

# CRYPTOCURRENCY

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**A quick guide to understanding cryptocurrency**

**Kynchin Rivera**

BY

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## Introduction

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Technology has come-up into a new level – from digital phones, tablets, computers, and now the Digital Currency or known as the Cryptocurrency of the new generation. Many people use debit and credit cards instead of a physical money coming from their pocket wallets to pay for their purchases, but there is more than a card to pay for your commodities at this millennium, and it is actually the ‘Cryptocurrency’. Not everyone know what cryptocurrency is, some even think that this is a scam, some people think it’s not true until they know how is it done.

There are many types of cryptocurrency, the Bitcoin or BTC is the most popular specially for beginners. Next to bitcoin is the Ethereum, Litecoin, Ripple, Dash, IOTA, Monero, Zcash, Cardano, Stellar, NEM, NEO and Tron. The said cryptocurrencies have their sorts of similarities and differences, when it comes to uses, trading, and policies. Japan has officially open its door for digital currencies as a mean of payment right next to real money. Japan and South Korea drives a high traffic of cryptocurrency exchanges according to CoinMarketCap, in fact South Korea is making major improvements as of 2017 for more safety transactions in the Bitcoin World.

Some says that cryptocurrencies tend to be bad because of their bubble like characteristic. There are also people who find it very useful, in fact, some make money from it while in the four corners of their houses. There are lots of merchandisers and big companies that are now accepting virtual money as a form of payment for every purchase done. Booking flight and buying software online is also covered by virtual money, you can now book flights and purchase software from Microsoft using Bitcoins with hassle free transaction.

## Chapter 1

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### Cryptocurrency

Cryptocurrency is a virtual currency that uses cryptography to secure every transaction made, thus counterfeiting this kind of currency is very impossible to do because of this security feature. The invention of the so called digital currency is not really intended by Satoshi Nakamoto the inventor of Bitcoin, which is the first cryptocurrency. In 2008, Nakamoto said that he has developed a “Peer-to-Peer Electronic Cash System,” and announced the first release of Bitcoin in 2009, which is an electronic cash system that prevents double-spending. Bitcoin is completely decentralized with no central authority or server.

The first cryptocurrency to run online as a virtual is Bitcoin – launched in the year 2009 under the pseudonym Satoshi Nakamoto. As of February 6, 2016 there is about 15.2 million Bitcoins circulating in the world. Cryptocurrency is just like a real physical money, you can keep it, spend it, and even do an investment with it. However, cryptocurrency can be wiped out by a system crash if a back-up copy doesn't exist, since it is a virtual money and it doesn't have any central repository. Cryptocurrencies are designed to decrease the production of money – The first cryptocurrency Bitcoin has an ultimate cap of 21 million BTC in total. Mean to say, there are only 21 million Bitcoins can be mined, once the Bitcoin miners unlock this total number of BTC the supply will be totally tapped.

Having on hand a digital money requires ‘Mining’, while others uses to trade theirs. People behind this gigantic invention still remains a secret, no one knows who is Satoshi Nakamoto is – can't even figure out if it's a group or a single individual behind it

## What is Mining in Cryptocurrency?

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As a beginner, maybe you're being confused of the word 'Mining', well to explain this in a very simple way try to imagine golds and how they are being mined. But before you think of buying a physical shovel and mattock, let me explain how mining is done virtually. Cryptocurrencies like Bitcoin are mined with the use of computers. Mining requires specialized computers which can find solutions to difficult math problems in order to add a new block into the blockchain. Anyone who has access to the internet with the right equipment's can participate to mining and earn bitcoin rewards.

Mining is not that easy, but it depends on how much effort you are putting in your network. To start mining bitcoins, you need to have the all necessary equipment's for a more effective and successful mining process.

### Things you need:

- 1. Get a Mining Rig-** Mining rig can be costly, some chooses to customize their own, while others often make investment of buying the best rig to use.
- 2. Bitcoin Wallet-** You can consider this one as an online wallet where you can store your bitcoins etc... safely. Once you've signed up for a wallet, make sure to get your wallet address – you can see it as a long sequence of numbers and letters. In keeping your coins, you must copy your wallet address on a sheet of paper or you can use some storage device as your back-up in case your computer crashes. So why you have to do this? It's just simply because when

your computer crashes all your bitcoins will disappear and they will be gone forever unless you know your wallet address.

