



### The New Networks

Distributed ledgers can be public or private and vary in their structure and size.

- Users (●) are anonymous
- Each user has a copy of the ledger and participates
- Users (●) are not anonymous
- Permission is required for users to have a copy of the

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STATS

## What is Blockchain Technology? A Step-by-Step Guide For Beginners

#Beginners #Blockchain 101 #Blockchain for business #Blockchain for intermediate #Blockchain for investors

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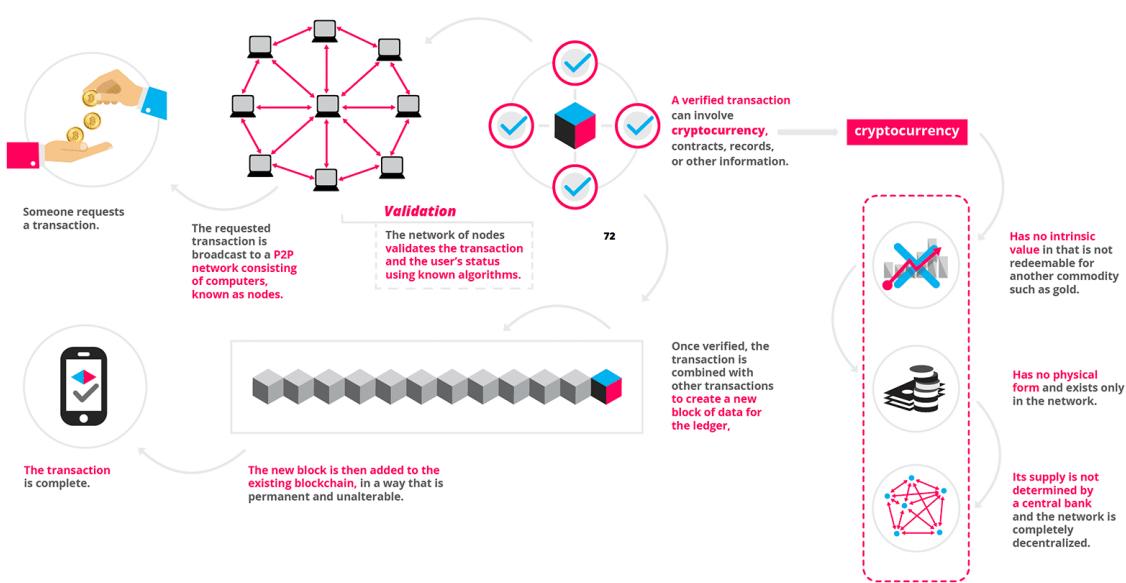
### Is blockchain technology the new internet?

The blockchain is an undeniably ingenious invention – the brainchild of a person or group of people known by the pseudonym, Satoshi Nakamoto. But since then, it has evolved into something greater, and the main question every single person is asking is: What is Blockchain?

By allowing digital information to be distributed but not copied, blockchain technology created the backbone of a new type of internet. Originally devised for the **digital currency, Bitcoin**, (Buy Bitcoin) the tech community is now finding other potential uses for the technology.

Bitcoin has been called “digital gold,” and for a good reason. To date, the total value of the currency is close to \$9 billion US. And blockchains can make other types of digital value. Like the internet (or your car), you don’t need to know how the blockchain works to use it. However, having a basic knowledge of this new technology shows why it’s considered revolutionary. So, we hope you enjoy this, what is Blockchain guide.

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### What is Blockchain Technology?



“The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.”

Don & Alex Tapscott, authors Blockchain Revolution (2016)

### A distributed database

Picture a spreadsheet that is duplicated thousands of times across a network of computers. Then imagine that this network is designed to regularly update this spreadsheet and you have a basic understanding of the blockchain.

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Information held on a blockchain exists as a shared — and continually reconciled — database. This is a way of using the network that has obvious benefits. The blockchain database isn't stored in any single location, meaning the records it keeps are truly public and easily verifiable. No centralized version of this information exists for a hacker to corrupt. Hosted by millions of computers simultaneously, its data is accessible to anyone on the internet.

To go in deeper with the Google spreadsheet analogy, I would like you to read this piece from a blockchain specialist.

### Blockchain as Google Docs



"The traditional way of sharing documents with collaboration is to send a Microsoft Word document to another recipient, and ask them to make revisions to it. The problem with that scenario is that you need to wait until receiving a return copy before you can see or make other changes because you are locked out of editing it until the other person is done with it. That's how databases work today. Two owners can't be messing with the same record at once. That's how banks maintain money balances and transfers; they briefly lock access (or decrease the balance) while they make a transfer, then update the other side, then re-open access (or update again). With Google Docs (or Google Sheets), both parties have access to the same document at the same time, and the single version of that document is always visible to both of them. It is like a shared ledger, but it is a shared document. The distributed part comes into play when sharing involves a number of people."

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Imagine the number of legal documents that should be used that way. Instead of passing them to each other, losing track of versions, and not being in sync with the other version, why can't "all" business documents become shared instead of transferred back and forth? So many types of legal contracts would be ideal for that kind of workflow. You don't need a blockchain to share documents, but the shared documents analogy is a powerful one."

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— William Mougayar, Venture advisor, 4x entrepreneur, marketer, strategist and blockchain specialist

### Blockchain Durability and robustness

Blockchain technology is like the internet in that it has a built-in robustness. By storing blocks of information that are identical across its network, the blockchain cannot:

1. Be controlled by any single entity.
2. Has no single point of failure.

Bitcoin was invented in 2008. Since that time, the Bitcoin blockchain has operated without significant disruption. (To date, any of problems associated with Bitcoin have been due to hacking or mismanagement. In other words, these problems come from bad intention and human error, not flaws in the underlying concepts.)

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The internet itself has proven to be durable for almost 30 years. It's a track record that bodes well for blockchain technology as it continues to be developed.



