slogans as well as contracts. The new feature expanded Ethereum functionalities from being a cryptocurrency to being a platform for developing decentralized applications as well.

Officially launched in 2015, Ethereum blockchain has evolved to become one of the biggest applications of blockchain technology given its ability to support smart contracts used to perform various functions. Ethereum blockchain platform has also succeeded in gathering an active developer community that has seen it establish a true ecosystem.
Ethereum blockchain processes the most number of daily transactions thanks to its ability to support smart contracts and decentralized applications. Its market cap has also increased significantly in the cryptocurrency space.

Evolution of Blockchain: Phase 3- Applications

2018: Blockchain 3.0: the Future

Blockchain History and evolution does not stop with Ethereum and Bitcoin. In recent years, a number of projects have cropped up all leveraging blockchain technology capabilities. New projects have sought to address some of the deficiencies of Bitcoin and Ethereum in addition to coming up with new features leveraging blockchain capabilities.

Some of the new blockchain applications include NEO, billed as the first open-source, decentralized, and blockchain platform launched in China. Even though the country has banned

cryptocurrencies, it remains active when it comes to blockchain innovations. NEO casts itself as the Chinese Ethereum having already received the backing of Alibaba CEO Jack Ma as it plots to have the same impact as Baidu in the country.
In the race to accelerate the development of the Internet of Things, some developers, so it fit, to leverage blockchain technology and in the process came up with IOTA. The cryptocurrency platform is optimized for the Internet of things ecosystem as it strives to provide zero transaction fees as well as unique verification processes. It also addresses some of the scalability issues associated with Blockchain 1.0 Bitcoin.

In addition to IOTA and NEO, other second-generation blockchain platforms are also having a ripple effect in the sector. Monero Zcash and Dash blockchains came into being as a way of addressing some of the security and scalability issues associated with the early blockchain applications. Dubbed as privacy Altcoins, the three blockchain platform seek to provide high levels of privacy and security when it comes to transactions.

The blockchain history discussed above involves public blockchain networks, whereby anyone can access the contents of a network. However, with the evolution of technology, a number of companies have started adopting the technology internally as a way of enhancing operational efficiency.

Large enterprises are investing big in hiring professionals as they seek to gain a head start on the use of technology. Companies like Microsoft and Microsoft appear to have taken the lead when it comes to exploring blockchain technology applications resulting in what has come to be known as private, hybrid, and federated blockchains.

How blockchain and distributed ledger technology work

Blockchain works via a multistep process, which in simple terms happens as follows:

1. An authorized participant inputs a transaction, which must be authenticated by the technology.
2. That action creates a block that represents that specific transaction or data.
3. The block is sent to every computer node in the network.
4. Authorized nodes verify the transaction and add the block to the existing blockchain. (Nodes in public blockchain networks are referred to as miners; they're typically paid for this task -- often in a process called Proof of Work, or PoW -- usually in the form of cryptocurrency.)
5. The update is distributed across the network, which finalizes the transaction.

These steps take place in close to real time and involve a range of elements. .A blockchain ledger consists of two types of records, individual transactions and blocks. The first block consists of a header and data that pertain to transactions taking place within a set time period. The block's timestamp is used to help create an alphanumeric

string called a hash. After the first block has been created, each subsequent block in the ledger uses the previous block's hash to calculate its own hash.

Before a new block can be added to the chain, its authenticity must be verified by a computational process called validation or consensus. At this point in the blockchain process, a majority of nodes in the network must agree the new block's hash has been calculated correctly. Consensus ensures that all copies of the blockchain distributed ledger share the same state.

Once a block has been added, it can be referenced in subsequent blocks, but it cannot be changed. If someone attempts to swap out a block, the hashes for previous and subsequent blocks will also change and disrupt the ledger's shared state. When consensus is no longer possible, other computers in the network are aware that a problem has occurred and no new blocks will be added to the chain until the problem is solved. Typically, the block causing the error will be discarded and the consensus process will be repeated.