**3. Find a Mining Pool-** Mining pool is a group of miners that combines their computing powers to get more Bitcoins. Joining a pool will give an easier and smaller algorithm to solve. But before deciding to join a pool you have to considered few things first, and these questions must be answered clearly.

- What is the reward method in the pool?
- How stable is the pool?
- What are the fees and charges for withdrawal?
- How easy is withdrawing funds?
- How frequent they find a block?

**4. Mining Program-** Choose a software depending on the equipment you are using – when GPUs and FPGAs you must use a host computer running these two; the standard bitcoin wallet, and the mining software. Consider also the OS (Operating System) you are using, for Windows the best software would be the Bitcoin Miner and BTCMiner, for Linux you can try CG Miner BFG Miner and EasyMiner, and if you're using Mac OS, RPC Miner is the best for you.

The mining software will the one to instruct the hardware to do the work of mining.

**5. Start Mining-** All is set and you need to start the mining process, connect your miner and power up – to start you need to put the mining pool, username, and password. Once configured you can now mine your first bitcoin reward.

## **Best Wallets to Try**

- 1. Coinbase-** This online wallet was founded by Brian Armstrong and Fred Ehrsam in the year 2011. The company launched buy and sell bitcoin services in October 2013. This application operates exchanges of cryptocurrencies such as Bitcoin, Ethereum, Litecoin and Bitcoin Cash. This cryptocurrency has already assisted 10 million customers, and transacts worth \$50 billion worth of digital currency exchanges so far according to their site.
- 2. Electrum-** This is one of the most popular Bitcoin wallet online. It is beneficial to both beginners and experts – Electrum focuses on speed and simplicity using low resource of usage. This electronic wallet can handle complicated parts of Bitcoin system by the use of remote servers. If ever you lose the wallet online during a computer crash, you can easily recover the wallet using a secret phrase.
- 3. Trezor-** Trezor is the first hardware wallet in the market, and the first to implement the passphrase feature. The passphrase feature secures the funds and if ever the owner loss the device. Trezor is a small device designed to protect private keys from possible hacking online.



- 4. Nano Ledger S-** This wallet support almost all the popular cryptocurrencies and allow you to store. It has an special feature that can store 2 kinds of currency at the same time in the same wallet, unlike others that allows only one.

## Chapter 2

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### Kinds of Cryptocurrency

Since bitcoin have been introduced, hundreds of cryptocurrencies enter the market. Many alternative cryptocurrencies or altcoins have been launched – following the success of Bitcoin, and they have grown into 700 in number. Some are being sold cheaper than Bitcoin, while some tend to be more accessible than Bitcoin. In this section of the book – 12 of the most popular cryptocurrencies will be told. Maybe you already heard about Bitcoin and have some mysterious things on how it works, but this time you will be entering the world of cryptocurrency and understand what are the playful currencies inside cryptocurrency.

#### 1. Bitcoin

Bitcoin is the first and most popular cryptocurrency in the world, some are not aware of its existence but it actually stands as a worldwide payment system. Bitcoin has no bank; in fact, it is based on mathematical proofs. Just like the technology of E-mail, no one owns nor control the system of Bitcoin. Even the group and person behind it still remain a secret, only the pseudonym Satoshi Nakamoto is has been introduced to public.

To have a Bitcoin on hand you have to sign up for an online wallet first. Yes, a virtual wallet for a virtual money, there are sorts of online wallets you can sign-up for and they're all free to use. Next is to buy a bitcoin directly from other people using marketplaces online, but you can also use digital currency exchanger like Coinbase, Kraken, Bitstamp, CEX.IO and BitFinex. Most exchanger requires to connect any of your cards or bank accounts to make a purchase. You can now go to the exchange's buy section and select the amount of bitcoin you want to buy. Bitcoin changes its value from time to time, it can increase or decrease value – no one knows. Bitcoin has a public ledger called 'Blockchain', which serves as a record for every Bitcoin transaction. The blockchain has a growing list records called blocks that is secured by cryptography, once the block has been recorded they can't be altered anymore.

Bitcoin can be used in purchasing goods, sending money, travel booking online, and buying digital products – by this, transactions are made with no middle man, meaning no banks involved at all.