*"As revolutionary as it sounds, Blockchain truly is a mechanism to bring everyone to the highest degree of accountability. No more missed transactions, human or machine errors, or even an exchange that was not done with the consent of the parties involved. Above anything else, the most critical area where Blockchain helps is to guarantee the validity of a transaction by recording it not only on a main register but a connected distributed system of registers, all of which are connected through a secure validation mechanism."*

— Ian Khan, TEDx Speaker | Author | Technology Futurist

### Transparent and incorruptible

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The blockchain network lives in a state of consensus, one that automatically checks in with itself every ten minutes. A kind of self-auditing ecosystem of a digital value, the network reconciles every transaction that happens in ten-minute intervals. Each group of these transactions is referred to as a "block". Two important properties result from this:

1. Transparency data is embedded within the network as a whole, by definition it is public.
2. It cannot be corrupted altering any unit of information on the blockchain would mean using a huge amount of computing power to override the entire network.

In theory, this could be possible. In practice, it's unlikely to happen. Taking control of the system to capture Bitcoins, for instance, would also have the effect of destroying their value.



*"Blockchain solves the problem of manipulation. When I speak about it in the West, people say they trust Google, Facebook, or their banks. But the rest of the world doesn't trust organizations and corporations that much — I mean Africa, India, the Eastern Europe, or Russia. It's not about the places where people are really rich. Blockchain's opportunities are the highest in the countries that haven't reached that level yet."*

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Vitalik Buterin, inventor of Ethereum

### A network of nodes

A network of so-called computing "nodes" make up the blockchain.



#### Node

(computer connected to the blockchain network using a client that performs the task of validating and relaying transactions) gets a copy of the blockchain, which gets downloaded automatically upon joining the blockchain network.

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Together they create a powerful second-level network, a wholly different vision for how the internet can function.

Every node is an "administrator" of the blockchain, and joins the network voluntarily (in this sense, the network is decentralized). However, each one has an incentive for participating in the network: the chance of winning Bitcoins.

Nodes are said to be "mining" Bitcoin, but the term is something of a misnomer. In fact, each one is competing to win Bitcoins by solving computational puzzles.

Bitcoin was the raison d'être of the blockchain as it was originally conceived. It's now recognized to be only the first of many potential applications of the technology.

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There are an estimated 700 Bitcoin-like cryptocurrencies (exchangeable value tokens) already available. As well, a range of other potential adaptations of the original blockchain concept are currently active, or in development.



"Bitcoin has the same character a fax machine had. A single fax machine is a doorstop. The world where everyone has a fax machine is an immensely valuable thing."

Larry Summers, Former US Secretary of the Treasury

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### The idea of decentralization

By design, the blockchain is a decentralized technology.

Anything that happens on it is a function of the network as a whole. Some important implications stem from this. By creating a new way to verify transactions aspects of traditional commerce could become unnecessary. Stock market trades become almost simultaneous on the blockchain, for instance — or it could make types of record keeping, like a land registry, fully public. And decentralization is already a reality.

A global network of computers uses blockchain technology to jointly manage the database that records Bitcoin transactions. That is, Bitcoin is managed by its network, and not any one central authority. Decentralization means the network operates on a user-to-user (or peer-to-peer) basis. The forms of mass collaboration this makes possible are just beginning to be investigated.



"I think decentralized networks will be the next huge wave in technology."

Melanie Swan, author *Blockchain: Blueprint for a New Economy* (2015)

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### Who will use the blockchain?

As web infrastructure, you don't need to know about the blockchain for it to be useful in your life.

Currently, finance offers the strongest use cases for the technology. International remittances, for instance. The World Bank estimates that over \$430 billion US in money transfers were sent in 2015. And at the moment there is a high demand for blockchain developers.

The blockchain potentially cuts out the middleman for these types of transactions.

Personal computing became accessible to the general public with the invention of the Graphical User Interface (GUI), which took the form of a "desktop". Similarly, the most common GUI devised for the blockchain are the so-called "wallet" applications, which people use to buy things with Bitcoin, and store it along with other cryptocurrencies.

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Transactions online are closely connected to the processes of identity verification. It is easy to imagine that wallet apps will transform in the coming years to include other types of identity management.



"Online identity and reputation will be decentralized. We will own the data that belongs to us."

William Mougayar, author *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology* (2016)

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### The Blockchain & Enhanced security

By storing data across its network, the blockchain eliminates the risks that come with data being held centrally.

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Its network lacks centralized points of vulnerability that computer hackers can exploit. Today's internet has security problems that are familiar to everyone. We all rely on the "username/password" system to protect our identity and assets online.

Blockchain security methods use encryption technology.

The basis for this are the so-called public and private keys. A public key (a long, randomly-generated string of numbers) is a users' address on the blockchain. Bitcoins sent across the network gets recorded as belonging to that address. The "private key" is like a password that gives its owner access to their Bitcoin or other digital assets. Store your data on the blockchain and it is incorruptible. This is true, although protecting your digital assets will also require safeguarding of your private key by printing it out, creating what's referred to as a paper wallet.

## Centralized

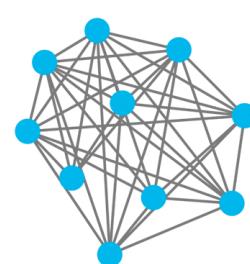


## Decentralized



## Distributed Ledgers

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## The New Networks

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Distributed ledgers can be public or private and vary in their structure and size.

Public blockchains

Require computer processing power to confirm transactions ("mining")

- Users (●) are anonymous

- Each user has a copy of the ledger and participates in confirming transactions independently

- Users (○) are not anonymous

- Permission is required for users to have a copy of the ledger and participate in confirming transactions



## A second-level network

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With blockchain technology, the web gains a new layer of functionality. Already, users can transact directly with one another — Bitcoin transactions in 2016 averaged over \$200,000 US per day. With the added security brought by the blockchain new internet business are on track to unbundle the traditional institutions of finance.

Goldman Sachs believes that blockchain technology holds great potential especially to optimize clearing and settlements, and could represent global savings of up to \$6bn per year.



