Beginners Guide to

Crypto Currency

& Decentralized Finance

TRAINING GUIDE

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Crypto Currency

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Introduction

Over the past several years, it all started as an experimental technological project. It has now developed into a massive, global trend with the potential for gaining significant profits from investors.

For investors who are new to Cryptocurrency's world, the sheer size of the space may be intimidating because there are thousands of digital currencies. More are being added every month. Hence, things such as investing, storing digital assets, and crucially, where and how to transact in cryptocurrencies also becomes important.

Indeed, choosing the proper digital currency exchange and Cryptocurrency can significantly impact the success of your cryptocurrency investments; hence, in this guide, we will explore everything you need to know to get started with Cryptocurrency investments understanding Bitcoins and Blockchain Technology, and so much more.

Beginners Guide to

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CHAPTER 1

An Overview of Decentralized Finance

The concept of Decentralized Finance (Defi) has become widely popular with the adoption of blockchain technology in finance. The spread of decentralized financial services is shaping a new world, and it is called Decentralized Finance (DeFi).

In this world of decentralized finance, financial services are globally accessible, which are undoubtedly safe and secure transactions with minimum transaction price.

Let's try to understand how decentralized finance works and the current state of the economy.

Understanding DeFi (Decentralized Finance)

Decentralized finance is a new monetary system by which different smart contracts are available on the public blockchain network. Multiple protocols, other dApps (decentralized applications), and technologies such as smart contracts facilitate the transactions without any middlemen involved.

Decentralized finance means a software-based system of financial products that are available over public blockchain networks.

Thus, the concept of Decentralized Finance is an automated agreement that aims to build an independent, open, and

transparent financial service network that buyers and sellers and works can use without going through banks, brokers, or any central bodies.

The operators fully control their monies. The lenders and borrowers interact with the software-based applications rather than any financial institution or government body.

The significant advantage of DeFi offers easy access to financial services. Further, DeFi creates a modern framework by providing new financial markets, products, and services.

Moreover, Defi uses a robust Defi app framework on public blockchains that will probably lead to new financial markets, products, and services.

Difference between Open banking and Decentralized Finance

- **Structure and Methodology:**

Open banking is a banking practice in which third-party financial service providers have open and secure access to all the banking and financial data of the transactions using APIs.

It leads to the networking of all financial information between banks and non-bank financial institutions. Further, open banking can build new types of financial applications within the current banking system.

On the other hand, DeFi is a new financial system that is not dependent on the existing infrastructure. Therefore, DeFi is commonly known as open finance.

To illustrate this concept, third parties can openly access data of various banks and financial institutions under open banking because there is a single application that regulates all traditional financial instruments. On the other hand, Decentralized Finance manages and offers new financial tools and interacts peer to peer via software-based smart contracts.

- **Transparency:**

Another significant difference between traditional banking apps and Defi is that of code transparency. In the latter, auditing is done by all the users, thereby building trust between the parties to a contract. And since the transactions use a fictitious name, there is never an issue of privacy.

Advantages of Defi

The Traditional banking system has proved to be expensive as it requires lots of administration. Moreover, the processing time of the transactions is also high. Apart from that, the rigidity in the financial framework makes it difficult to operate.

Thus, the Decentralized system of finance has sorted many issues of the traditional financial system. Some of its significant benefits are:

- **No Permission required**

A Technology-based system only requires a mobile phone or a computer with internet availability. This modern financial system allows every person from any geographical area to be a part of this ecosystem.

And in some of the stages, DeFi allows users to operate without any identification card or any know-your-customer (KYC) documents otherwise compulsory in the traditional banking system. For example, an investor can avail of a maker loan with no ID or credit score assessment.

Hence, Defi welcomes everybody to the financial system irrespective of their background.

- **Adaptability and Interoperability – Money legos**

Interoperability is another striking feature of DeFi that poses significant advantages. This feature in decentralized accounts allows developers to expand on top of existing protocols freely. They can even modify interfaces as per their requirement and integrate third-party apps, which gives fantastic adaptability to the entire system.

Accordingly, DeFi Conventions are called 'Money Legos'. Thus, existing DeFi products can be combined to create entirely new and more progressive decentralized markets.

- **Clear and Transparent**

DeFi follows an open system of working and provides a great deal of accessibility. Blockchains are also known as public ledger in a common language where everybody can see transactions. Still, the records of these transactions are not causally linked with anybody unlike, traditional banks.

The accounts of the users are pseudo-anonymous, posting only numerical addresses. Mostly, all the DeFi products use programming information as a source code to build or audit upon as they are openly accessible. Further, such open-source codes are safe.

- **More Finance Control**

Since no intermediaries or mediators are involved in Decentralized platforms, investors manage all funds and finances independently. And it takes less time for a person who wants to avail of a loan or manage his investments. Everything moves through a smart agreement.

- **Offers opportunities through innovation**

It is easier to build highly progressive financial products and markets with DeFi. The significant advantage it offers is that Ethereum can create new decentralized financial applications. Hence, existing DeFi products can be combined to create more powerful decentralized market centres which provide more scope for innovation and progress.

Challenges with Decentralized Finance

- **Performance can be slow:**

Blockchains are sometimes slower than the centralized system. The transactions may take more time to be confirmed and, in some instances, expensive when there is congestion in the

Blockchain. The developers of DeFi apps must take these limitations into account to fulfil and optimize their products accordingly.

- **No Intermediary leading to high risk:**

DeFi applications do not guarantee your risk elimination; it transfers the responsibility from the intermediaries to the end-user. It is a potential disadvantage. In case someone loses their funds by mistake, DeFi is not responsible for the same. Designing products that reduce the risk of user error is the biggest challenge when financial products use immutable blockchains.

- **Need to incentivize users to switch from traditional banking**

DeFi applications require more time and effort on the part of the user. Hence, the users should get a tangible benefit to induce them to switch over from the traditional banking system to DeFi.

- **Unorganized ecosystem**

Sometimes, it may be difficult for the users to find the best application which could match their requirements, and users must have the ability to seek the finest choices. The applications are no

doubt challenging to create. Further, to fit these applications in the modern and the broader DeFi ecosystem is also another challenge.

All about DeFi Exchanges

Decentralized exchanges (DEXes) provide a platform for users to trade digital assets without the need for a trusted intermediary (the exchange) to regulate their funds. Smart trades are made directly between user wallets with the aid of smart contracts. They also charge less trading fee than centralized exchanges as there is low maintenance work on these exchanges.

Dex enables transactions directly between crypto traders. They also may deploy blockchain technology to issue and allow ownership of vast traditional financial instruments. This system works in such a manner that it reduces the chances of error and points of failure. Security token issuance platforms, for example, may provide the tools and resources for issuers to launch tokenized securities on the Blockchain with customizable parameters. Other projects may allow the creation of financial

and commodity derivatives, new and modern synthetic assets, decentralized stock prediction markets, and many more.

The most popular DEXs — like Uniswap and Sushiswap — utilize the Ethereum blockchain and are part of the growing suite of Defi tools. You only need a compatible crypto wallet to access this vast range of financial services. DEXs are flourishing. The first quarter of 2021 recorded $217 billion in transactions through decentralized exchanges. At present, there are two million Defi traders on the platform.

Defi applications in real world

1. For borrowing & lending

Open lending protocols are one of the most popular types of applications in the DeFi ecosystem. Available, decentralized borrowing and lending have many advantages over the traditional credit system. These include instant transaction settlement, the ability to collateralize digital assets, no credit checks, and potential standardization in the future.

Since these lending services are built on public blockchains, they minimize the amount of trust required and ensure cryptographic verification methods. Lending marketplaces on the Blockchain reduce counterparty risk, make borrowing and lending cheaper, faster, and available to more people.

2. Monetary banking services

As DeFi applications are, by definition, financial applications, monetary banking services are an obvious use case for them. These can include the issuance of stablecoins, mortgages, and insurance.

As the blockchain industry is maturing, there is an increased focus on the creation of stablecoins. They are a type of crypto asset that is usually pegged to a real-world asset but can be transferred digitally with relative ease. As cryptocurrency prices can fluctuate rapidly, decentralized stablecoins could be adopted for everyday use as digital cash that is not issued and monitored by a central authority.

Mainly because of the number of intermediaries needing to be involved, the process of getting a mortgage is expensive and time-

consuming. With the use of smart contracts, underwriting and legal fees may be reduced significantly.

3. Decentralized Marketplaces

This category of applications can be challenging to assess, as it is the segment of DeFi that gives the most room for financial innovation.

DEXes allow users to trade digital assets without the need for a trusted intermediary (the exchange) to hold their funds. The trades are made directly between user wallets with the help of smart contracts.

Since they require much less maintenance work, decentralized exchanges typically have lower trading fees than centralized exchanges. Blockchain technology may also be used to issue and allow ownership of a wide range of conventional financial instruments. These applications would work in a decentralized way that cuts out custodians and eliminates single points of failure.

Security token issuance platforms, for example, may provide the tools and resources for issuers to launch tokenized securities on the Blockchain with customizable parameters.

Other projects may allow the creation of derivatives, synthetic assets, decentralized prediction markets, and many more.

Role of Smart Contracts in DeFi

The majority of the current and potential applications of DeFi include the creation and execution of smart contracts. While a usual agreement uses legal terms to determine the provisions of the connection between the substances entering the deal, a keen contract utilizes computer code.

Smart contracts have the unique ability likewise to enforce those terms through computer code. This empowers the dependable execution and automation of many business measures that presently require manual supervision.

Digitization

Smart contracts are digitized lines of codes. Subsequently, they power the DeFi conventions to go online totally. It saves the expense of both the organization and its customers.

External factors

It's wholly incorporated inside the automated system. Not in the slightest bit can external elements meddle with the financial services offered by DeFi conventions.

Disputes

Smart contracts leave no room for clashes among buyers and sellers because an intermediary is ruled out.

Accuracy

The shortfall of human intervention advances the most extreme accuracy in activities and operations.

Speed

The whole cycle is automated. Thus, manual work is reduced to nothing. Subsequently, the performance is quicker than the ordinary services.

Famous DeFi Projects

1. MakerDAO: Decentralized reserve bank and stablecoin

Maker is a stablecoin project wherein every stablecoin is pegged to the US dollar and backed by collateral in crypto.

Entrepreneurs can also develop their own DAI stablecoin on the Maker Oasis dApp platform.

Maker is a lot more than a mere stablecoin project; it aspires to answer how can DeFi develop into a reserve bank. The people who hold MKR can even vote on crucial decisions like Stability Fees – similar to how the Federal Reserve's Federal Open Market Committee votes on the Fed Funds rate.

2. Compound: Borrow and lend

It is a Blockchain-powered lending and borrowing dapp – one of the most flourishing categories of open finance. Users can deposit their crypto in the Compound Contract as collateral and can borrow against it. It then automatically matched lenders and borrowers and adjusted the interest rate dynamically based on demand and supply and open lending protocols.

3. Uniswap: Token exchange

It is a cryptocurrency exchange platform that runs entirely on smart contracts, letting users trade famous tokens straight inside

their wallets. It uses a different mechanism called Automated Market Making for directly settling trades near market price.

Additionally, users can also become liquidity providers by supplying the crypto to the Uniswap contract and earning a share of the exchange feed.

4. Augur: Market prediction platform

It is a product for the decentralized prediction markets through which users vote on the outcome of events by attaching a value to the vote. Although the present prediction market platforms are new, they offer a futuristic view into the future where users can predict the future by tapping into the crowd's wisdom.

5. PoolTogether: Zero loss savings platform

The platform enables participants to deposit DAI stablecoins in a standard pot. By the end of every month, one participant wins all the interests, and everyone else gets their initially made deposits back.

Current State of the Economy

The present situation of the financial sector is centralized. Fed or BOE is responsible for issuing money to drive the whole economy, banks and government trade. Further, these central bodies also possess the power of regulating the market demand and supply of money. As investors, they also give up managing their assets to such organizations for high returns.