Types of Blockchains

There are four types of blockchain structures:

1. Public Blockchains

Public blockchains are permissionless in nature, allow anyone to join, and are completely decentralized. Public blockchains allow all nodes of the blockchain to have equal rights to access the blockchain, create new blocks of data, and validate blocks of data.

To date, public blockchains are primarily used for exchanging and mining cryptocurrency. You may have heard of popular public blockchains such as Bitcoin, Ethereum, and Litecoin. On these public blockchains, the nodes "mine" for cryptocurrency by creating blocks for the transactions requested on the network by solving cryptographic equations. In return for this hard work, the miner nodes earn a small amount of cryptocurrency. The miners essentially act as new era bank tellers that formulate a transaction and receive (or "mine") a fee for their efforts.

2. Private (or Managed) Blockchains

Private blockchains, which may also be referred to as managed blockchains, are permissioned blockchains controlled by a single organization. In a private blockchain, the central authority determines who can be a node. The central authority also does not necessarily grant each node with equal rights to perform functions. Private blockchains are only partially decentralized because public access to these blockchains is restricted. Some examples of private blockchains are the business-to-business virtual currency exchange

network Ripple and Hyperledger, an umbrella project of open-source blockchain applications.

Both private and public blockchains have drawbacks - public blockchains tend to have longer validation times for new data than private blockchains, and private blockchains are more vulnerable to fraud and bad actors. To address these drawbacks, consortium and hybrid blockchains were developed.

3. Consortium Blockchains

Consortium blockchains are permissioned blockchains governed by a group of organizations, rather than one entity, as in the case of the private blockchain. Consortium blockchains, therefore, enjoy more decentralization than private blockchains, resulting in higher levels of security. However, setting up consortiums can be a fraught process as it requires cooperation between a number of organizations, which presents logistical challenges as well as potential antitrust risk (which we will examine in an upcoming article). Further, some members of supply chains may not have the needed technology nor the infrastructure to implement blockchain tools, and those that do may decide the upfront costs are too steep a price to pay to digitize their data and connect to other members of the supply chain.

A popular set of consortium blockchain solutions for the financial services industry and beyond has been developed by the enterprise software firm R3. In the supply chain sector, CargoSmart has developed the Global Shipping Business Network Consortium, a not-for-profit blockchain consortium which aims to digitalize the shipping industry and allow maritime industry operators to work more collaboratively.[1]

4. Hybrid blockchains

Hybrid blockchains are blockchains that are controlled by a single organization, but with a level of oversight performed by the public blockchain, which is required to perform certain transaction validations. An example of a hybrid blockchain is IBM Food Trust, which was developed to improve efficiency throughout the whole food supply chain. We will discuss IBM Food Trust in more detail in an upcoming article in this series.

How Are Blockchains Used?

As we now know, blocks on Bitcoin's blockchain store data about monetary transactions. Today, there are more than 10,000 other cryptocurrency systems running on blockchain. But it turns out that blockchain is actually a reliable way of storing data about other types of transactions as well.

Some companies that have already incorporated blockchain include Walmart, Pfizer, AIG, Siemens, Unilever, and a host of others. For example, IBM has created its Food Trust blockchain to trace the journey that food products take to get to their locations.[3]

Why do this? The food industry has seen countless outbreaks of E. coli, salmonella, and listeria, as well as hazardous materials being accidentally introduced to foods. In the past, it has taken weeks to find the source of these outbreaks or the cause of sickness from what people are eating. Using blockchain gives brands the ability to track a food product's route from its origin, through each stop it makes, and finally, its delivery. If a

food is found to be contaminated, then it can be traced all the way back through each stop to its origin. Not only that, but these companies can also now see everything else it may have come in contact with, allowing the identification of the problem to occur far sooner and potentially saving lives. This is one example of blockchain in practice, but there are many other forms of blockchain implementation.

1. Banking and Finance

Perhaps no industry stands to benefit from integrating blockchain into its business operations more than banking. Financial institutions only operate during business hours, usually five days a week. That means if you try to deposit a check on Friday at 6 p.m., you will likely have to wait until Monday morning to see that money hit your account. Even if you do make your deposit during business hours, the transaction can still take one to three days to verify due to the sheer volume of transactions that banks need to settle. Blockchain, on the other hand, never sleeps.