*"2017 will be a pivotal year for blockchain tech. Many of the startups in the space will either begin generating revenue – via providing products the market demands/values – or vaporize due to running out of cash. In other words, 2017 should be the year where there is more implementation of products utilizing blockchain tech, and less talk about blockchain tech being the magical pixie dust that can just be sprinkled atop everything. Of course, from a customers viewpoint, this will not be obvious as blockchain tech should dominantly be invisible – even as its features and functionality improve peoples'/business' lives. I personally am familiar with a number of large-scale blockchain tech use cases that are launching soon/2017. This implementation stage, which 2017 should represent, is a crucial step in the larger adoption of blockchain tech, as it will allow skeptics to see the functionality, rather than just hear of its promise."*

— George Howard, Associate Professor Brown University, Berklee College of Music and Founder of George Howard Strategic

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## The Blockchain a New Web 3.0?

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The blockchain gives internet users the ability to create value and authenticates digital information. What will new business applications result?

- Smart contracts

Distributed ledgers enable the coding of simple contracts that will execute when specified conditions are met. Ethereum is an open source blockchain project that was built specifically to realize this possibility. Still, in its early stages, Ethereum has the potential to leverage the usefulness of blockchains on a truly world-changing scale.

At the technology's current level of development, smart contracts can be programmed to perform simple functions. For instance, a derivative could be paid out when a financial instrument meets certain benchmark, with the use of blockchain technology and Bitcoin enabling the payout to be automated.

- The sharing economy

With companies like Uber and AirBnB flourishing, the sharing economy is already a proven success. Currently, however, users who want to hail a ride-sharing service have to rely on an intermediary like Uber. By enabling peer-to-peer payments, the

blockchain opens the door to direct interaction between parties — a truly decentralized sharing economy results.

An early example, [OpenBazaar](#) uses the blockchain to create a peer-to-peer eBay. Download the app onto your computing device, and you can transact with OpenBazaar vendors without paying transaction fees. The “no rules” ethos of the protocol means that personal reputation will be even more important to business interactions than it currently is on eBay.

- **Crowdfunding**

Crowdfunding initiatives like Kickstarter and Gofundme are doing the advance work for the emerging peer-to-peer economy. The popularity of these sites suggests people want to have a direct say in product development. Blockchains take this interest to the next level, potentially creating crowd-sourced venture capital funds. In 2016, one such experiment, the [Ethereum](#)-based DAO (Decentralized Autonomous Organization), raised an astonishing \$200 million USD in just over two months. Participants purchased “DAO tokens” allowing them to vote on smart contract venture capital investments (voting power was proportionate to the number of DAO they were holding). A subsequent hack of project funds proved that the project was launched without proper due diligence, with disastrous consequences. Regardless, the DAO experiment suggests the blockchain has the potential to usher in “a new paradigm of economic cooperation.”

- **Governance**

By making the results fully transparent and publicly accessible, distributed database technology could bring full transparency to elections or any other kind of poll taking. Ethereum-based smart contracts help to automate the process. The app, Boardroom, enables organizational decision-making to happen on the blockchain. In practice, this means company governance becomes fully transparent and verifiable when managing digital assets, equity or information.

- **Supply chain auditing**

Consumers increasingly want to know that the ethical claims companies make about their products are real. Distributed ledgers provide an easy way to certify that the backstories of the things we buy are genuine. Transparency comes with blockchain-based timestamping of a date and location — on ethical diamonds, for instance — that corresponds to a product number. The UK-based Provenance offers supply chain auditing for a range of consumer goods. Making use of the Ethereum blockchain, a Provenance pilot project ensures that fish sold in Sushi restaurants in Japan has been sustainably harvested by its suppliers in Indonesia.

- **File storage**

Decentralizing file storage on the internet brings clear benefits. Distributing data throughout the network protects files from getting hacked or lost. Inter Planetary File System (IPFS) makes it easy to conceptualize how a distributed web might operate. Similar to the way a bittorrent moves data around the internet, IPFS gets rid of the need for centralized client-server relationships (i.e., the current web). An internet made up of completely decentralized websites has the potential to speed up file transfer and streaming times. Such an improvement is not only convenient. It's a necessary upgrade to the web's currently overloaded content-delivery systems.

- **Prediction markets**

The crowdsourcing of predictions on event probability is proven to have a high degree of accuracy. Averaging opinions cancels out the unexamined biases that distort judgment. Prediction markets that payout according to event outcomes are already active. Blockchains are a “wisdom of the crowd” technology that will no doubt find other applications in the years to come.

Still, in Beta, the prediction market application [Augur](#) makes share offerings on the outcome of real-world events. Participants can earn money by buying into the correct prediction. The more shares purchased in the correct outcome, the higher the payout will be. With a small commitment of funds (less than a dollar), anyone can ask a question, create a market based on a predicted outcome, and collect half of all transaction fees the market generates.

- **Protection of intellectual property**

As is well known, digital information can be infinitely reproduced — and distributed widely thanks to the internet. This has given web users globally a goldmine of free content. However, copyright holders have not been so lucky, losing control over their intellectual property and suffering financially as a consequence. Smart contracts can protect copyright and automate the sale of creative works online, eliminating the risk of file copying and redistribution.

Mycelia uses the blockchain to create a peer-to-peer music distribution system. Founded by the UK singer-songwriter Imogen Heap, Mycelia enables musicians to sell songs directly to audiences, as well as license samples to producers and divvy up royalties to songwriters and musicians — all of these functions being automated by smart contracts. The capacity of blockchains to issue payments in fractional cryptocurrency amounts (micropayments) suggests this use case for the blockchain has a strong chance of success.

- **Internet of Things (IoT)**

What is the IoT? The network-controlled management of certain types of electronic devices — for instance, the monitoring of air temperature in a storage facility. Smart contracts make the automation of remote systems management possible. A combination of software, sensors, and the network facilitates an exchange of data between objects and mechanisms. The result increases system efficiency and improves cost monitoring.

The biggest players in manufacturing, tech and telecommunications are all vying for IoT dominance. Think Samsung, IBM and AT&T. A natural extension of existing

infrastructure controlled by incumbents, IoT applications will run the gamut from predictive maintenance of mechanical parts to data analytics, and mass-scale automated systems management.

- **Neighbourhood Microgrids**

Blockchain technology enables the buying and selling of the renewable energy generated by neighborhood microgrids. When solar panels make excess energy, Ethereum-based smart contracts automatically redistribute it. Similar types of smart contract automation will have many other applications as the IoT becomes a reality.