Hence, the major issue with the present situation is that all the fund is centralized and controlled, thereby accelerating the risk.

Why is the present centralized system problematic?

Human beings run the apex bodies, and thus, there is always a chance of errors. To err is human. The main problem with this centralized system is: the financial user has no control over how their money will be used/invested by these financial organizations.

Apart from that, the economic demand and supply influence the stock prices beyond the market expectations. So, the financial user has no control over how the value of his investments is determined.

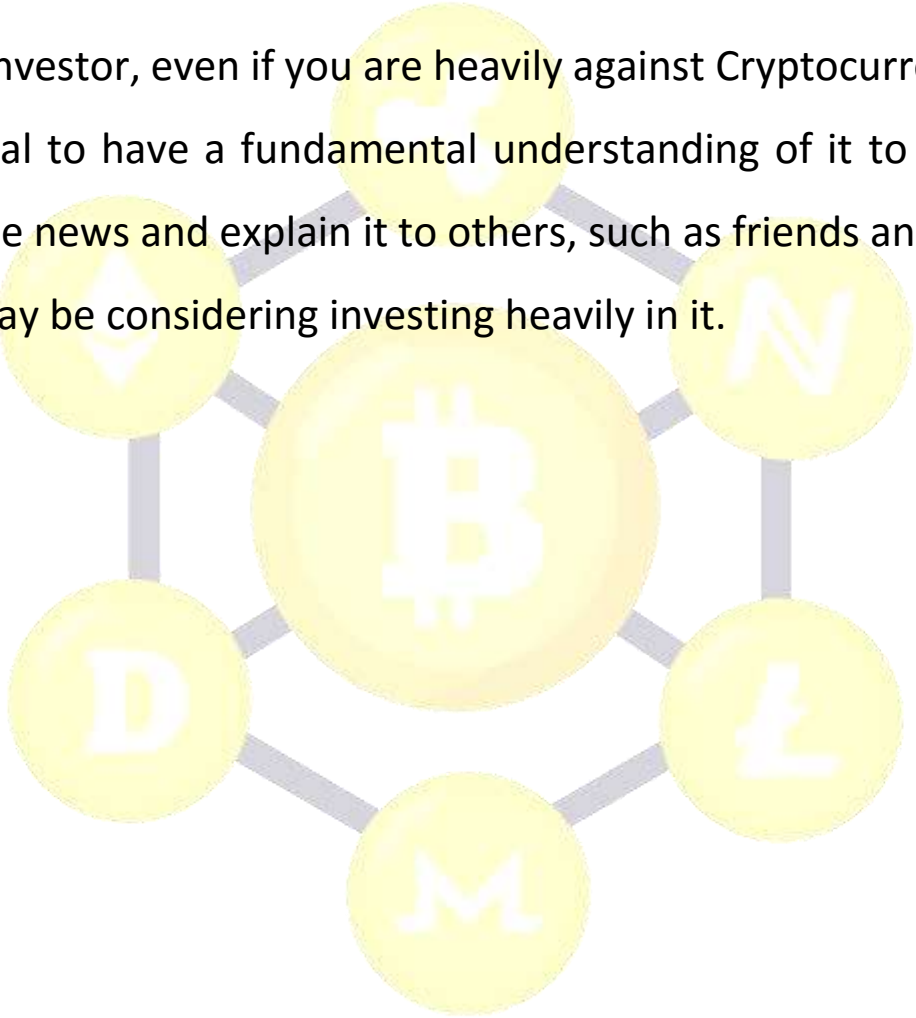
In such a scenario, the viable solution to these increasing economic concerns lies in decentralizing the entire system. Once

decentralized, the investors get more autonomy and control over their money invested and managed.

Education Is The Key in 2021

Understanding cryptocurrency basics will help you to be aware of the ongoing cryptocurrency conversation.

As an investor, even if you are heavily against Cryptocurrency, it's essential to have a fundamental understanding of it to keep up with the news and explain it to others, such as friends and family, who may be considering investing heavily in it.



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CHAPTER 2

Cryptocurrency Basics Explained

Cryptocurrency is a decentralized digital currency in which all the transactions are recorded, maintained and, verified by the online mode rather than by any centralized system. The first Cryptocurrency - Bitcoin, came in 2008, and it is still the most popular and contributing the largest in the digital money platform.

In these years, Bitcoin and other cryptocurrencies like Ethereum have shown the most effective digital alternatives for investors, including the government.

Understanding the concept of Cryptocurrency

Crypto works independently, which means no need for a middleman such as a bank or agency to process the payment. The secure online mode of transactions allows transactions to float worldwide, within no time, round the clock and, that too with minimum fees.

- Cryptocurrencies are not issued, managed, and controlled by any central body or government. It is a peer-to-peer network of computers which is an open software that is running free. It is available for all to participate.
- Another exciting concept about Cryptocurrency is that it is secured since it uses blockchain technology.

- Cryptocurrency is similar to a bank's balance sheet containing all the transactions of the individuals recorded in the computerized database. Every transaction is secure, and each currency has its Blockchain; all the transactions are rechecked at every step, and it is an ongoing chain of cash.
- In this method, a blockchain is linked to the participants through the digital currency's network, such as a bank's ledger. Cryptocurrencies let the end-users thoroughly audit and control their digital assets.

Key Features of Crypto:

- **Transferable**

Allows transactions between two parties without allowing any third party to facilitate the trade. These funds are directly transferred and secured through a key.

- **Confidentiality**

In this method, no identification proofs such as Know your customer or any assessment records are demanded, meaning no personal information is shared on the network. All your critical

financial information is secured and remained unshared with banks, advertisers, payment agencies, and credit-rating agencies, leading to almost no risk of data being leaked or hacked.

- **Security**

Cryptocurrencies, including Bitcoin, Bitcoin Cash, Ethereum, Peercoin, and Litecoin, are almost safe and secured using blockchain technology. With the aid of computers, these transactions are monitored and controlled.

- **Accessibility**

The holdings in the cryptocurrency funds are widely available to access no matter what geographical area you are in the world or even in times of global distress; we need only a computer with an internet connection.

- **Clear and Transparent**

Since all the transfers on Bitcoin, Litecoin, Ethereum, Tezos, etc., are published publicly on the shared network. Hence, there is no scope for miscalculations and manipulations in the transfers and

records, changing the rules, violating the rules during the mid-game.

- **Highly safe**

The network is highly powered and controlled. Various techniques guard them, and Bitcoins has never been hacked in history. They are calculated in terms of tokens virtually assigned to the people by categorizing them in ledger entries. The basic notion behind their safety is that these systems are open–source and no permission involved; instead, there are endless cryptographers and computer scientists taking care of the security aspect.

How is Cryptocurrency Created?

Cryptocurrency is released into the economy through the process of mining.

It is a proof-of-work (PoW) system where miners solve math problems to validate every cryptocurrency transaction. These minters get Cryptocurrency in exchange for their time and resources. These complicated mathematical calculations also increase the security, transparency, and value of Cryptocurrency.

Mining is only one way — the most complicated way — to obtain Cryptocurrency. The reward for solving these math problems varies per currency but is more profitable than any other method (besides an outright purchase).

Cryptocurrency creation depends on three main things:

1. A **community** of people who believe in the purpose of the coin and network will eventually mine and evangelize it.
2. A **code** to create and encrypt the software and blockchain network on which the currency will operate (which is relatively easy as most cryptocurrencies are based on the open-source code of Bitcoin)
3. The **confidence** of merchants to value and do business with the currency. This will lead to building of trust among consumers, investors, and the public.

A lot more goes into creating a cryptocurrency, but these are the main three elements that lead to its legitimacy and acceptance. Third parties like **WalletBuilders** also offer to generate Cryptocurrency for you.

Creating Your Cryptocurrency

Many businesses are creating their cryptocurrencies — through a crowdfunding process known as an initial coin offering (ICO). ICOs are when start-ups raise money by making their digital token that can be spent on current or future products or services.

Companies that participate in ICOs exchange their token for established cryptocurrencies like Bitcoin. Some ICO investors keep their tokens for future use or trade them on cryptocurrency exchanges as they would stock.

Types of Cryptocurrency

Let's go over a slight difference that many people get tripped over when understanding cryptocurrency basics. There are two different *types* of Cryptocurrency: coins and tokens.

- **Coins**

A coin is a cryptocurrency with its Blockchain, such as Bitcoin, Ethereum, Litecoin, Ripple.

When someone says they "bought cryptocurrency", they are referring to buying coins.

- **Token**

A token is a cryptocurrency built on another blockchain, for example, a dApp that runs on Ethereum's Blockchain.

Tokens represent an asset or utility for a specific project. They are sold (or given) to during the first public sale for a project, an Initial Coin Offering (ICO), which mirrors an Initial Public Offering in the stock market.

The United States Government has been focused on tracking down fraudulent ICOs. There is another crucial distinction with tokens. There are two general types of tokens: utility and security.

- **Utility Token**

A utility token is intended only to buy products or services from the company or platform that issues them.

- **Security Token**

A security token is essentially a digital version of financial security that acts as a share of the value of an enterprise, similar to how owning AAPL essentially means you own a chunk of Apple.

In other words, security tokens pay dividends, share profits, pay interest or invest in other tokens or assets to generate profits for the token holders.

A digital asset is considered a security token if it meets three criteria:

- It requires a monetary investment.
- The collected funding goes to a single enterprise.
- Investors give their money with the expectation of gaining income derived from the work of the third party.

Security tokens must also be fully compliant and follow these regulations:

- **Regulation D:** The individual offering the security can only raise money from accredited investors, and the information provided to them is "Free from false or misleading statements" (Section 506C).
- **Regulation A+:** This regulation is an exemption that allows the creator to solicit non-accredited investors with SEC-approved security for up to $50 million in investment. This option takes a lot more time and is generally the most expensive route for issuance.
- **Regulation S:** This regulation outlines security offerings from countries outside of the US, which are therefore not subject to the registration requirements of section 5 of the 1993 Act.

The creators of the security offering still must follow the security regulations of the country that they plan to solicit investment.

Example of a Cryptocurrency Transaction

To further understand cryptocurrency basics, here's how a hypothetical cryptocurrency transaction takes place.

Let's assume Alex wants to send Steven $5 worth of BTC.

1. Steven sends his Bitcoin address (known as a "hashed public key") to Alex. This Bitcoin address is linked to whatever exchange or cryptocurrency wallet Steven set up. It looks something like this: 3D94LKmtQuVG8JFB3F7cB7gwj614yG4CPg.
2. Alex enters the address in his cryptocurrency exchange or wallet, and the Bitcoin (BTC) amount — about 0.0005 BTC, which is equivalent to just under $25, and presses send.
3. Steven receives the BTC minus a small fee. According to bitcoinfees.info, these fees can range anywhere between $0.05 to be delivered within the next hour or $0.58 within

ten minutes. It doesn't matter if Alex sent $25 or $25,000,000 — the fees would still be the same.

How is all of this possible?

Let's jump behind the scenes:

From the moment Alex submits his transaction to the Blockchain, every node in the Bitcoin network receives the transaction request. Every node makes sure that:

1. Alex is who he is claiming to be. The nodes verify Alex's identity through his private key — a private key identifies your source of funds. **Anyone who has access to this private key has access to your money.** This is why it's paramount to make sure to keep your private key secure.
2. **He has the $5 to send to Steven.** Since the nodes have a copy of the entire ledger of transactions, they can quickly check to see if Alex has the money.

If at least 51% of the nodes agree on the two above elements, the transaction goes through, and the nodes update the ledger with the new transaction.

Why should one invest in Cryptocurrency?

As mentioned above, it is an online forum that is much secured, easy, portable, and profitable by routing through exchanges like Coinbase, which facilitates buying and selling.

- Within a few minutes, one can create a secure and safe account and further move any transaction of buying Cryptocurrency by using a debit card or any bank account.
- Generally, Cryptocurrency is purchased in fractional coins. For instance, you can buy $25.00 worth of bitcoin.
- Further, a few digital assets, such as Tezos and USD Coin, offer rewards to holders for investing in such cryptos.
- Most importantly, they are transferable and portable, like stocks or bonds.
- These days many people hold digital currencies for their investment purposes.