By integrating blockchain into banks, consumers can see their transactions processed in as little as 10 minutes—basically the time it takes to add a block to the blockchain, regardless of holidays or the time of day or week. With blockchain, banks also have the opportunity to exchange funds between institutions more quickly and securely. In the stock trading business, for example, the settlement and clearing process can take up to three days (or longer, if trading internationally), meaning that the money and shares are frozen for that period of time.

Given the size of the sums involved, even the few days that the money is in transit can carry significant costs and risks for banks.

2. Currency

Blockchain forms the bedrock for cryptocurrencies like Bitcoin. The U.S. dollar is controlled by the Federal Reserve. Under this central authority system, a user's data and currency are technically at the whim of their bank or government. If a user's bank is hacked, the client's private information is at risk. If the client's bank collapses or the client lives in a country with an unstable government, the value of their currency may be at risk. In 2008, several failing banks were bailed out—partially using taxpayer money. These are the worries out of which Bitcoin was first conceived and developed.

By spreading its operations across a network of computers, blockchain allows Bitcoin and other cryptocurrencies to operate without the need for a central authority. This not only reduces risk but also eliminates many of the processing and transaction fees. It can also give those in countries with unstable currencies or financial infrastructures a more stable currency with more applications and a wider network of individuals and institutions with whom they can do business, both domestically and internationally.

Using cryptocurrency wallets for savings accounts or as a means of payment is especially profound for those who have no state identification. Some countries may be war-torn or have governments that lack any real infrastructure to provide identification. Citizens of such countries may not have access to savings or brokerage accounts—and, therefore, no way to safely store wealth.

3. Healthcare

Healthcare providers can leverage blockchain to securely store their patients' medical records. When a medical record is generated and signed, it can be written into the blockchain, which provides patients with the proof and confidence that the record cannot be changed. These personal health records could be encoded and stored on the blockchain with a private key, so that they are only accessible by certain individuals, thereby ensuring privacy.

4. Property Records

If you have ever spent time in your local Recorder's Office, you will know that the process of recording property rights is both burdensome and inefficient. Today, a physical deed must be delivered to a government employee at the local recording office, where it is manually entered into the county's central database and public index. In the case of a property dispute, claims to the property must be reconciled with the public index.

This process is not just costly and time-consuming—it is also prone to human error, where each inaccuracy makes tracking property ownership less efficient. Blockchain has the potential to eliminate the need for scanning documents and tracking down physical files in a local recording office. If property ownership is stored and verified on the blockchain, owners can trust that their deed is accurate and permanently recorded.

In war-torn countries or areas that have little to no government or financial infrastructure, and certainly no Recorder's Office, it can be nearly impossible to prove ownership of a property. If a group of people living in such an area is able to leverage blockchain, then transparent and clear time lines of property ownership could be established.

5. Smart Contracts

A smart contract is a computer code that can be built into the blockchain to facilitate, verify, or negotiate a contract agreement. Smart contracts operate under a set of conditions to which users agree. When those conditions are met, the terms of the agreement are automatically carried out.

Say, for example, that a potential tenant would like to lease an apartment using a smart contract. The landlord agrees to give the tenant the door code to the apartment as soon as the tenant pays the security deposit. Both the tenant and the landlord would send their respective portions of the deal to the smart contract, which would hold onto and automatically exchange the door code for the security deposit on the date when the lease begins. If the landlord doesn't supply the door code by the lease date, then the smart contract refunds the security deposit. This would eliminate the fees and processes typically associated with the use of a notary, a third-party mediator, or attorneys.

6. Supply Chains

As in the IBM Food Trust example, suppliers can use blockchain to record the origins of materials that they have purchased. This would allow companies to verify the

authenticity of not only their products but also common labels such as “Organic,” “Local,” and “Fair Trade.”

As reported by Forbes, the food industry is increasingly adopting the use of blockchain to track the path and safety of food throughout the farm-to-user journey.