Located in Brooklyn, [Consensys](#) is one of the foremost companies globally that is developing a range of applications for Ethereum. One project they are partnering on is Transactive Grid, working with the distributed energy outfit, LO3. A prototype project currently up and running uses Ethereum smart contracts to automate the monitoring and redistribution of microgrid energy. This so-called “intelligent grid” is an early example of IoT functionality.

- **Identity management**

There is a definite need for better identity management on the web. The ability to verify your identity is the lynchpin of financial transactions that happen online. However, remedies for the security risks that come with web commerce are imperfect at best. Distributed ledgers offer enhanced methods for proving who you are, along with the possibility to digitize personal documents. Having a secure identity will also be important for online interactions — for instance, in the sharing economy. A good reputation, after all, is the most important condition for conducting transactions online.

Developing digital identity standards is proving to be a highly complex process. Technical challenges aside, a universal online identity solution requires cooperation between private entities and government. Add to that the need to navigate legal systems in different countries and the problem becomes exponentially difficult. E-Commerce on the internet currently relies on the SSL certificate (the little green lock) for secure transactions on the web. Netki is a startup that aspires to create an SSL standard for the blockchain. Having recently announced a \$3.5 million seed round, Netki expects a product launch in early 2017.

- **AML and KYC**

Anti-money laundering (AML) and know your customer (KYC) practices have a strong potential for being adapted to the blockchain. Currently, financial institutions must perform a labour intensive multi-step process for each new customer. KYC costs could be reduced through cross-institution client verification, and at the same time increase monitoring and analysis effectiveness.

Startup Polycoin has an AML/KYC solution that involves analysing transactions. Those transactions identified as being suspicious are forwarded on to compliance officers. Another startup Tradle is developing an application called Trust in Motion (TiM). Characterized as an “Instagram for KYC”, TiM allows customers to take a snapshot of key documents (passport, utility bill, etc.). Once verified by the bank, this data is cryptographically stored on the blockchain.

- **Data management**

Today, in exchange for their personal data people can use social media platforms like Facebook for free. In future, users will have the ability to manage and sell the data their online activity generates. Because it can be easily distributed in small fractional amounts, Bitcoin — or something like it — will most likely be the currency that gets used for this type of transaction.

The MIT project Enigma understands that user privacy is the key precondition for creating of a personal data marketplace. Enigma uses cryptographic techniques to allow individual data sets to be split between nodes, and at the same time run bulk computations over the data group as a whole. Fragmenting the data also makes Enigma scalable (unlike those blockchain solutions where data gets replicated on every node). A Beta launch is promised within the next six months.

- **Land title registration**

As Publicly-accessible ledgers, blockchains can make all kinds of record-keeping more efficient. Property titles are a case in point. They tend to be susceptible to fraud, as well as costly and labour intensive to administer.

A number of countries are undertaking blockchain-based land registry projects. Honduras was the first government to announce such an initiative in 2015, although the current status of that project is unclear. This year, the Republic of Georgia cemented a deal with the Bitfury Group to develop a blockchain system for property titles. Reportedly, Hernando de Soto, the high-profile economist and property rights advocate, will be advising on the project. Most recently, Sweden announced it was experimenting with a blockchain application for property titles.

- **Stock trading**

The potential for added efficiency in share settlement makes a strong use case for blockchains in stock trading. When executed peer-to-peer, trade confirmations become almost instantaneous (as opposed to taking three days for clearance).

Potentially, this means intermediaries — such as the clearing house, auditors and custodians — get removed from the process.

Numerous stock and commodities exchanges are prototyping blockchain applications for the services they offer, including the ASX (Australian Securities Exchange), the Deutsche Börse (Frankfurt’s stock exchange) and the JPX (Japan Exchange Group). Most high profile because the acknowledged first mover in the area, is the Nasdaq’s Linq, a platform for private market trading (typically between pre-IPO startups and investors). A partnership with the blockchain tech company Chain, Linq announced the completion of its first share trade in 2015. More recently, Nasdaq announced the development of a trial blockchain project for proxy voting on the Estonian Stock Market.

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## Web 3.0

The blockchain gives internet users the ability to create value and authenticate digital information. What new business applications will result?



### Smart contracts

Distributed ledgers enable the coding of simple contracts that will execute when specified conditions are met.



### The sharing economy

By enabling peer-to-peer payments, the blockchain opens the door to direct interaction between parties — a truly decentralized sharing economy results.<sup>72</sup>



### Crowd funding

Blockchains take this interest to the next level, potentially creating crowd-sourced venture capital funds.



### Governance

By making the results fully transparent and publically accessible, distributed database technology could bring full transparency to elections or any other kind of poll taking.



### Supply chain auditing

Distributed ledgers provide an easy way to certify that the backstories of the things we buy are genuine. Transparency comes with blockchain-based timestamping of a date and location — on ethical diamonds, for instance — that corresponds to a product number.<sup>72</sup>



### File storage

Decentralizing file storage on the internet brings clear benefits. Distributing data throughout the network protects files from getting hacked or lost.



### Prediction markets

Prediction markets that pay out according to event outcomes are already active. Blockchains are a “wisdom of the crowd” technology that will no doubt find other applications in the years to come.<sup>72</sup>



### Protection of intellectual property

Smart contracts can protect copyright and automate the sale of creative works online, eliminating the risk of file copying and redistribution.



### Internet of Things (IoT)

Smart contracts make the automation of remote systems management possible. A combination of software, sensors, and the network facilitates an exchange of data between objects and mechanisms.



### NeighbourhoodMicrogrids

Blockchain technology enables the buying and selling of the renewable energy generated by neighbourhoodmicrogrids.



### Identity management

Distributed ledgers offer enhanced methods for proving who you are, along with the possibility to digitize personal documents. Having a secure identity will also be important for online interactions — for instance, in the sharing economy.



### AML and KYC

Anti-money laundering (AML) and know your customer (KYC) practices have a strong potential for being adapted to the blockchain. Currently, financial institutions must perform a labour intensive multi-step process for each new customer. KYC costs could be reduced through cross-institution client verification, and at the same time increase monitoring and analysis effectiveness.<sup>72</sup>



### Data management

In the future, users will have the ability to manage and sell the data their online activity generates. Because it can be easily distributed in small fractional amounts, Bitcoin — or something like it.