Storing the digital currency

Cryptocurrency is stored just like cash. There are various options to store crypto both online and offline, but the easiest and most straightforward solution is through a trusted, safe, and secure exchanges such as Coinbase.

- Digital customers can safely keep, send, receive, and transfer Cryptocurrency by signing into their account through a laptop or phone.
- There is a Digital app that can quickly transfer money from your wallet to any bank account in a similar way, such as a fund transfer from one bank to another or ATM withdrawals. Coinbase sets a daily limit for the transaction.

How do cryptocurrencies get their value?

The economic value of Cryptocurrency, like all goods and services, comes from supply and demand.

Supply refers to how much is available—like how many bitcoins are available to buy at any moment in time. Demand refers to people's desire to own it—as in how many people want to buy bitcoin and how strongly they want it. The value of a cryptocurrency will always be a balance of both factors.

There are also other types of value. For example, there is the value you get from using a cryptocurrency. Many people enjoy spending or gifting crypto, meaning that it gives them a sense of pride to support an exciting new financial system. Similarly, some people

like to shop with bitcoin because they want its low fees and encourage businesses to accept it.

Uses of Cryptocurrency:

Cryptocurrency can be used in various ways, and the innovations in this system are growing by leaps and bounds with time.

Here is a range of activities one can explore, from participating in routine activities to learning new technological limits:

- **Shopping**: More and more merchants across the globe are accepting Cryptocurrency via exchanges. Hence, it can be used to pay for shopping.
- **Worldwide**: As Cryptocurrency does not belong to any specific country, global travelling may reduce money exchange fees. A small community of "crypto nomads" who primarily, or in a few cases exclusively, spend Cryptocurrency when they travel.
- **Donations:** Many non-profit organizations accept bitcoin donations for specific noble causes and use crypto in various volunteer works.

- **Token of love**: Cryptocurrency is used as a gift for your near and dear ones who are interested in digital currency.
- **A unique method of earning**: A new digital currency can be easily created through a token.
- **DeFi explores new ways**: Decentralized finance is a new system that recreates and shapes a new modern tech-savvy world. These new players are using the global platform in various modes of investment—mutual-fund-like investments to endless loan-lending schemes and that too, with no permission and central body being involved.

Cryptocurrency Mining

Cryptocurrencies are 'mined' through a peer-to-peer network. In this process, software-based computers solve various mathematical problems through a blockchain ledger.

In mining, more bitcoins or Ethereum are generated and entered circulation. It also maintains and secures the network by regularly verifying the public logs of the Blockchain.

Although anyone can start mining, all they need is a computer with an internet connection. But the mining process is not always

rewarding. It depends on which Cryptocurrency is mined as miners are given crypto tokens.

Further, having a fast internet connection with proper equipment is always beneficial as one can mine more and earn more cryptocurrencies tokens.

Therefore, mainly crypto mining is managed by big companies having a specialized team or a team of people who can contribute their computing power. Each winner in the Blockchain is rewarded a new bitcoin, adding a recent transaction and creating a broader marketplace.

Cryptocurrency Rules and Regulations

Financial regulation is the product of disastrous market failures and fraudulent trading. The regulation is the product of great depressions around the world.

Financial markets today, such as public stocks, are heavily regulated to avoid massive losses.

Cryptocurrency, on the other hand, is not regulated.

What the United States government has been focused on regarding Cryptocurrency has been that laundering money or

purchasing illegal substances and services through Cryptocurrency, identifying fraudulent ICOs, and collecting taxes.

Perhaps the most important and relevant piece of regulatory guidance for average cryptocurrency users is Notice 2014-21, issued by the IRS.

Notice 2014-21 says that Cryptocurrency is treated as property for federal tax purposes and falls under general tax principles.

Thus, a gain or loss is recognized whenever a specific cryptocurrency is sold or used to purchase goods, services, or other cryptocurrencies (i.e., trading Bitcoin for Ethereum).

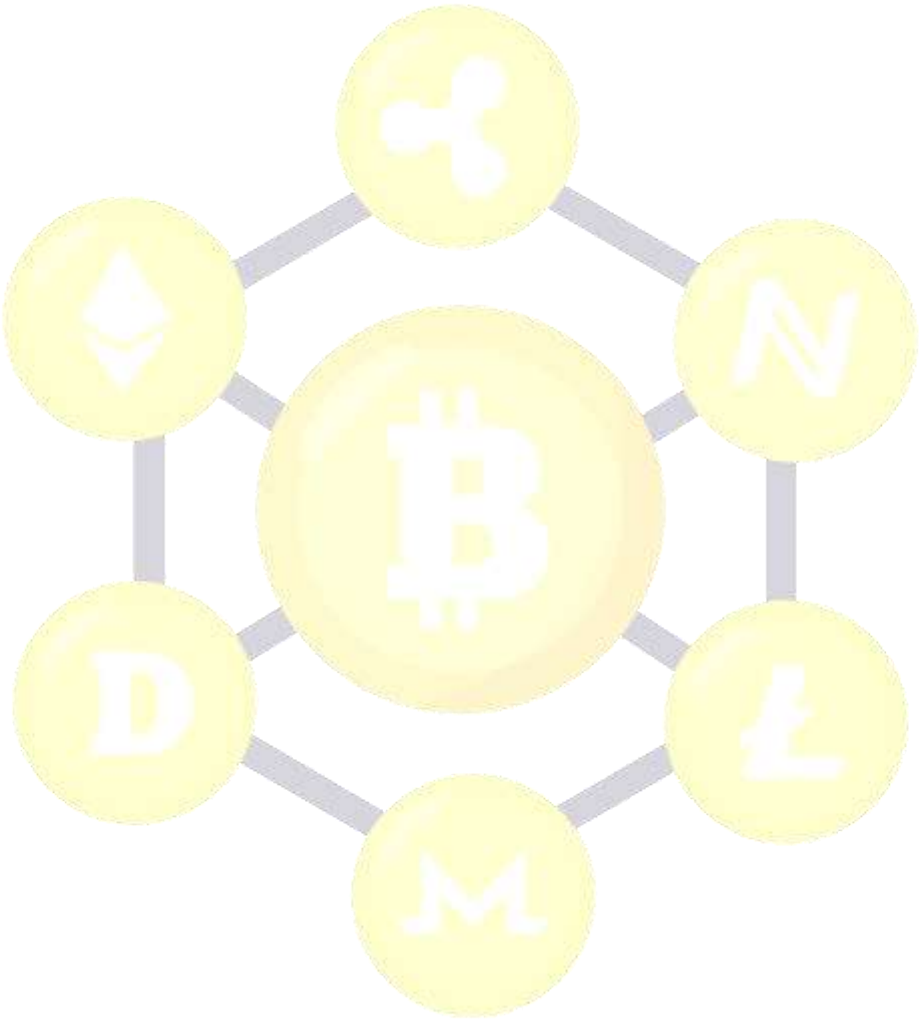
As someone diving into the cryptocurrency basics, it's essential to understand the regulatory climate around Cryptocurrency is in a constant state of flux — some details could even change tomorrow — with a few of the most significant and most crucial landmark decisions still ahead of us.

Conclusion:

Between mining, Blockchain, and wallets, there is a lot that goes into Cryptocurrency.

If anything, Cryptocurrency is a sign of how advanced and open-minded our economy is. We are willing to take new risks and try

new things to businesses, bank accounts, and futures secure. Is Cryptocurrency guaranteed? Not. But it might be something worth exploring you are looking to spice up your portfolio or try something new.



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CHAPTER 3

Understanding the Types of Cryptocurrency

Cryptocurrency is digital money, but it behaves like real money. It is an asset in the world of digital currency. There is a code referred to as cryptography that makes it secure.

There are various types of Cryptocurrencies; amongst these, some of the most common and well-known currencies are discussed below:

1. Bitcoin (BTC)

One of the most common currency, Bitcoin, started in 2008 and has the largest market capitalization. It is like real money that is distributed through open-source software. It is a network that runs on a code and is distributed in the ledger.

How Bitcoins work?

With the support of group-based transactions, it uses blockchain technology. All users or individuals work in a transparent pattern and can see all the secured transactions through the algorithm, but only the Bitcoin owner can decode it with a "private key" assigned to him.

Bitcoin works independently without any interference from banks or central institutions. Bitcoin users control the sending and receiving of money, which allows for unnamed transactions to be executed throughout the globe. It is one of the most reliable and popular cryptocurrencies. Moreover, it could be used as a physical form of cash.

2. Altcoins

Another common form of bitcoins, we have altcoins. However, many altcoins are existing in the market, but generally, leading altcoins are just similar versions of Bitcoin with a few changes. That is the reason they are called 'altcoins'. Some altcoins use altogether different algorithms for Bitcoin, and they are also quite different from bitcoins.

For example, **Ethereum** and **NEO** are examples of altcoins that are variant to **Bitcoin**. They are not used as a digital form of currency as compared to bitcoins. They were eventually developed to support the building of different apps on blockchains. Thus, one can use them as a base for creating other apps. All this has been made possible due to a technology called "Smart Contracts" launched in 2015 by Ethereum.

3. Tokens

The third primary form of Cryptocurrency is known as a crypto token. Compared to other cryptocurrencies, they are unique as they do not have independent Blockchain; instead, they are used on dApps.

The dApps use tokens and are built to use smart contracts. Most things are purchased through these decentralized Apps, or many times, they benefit by getting *discounts on fees and voting fees.*

Tokens always hold a price for which they are traded; that is the only reason people buy them and sell them later when the prices surge. But, most importantly, all the transaction fees are paid only through Ether or NEO, which means one must have some Ether or NEO to execute a token transaction.

4. Litecoin (LTC)

Litecoin was launched in 2011 as a new alternative to Bitcoin. Similar to other cryptocurrencies, Litecoin is also a global payment network that is entirely decentralized. It uses a lightning network to process more transactions in a second.

Bitcoin and Litecoin- Major differences

Minor differences between these two digital currencies:

- Litecoin is faster than Bitcoin, which takes less time per transaction.
- They operate on **different algorithms**, Litecoin's being "decrypt", and Bitcoin's is "SHA-256."
- The coin limit for Bitcoin is 21 million, and Litecoin is 84 million.

5. Ethereum (ETH)

It was created in 2015 using smart contracts. It is a type of Cryptocurrency that is an open-source platform using blockchain technology. The ownership of digital currency transactions can be tracked and focuses on running programming codes that allow being used by application developers.

Its currency is known as Ether. Individuals must pay for transaction fees on the Ethereum network using dApps.

6. Ethereum Classic (ETC)

Ethereum Classic is a new version of the popular Ethereum blockchain. All the smart contracts are used and run in a similar pattern to a decentralized platform. These Smart contracts are used with the codes of safe and run programs with no possibility of fraud or third-party intervention.

Ethereum provides "classic ether," a value token used to pay users for their products and services.