## **2. Ethereum**

In 2011 a programmer named Vitalik Buterin from Toronto first grew interest on Bitcoin. Buterin, 19-year-old at that time have co-founded the online news website Bitcoin Magazine, and wrote hundreds of articles about cryptocurrency world. In the year 2013 Buterin have released the white paper. Which describes an alternative platform designed for any decentralized application a developer wants to build. The system was then called Ethereum, just like Bitcoin, Ethereum is also a distributed public blockchain network. Though there are some technical differences between the

two cryptocurrency, because in Ethereum, miners work to earn Ether instead of mining. Ether is a piece of code that allows the program or application to run – no one owns Ethereum, but its system supporting its function isn't free. Unlike Bitcoin, Ether doesn't have a cap limit, in fact, 13 million Ether are mined per year.

In order to buy an Ether, you need to find online or a person who has it and at the same time wants to trade it for cash. There is also another option if you want to have an Ether on hand, some try to purchase a bitcoin first from trusted bitcoin exchangers then trade it for Ethereum.

### **3. Litecoin**

This cryptocurrency is also generated by mining; it was created by Google's former engineer Charles Lee in October 2011. Litecoin is created to enhance the speed of mining from the opposed time 10 minutes to 2.5 minutes when generating a block. The said online currency has faster transaction than bitcoin because it uses "scrypt algorithm", which favors large amount of high-speed RAM that's why scrypt is being called as the 'memory hard problem'. Just like Bitcoin, the Litecoin has also its limit of 84 million coins and a market cap of \$540, 274,528.26.

- ✓ Litecoin can handle high volume of transactions
- ✓ Reduces double-spending attack
- ✓ Fast confirmation especially for merchants

#### **4. Ripple**

What is Ripple? Is Ripple same as Bitcoin? Well, it's a big NO. Ripple is a currency exchange and remittance network that uses a common ledger managed by a network and is validated by independent servers. The Ripple Labs, a global money transaction firm which is former OpenCoin, was co-founded by CEO Chris Larsen and CTO Jed McCaleb who is well-grounded in digital currency. Jed McCaleb is currently handling the majority Bitcoin trades in the world. While Larsen used to be the co-founder of the financial company E-LOAN – the rest of the Ripple developers also have a background in Bitcoin. Ripple is based on shared public database – a big difference with Bitcoin that is generated by energy and computing intensive proof of work. Ripple is doesn't use the blockchain technology, the companies goal is to keep the money flowing freely.

#### **5. Dash**

Dash was first launched as Xcoin, then changed its name into Darkcoin, and in 2015 the Darkcoin has been rebranded into Dash, which is now the 6<sup>th</sup> biggest cryptocurrency in the world. Dash is a peer-to-peer cryptocurrency that was forked out from Bitcoin engaging to a faster and more private transactions. Dash is the first to have a decentralized blockchain governance system, just like many cryptocurrencies Dash is also trying to solve some of the Bitcoin's inconveniences. It provides faster transactions and more anonymous service to its users. Dash transactions are made within 4 seconds, far from the transaction process of Bitcoin which usually takes 10 minutes to finish. Dash is also earned by mining, just like Bitcoin.

## **6. Monero**

Monero is a cryptocurrency that has the most anonymity when it come to their transactions made. It is a secure and untraceable currency system that uses special kind of cryptography for a 100% unlikeable transaction. The Monero receives high-level of popularity due to its privacy oriented features after it was launched in 2014. The mining process used by Monero is based on Egalitarian concept.

## **7. IOTA**

The cryptocurrency IOTA is very much different from majority online currencies – it's designed for machine but can't be mined. IOTA stands for 'Internet of Things Application, it addresses the scalability issues of blockchain and the transaction fees at the same time by getting rid of the block and chain. The mechanics is to simply verify two previous transactions, in order to submit it to the IOTA ledger. The total supply of this coins are fixed into 2,779,530,283,277,761 coins. Miners doesn't have to power-up the network and there is no central ledger for this cryptocurrency.

## **8. Zcash**

Zcashis launched by Roger Ver, Barry Seibert, and the Pantera Capital in October 28 2016.Zcash is a decentralized and open-source cryptocurrency, it uses a special secured network called 'zk-snark'. This special feature allows the network to maintain and secure the ledger without disclosing the amounts in every transaction.