### Land title registration



As publicly-accessible ledgers, blockchains can make all kinds of record-keeping more efficient. Property titles are a case in point. They tend to be susceptible to fraud, as well as costly and labour intensive to administer.

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**Stock trading**  
When executed peer-to-peer, trade confirmations become almost instantaneous. This means intermediaries — such as the clearing house, auditors and custodians — get removed from the process.



*"2016 was the year in which blockchain theory achieved general acceptance, but remained in theory, with the big players lingering around the hoop waiting to see who would take the first shot. As the year comes to an end, blockchain technology is tantalizingly close to turning the corner and entering the realm of small-scale commercial ability. Overall, 2017 is going to be the year of the very well-considered and well-funded proof of concept, with a few projects achieving revenue positive status. Venture investment is going to continue to be substantial but less than we saw in 2016 and 2015. I'd predict one or two exits by acquisition."*

— Judd Bagley Director of Communications at [Overstock.com](#) and Chief Evangelist at [t0.com](#)

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Like what you read? Give us one like or share it to your friends

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## Comments



Clayton Elliott 2 years ago

Great breakdown and concise summation of what can easily be a very complicated and confusing topic for the average beginner and layperson (me!). Gonna read this a few more times to make sure it sticks.

5



Ameer Rosic 2 years ago

@Clayton Elliott  
@Clayton. Thank you. Appreciate your feedback.

0



Per Lind 2 years ago

@Ameer Rosic  
It irritates me no end that you serve up #blockchain (Bitcoin based) as well as #distributedledger #DLT in the same breath! Please consider splitting the two completely as you confuse the readers for no reason!

0

rudolf vanderlaan 7 months ago

0

@Per Lind  
I see bitcoin as a separate train in blockchain as different trains of blockchain for the other cryptocurrencies ???  
how do they get into the distributedledger(DLT)?  
thank you  
regards  
Rudy



Lee Emery 2 years ago

I think that link for Mycelia above was incorrect. <http://myceliaformusic.org/>

2



Ameer Rosic 2 years ago

@Lee Emery  
Thanks for letting us know.

0



Dmitry Buterin 2 years ago

@Lee Emery  
yeah, the link is to the mycelium wallet instead 😊

0



Brian Ahier 2 years ago

@Lee Emery  
Nice catch

0



Piyush Jajoo 2 years ago

Great article, as a beginner this article provides a basic understanding of how BlockChain works. The most attractive part of the document is the use cases it lists at the end.

2



Ameer Rosic 2 years ago

@Piyush Jaoo

Appreciate your kind words @pjajoo

0



megasmart jiang 2 years ago

Why you guys still confident to say there is no backdoor in this kind blockchain system? I Do not believe this shit..Human is flawed species, and so far now there is no Human-designed system existing that have zero defectivity..?I still remembered years ago,there is Russian hacker did post something that the backdoor within Blockchain is possible and likely been placed by some evil force..Blockchain is very complex system for lay man.also I just cannot get it why the mass will adopt this system ..Where is the role of The Fed and Central banks??? If there is some reasonable arguments that been presented why it is so hard for the backdoor to be produced within blockchain..Should be welcome..Expect to see you guys make some comments on this ..

0



Andrew Brown 2 years ago

@megasmart jiang

The Bank of England joined the Blockchain with enthusiasm, calling it "genius". That makes me concerned. As transactions increase on the Blockchain, I wonder if that hashing algorithm might allow changes or deletions of records while maintaining consistency of the value. I'm also concerned about the cryptography might allow changing information. I don't know that for sure, though. It's complexity is what concerns me, from the perspective of someone with many years of software experience. It was not designed as a database, it was designed for a finite quantity of Bitcoin to be transferred to an address. Each "record" or transaction only contains 40 characters or so. Storing files on the Blockchain requires many transactions. So, usually, those 40 characters store a reference # to external data.

0

Lance Stronk 1 day ago

@megasmart jiang

I can see that blockchain has at least one vulnerability. Sure – decentralization and reconciliation with encryption is fine. But the one vulnerability is the interconnecting network. You foul that up and your blockchain paradigm is now vulnerable. Each node could then be compromised so that reconciliation is impossible. Blockchain does not accommodate the vulnerabilities of the infrastructure which it is using.

0



fisa al 2 years ago

And my wife ask me why should we depend on something that created by nobody-know-who-the-hell-he-is ? It's like a little prejudice if there is a havoc so nobody can be blamed.

1



Brian Ahier 2 years ago

@fisa al

Why is your wife worrying about who will be blamed?

3



Andrew Brown 2 years ago

@fisa al

The authority has become IT. I have many years of software experience and I think it is too complex. The Blockchain is useful for (hopefully) permanent data and for transferring value across borders. It was designed to represent money, not as a database. Insufficient time-stamp granularity and only 40 characters to store with each transaction. There are other ways of making certain a database is distributed and permanent.

0



Jasmine Carr 2 years ago

Great article for the beginner. I appreciate that a community like this exists for those who want to learn!

2



Ameer Rosic 2 years ago

@Jasmine Carr

Thanks @jcarr85

0

abhisai peddisetty 2 years ago

Great article . Thanks guys

1



Ameer Rosic 2 years ago

@abhisai peddisetty

Thank you

0



Dmitry Buterin 2 years ago

Also, see this two-minute video explaining the blockchain: <https://www.youtube.com/watch?v=r43LhsUUGTQ>

1



Ameer Rosic 2 years ago

@Dmitry Buterin

Good one

0

Pallav Sinha 2 years ago

Great article! And wonderful work by the Blockgeeks community evangelizing Blockchain

1



Ameer Rosic 2 years ago

@Pallav Sinha

Appreciate it!

0

Steve Ryan 2 years ago

Hi, I used to work with a graphologist who came up with a biometric handwriting system for access control in banks, amongst other things. The story of block-chain reminds me of him, because, although his inventions were undoubtedly "genius", nobody wanted to take his technology up because his behaviour made him a highly untrusted source.