7. Zcash (ZEC)

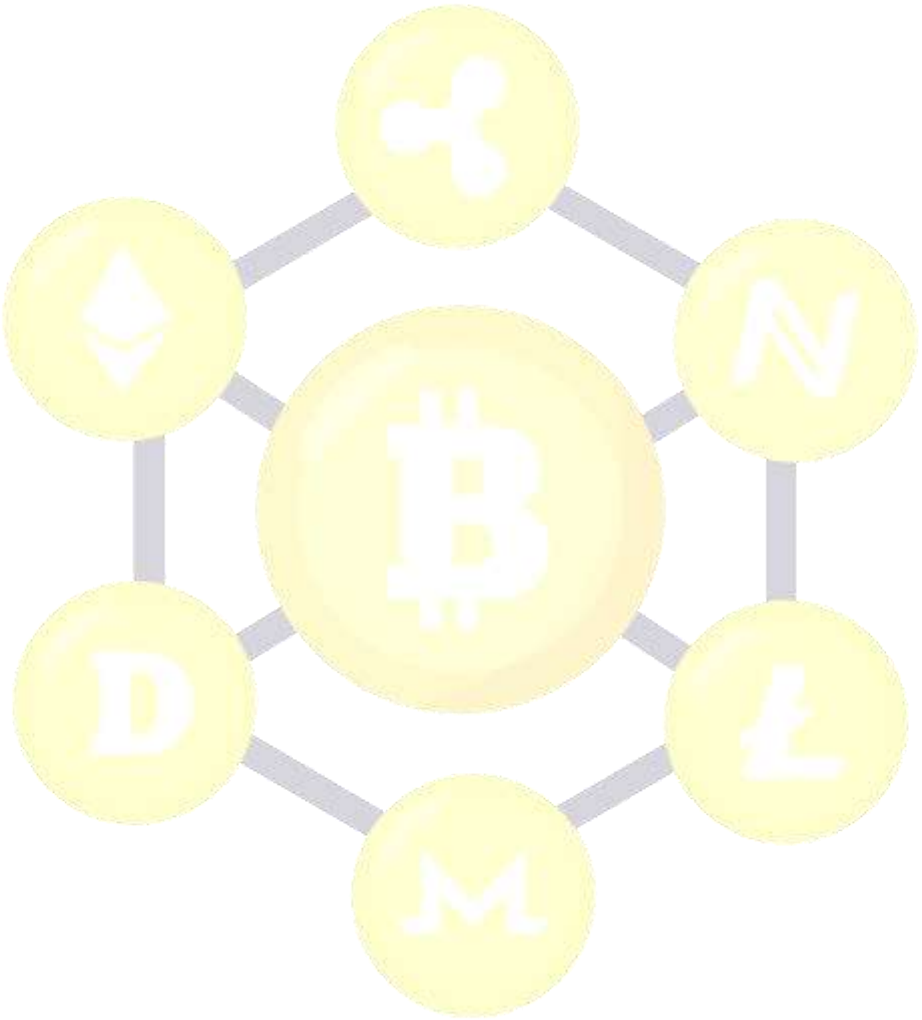
Zcash is another digital currency created on the innovative Bitcoin codebase, and it was built on a decentralized blockchain in 2016. It holds promises for transparency and privacy to the end-users. Therefore the money and the parties remain safe, and thus, it is sometimes called shielded transactions.

8. Bitcoin Satoshi's Vision (BSV)

Bitcoin Satoshi's Vision (BSV) has been developed with the 2018 split of Bitcoin Cash. It is proposed to look like the original Bitcoin

more closely, especially decentralization, thereby using cryptos to make payments.

So, we have now covered the different types of Cryptocurrency.



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CHAPTER 4

How to get started with crypto – things you should know.

While Cryptocurrency allows anyone to become their bank, this also comes with some unpleasant realities.

No central bank means no customer service, guaranteed asset protection or FDIC insurance for cryptocurrency amounts, and no representative to call when things go awry.

This leaves your Cryptocurrency at serious risk of:

- Getting hacked by malicious third parties.
- You are being lost through personal negligence, such as sending your bitcoin to the wrong address or losing your private key.

However, both of these genuine threats can be avoided by following Cryptocurrency best practices.

Cryptocurrency basics and security hygiene revolve around keeping your private key secure.

Remember, your private key is complete access to your Cryptocurrency. If you wrote down your 64 characters private key on a notecard and someone gained access to it, they're able to send your Cryptocurrency wherever they please.

Here's a quick cryptocurrency security checklist that investors utilize.

- **Use A Cryptocurrency Wallet**

A cryptocurrency wallet is a platform that is used to store, receive, and send Cryptocurrency. There are many different types of wallets, and the two general categories are hot and cold.

- **Hot Wallets**

"Hot" wallets are connected in some way to the Internet. For example, many cryptocurrency exchanges also provide users with a wallet feature.

If a hacker can finagle their way into someone's exchange account, they'd be able to transfer the Cryptocurrency. Additionally, if the exchange itself is hacked, the hackers could loot the Cryptocurrency as well.

Another popular type of hot wallet is a software wallet hosted as a program on your computer.

- **Cold Wallet**

"Cold" wallets aren't connected to the Internet and are therefore technically safer than hot wallets. For example, many cryptocurrency exchanges that hold massive amounts of Cryptocurrency use offline cold wallets to keep a majority of it. This is done to minimize the damage if a hack were to occur.

Cold wallets include hardware wallets, which are tiny plastic devices specifically designed for keeping someone's private key safe.

Another type of popular cold wallet is a paper wallet, which is your private key printed (or written down) on a sheet of paper.

- **Enabling Two-Factor Authentication (and Google Authenticator)**

Remember, most Cryptocurrency, such as Bitcoin, cannot be "hacked" in the sense that someone can manipulate its programming as they please. However, the places that store private keys are very within reach of being hacked.

The first line of defence is someone's account. If funds are being held on a cryptocurrency exchange, it's essential to use secure and unique passwords that aren't used for any other account (Gmail, Facebook, etc.)

The next step is enabling two-factor authentication (2FA). If 2FA is enabled, even if someone uses someone else's password, they'll still need to be approved via a text sent to the person's (or Google Voice number).

If available, Google Authenticator is an extra layer of security.

Google Authenticator is an app on phones that implements a 2FA verification and generates new codes every 30 seconds that must be entered correctly to access an account.

Besides the above security measures, if you plan to invest in crypto for the first time, it is crucial to be aware of the new venture you are entering. Below are some of the things you should keep in mind to help you navigate the field better.

1. **Find reputable news sources.**

There will always be lots of opposing opinions about cryptocurrencies, as well as the people who own them. Many think that crypto is just a fad, and those who engage in them will only find disappointment.

If you are already convinced that this can benefit you, just stick to sources you can trust and avoid the noise of the non-believers. If you want to be a successful investor or altcoin owner, stick with the facts.

2. **Be prepared for volatility**

It is not a secret that Cryptocurrency is still not as stable as the standard currencies—go back to that inflation of Bitcoin to almost $20,000 apiece less than three years ago.

You have to be agile with your decisions and think about what will be best for the current amount of assets.

Even experienced crypto traders and owners still have no luck with mastering the trends of these virtual coins, so do not be shocked if you find yourself in the same boat.

3. **Venture into other altcoins**

Bitcoins are only one part of the story when it comes to Cryptocurrency. Be careful to place all your eggs in one basket, as you may end up losing than gaining.

Do your research and see which coins are thriving well, with the most-used cases that can give you benefit. What you will use your crypto for will be up to you—so choose your assets wisely.

4. **Learn to use both hot and cold wallets**

While crypto exists digitally, you can still have a way of storing them online and offline—through hot wallets and cold wallets. If

you are a beginner, easy access to hot, offline wallets will prove more valuable and versatile.

Cold wallets, however, do offer more protection from hackers and other miscreants. As part of your journey into diversifying your assets, learn to use both types of wallets.

5. **Be cautious**

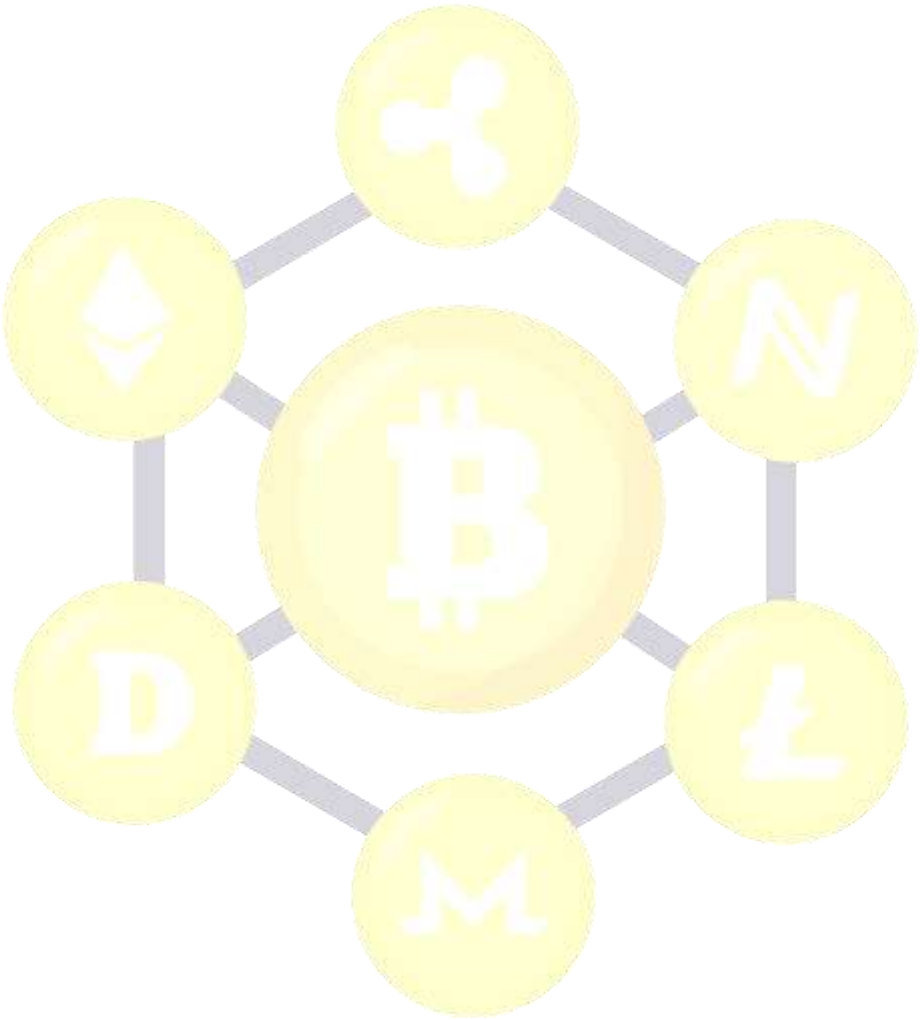
While cryptocurrencies have higher safety ratings than traditional money, it still pays to be on the alert. If you want to trade or own large amounts of altcoins in your mobile wallet, you must be prepared against the risks and vulnerabilities.

Try to study different ways of handling your newfound assets and see how you can manage your money responsibly and conveniently for yourself.

Conclusion

Mastering the world of cryptocurrencies will take a while, so don't pressure yourself to become a whiz on day one.

Like any skill, it takes time, practice, and constant learning to find out how you can maximize the potential of your virtual coins—whether you want to use them for trading or daily transactions.



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CHAPTER 5

Types of Altcoins Explained

With the growth of the cryptocurrency market, many new currencies emerged.

These cryptocurrencies are often referred to as "Altcoins" as they provide an alternative to Bitcoin. It can be challenging to choose the best altcoins, as there are thousands of options out there. Let's find some of the most popular Altcoins out there.

Note: Market capitalization of any cryptocurrency is the number achieved when the total number of coins is multiplied by the value of one coin.

1. Ethereum

The list of the best altcoins must begin with Ethereum, the second most valuable Cryptocurrency after Bitcoin. It has a current market capitalization of $64.35 billion! Ethereum was launched in July 2015 by the now-famous prodigy of the cryptocurrency world — Vitalik Buterin.

Ethereum was the first Cryptocurrency to introduce smart contracts, which are now considered the next big thing. Ethereum is also the most preferred platform for launching Initial Coin Offerings (ICOs). So, these are the features that set Ethereum apart from Bitcoin and make it attractive.

One of the biggest challenges being faced by Ethereum has been scalability. Ethereum's network currently supports roughly **15 transactions per second**. This isn't that great when compared to VISA's 56,000 transaction messages per second.

Ethereum is expected to upgrade its technology from Proof-of-Work to Proof-of-Stake in 2021. This will increase its scalability to a large extent.

2. Litecoin

Litecoin, one of the oldest altcoins, was created in 2011 by an ex-Google employee, Charlie Lee. Like Bitcoin, Litecoin is also just a digital currency but with improvements. The reason for launching Litecoin was to overcome some of the shortcomings of Bitcoin, mainly its slow transaction speed.