## **9. Stellar**

Jed McCaleb the co-founder of Ripple is the founder of this Stellar Cryptocurrency, which is also a payment technology. Stellar is almost the same as the other payment technologies – a decentralized server runs the network with a distributed ledger the is updated every 2-5 seconds. It does not only depend on miners, instead it uses Federated Byzantine Agreement (FBA) Algorithm, which helps for a faster transaction.

## **10. NEM**

NEM is launched in March 31, 2015 as a peer-to-peer cryptocurrency and blockchain platform, written in Java and C++ programming language. NEM stands for 'New Economy Movement', unlike most cryptocurrencies NEM have its own consensus algorithm. This can prevent attacks against the network and all the transactions made. NEM aims to create a smart asset blockchain, which can perform heavy workloads.

## **11. NEO**

NEO is the first decentralized and opensource cryptocurrency in China, which was founded by Da Hongfei. Neo is a cryptocurrency and blockchain platform at the same time, it was launched in 2014 as 'Antshares' and rebranded last June 2017 as 'NEO'. Neo can support 10,000 transactions per second – using the Byzantine Fault Tolerance (BFT) consensus mechanism.

## **12. TRON**

This cryptocurrency was first introduced in September 9, 2017, and was founded by the TRON Foundation – a non-profit organization

from Singapore. Tron is also a decentralized open-sourced cryptocurrency, but has a feature of an application. Tron's technology is a storage facility that allows users access content in every part of the world, without any assistance from Google Play Store. It also allows content creators to earn from sharing their content.

### **13. Steem**

Steem is a blockchain-based social media platform where you can earn rewards. It was launched in July 2016 and currently has 70,000 users, from then Steemit has grown considerably. Steem is very much different than the other cryptocurrencies, it has a built-in inflation of 100% annually without any coin limit. Steem supports online communities and even social media platforms by giving rewards through virtual currency.

## Chapter 3

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### Why Growing Numbers People Invest in Cryptocurrency?

Nowadays many people are deciding to invest with cryptocurrency. The reason behind this is that there is no required amount or papers to invest some of your money. Any amount will do for investment, unless you want to invest a bigger amount to have double or triple profit from it. Booming graphs of cryptocurrencies price attracts many individual to go for it.

Cryptocurrencies rise and drop from time to time – if you invested thousands at this very moment and have it back in millions in the next 4-5 years. There is also a possibility of losing the money you have invested so make sure to invest what you can lose.

Bitcoin, one of the most popular cryptocurrency in the world has driven many investors and traders in the past years. Many traders invest for this coin not just because it's the top crypto of the millennium, but because it is the most profitable one. If you are deciding to invest with this kind of industry, know the pros and cons first before doing so.

#### Advantages

- **Easy Access-** Cryptocurrency is available in public and can be use by everyone. Investors all over the world can easily access because of the decentralized operation. Payment transactions has been made easy, while in a traditional payment system there is always a broker adding fees for every transaction you make.
- **Private-** With cryptocurrency, you don't need to share your personal information or the details of every transaction between you



and the beneficiary. All of the transactions are secured with the use of 'Cryptography'. Once a cryptocurrency transfer has been verified, it can't be reversed or charge-back, this protects the users from fraud and hacking.

- **Lower Fees-** Unlike when using a credit card you need to pay for an interest, with cryptocurrency charges and fees will never be a problem. All you need to do is make a research on what is the best wallet to use that matches the kind of cryptocurrency you are using. This can also be a major advantage for travelers.
- **Mobile Payments-** If you are worrying about exposing all of your personal identification when purchasing online using your cards and bank accounts, well cryptocurrency just made it right for you. You can easily do payments and purchase to online stores without providing any personal information through the internet or recipient, only your wallet address will be visible to them. You can do all of these transactions using your mobile phone.

## **Disadvantages**

- **Price Volatility-** The volatility of cryptocurrency is the main disadvantage you to be considered. Volatility is the risk level of the instrument where price is measured. So, investing in Bitcoin or any other online currencies is very risky, because the value of your money exchanged with them has no assurance. It can rise up to millions or maybe billions but it can also go to zero, no one can tell because no one controls it.
- **Possible Government Interface-** The government cannot take your coins, but they can do such actions if they will decide to ban all those cryptocurrencies in a certain country. If the government will

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