I have the same problem with blockchain. This guy Satoshi Nakamoto. Who the hell is he? What the hell is he? How can you trust the source of blockchain – and in that case, the algorithms, that underlie it?

Surely, any serious investor, would be highly skeptical of the source?

Thank you

Steve

1



Dmitry Buterin 1 year ago

@Steve Ryan

Steve – all that work has been carefully vetted by thousands of smart people, its all in the open. So dont trust the Satoshi guy, do your own homework.

0

10 months ago

@Dmitry Buterin

I am having trouble locating details on the process, are there whitepapers or RFCs that detail exactly how this works on a fundamental level. I see alot of people talking in very broad generalities but very, very little in real specifics.

0

sambhudev ware 2 years ago

Hi All,

is there any resources for developers where they can start it

0



Dmitry Buterin 1 year ago

@sambhudev ware

check out <http://courses.blockgeeks.com/>

0

Lucky Sign 1 year ago

Hello this is a great article for beginner...bitcoin is pass 1000 USD and will up more ...blockchain is what we need for our life ... if you want to learn more use <https://coins.newblum.com> ... you can earn some BTC too...

0

1 year ago

People need to understand that "blockchain" is NOT the same thing as "bitcoin". Bitcoin was the first blockchain system designed, but there have been a number of others since then which are very different – they were designed by different people, often for different purposes. The ones moving into the business world today are NOT systems for electronic money. They are "ledger" systems that are used to replace existing methods, almost none of which are electronic money. Examples of such blockchain systems are Hyperledger (which has several different schemes, the most popular being Hyperledger Fabric), Ethereum, R3 Corda, and some others. They were NOT designed by "some guy" somewhere – they were designed by highly capable groups of people who are in the business of designing things for use by corporations to operate their businesses. Several of these are in open-source projects, where they are being developed jointly by many people, and are subject to study and analysis by all of them. There is work in early stages to define regional and international standards that will define some requirements for the blockchains. (I happen to be involved with some of those standards activities, as well as development on one of the blockchain systems.)

3

1 year ago

People, don't be fooled by the apparent advantages and usages of Blockchain technology or Bitcoin, it's what you don't know that is destructive to you personally and to society in general. It is merely another way to control you through information, to hack into your private lives and the only ones that truly benefit from this technology are the global wealthy elite, the greedy, materialistic oligarchs of global chaos and conflict. Bitcoin is virtual money, it doesn't really exist except on the computer!

Real money is gold, silver, precious metals and gemstones, natural resources. Paper currency and coins use to be backed by gold or one of these other material commodities and was payable upon demand to any the person who had the dollar bill or coin currency, it was once written right on the Dollar bills and it was legal tender backed by the governments' gold reserve! But corruption on an unprecedented scale took over and the general public was tricked into accepting a false standard of the economy where people blindly trusted another system which really didn't benefit them. Just look at all the financial and economic chaos around you that has effective your lives over many decades and the political instability growing every day!

The poor have become miserably poorer, the middle class (the backbone of all society) is being reduced down to the same misery as the poor and the only ones becoming richer are the wealthy class who have separated themselves from the rest of society and are the one dictating the rules and the future according to their vision.

In the early years of the 20th Century, the Gold Reserve Banks of America and Europe became the property of these greedy Bankers in American and Europe, no longer owned or controlled by the US or any European country, they became the willing puppets of the Oligarch Regime. These Oligarchs did away with "paying gold to the bearer on demand" because it was now their gold! Paper currency isn't worth anything, even the paper it is printed on, in fact, paper currency has become plastic currency in many different forms like your credit cards!

When was the last time you actually had hard currency in coin or paper in your pocket? Everything we transact is now done on the internet with your credit or debit card or with just numbers!

But these greedy bastards aren't done with you yet, now they want to introduce Blockchain Technology to TRACK and CONTROL EVERY TRANSACTION YOU MAKE and it's irreversible!! While all along they are trying to sell you on the phony "benefits" of this system. They are relying on you to "TRUST" them because they represent officialdom, they are your government, your elected officials, they are educated and have more power and control than you will ever have!

In their eyes, you are not their equal!!!!!!

That is a reality that everyone needs to wake up to and take action against to correct this imbalance in society that is become an out-of-control "Frankenstein Monster" of materialism on the rampage to eventually enslave or exterminate you!

Blockchain Technology will track your every spending habit that you make, what you bought, how much you paid or sold, where you made your purchases, when you bought or sold, and how much, etc. It is one more way to know more about you and to control you, but then, you are already being tracked and monitored with the current economic standards.

With BCT, however, everything from every person will be fed into a central or global computer (think iCloud storage...exponentially!). And the IT puppets will ensure that nothing is missed and that you dutifully follow along like a good well behaved minion or pet!

Just when you think it can't get worse, your nightmares will only be just beginning because, on the horizon, another new economic instrument of societal control is coming!

It is called "FEDCOIN"!!

And you bloody well should be scared of it because your government is hell bent on implanting you with a microchip that identifies you and all your transactions and if you disagree with them or anything you don't like about the life you have in society, your little microchip will inform its controllers and you could end up, God knows where!

You will not even be able to buy or sell or do anything without your scan able implanted microchip!

It is coming that is an absolute certainty! It's money in the bank, just not your bank. and if this sounds suspiciously crazy like the "Latter Days" or the Apocalypse and you are being marked (micro chipped) with the sign of the beast, then, you would be absolutely correct!!!

3

This should be a big clue to you of the type of quasi-Christian eschatological mindset of the Oligarchs and the other powers that rule and control you! Never mind the governments to help you in your time of crisis, they haven't really existed for a long time! Presidents and politician are decided upon before you even vote for them, as to who gets into office to supposedly "represent you".  
Corporations are the new governments and the wealthy corporate elite are its politicians and you thought you had some control or say in the way life unfolds? Think again!  
I could go on and on, but you get the idea.  
The only way to defeat these corrupt bastards is not to go along with their game! Start buying gold and silver in any amount, have paper and coin currency in your pocket at all times. Get rid of the credit cards, do business with hard currency and nothing else, don't get into debt over your head, trade and barter good and services, invest in new gold mine discoveries, be honest with each other, surround yourself with like-minded individuals, protest against your government and its corrupt officials.  
Economic Armageddon is coming and so is the Global Revolution against it, so you need to prepare yourselves for all future possible eventualities!