In the unpredictable cryptocurrency market where coins go in and out of the market very quickly, Litecoin has been in the market for over seven years. It has grown to become one of the best altcoins, with a market capitalization of $8.2 billion.

Litecoin has made considerable improvements in Bitcoin's technology to increase the speed of transactions. The reason that it is called *Lite*coin is that it is four times faster than Bitcoin.

3. NEO

NEO, which was initially called AntShares, was created in 2014 by Da Hongfei in China. It is the biggest Cryptocurrency that has emerged from China.

NEO, like Ethereum, is a platform designed for developing Decentralized applications (Dapps), Smart contracts and ICOs. Because of this close resemblance to Ethereum, NEO is often referred to as the "Chinese Ethereum".

NEO has given tremendous returns of 111,400% on investment in the past, which is enormous!

One of the significant factors driving growth for NEO is the support of the Chinese government and its robust technology. NEO supports programming in multiple languages like C++, C#, Go, and Java, whereas Ethereum only supports one language — Solidity. This has made NEO quite popular among the developer community, as they can use NEO's platform in the language, they already know rather than learn to a new one.

In 2018, NEO was expected to build an infrastructure to achieve its vision of building — Smart Economy. The basic idea of the

smart economy revolves around digitizing real-world physical assets like cars, houses or anything else.

These digitized assets can then be sold, traded, and leveraged through smart contracts. With such aggressive plans, a good team, and rising prices, NEO is one of the best altcoins this year.

4. Cardano (ADA)

Cardano was founded in September 2017 by Charles Hoskinson, one of the co-founders of Ethereum. Cardano offers Dapps and smart contracts and offers many technological improvements over Ethereum and other blockchains.

Cardano is one of the newest cryptocurrencies, but it has become one of the top altcoins with a market capitalization of $8.86 billion.

While it has not given as high returns as other top coins, it is still popular among investors and developers because of its promise of building a highly robust blockchain that offers advantages over Ethereum.

Cardano has been designed to solve three of the most pressing issues faced by 1st and 2nd generation blockchain projects — scalability, interoperability, and sustainability.

5. EOS

EOS is a relatively new altcoin whose Initial Coin Offering (ICO) was launched in June 2017. EOS was created by Dan Larimer, who has also been credited for founding cryptocurrency exchange Bitshares and blockchain-based blogging site Steemit.

EOS raised $700 million through its ICO and became one of the most successful ICOs of 2017. EOS's platform is still under development, but its market capitalization is already around $15.69 billion, making it the 5th most valuable Cryptocurrency in the world.

EOS will use a mechanism called Delegated Proof-of-Stake (DPoS) against Ethereum's Proof-of-Work (PoW). This makes EOS much more scalable than Ethereum.

Another advantage that EOS has over Ethereum is its compatible programming languages. Ethereum only supports one language, called 'Solidity', whereas EOS supports multiple languages, including C++. This is a desirable feature if you are a developer.

6. DASH

Like Bitcoin, Dash is a digital currency launched in 2014 by Evan Duffield. At the time of launch, it was called Xcoin and was then renamed Darkcoin. It was in 2015 that it was finally rebranded to Dash.

Dash has been forked from Litecoin, which is itself built on Bitcoin's technology. Dash has gained popularity because it offers significant advantages over Bitcoin.

With a market capitalization of $ 3.79 billion, Dash could perhaps be one of the best altcoins to invest in in 2021. Unlike Bitcoin, in which the public address of the sender and receiver is known to the whole world, Dash keeps the addresses hidden.

Dash also has a unique self-funding mechanism wherein 10% of all the mining reward goes back to the Dash. This fund is used to improve further and grow Dash. These special features make Dash perhaps one of the most promising altcoins available.

7. BitDegree (BDG)

BitDegree are the world's first blockchain-powered online education platform

Launched in 2017, they wish to revolutionize the education system. Think of it as Coursera and HackerRank merged, powered by decentralized blockchain technology.

With BitDegree, students and teachers are both paid. Providing the ability to earn by learning is one of the many ways they are innovating modern education.

BitDegree is the newest amongst the top coins, so there isn't much investment history to show. It is currently trading at $0.039 and has a market capitalization of USD 14,040,337.

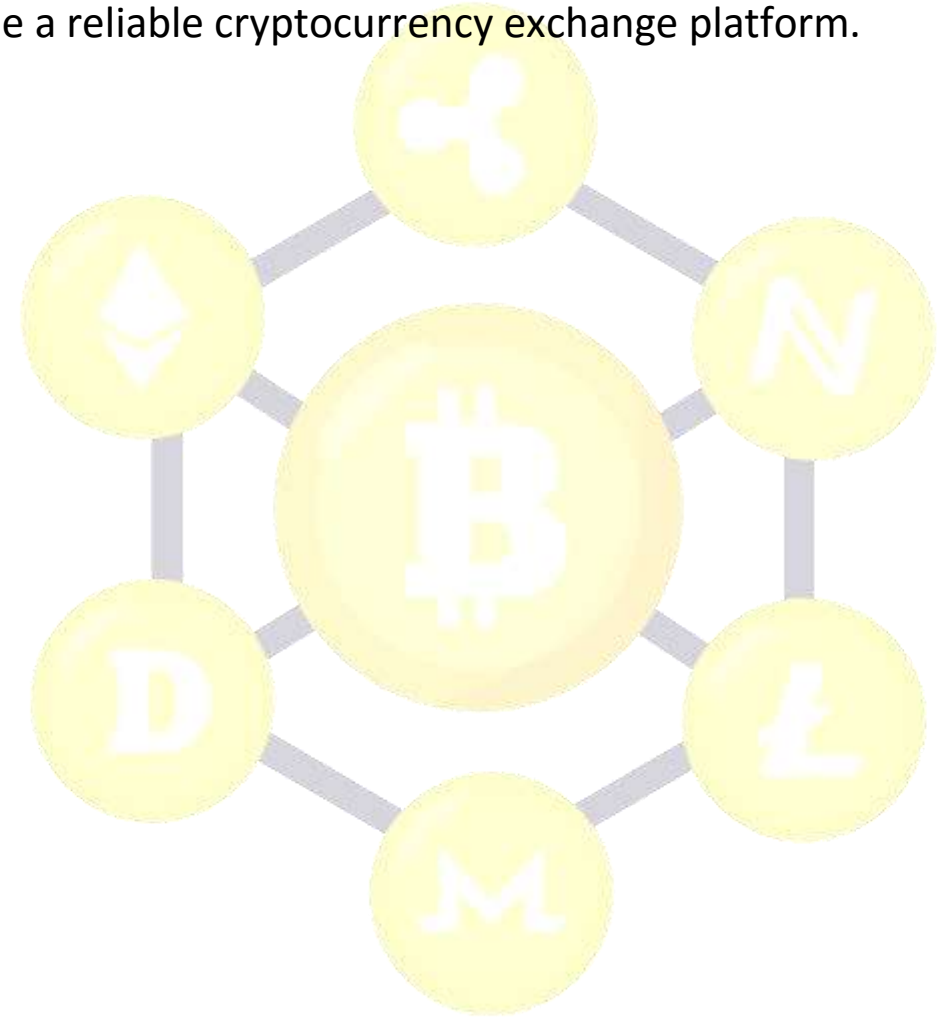
How is BDG unique and different from Bitcoin?

BDG is not just a cryptocurrency but an entire platform aimed at making education affordable and borderless. Their unique platform enables millions of people worldwide to use the power of Blockchain for learning and growing.

They already have a working MVP, allowing students to earn BitDegree tokens when they take up courses.

So, you now know the top altcoins that are out there in the market. You also learn about their history, technology and upcoming events. With this information in hand, you should pick your favourite altcoins to watch for 2021.

Once you decide which Cryptocurrency you want to purchase, choose a reliable cryptocurrency exchange platform.



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CHAPTER 6

Understanding Blockchain Technology

Bitcoin and Ethereum are cryptocurrencies that are powered by a network technology called the Blockchain.

What is a Blockchain?

Blockchain is a distributed specific type of software-based database. It is different from an old and typical database used to store information and stores the complete data in blocks that are then clubbed and chained together.

A new block is created whenever new data enters. With the completion of one data block, it is chained to a previous block. A similar process continues to chain all the information together in a chronological pattern and creates immutable blockchains. Various types of data are stored on a blockchain.

Decentralized blockchains are irreversible, which means that the data entered is immutable. The whole group holds the data than a single individual, and Blockchain is used in a decentralized way. Moreover, complete information is readily accessible and can be viewed by anyone at any time.

In a blockchain, a complete list of transactions can be recorded and verified by the users.

For example, investors can trace a record of any time someone sent or received bitcoins in the Blockchain. No Bank or other mediator is required to transfer values over the Blockchains. In Cryptocurrency, everything works flawlessly without financial intermediaries.

Major cryptocurrencies like Ethereum, Bitcoin Cash, Bitcoin, and Litecoin are secured through blockchain networks and ensure high accuracy. The cryptographic codes of these networks make the payments more secure than standard credit card or debit card transactions.

Blockchain technology has many uses beyond functional in Cryptocurrency. They are used significantly for medical research, maintain accuracy in healthcare records, and supply chain management, to name a few.

Advantages of Blockchain:

- **They're global:** which means that cryptocurrencies can be sent across the planet quickly and cheaply.
- **They increase privacy:** Cryptocurrency payments don't require you to include your personal information, protecting you from being hacked or having your identity stolen.

- **They're open:** Because every single transaction on cryptocurrency networks is published publicly in the form of the Blockchain, anyone can scrutinize them. That leaves no room for manipulating transactions, changing the money supply, or adjusting the rules mid-game.

How does it work? - The Blockchain Technology

The information in a blockchain is collected and collaborated in groups, also known as blocks. Each block has a specific capacity to store data. The system continuously connects all the blocks filled with information and linking them to each other.

A new block is connected to old blocks forming a chain. Try visualizing a blockchain as a chain used to anchor a ship. The only difference is that here every link in the chain is a block of data. The top of the chain contains the latest data, and as you move down the chain, you see older transactions.

Blockchain technology is cryptographically designed transactions signed and has several irreversible; decentralized ledger encrypted entirely autonomous. Blockchain technology tracks

money or trading exchanges online. Presently, blockchain technology is mainly used in Cryptocurrency, like bitcoin.

Components of a Blockchain

Two main parts make up a blockchain. The first component is the decentralized network. The decentralized web is what facilitates and verifies the transactions that are made.

Having blockchains on a decentralized network means that the software isn't limited to one computer system. Instead, it can be controlled on multiple computer systems, and more importantly, it isn't controlled by the government.

The second component is the entire ledger, where the transactions are processed and recorded in a secure location. This security makes it almost impossible for someone not connected to the chain to make changes or steal information. Since there can be numerous contributors involved in any blockchain, any of the contributors can control the information that is entered into the ledger.

Further, every transaction is processed securely and given a permanent timestamp, making it challenging for another contributor to alter the ledger in any way.

Blockchain technology can be used for various computerized and internet-based application. One of these applications is smart contracts. Smart contracts allow businesses to automatically verify and execute agreements that function independently in a secure environment.

Blockchain technology acts as a middleman for implementing all business deals, protocols, and programmed exchanges of information in smart contracts. As more and more transactions are completed online to run our personal lives, and professional lives, more and more deals are being signed and created online.

Blockchain applications have begun to become increasingly popular in the medical field in recent years. Researchers are now investigating these applications dealing with digital identity, insurance records, and medical records.

Today, many medical offices use a digital machine to verify that the information they have on file is, in fact, your information.

Types of blockchains

There are major three types of Blockchain such as private, public, and consortium blockchains.

The chains that are created by the public are called public blockchains. In other words, any member can participate in making, enabling, and recording the content in a blockchain. There is no single person involved.

Therefore, decisions are made by decentralized tools such as proof of work, which a computer algorithm uses in Bitcoin. These are the most open and transparent in content, making it easy for everyone to understand and transact.