7. Voting

As mentioned above, blockchain could be used to facilitate a modern voting system. Voting with blockchain carries the potential to eliminate election fraud and boost voter turnout, as was tested in the November 2018 midterm elections in West Virginia.[5] Using blockchain in this way would make votes nearly impossible to tamper with. The blockchain protocol would also maintain transparency in the electoral process, reducing the personnel needed to conduct an election and providing officials with nearly instant results. This would eliminate the need for recounts or any real concern that fraud might threaten the election.

Benefits of Blockchains

1. Accuracy of the Chain

Transactions on the blockchain network are approved by a network of thousands of computers. This removes almost all human involvement in the verification process, resulting in less human error and an accurate record of information. Even if a computer on the network were to make a computational mistake, the error would only be made to one copy of the blockchain. For that error to spread to the rest of the blockchain, it would need to be made by at least 51% of the network’s computers—a near impossibility for a large and growing network the size of Bitcoin’s.[6]

2. Cost Reductions

Typically, consumers pay a bank to verify a transaction, a notary to sign a document, or a minister to perform a marriage. Blockchain eliminates the need for third-party verification—and, with it, their associated costs. For example, business owners incur a small fee whenever they accept payments using credit cards, because banks and payment-processing companies have to process those transactions. Bitcoin, on the other hand, does not have a central authority and has limited transaction fees.

3. Decentralization

Blockchain does not store any of its information in a central location. Instead, the blockchain is copied and spread across a network of computers. Whenever a new block is added to the blockchain, every computer on the network updates its blockchain to reflect the change. By spreading that information across a network, rather than storing it in one central database, blockchain becomes more difficult to tamper with. If a copy of the blockchain fell into the hands of a hacker, only a single copy of the information, rather than the entire network, would be compromised.

4. Efficient Transactions

Transactions placed through a central authority can take up to a few days to settle. If you attempt to deposit a check on Friday evening, for example, you may not actually see funds in your account until Monday morning. Whereas financial institutions operate during business hours, usually five days a week, blockchain is working 24 hours a day, seven days a week, and 365 days a year. Transactions can be completed in as little as 10 minutes and can be considered secure after just a few hours. This is particularly useful for cross-border trades, which usually take much longer because of time zone issues and the fact that all parties must confirm payment processing.

5. Private Transactions

Many blockchain networks operate as public databases, meaning that anyone with an Internet connection can view a list of the network's transaction history. Although users can access details about transactions, they cannot access identifying information about the users making those transactions. It is a common misperception that blockchain networks like bitcoin are anonymous, when in fact they are only confidential.

When a user makes a public transaction, their unique code—called a public key, as mentioned earlier—is recorded on the blockchain. Their personal information is not. If a person has made a Bitcoin purchase on an exchange that requires identification, then the person's identity is still linked to their blockchain address—but a transaction, even when tied to a person's name, does not reveal any personal information.

6. Secure Transactions

Once a transaction is recorded, its authenticity must be verified by the blockchain network. Thousands of computers on the blockchain rush to confirm that the details of the purchase are correct. After a computer has validated the transaction, it is added to the blockchain block. Each block on the blockchain contains its own unique hash, along with the unique hash of the block before it. When the information on a block is edited in any way, that block's hash code changes—however, the hash code on the block after it would not. This discrepancy makes it extremely difficult for information on the blockchain to be changed without notice.

7. Transparency

Most blockchains are entirely open-source software. This means that anyone and everyone can view its code. This gives auditors the ability to review cryptocurrencies like Bitcoin for security. This also means that there is no real authority on who controls Bitcoin's code or how it is edited. Because of this, anyone can suggest changes or upgrades to the system. If a majority of the network users agree that the new version of the code with the upgrade is sound and worthwhile, then Bitcoin can be updated.

8. Banking the Unbanked

Perhaps the most profound facet of blockchain and Bitcoin is the ability for anyone, regardless of ethnicity, gender, or cultural background, to use it. According to The World Bank, an estimated 1.7 billion adults do not have bank accounts or any means of storing their money or wealth.[7] Nearly all of these individuals live in developing countries, where the economy is in its infancy and entirely dependent on cash.

