

BLOCKCHAIN SECRETS

The Ultimate Guide To Blockchain,
Cryptocurrency and The Future of
The Internet



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Introduction



Countless discoveries and inventions have been made throughout our history. Some of the developments have been minor, some of them have been major, some have been short-lived, and other events have been more critical and longer-lasting. There have been certain developments throughout our history that have been so vitally important to humanity that they are considered the sole factor behind all of humankind, collectively making progress and taking a critical and everlasting step forward.

For example, consider how the creation of farming equipment and fertilizers allowed for the exponential growth of food outputs from fixed pieces of land. Without these inventions and discoveries, the world would not have been able to support the explosive population growth that we have witnessed across the globe. It

was only a few hundred years ago that scientists and economists indicated the end of population growth, due to the fact that food production just grew at numerical rates, doubling or tripling every certain number of years, while populations grew at exponential rates, expanding to the power of two or more during that same period.

At the time, this meant that sooner or later there wouldn't be enough food to feed everyone unless more food could be obtained from fixed pieces of land every year. Fortunately, this is precisely what happened. Science was able to deliver heavy farm equipment, fertilizers such as ammonia, and other improvements so that that food harvests could keep up with the population growth rates. This allowed for more people to be sustained in the same area of land as before. Without these developments, the world would be a very different place today.

Similarly, the creation of antibiotics, penicillin, the introduction of air travel, ocean freight, and the steam engine, and more recently, the sharing of information in the Information Age that was made possible by the invention of microchips and transistors, have all changed the world irreversibly. As a result of these innovations and discoveries, we are more connected, better off, healthier, and have more accessible and cheaper access to goods and services than ever before.

When it comes to the information age, things have progressed at breakneck speed, ever since the first dot-com wave in the early to mid-90s. Everything from the user interface tools and technologies that have defined how we interact and interface with technology. Everything from payment solutions to banking solutions has dramatically changed over the last 20 years.

The same can be said for social networks and primary email, along with the advancements that have been made in fields of artificial intelligence (AI) and big data analysis, both of which have an impact on everything from helping with governance to online search. Collectively, we've gone from necessary solutions for all of the above to have sophisticated software services that combine various aspects of technology to deliver effective, robust, value-added, and seamless services to billions of people around the world.

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However, with all the progress comes new challenges. AI, big data, and the ability of governments to implement mass surveillance initiatives, and the ubiquity of technology all around have begun to pose serious ethical questions and technological challenges. This leads to the question, where do you draw the line between legal and illegal surveillance? How can we, as a society, trust the data usage collection and manipulation practices of companies and governments when they aren't transparent. When it comes to the role of government and big corporations and their relationships with private users, where is the world headed?

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It is with this exciting and challenging background in mind that blockchain will be discussed. In recent years, blockchain has become a popular technology and so much more than the latest tech fad. It is, in the opinion of many subject area experts and tech gurus, the next giant leap for humanity and something that will have a significant impact on our children and us as the farming and healthcare developments of the past had an effect on our great-great-grandparents more than a century ago. We have now entered the new Information Age.

Chapter 1 – A History of Money, Cryptocurrency, and Blockchain



The concept behind establishing a permanent, decentralized ledger, like blockchain, was first discussed in 1991. However, the first actual blockchain implementation was designed in 2008, by Satoshi Nakamoto. It was his initial design that was used as the underpinning technology that runs the digital currency known as bitcoin.

The blockchain that was engineered by Mr. Satoshi serves as the public ledger for all bitcoin transactions. Bitcoin, if you don't already know, is a digital currency that is now worth roughly \$16,000, that runs on blockchain technology. The most well-known blockchain on the market today is that for Bitcoin, with the Ethereum blockchain coming in a close second.

The technology that allows bitcoin to serve as a digital currency, as a store of value, and as a medium of exchange is blockchain because bitcoin transactions are recorded in a blockchain ledger. This means blockchains are not limited to running bitcoin; rather blockchain application can span the entire gamut of trade, finance, healthcare, legal operations, records management, gaming, online exchanges, probability, and more.

Before you can get started understanding blockchain technology, you have to know how it fits in with our current currency and digital currency.

Money

Money is nearly as old as humanity. Many books have been written on the subject. One that is worth checking out if you are interested in the matter is *The Ascent of Money: A Financial History of the World* by Niall Ferguson. Money, to work, has to be both a store of value as well as a means of exchange. In the past, we've used many different items for money, including gold, silver, cattle, beads, and salt. No matter the form it takes, money has to execute these two essential functions. Also, there has to be trust that these roles can be fulfilled by the money.

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Cryptocurrency



A cryptocurrency is a form of currency that has become popular over the last several years. Cryptocurrency is created by using the encryption techniques of computing and mathematics. These techniques allow us to transfer funds and verify that the transfer did, in fact, occur. Another essential aspect of cryptocurrency is that it is independent of governments and central banks, making them decentralized.

These days, many important banks are becoming increasingly involved with the same kind of technology that underlies cryptocurrency. However, it is essential to understand that any currency that arises from their endeavors won't be true cryptocurrency because it will be controlled by the banks. The most reliable and most dedicated advocates of cryptocurrency are determined that it will not be centralized.

How Did Cryptocurrencies Develop?

Bitcoin is the most well-known cryptocurrency on the market. It has been the recipient of hype, fame, and publicity. The general public has been fascinated by its extraordinary increase in value over the last several years. They have been awe-struck by the tales of significant wealth that has been generated with bitcoin, for those who acquired it in its infancy, when it was cheap.