On the other hand, private blockchains are privately owned by an individual or organization. In these blockchains, there is a single professional designated person who is in charge, though there may be many contributors.

But the final transactions are either disapproved or approved by the designated authority, and only then they are recorded.

The consortium blockchains, also known as federated blockchains, are designed to remove the autonomy of any single

contributor who is using private blockchains. It can be created and managed by a group of companies for mutual benefit.

Bitcoin vs Blockchain

The goal of Blockchain is to allow digital information to be recorded and distributed but not edited. Blockchain technology was first outlined in 1991 by Stuart Haber and W. Scott Stornetta, two researchers who wanted to implement a system where document timestamps could not tamper.

But it wasn't until almost two decades later, with the launch of Bitcoin in January 2009, that Blockchain had its first real-world application.

The Bitcoin protocol is built on a blockchain. In a research paper introducing the digital currency, Bitcoin's pseudonymous creator, Satoshi Nakamoto, referred to it as "a new electronic cash system that's fully peer-to-peer, with no trusted third party."

The key thing to understand here is that Bitcoin merely uses Blockchain to record a ledger of payments transparently. Still, Blockchain can, in theory, be used to record any number of data points immutably.

As discussed above, this could be in the form of transactions, votes in an election, product inventories, state identifications, deeds to homes, and much more.

Currently, there is a wide variety of blockchain-based projects looking to implement Blockchain to help society other than just recording transactions. One good example is that of Blockchain being used to vote in democratic elections.

The nature of Blockchain's immutability means that fraudulent voting would become far more difficult to occur.

For example, a voting system could work such that each citizen of a country would be issued a single cryptocurrency or token. Each candidate would then be given a specific wallet address, and the voters would send their token or crypto to whichever candidate's address they wish to vote. The transparent and traceable nature of Blockchain would eliminate the need for human vote counting and bad actors' ability to tamper with physical ballots.

Conclusion:

The Blockchain is an innovative idea that has turned out to be a new platform with a massive range of applications. However, it is still a new and fast-developing technology.

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CHAPTER 7

All about Bitcoins

Bitcoin is the world's first widely adopted Cryptocurrency. With Bitcoin, people can securely and directly send each other digital money on the Internet.

Bitcoin (BTC) is a peer-to-peer cryptocurrency. Think of it as a digital token. You cannot physically touch or hold Bitcoins, and all Bitcoin transactions are logged on a public, decentralized, immutable ledger.

Who invented Bitcoin?

No one knows for sure. But the person (or persons) most solely responsible used the pseudonym Satoshi Nakamoto when they authored a white paper in October 2008 called "Bitcoin: A Peer-to-Peer Electronic Cash System." It was published on a small mailing list for cryptography fans.

In January 2009, the software to create the currency was released, followed shortly after by the first-ever block mined on the network, known as the Genesis block.

Some key points about Bitcoins:

- Every transaction involving Bitcoin is tracked on the Blockchain, like a bank's ledger or log of customers' funds going in and out of the bank. In simple terms, it is a record of every transaction ever made using bitcoin.
- Unlike a bank's ledger, the Bitcoin blockchain is distributed across the entire network. No company, country, or third party controls it; anyone can become part of that network.
- There will only ever be 21 million bitcoins. This is digital money that cannot be inflated or manipulated in any way.
- It is unnecessary to buy an entire bitcoin: you can buy just a fraction of one if that is all you want or need. Bitcoin had qualities that no other form of digital cash had gotten quite right in the past:
- **It is decentralized:** No one person or group owns or controls it.
- **Peer-to-peer:** No third party (like a bank) is needed to confirm and approve transactions.
- **Borderless:** Bitcoin can be moved quickly globally, at smaller fees and faster speeds than traditional money transfers.
- **Immutable:** It is near impossible to change or tamper with blockchain transactions.

- **Prevents double-spending:** This was a problem many prior digital currencies had tried to crack before.

How does it work?

One of the most critical elements of Bitcoin is the Blockchain, which tracks who owns what, like how a bank follows asset. What sets the Bitcoin blockchain apart from a bank's ledger is that it is decentralized, meaning anyone can view it, and no single entity controls it.

Here are some details about how it all works:

Specialized computers, known as 'mining rigs', perform the equations required to verify and record a new transaction. In Bitcoin's case, though, the information on the Blockchain is primarily transactions.

Bitcoin is just a list. Person A sent X bitcoin to person B, who sent Y bitcoin to person C, etc. By tallying these transactions up, everyone knows where individual users stand. It's important to note that these transactions do not necessarily need to be done from human to human.

Anything can access and use the Bitcoin network, and your ethnicity, gender, religion, species, or political leaning are entirely irrelevant. This creates vast possibilities for the Internet of things.

Bitcoin's Blockchain is distributed, meaning that it is public. Anyone can download it in its entirety or go to any number of sites that parse it. This means that the record is publicly available, but it also means strict measures for updating the blockchain ledger.

What is a Bitcoin wallet?

Like a regular wallet, it is a place to keep your valuables—but digital. When it comes to Bitcoin, those valuables are your keys (strings of numbers and letters), held on a piece of software you can store on your phone, the web, or a computer. Or, to be extra safe, you can write down your keys somewhere completely offline; this is called "cold storage."

To buy and sell Bitcoin, you need both a private and a public key.

Your public key is what you share with other people so that they can send you Bitcoin. Think of it as your address; it is okay for people to know it.

Your private key is something you keep to yourself. When you trade, you use your private key to authenticate that you request to send or receive Bitcoin.

How do you obtain them?

There are two ways to acquire some Bitcoin:

- You can buy some using fiat currencies ($, £, or €, for example) at crypto exchange sites. You will need a digital wallet, and you will get a set of keys that you'll use to access your holdings.
- You can become a miner by buying a mining rig, though the equipment is expensive, and it takes a while to become profitable.
- Outside of the mining community, Bitcoin owners usually purchase their cryptocurrency supply through a Bitcoin exchange. These are online platforms that facilitate transactions of Bitcoin and, often, other digital currencies.
- Bitcoin exchanges such as Coinbase bring together market participants from around the world to buy and sell cryptocurrencies. These exchanges have been increasingly

popular (as Bitcoin's popularity has grown in recent years) and fraught with regulatory, legal and security challenges.

However, if you choose to buy and store bitcoin outside of an online exchange, here is how that works.

1. Each person who joins the bitcoin network is issued a **public key**, a long string of letters and numbers that you can think of, like an email address, and a private key, equivalent to a password.
2. When you buy bitcoin—or send/receive it—you get a public key, which you can think of like a key that unlocks a virtual vault and gives you access to your money.
3. Anyone can send bitcoin to you via your public key, but only the private key holder can access the bitcoin in the "virtual vault" once it has been sent.
4. There are many ways to store bitcoin, both online and off. **The simplest solution is a virtual wallet**.
5. If you want to transfer money from your wallet to a bank account after selling your bitcoin, **the Coinbase app makes it as easy as transferring funds from one bank to another**.

Like conventional bank transfers or ATM withdrawals, exchanges like Coinbase set a daily limit, and it may take between a few days and a week for the transaction to be completed.

Its usage:

As to what you should do with your bitcoin, that depends entirely on your interests. Here are some ideas:

- You can sell it for cash using an exchange or a Bitcoin ATM.
- You can spend it online or in brick-and-mortar retailers as you would any other currency by using a Bitcoin debit card.
- You can hold on to some or all of it as part of your investment and savings strategy.
- You might choose to that is close to your heart (check out).
- And if you have a severe budget and unfulfilled astronaut dreams? Richard Branson's Virgin Galactic happily accepts BTC in exchange for the opportunity to blast off on one of its forthcoming space-tourism missions.

- **Make purchases** - Buy anything from a Tesla to a house; an increasing number of mainstream commerce sites accept payment in Bitcoin.
- **Gamble** - If you are feeling lucky, a whole slew of gambling sites accepts Bitcoin.
- **Digital Rights Management** - Bitcoin, and the blockchain protocol it is built on, can be used to help musicians and artists control who has access to their IP.
- **Identity** - Thanks to the unique double-key system used in Bitcoin wallets, the Bitcoin blockchain can be used to verify your identity online.

Some key features of Bitcoins:

- **Bitcoin is global.** You can send it across the planet as quickly as you can pay with cash in the physical world. It is not closed on weekends, does not charge you a fee to access your money, and does not impose any arbitrary limits.

- **Bitcoin is irreversible.** Bitcoin is like cash in the sense that the sender cannot reverse transactions. In comparison, credit cards, conventional online payment systems, and

banking transactions can be changed after the payment has been made—sometimes months after the initial transaction—due to the centralized intermediaries that complete the transactions. This creates a higher fraud risk for merchants, leading to higher fees for using credit cards.

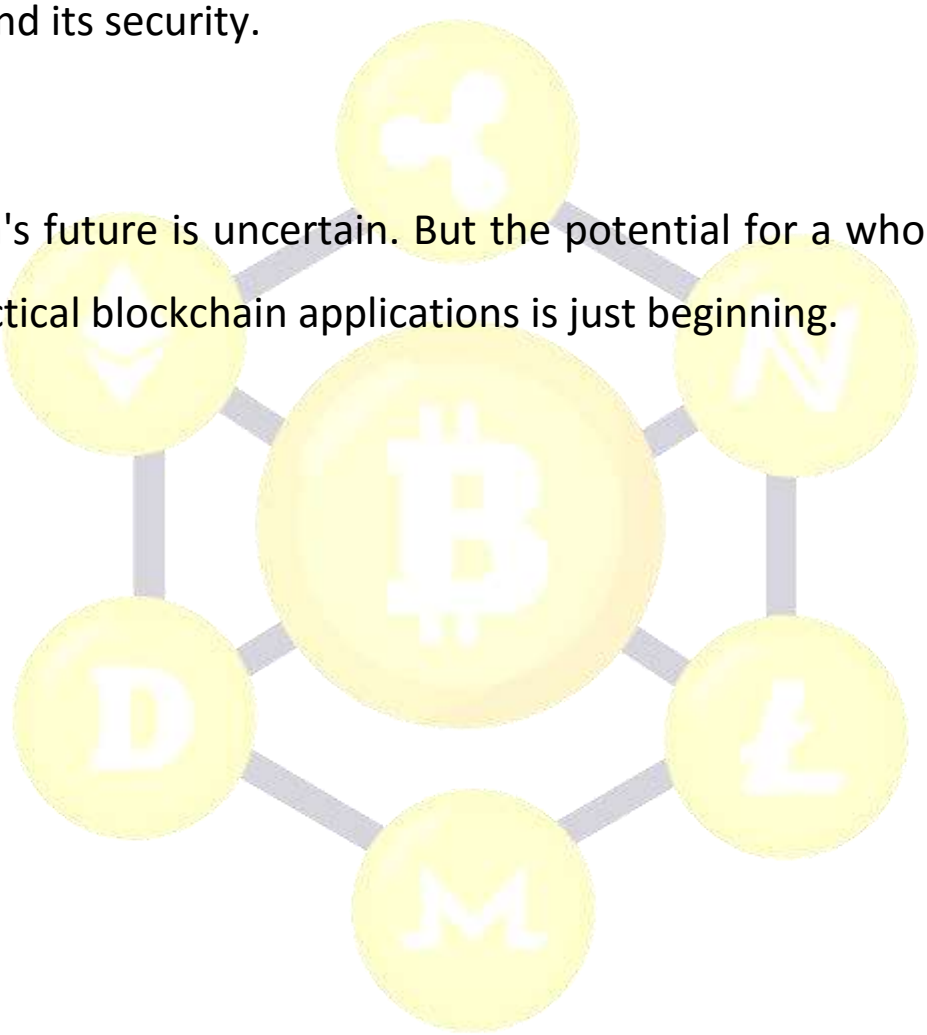
- **Bitcoin is private.** There are no bank statements or any need to provide unnecessary personal information to the merchant when paying with bitcoin.