Mattwm 1 year ago

6

@  
Be sure to wear your tin-foil hat when posting.

pinch77 10 months ago

0

@  
Very interesting response. I thought this tech could be backed by any asset.

DontTrust Them 2 months ago

0

@  
Hey Terry,  
I just read your comment on blockgeeks.com this morning.  
You are the only person who "gets it".  
The wealthy elite want to suck every micro ounce of life out of every living thing.  
Reply to me if you want a communicate with a Christian who has been warning people about this absolute eventuality for over 30 years.

1 year ago

2

Interesting.  
You spoke about what is essential to know about Blockchain, very enjoyable article 😊  
In case you want deeper informations about how different sectors use Blockchain and what are the main sectors that use it today, don't hesitate to take a look at that: <http://bit.ly/2pW09a6>

mylraj 1 year ago

0

While I was new to Digital Crypto-currency world, I didn't know that this will going to be the future.  
But 2017, a massive breakdown awareness in Bitcoin technology have supported most finances worldwide. Its best part is Transparent, clear, public, secure and easy handling.  
Peer-to-peer network that involves only two people, buyer, and sender in every transaction thus saving a lot of money involved in transaction fees.  
Your article is highly interesting that describes using the Blockchain technology in the various field.

nataliesun 1 year ago

0

If anyone is interesting in experimenting with blockchain stuff but not willing to deal with the fees of ETH or BTC, <http://bit.ly/2scSIzn> this platform allows users to create and post their own assets, tokenize them, and use smart contracts like never before.  
If you have any questions feel free to let me know.  
We see blockchain something we can build other things upon and allow users to do whatever they want with it for free.

1 year ago

0

Bitcoin really helping people to understand blockchain technology.  
You can build your own block chain using this guide <https://goo.gl/7K6fcN>

robertsimoes 12 months ago

0

Great list of potential applications, and love the quote boxes. While I'm sure those will have some awesome impact, I'm often more excited by the applications people haven't thought of yet.  
Tokens like MiniMe are a form of crowdfunding but on a whole new level good stuff Ameer!

12 months ago

0

By allowing digital information to be distributed but not copied, blockchain technology created the backbone of a new type of internet. Originally devised for the digital currency, Bitcoin, the tech community is now finding other potential uses for the technology.  
QA: Can you invest in this struggle?  
Source: <https://allowlive.com/floyd-mayweather-vs-conor-mcgregor-live-stream/>

12 months ago

0

Interesting.  
Any experts who considered the risks of what will happen when crypto code used of blockchains is cracked by

next gen quantum computing supercomputers,..however a few decades away ?

11 months ago

I was searching about Bitcoin Mining and landed on some pages including yours. This page is for Blockchains though. I learned what Bitcoin Mining is (Source: <https://www.techgrapple.com/cryptocurrency-e-bitcoin-mining-miners-get/>), but it didn't show me how it is done. Do you have any video or screenshots to explain?

0

nikolett37@gmail.com 11 months ago

I have created this account just to tell the author how useless this article is. It explained nothing. Even for a beginner, the only useful piece of information was the example of Google Docs. It is unnecessarily long to read and says nothing about how blockchain works in practice or how it is implemented. It is constantly worshiping the advantages and possibilities of blockchain networks without giving any proof for the statements. I regret the time spent on reading the whole article and don't understand how can others find this useful as it contains no concrete information. The same applies to the article about Ethereum and smart contracts.

3

stevewillis 10 months ago

That one google doc's guy is sort of off in his definition of blockchain to dita...as that is what that scenario is. I worked with a system named Centralpoint also allows for a IFTTT (if this then that) approach to building your own logic engine (or rules engine), which to use Blockchain vernacular would be considered Smart Contracts. Examples of this would be when to send someone an email report (business intelligence) or when to trigger a new record entry into your CRM.

0

olivergarcia 10 months ago

Here's a thought, the uses and advantages of blockchain technology can be used to create a real life country. Be a cyber revolutionary if you will. The events in Spain and Catalonia offers a very rare and perishable opportunity for the blockchain community to help the people of Catalonia to have a peaceful revolution. I am new to this but I can see that you could create a real life country function on blockchain technology. The advantages of blockchain tech can be used by the people of Catalonia to secede from Spain where it matters most: information, finance and governance. Blockchain proponents should descend on Catalonia and help them adopt their own blockchain based currency, dump the euro, and be the center of the blockchain universe. With this, significant impact can be had on the European economy enough for the whole of Europe and the world to take heed instead of just making political noise. The people of Catalonia should put their money where their mouth is. They should adopt a decentralized blockchain based currency and gain instant global recognition. Political recognition as an independent state can and is usually had through revolution, mostly the violent sort. But if the independent state of Catalonia will take control of its economy first by adopting blockchain currency, its economic standing in the world, albeit minuscule in terms of dollars and cents, will be cemented. This is especially when the whole world is looking at blockchain tech and its real-life applications. Political recognition will follow economic recognition. Look at Hongkong.

0

shaunswallie 9 months ago

"No centralized version of this information exists for a hacker to corrupt"  
"Bitcoin blockchain has operated without significant disruption. (To date, any of problems associated with Bitcoin have been due to hacking or mismanagement"  
Really?

0

vrazdan@yahoo.com 9 months ago

Block Chain based distributed ledger systems are definitely the next paradigm, driven mainly by the need to control 'cyber crime' and improve web 'user experience'. However, the biggest problem in implementing a block chain systems is to devise the control mechanism for supervision. This could be achieved by a two-tier block chain system. Is anybody thinking on these lines?

0

John Larkin 9 months ago

How about a word or two about the wild fluctuations in bitcoin value in past months. What impact is this having on all this hype?

0

Dickson Xavier 8 months ago

Proof of work into proof of stake , we need better solutions which will be an ideal DAO for efficient systems which satisfies most of world and eradicates inequality and makes people's engaged and progress nation's.