These people often earn a little money that is paid in physical cash. They then need to store this physical cash in hidden locations in their homes or other places of living, leaving them subject to robbery or unnecessary violence. Keys to a bitcoin wallet can be stored on a piece of paper, a cheap cell phone, or even memorized if necessary. For most people, it is likely that these options are more easily hidden than a small pile of cash under a mattress.

Blockchains of the future are also looking for solutions to not only be a unit of account for wealth storage but also to store medical records, property rights, and a variety of other legal contracts.

Drawbacks of Blockchains

1. Technology Cost

Although blockchain can save users money on transaction fees, the technology is far from free. For example, the PoW system which the bitcoin network uses to validate transactions, consumes vast amounts of computational power. In the real world, the power from the millions of computers on the bitcoin network is close to what Norway and Ukraine consume annually.[8]

Despite the costs of mining bitcoin, users continue to drive up their electricity bills to validate transactions on the blockchain. That's because when miners add a block to the bitcoin blockchain, they are rewarded with enough bitcoin to make their time and energy worthwhile. When it comes to blockchains that do not use cryptocurrency, however, miners will need to be paid or otherwise incentivized to validate transactions.

Some solutions to these issues are beginning to arise. For example, bitcoin-mining farms have been set up to use solar power, excess natural gas from fracking sites, or power from wind farms.

2. Speed and Data Inefficiency

Bitcoin is a perfect case study for the possible inefficiencies of blockchain. Bitcoin's PoW system takes about 10 minutes to add a new block to the blockchain.[9] At that rate, it's estimated that the blockchain network can only manage about seven transactions per second (TPS). Although other cryptocurrencies such as Ethereum perform better than bitcoin, they are still limited by blockchain. Legacy brand Visa, for context, can process 65,000 TPS.[10]

Solutions to this issue have been in development for years. There are currently blockchains that are boasting more than 30,000 TPS.[11]

The other issue is that each block can only hold so much data. The block size debate has been, and continues to be, one of the most pressing issues for the scalability of blockchains going forward.

3. Illegal Activity

While confidentiality on the blockchain network protects users from hacks and preserves privacy, it also allows for illegal trading and activity on the blockchain network. The most cited example of blockchain being used for illicit transactions is probably the Silk Road, an online dark web illegal-drug and money laundering marketplace operating from February 2011 until October 2013, when it was shut down by the FBI.[12]

The dark web allows users to buy and sell illegal goods without being tracked by using the Tor Browser and make illegal purchases in Bitcoin or other cryptocurrencies. Current U.S. regulations require financial service providers to obtain information about their customers when they open an account, verify the identity of each customer, and confirm that customers do not appear on any list of known or suspected terrorist organizations.[13] This system can be seen as both a pro and a con. It gives anyone access to financial accounts but also allows criminals to more easily transact. Many have argued that the good uses of crypto, like banking the unbanked world, outweigh the bad uses of cryptocurrency, especially when most illegal activity is still accomplished through untraceable cash.

While Bitcoin had been used early on for such purposes, its transparent nature and maturity as a financial asset has actually seen illegal activity migrate to other cryptocurrencies such as Monero and Dash.[14] Today, illegal activity accounts for only a very small fraction of all Bitcoin transactions.[15]

4. Regulation

Many in the crypto space have expressed concerns about government regulation over cryptocurrencies. While it is getting increasingly difficult and near impossible to end something like Bitcoin as its decentralized network grows, governments could theoretically make it illegal to own cryptocurrencies or participate in their networks.

This concern has grown smaller over time, as large companies like PayPal begin to allow the ownership and use of cryptocurrencies on its platform.

Conclusion

With many practical applications for the technology already being implemented and explored, blockchain is finally making a name for itself in no small part because of bitcoin and cryptocurrency. As a buzzword on the tongue of every investor in the nation, blockchain stands to make business and government operations more accurate, efficient, secure, and cheap, with fewer middlemen.

As we prepare to head into the third decade of blockchain, it’s no longer a question of if legacy companies will catch on to the technology—it’s a question of when. Today, we see a proliferation of NFTs and the tokenization of assets. The next decades will prove to be an important period of growth for blockchain.

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