- **Bitcoin is secure.** Due to the cryptographic nature of the Bitcoin network, bitcoin payments are fundamentally more secure than standard debit/credit card transactions. When making a bitcoin payment, no sensitive information is required to be sent over the Internet.

- **Bitcoin is open.** Every transaction on the Bitcoin network is published publicly, without exception. This means there is no room for manipulation of transactions or changing the supply of bitcoin.

- **Bitcoin is safe.** In more than ten years of existence, the bitcoin network has never been successfully hacked. Moreover, countless computer scientists and cryptographers have examined all aspects of the network and its security.

Bitcoin's future is uncertain. But the potential for a whole world of practical blockchain applications is just beginning.



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CHAPTER 8

The Bitcoin Bubble – should You invest?

Bitcoin is drawing comparisons with past economic bubbles, owing to its meteoric rise this year. Here are some perhaps poignant history lessons:

Tulip mania

One of the earliest examples of an asset bubble, the tulip boom, occurred in the 17th century when Dutch speculators caught a dose of irrational exuberance over tulip bulbs – then new to Europe from the Ottoman empire.

Speculators bought and sold bulbs, pushing up prices, while more people rushed into the market after hearing about all the money being made. As demand dried up, prices skyrocketed to unsustainable levels before crashing spectacularly.

South Sea bubble

Sir Isaac Newton was among those thought to have lost heavily from investing in the South Sea Company, which had the monopoly rights for trade between Britain and South America in the early 18th century.

Investors bought shares on the expectation of profits, but prices rose far beyond the gains on offer. Britain was at war with Spain for control of South America, and little profit was made, prompting the shares to collapse.

Dotcom bubble

The arrival of scores of new internet companies to the stock market, including the New York-based Nasdaq exchange, created a buzz in the late 1990s that led to excessive speculation. Many new firms could win huge valuations as public companies, even though they generated little or no profit whatsoever.

Selling at the top of the market in early 2000 triggered panic, while funding sources for companies with little profit-making ability dried up, further exacerbating their decline and the market crash.

Subprime mortgage crisis

Banks irresponsibly lent to US households who could not afford the mortgages they were being sold, egged on by the massive returns made by packaging the loans into bonds by their investment banking arms.

When the number of households fallings into arrears on their mortgages began to rise, investors began to realize the scale of the bad assets pumped into financial markets, triggering the collapse of the banking system in 2008.

Bitcoin is a digital currency, also known as a cryptocurrency, that emerged after the financial crisis and is not underpinned by a central bank. It allows people to bypass banks and traditional payment methods for goods and services. This idea has caught the imagination of some investors because its price surged by more than 900% in 2017.

Is Bitcoin a Bubble?

But as bitcoin hits the stratosphere, there are fears an economic bubble is forming as it becomes treated less like a currency and more like a store of value, open for speculators making ever-increasing bets on how far it can rise. Central bankers, who had to step in when the subprime mortgage bubble burst, have also warned of its dangers.

Economists have compared bitcoin's meteoric rise with past bubbles, such as the tulip mania of the 17th century and the dot-

com bubble that began in the late 90s with the Nasdaq index in New York burst in 2000.

Both examples foreshadow a painful collapse for a currency with no intrinsic value to those who hold it beyond that ascribed to it by a community of owners. There could be a rude awakening.

Bitcoin recently slumped over 18 per cent from a lifetime high of around $58,300 within days after Tesla chief Elon Musk tweeted that the prices "seem to be high." Tesla recently announced that it added $1.5 billion in Bitcoin to its balance sheet and, as a result, its shares slid 8.6 per cent, wiping $15.2 billion from Musk's net worth.

He dropped to second place on the Bloomberg Billionaires Index of the world's 500 wealthiest people. This might give an indication of the high volatility in Bitcoins prices and the lack of tangible backing. Its price volatility is 80 per cent, which is 12 times higher than that of the Euro.

Nouriel Roubini, a professor of economics at the New York University, who accurately predicted the 2008 financial crisis two years before Lehman Brothers declared bankruptcy, considers Bitcoin a "pseudo-asset" pumped up by "massive manipulation.

Some assets give income, and therefore there is a reason for the capital gain. Assets such as real estate provide housing services. And although gold does not have income, it is used for multiple purposes from industry to jewellery and liquidity and has stored value for thousands of years.

On the other hand, Bitcoin does not have any intrinsic fundamental value – neither income nor any uses in industry or utility.

Now, about the functioning of bitcoins. Some people find Bitcoin like hawala. Hawala transfers money and property in a parallel arrangement, avoiding the traditional banking system.

However, the bubble of the new tulip-mania is becoming more extensive, and a part of the private sector is embracing it. Tesla, for example, said it would start accepting Bitcoin as a payment method for its products. "It's a speculative play on a bubble that is self-fulfilling," Nouriel Roubini thinks. Its similarity to hawala, its very nature of anonymity and lack of control, however, might be the significant reasons for officialdom's scepticism towards it in many parts of the post-9/11 world.

Here are some rational reasons to keep calm and carry on holding. Serious investors are just interested in a market that crypto nerds and retail investors have so far dominated. The Chicago Mercantile Exchange (CME) introduces bitcoin derivatives – a form of bet on the currency's future value – which will let hedge funds into the market before Christmas.

Commentators also point out that tech stocks in the dot-com crash were worth $2.9tn before collapsing in 2000, whereas bitcoin's market cap currently stands at $170bn, which could signal more room for the bubble grow.

The libertarian dream of bitcoin's creators is of a currency existing outside the traditional world of finance. But the bigger bitcoin grows, and the more conventional institutions such as the CME get involved, the more chance there is of investors losing money and regulators to intervene.

Global financial leaders such as JPMorgan boss Jamie Dimon and Goldman Sachs's Lloyd Blankfein have warned that the currency is ripe for use by fraudsters.

Ajit Tripathi of accountancy firm PwC says bitcoin's meteoric rise and creation myth have attracted more buyers. The currency is said to have been created by a mysterious figure called Satoshi

Nakamoto, although there is no natural person. The absence of any government or bank behind the currency also fuels its appeal to those unhappy with the financial system after the credit crunch.

When you talk to tech industry insiders about where Bitcoin is heading, two vastly different comparisons are inevitable: the tulip bulb and the Internet.

Bitcoin's critics say the digital tokens are like the tulip bulbs of 17th-century Holland. They generated a wild, speculative rush that quickly disappeared, leaving behind nothing but pretty flowers and wrecked bank accounts.

On the other hand, Bitcoin believers want us to think about cryptocurrencies as if they were the Internet: a broad technology category that took some time to reach its potential, even though expectations got ahead of reality in the early years. If that's true, last year's crash in Bitcoin prices was like the dot-com bust, a temporary setback before the big ideas come to fruition.

But, Bitcoin is neither an irredeemable flop nor an economic miracle.

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CHAPTER 9

Elliott Wave Theory For Crypto Trading

Haven't we all tried reading charts as amateurs? Ever tried to decipher a pattern and notice that unmistakable wave of sorts when an asset rises, or even when it falls?

Whether we understand technical analysis or not, if we have tried our hand at trading any asset – whether conventional or crypto – we are most likely familiar with the Elliott Wave Theory. It is this theory our subconscious mind has unwittingly often used.

The Elliott Wave Theory is a popular technical analysis tool developed by Ralph Nelson Elliott in the 1930s. Elliott was an American accountant and author who was also a stock market trader.

In his book The Wave Principle, Elliott shared his observation that a typical pattern emerges because of trader psychology & human behaviour. A lot of trading is based on a cyclical nature. Elliott noticed that the market tends to behave like 'fractals,' i.e., mathematical structures that tend to repeat themselves infinitely (even on the most miniature scale). Interestingly, the term fractal was coined much later.

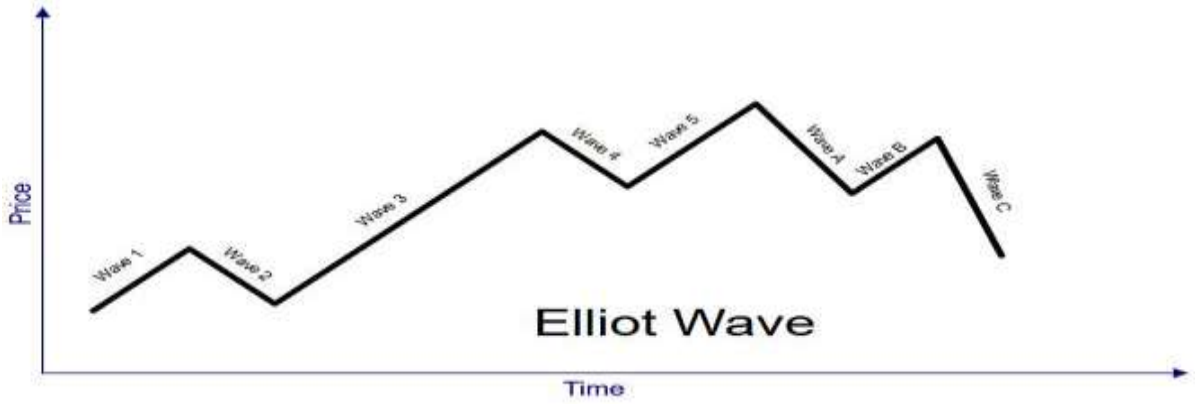
In the book, he states, "Because man is subject to rhythmical procedure, calculations having to do with his activities can be

projected far into the future with a justification and certainty heretofore unattainable." He must have been right because here we are, almost a century later, still using the same indicator!

How does the Elliott Wave Theory Work?

As witnessed multiple times in markets, the price of any asset inevitably moves up and down in a wave-like motion. The Elliott Wave Theory divides that price action into trends and corrections. An upward or downward price action showcases the direction of a trend, while corrections will always move against the trend.

The trend is called an impulse/motive wave, and the correction is called a corrective wave. The main pattern Elliott brought to our attention was that the impulse wave tends to respond in 5 waves, which means that the market progresses in the form of 5 repeating waves. This impulse moves in one direction, followed by a more significant corrective move in three consecutive waves. It is essentially a 5-3 wave pattern.



Source: MarketReview.com

On the chart, impulse waves are numbered from 1-5, and the three corrective waves are lettered A, B, and C. Three of the impulse waves (1, 3, and 5) affect the directional movement.

For example, if your crypto asset is moving upwards, these three waves will help us go up as well. The other two waves (2 and 4) are counter-trend waves. So, if the market moves upwards, these will go downwards and retract the price a bit.

Identifying the waves difficult for new traders is that the Elliott Waves can be present in several different time frames. You may see a pattern on the one-hour chart that might fit into a larger version of the Elliott Wave on the one-day chart, for example.

From a bird's eye view, you will notice that each unfolding wave pattern is part of a more significant wave pattern unfolded in the higher chart.

Three critical rules apply here:

- **Wave 2 never moves beyond the start of wave 1.** Remember that wave 1 is actionary, while wave 2 is reactionary. This means that the move upward is never retraced.
- **Wave 3 is never the shortest.** We have three waves that move with the trend (1,3 and 5). When measuring the length of these waves, wave three is never the shortest. It is, in fact, often the most powerful wave.
- **Wave 4 never enters the price territory of wave 1.** Wave 4 is one of the reactionary waves, i.e., one that moves against the trend.

A common strategy you will see with impulse waves, and something that you can use in your trades is that you have impulse wave three as the most extended wave and that impulse wave 5 will be the same length as wave 1.

For example, here is an Elliot Wave analysis from 2019 for Bitcoin since its inception. In this analysis, the trader predicts prices upwards of $27,000 for Bitcoin by the end of 2020. For that trading Bitcoin, Bitcoin futures, or any cryptocurrency derivatives, these analyses can be helpful.

What are the best entries and exits?

The start of wave 1 is the ideal entry point. However, this can be hard to spot as it comes after a sudden market dip or a consolidation period that could last days or even weeks.

More accessible spots to trade are the bottom of wave 2 or wave 4, and these are popular spots among traders. The top of wave 3 or wave 5 is best avoided.