0

Dickson Xavier 8 months ago

Proof of work into proof of stake , we need better solutions which will be an ideal DAO for efficient systems which satisfies 70% of world and eradicates inequality and makes people's engaged and progress nation's.

0

kensa2306 8 months ago

Excellent post, although I must say after reading it I still have no clue about this whole Cryptocurrency and Blockchain subject. Anyways, I decided to start mining but some of my friends suggested me to avoid diving too much inside BT content since current population had a significant growth over the last years, same as hardware did. Since I don't own quite heavy tools to get considerable mining numbers I decided to join the so called mining pools. I went for a Monero one called CoinImp, (site at: <https://www.coinimp.com>) in case you wonder, anyways, they claim to offer 0% fees with a low minimum payout of 0.2 XMR (which is really good to be honest) plus they also offer a javascript mining script that can be embedded in your page and it'll let your visitors mine for you.. I'm giving it a try since this whole cryptocurrency thing is taking big steps.. Suggestions are gladly accepted. Again, thanks for the info Blockgeeks.

0

garnerjulie 7 months ago

great article...  
I want to use this medium to look for a business partner  
I need someone whom I can invest in his/her business. I have equity capital for profitable investment.  
garnerjulie@ymail.com

0

pisey 7 months ago

Great I love it. thank you

0

sun yimin 7 months ago

Are there just one distributed ledger or multiple distributed ledgers in one blockchain application?

0

sun yimin 7 months ago

typo. Are there just one distributed ledger or multiple distributed ledgers in one blockchain application?

0

Hussam Elshehawy 7 months ago  
Great Explanation.

0

Martin Paquette 6 months ago  
How to we include the government taxes needed to take care of roads, healthcare, public services in the Blockchain view of the world?

0

Mike Ray 6 months ago  
Blockchain Technology is like the new internet as a Blockchain has its own platform and private network and will be as big as the internet.

0

\* Mike Ray 5 months ago  
Blockchain technology will make transaction faster and easier for businesses that's why it's wise to know about blockchains.

0

Jerry Bond 5 months ago  
You first said it wasn't copied but then you said it's duplicated to millions of computers. What's the difference between copying and duplicating? Your description of creating a word doc then emailing it to someone and waiting for the updated version from them is from 1999....google docs let's you work on live docs - problem solved. Question...if an honest entry mistake happens on the blockchain why would you want that recorded on millions of computers forever?

0

SharonSmith 4 months ago  
Very good read! Blockchain technology helps in simplifying business processes, improves transparency, accelerates transactions and more. Springboard provides the complete database of experts, influencers, and professionals who are into blockchain. Buy the database of experts today.

0

Gayathri Chilakamarri 3 months ago  
Interesting Read! Thanks for sharing!

0

Jaime Perpinan 3 months ago  
I understand the basic of Blockchain Tech but how in the world is it filtered from bad data? Information goes in and is passed around but what happens when bad data is entered and moves to the next step??

0

mocks You 2 months ago  
I am new to blockchain technology, and I have many questions.  
\* In a supply chain auditing blockchain application (<https://blockgeeks.com/guides/what-is-blockchain-technology>), it's said "a Provenance pilot project ensures that fish sold in Sushi restaurants in Japan has been sustainably harvested by its suppliers in Indonesia". I am wondering how this can be done. How can blockchain validate the origin of the fish? Or an ethical diamond? There is no reliable IDs on the fish or the diamonds.  
\* In an election voting application, how can you make sure an account is registered by the voter him/herself?  
\* When people talk about EOS, they always talk about smart contracts. Can EOS only be used for smart contracts or can it be used for many other kinds of things?  
\* Is it possible to exchange tokens between different blockchain systems? For instance, between your own blockchain system and the Bitcoin system. How can this be done electronically? Is it built in EOS or Ethereum?  
I have an idea to implement with blockchain technology, but I am not very sure how it can be done.  
What I have in mind is to build a system so that everyone can post to the public their personal information for sale or to interact with each other.  
\* Information can only be viewable by the owner him/herself plus those who have been given the permission to view by the owner.  
\* A 3rd party validator besides the information owner can validate the fidelity of the information. Information does not have to be validated, though. It's just that validated information is more trustworthy and thus more valuable.  
\* When someone wants to buy information in the system, the owner needs to give a "yes" before the information can be purchased.  
\* The information purchase fees will be shared between the information owner, the system, and the validator if there is one.  
\* Of course, all the fee transactions will be transparent to the information owner, the system, and the validator if there is one.  
Now the questions regarding the above described application:  
\* How do the blocks and blockchain(s) be structured? Is one block one individual's information or one blockchain one individual's information? The latter seems to be more reasonable, but then the system ends up with numerous blockchains.  
\* Is it true that the content (data) of a block can only be 32 bytes? Then what are you going to do with data that is more than 32 bytes? If you just use an overflow structure to store your data, and put only a pointer of the overflow structure to your ledger book, then won't that make the system much more complicated?  
\* Can EOS implement the application? Or what's the best blockchain technology to implement such an app?

0

Shahidul Haque 1 month ago  
Nicely captured, specifically vivid examples who is doing what and who is investing on BC. In "Enhanced security" section we have mentioned public and private keys-as a software professional I know what they are and how the "hash" thing works-but people across the globe(east to west and north to south) e.g. layman..how they will grab these keys?

0

Grisha Lyukshin 1 month ago  
Don't know if this blog is still monitored but will post a question anyways.  
I'm still unclear about how does blockchain solve the problems of arbitrage. What happens in a hypothetical scenario when (I'll use crypto currency example here) when you try to conduct a transaction with a client that hasn't received ledger updates yet.

0

ahmad khan 1 month ago  
It actually updates itself every 10 mins.

0

gam1711 4 weeks ago  
n called "digit"

0

Hola

gam1711 4 weeks ago

0

Esto es una formula importante

Renan Alves 3 weeks ago

Hello! How are you? I am Renan and I am blockchain enthusiast and I want to know if I can publish your article to Brazilian portuguese. I'll give you the credits and I'll call you back to this original article. Are you okay?  
Thanks for listening!

0 

You must be [logged in](#) to post a comment.



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