Despite its novelty, people quickly realize that bitcoin is genuine money. In addition to bitcoin, there are many other cryptocurrencies, who like bitcoin, have had massive increases in their dollar value. Legitimate government and businesses are pursuing an increasing involvement in cryptocurrency. Despite critics, the market for these currencies is thriving.

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Cryptocurrencies, Fiat Currencies, and Stocks

Fiat currencies are the currencies we use daily, like the dollar, yen, euro, and renminbi. Despite having the word currency in the word cryptocurrency, they are more similar to stocks and shares of the stock market than between fiat currencies and cryptocurrency. When you purchase cryptocurrency, you get some of the coins for that cryptocurrency, which acts like a technology stock and a digital entry into a ledger, known as a blockchain.

Blockchains

Blockchains are digital ledgers and can be formally defined as a continuously-growing list of records that are linked together and secured using advanced cryptography. In more simple terms, a blockchain is literally a chain of blocks. Each record in the list of a blockchain's chain is called a block that contains specific types and pieces of information. Each block will usually include some sort of pointer as a link to the previous block, transaction data, and a timestamp, which can take a variety of forms.

Another way to look at it is that a blockchain is much like a database where each entry is linked to the previous and next entry. This means that the information contained within the blockchain can't be changed, once a block with specific data is added to the chain. Depending on the chain that you are looking

at, there are often useful tools for exploring that will allow you to scan the transaction data.

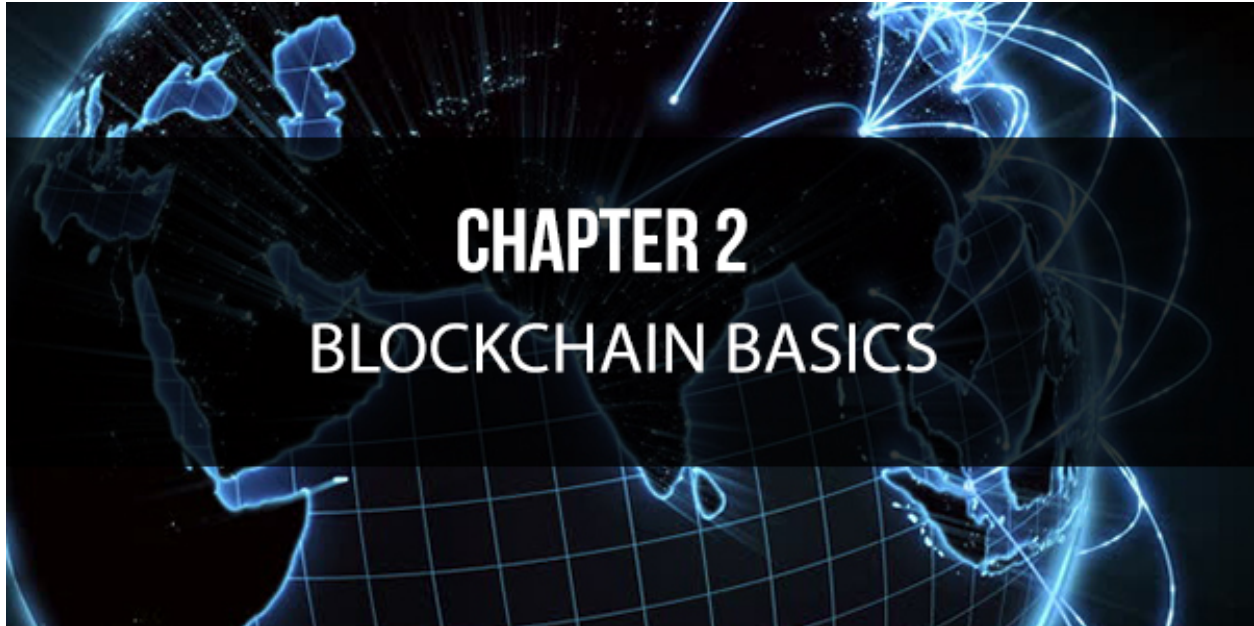
Blockchains are resistant to being modified because of their inherent design. This allows blockchains to record transactions between different parties efficiently. These transactions are not only verifiable but permanent as well. Once information is recorded in a blockchain, the data cannot be altered after-the-fact without altering the subsequent blocks by having the majority of nodes on the network agreeing to the change.

This inability to change the data within a blockchain make illegal or unfair actions almost impossible to carry out. If a hacker wished to alter information within a blockchain, they would have to gain control of every node. This security is one of the most useful characteristics of the blockchain.

Since blockchains are designed to be verifiable and permanent, they are especially suitable for recording events, maintaining medical records, drawing up agreements, fundraising, and keeping track of other documents.

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Chapter 2 – Blockchain Basics



Whether you are aware of it or not, you conduct business every day, even if you don't work. At some point, everyone gets online and initiates some kind of transaction. Whether it is purchasing something from Amazon or buying something from iTunes, you are engaging in the business of blockchain technology.

Even though the term “blockchain” is relatively new, the technology has been around for about a decade. The digitized ledger that Satoshi Nakamoto created in 2008 was the basis for the spreadsheets that manage cryptocurrencies and other online trading transactions. The technology is used in cryptography, which is how text is coded on the Internet.

Cryptography is used in blockchain technology to create distributed trust networks. This, in turn, allows any contributor to

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