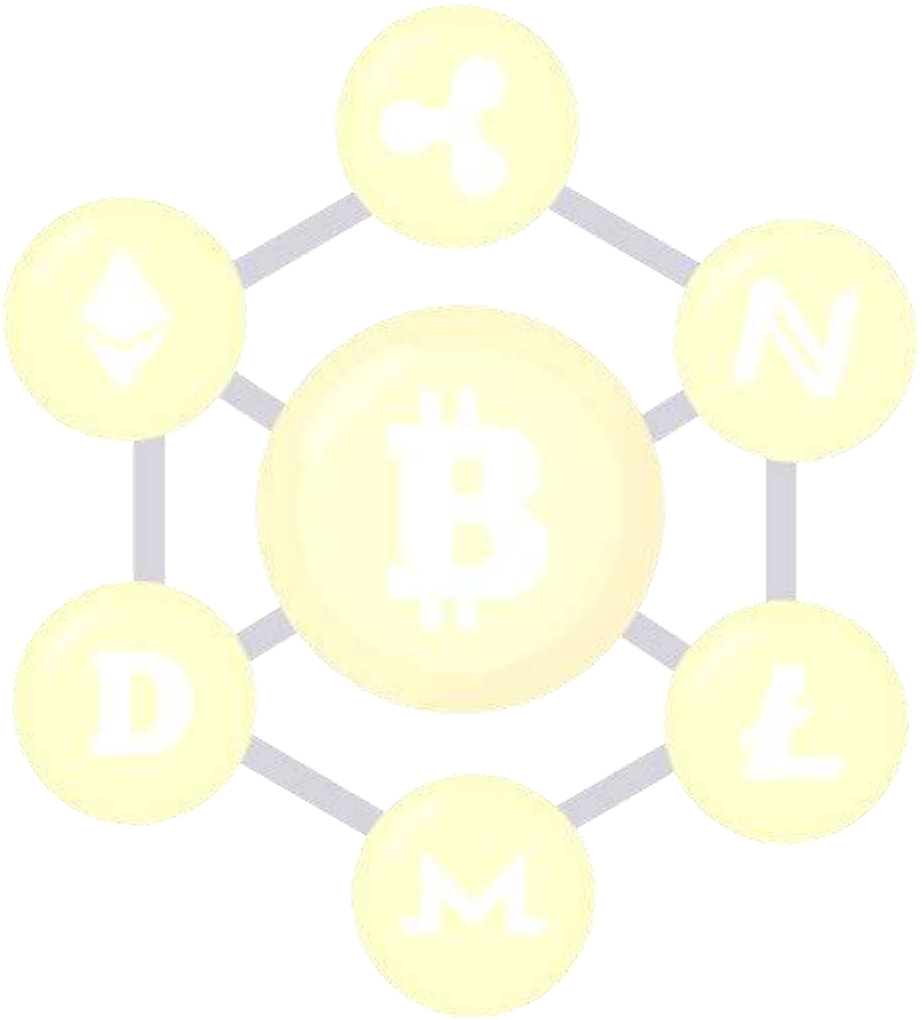
As far as exits are concerned, the end of wave C is your best option. Again, this can be hard to time since these final waves can retrace to 100% of the initial 5-Wave Elliott pattern. A safer alternative is a consolidation that breaks outside of the last corrective wave trend line.

Bottom Line

While it is one of the most excellent tools discovered to predict investor sentiment and have an edge as a trader on a crypto exchange, it's imperative to remember that the fractal-pattern behaviour of the market does not necessarily make it 100% predictable.

Buying and selling into the market have always required your research, and it always will.

You can use the Elliott Wave Principle for, though, to make an informed buying decision, depending on which of the two phases (motive or corrective) the market is currently in. You can also use the principle in conjunction with other trading strategies, such as the Fibonacci Retracement.



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CHAPTER 10

Common Reasons why retail Investors Lose with Crypto investments

If you have money and are thinking of trying a high yield but high-risk investment, Cryptocurrency is the sector you should put your bet on. But before rushing towards it, you must know that it is a digital asset that is highly volatile, and the chances of earning big or going bust are equal.

Investing in the proper crypto at the right time does not only involve luck but, more importantly, insights and precision. Only those who improve their investment practices every day excel at investing in cryptocurrencies. If you invest in the best cryptocurrencies out there, you must learn from the mistakes new cryptocurrency investors make.

1. Investing without knowing

Be it Cryptocurrency or any other asset, investing in it before knowing the detail is the most stupid mistake one can make. Before investing even, a single penny, you must understand what you are going into. You must gather information about how it works so that you can act wisely in any unfortunate situation.

Before you invest, here are some basic things to know about crypto money:

- Though it can be used to purchase items, it is not any metallic coin or paper money. It is entirely digital, and it exists only in the digital world or in computers.
- You can use it anywhere across different countries and borders. You can quickly pay it with other users without exchanging it for local currency.
- As there are no central banks or financial institutions involved, you must keep track of your own crypto money.
- You can spend it anonymously. All transactions are recorded, but nobody will get to know your account number unless you tell them. It is encrypted.

Things to know before investing in Bitcoins:

Cryptocurrencies have come a long way so much that now it is used not only for investment purposes but also for payment purposes. Bitcoins are the most popular Cryptocurrency. In 2017, there were around 2.9 to 5.8 million users using cryptocurrency wallets, and most were using bitcoin.

Nowadays, bitcoin has become a new trend, and people are interested in investing in it as it has its perks. But before investing, you must know everything about it. So, please get to know what it is, how it works, how can you get it, and more.

2. Thinking encryption means security

Yes, you read it correctly. Cryptocurrencies are encrypted, but that is only to make them confidential, which does not mean they cannot be hacked or stolen. These assets are decentralized, so keeping them safe is your sole responsibility.

Here are some tips to keep your investment protected:

- Codes or keys represent cryptocurrencies. It is like the OTP that you are not supposed to share with anyone. It would help if you kept the codes to yourself because they can use them without your knowledge once somebody gets the keys.
- Crypto exchanges have security measures but do not leave your crypto coins in exchanges for extended periods because you may become a favourite target for many hackers.

- Choose a digital wallet from a company that you can trust to store your crypto coins in a digital wallet. Before choosing a cryptocurrency wallet company, you must check the company's features, credibility, performance, and reputation.

3. Not Paying Attention to The Math

Investment is all about making profit potential. With the prediction that bitcoins will rise in 2021, you need to keep your eyes on the prize. And how do you do that? Paying attention to the numbers will let you know whether you are making a profit or not.

You need to check transaction fees. Also, as cryptocurrencies can be very volatile, there will be multiple changes in the price in a day or even in an hour. So, you need to look at transaction fees if you want to take advantage of these changes.

4. Making Investment Decisions Based on Emotions

There are few acronyms like HODL, FOMO, and FUD, which you will often encounter in crypto investing. These acronyms represent strategy but are emotion-driven at the same time. You must let these emotions drive your investment decisions.

HODL means to hold on to your investment no matter how volatile the market is. But sometimes, you may see that you do not have time to wait for a good return on your investment. That is the time you must cut off your losses.

FOMO or Fear of Missing Out means buying on the hype because you just want to follow the trend. Well, this is the most dangerous one because you would be likely to fly-by-night schemes or scams.

And FUD stands for Fear, Uncertainty, and Doubt. As straightforward as it sounds, FUD may prevent you from investing in crypto even if the research stats or market sentiments are in your favour and tell you to invest.

5. Investing in just one crypto

Bitcoins may be reaching higher multiple folds, but you never know when the market can turn upside down. So, it is wise to invest in more than one crypto as some other currencies like Ethereum and Altcoin might give you good returns. There is an

adage in investing, do not put all your eggs in one basket. Follow that, and do not put all your money in just one crypto.

6. Overtrading Overtrade

This is mainly a mistake new cryptocurrency investor makes. Some investors want to make as many as 20 trades a day. This is dangerous. Ultimately, many lose from fees or make bad trades and then trade more to recover losses.

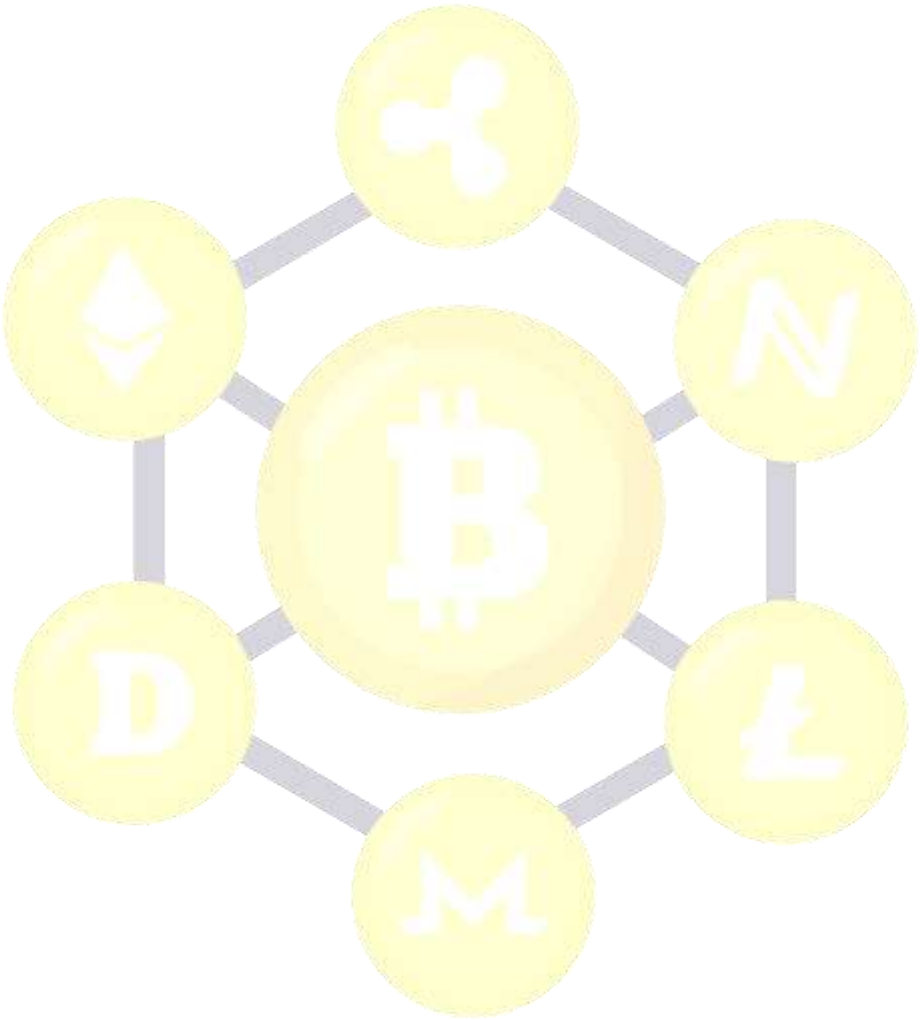
7. You Chase Cheap Coins

Never forget that the price of a coin does not affect its potential growth. Do not chase cheap coins with dreams of making millions. Many uneducated investors in the crypto space buy low priced cryptocurrencies because they think there is a higher chance of significant returns.

A better factor to consider when looking for gems is market capitalization.

To conclude, a potential investor must know the best Cryptocurrency to trade in this year and the other viable

options. If you can avoid these mistakes, you will be more successful with your cryptocurrency investment journey.



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Conclusion

With more than 8000 cryptocurrencies in the market with volatile and dynamic values, there can be a possibility of experiencing a crypto hype "crypto craze" in 2021.

Day by day, the market is booming with digital currencies, and one should explore crypto graphs before choosing the Cryptocurrency it desires to invest in.

Whether you are a beginner or one with experience, follow this comprehensive guide and the steps outlined to navigate the market and get success.

In 2021, investing in Cryptocurrency could be tricky due to the crypto market's volatile and dynamic nature. However, with this recent digital currency revolution and the need for digital financial platforms to meet contemporary exchange demands, investing in Cryptocurrency is believed to be a profitable way of earning.