MASTERING BITCOIN

AN INTRODUCTION ON BITCOIN AND HOW TO EARN MUCH MONEY WITH BITCOIN AND MINING (BITCOIN MINING, BITCOIN TRADING, CRYPTOCURRENCY, BLOCKCHAIN, WALLET & BUSINESS)

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Mastering Bitcoin

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INTRODUCTION

Arguably one of the most disruptive, exciting and controversial new developments in global economics, the arrival of the bitcoin as a legitimate, popular currency has begun provoking intense debate as to the "future" of the world economy. That being said, many people simply haven't been acquainted with this new, online-only financial resource, due in large part to its exclusion from the "real" world.

The origins of bitcoin can be traced back to 2008, when 'Satoshi Nakamoto', a pseudonym adopted by the creator of the currency, introduced his 'peer-to-peer' currency to the world. Bitcoin is defined as a 'cryptocurrency,' or form of money that is generated and transferred using an array of cryptographic tools as opposed to central government authorities. The bitcoin is designed to remain 'independent' from national interests and interactions, developing 'worth' out of its sovereignty and resistance to inflation.

Bitcoins are a virtual commodity that have many similar properties to traditional cash. Utilizing strong cryptography and a peer-to-peer network, they serve as the first currency without a central issuer. Bitcoins are not physical entities, but work in virtually the same way.

Originally, bitcoins were exchanged through the bitcointalk forums, becoming the property of audiences within the cypherpunk community, a group of enthusiasts who believe that cryptographic protocols can become a catalyst for political and social change.

Two years later, bitcoin has been embraced an increasingly larger proportion of the global community, allowing entrepreneurs to develop active trading platforms for the currency.

For those interested in using bitcoin as a vehicle for foreign exchange, a variety of platforms currently exist which allow for intra-currency trading. Some of the larger platforms are Kraken, Mt.Gox, VirWox and Intersango. Each of these exchange vehicles features a unique set of services and stipulations. Security plays an incredibly important role in bitcoin trading due to both the intangible nature of the currency and the lack of a comprehensive regulatory infrastructure for the exchanges. That being said, these currency exchange software platforms attract countless visitors, the vast majority of whom are able to engage in transactions without trouble.

The value of bitcoin is typically very volatile, due in large part to the fact that the currency is a popular tool for individuals exchanging illegal services who wish to remain anonymous. Recent government-backed

seizures of bitcoin have caused the value of the currency to fluctuate greatly. That being said, the per-unit value of bitcoin has risen astronomically over the past two years.

WHAT IS BITCOIN AND ITS CHARACTERISTICS?

Bitcoin is an advanced form of a currency that is used to purchase things through online transactions. Bitcoin is not tangible, it is completely controlled and made electronically. One needs to be careful about when to contribute to Bitcoin as its cost changes continuously. Bitcoin is used to make various exchanges of currencies, services, and products. The transactions are done through one's computerized wallet, which is why the transactions are rapidly processed. Any such transactions have always been irreversible as the client's identity is not revealed. This factor makes it a bit difficult when deciding on transactions through Bitcoin.

Satoshi Nakamoto first proposed Bitcoin as a means of payment based on mathematics. Bitcoin is a method of payment or transfer of value that is independent of governmental authorities like central banks that traditionally control the money supply and the availability of currency in the global market. In many ways, Bitcoin is a pan-global means of exchange. Transfers are made via computer immediately with low transaction fees. Bitcoin does not flow through the traditional banking system; rather it flows from one computer wallet to another.

Bitcoin cannot be held or kept in a pocket or wallet like currency; it is purely a computer-based means of exchange.

Bitcoin is a fixed asset; there is only a total of 21 million coins. Solving the advanced mathematical problems results in the mining of Bitcoins. However, Bitcoin is divisible so the growth potential for the exchange medium is unlimited. One of the most interesting inventions that came alongside Bitcoin is blockchain or distributed ledger technology (DLT). DLT has amazing potential when it comes to traditional operations and settlement ramifications for businesses in the financial as well as other industries.

DLT tracks ownership and allows for immediate and efficient transfers of Bitcoin.

Bitcoin has several attributes that set it aside from traditional currencies as a pan-global means of exchange. Central banks or monetary authorities do not control the number of Bitcoins; it is decentralized making it global. Anyone with a computer can set up a Bitcoin address to receive or transfer Bitcoins in seconds. Bitcoin is anonymous; the cryptocurrency allows users to maintain multiple addresses and setting up an address requires no personal information. The DLT technology makes Bitcoin completely transparent; it stores complete details by an address of every transaction that ever occurs.

Transfers of Bitcoin are immediate and once made, they are final. At the same time, there are limited fees and international and domestic transfers

are not subject to foreign currency exchange rates and fees for transfer. There are no borders when it comes to Bitcoin.

IS BITCOIN A COMMODITY?

The CFTC's designation came as a response to a Bitcoin exchange that was offering derivative contracts or options on the value of the cryptocurrency. However, Bitcoin is one of those assets that does not quite fit well into any definition and a historical understanding of what is a currency and what is a commodity sheds light on the argument.

Throughout the course of history, many commodities and even some manufactured products have served as currency. Probably the best examples are gold and silver. Gold and silver were not only used as a medium of exchange, or currencies for thousands of years, they were backing for many paper currencies around the world until only recently. Central banks and monetary authorities around the world continue to hold vast gold reserves and categorize their holdings as "foreign exchange reserves." Therefore, both gold and silver can be thought of in the same class as Bitcoin.

Moreover, over the course of history salt served as a medium of exchange in ancient times. More recently, cigarettes or blue jeans have been employed as currency in certain areas of the world over recent decades. As you can see, the classification of Bitcoin as a commodity is both dubious and understandable, at the same time. It is hard categorized Bitcoin because it is so new and different from other assets available to market participants. One

thing seems certain, the growth of interest in the cryptocurrency over recent years means that it is an asset that deserves our attention.

BITCOIN TRANSACTIONAL PROPERTIES:

Fast and global

The transaction is propagated nearly instantly in the network and are confirmed in a couple of minutes. Since they happen in a global network of computers they are completely indifferent of your physical location. It doesn‘t matter if I send Bitcoin to my neighbor or to someone on the other side of the world.

Secure

Bitcoin funds are locked in a public key cryptography system. Only the owner of the private key can send cryptocurrency. Strong cryptography and the magic of big numbers makes it impossible to break this scheme. A Bitcoin address is more secure than Fort Knox.

Pseudonymous

Neither transactions or accounts are connected to real-world identities. You receive Bitcoins on so-called addresses, which are randomly seeming chains of around 30 characters. While it is usually possible to analyze the transaction flow, it is not necessarily possible to connect the real world identity of users with those addresses.

Permissionless

You don‘t have to ask anybody to use cryptocurrency. It‘s just a software that everybody can download for free. After you installed it, you can receive and send Bitcoins or other cryptocurrencies. No one can prevent you. There is no gatekeeper.

Irreversible

After confirmation, a transaction can‘t be reversed. By nobody. And nobody means nobody. Not you, not your bank, not the president of the United States, not Satoshi, not your miner. Nobody. If you send money, you send it. Period. No one can help you, if you sent your funds to a scammer or if a hacker stole them from your computer. There is no safety net.

WHAT ARE BITCOINS PROS & CONS

Bitcoins have a way to go before becoming a serious alternative to existing electronic transaction systems, but they do provide real advantages to users:

Direct Transfers for Immediate Settlement

Purchasing real property typically involves a number of third parties, delays, and payment of fees. In many ways, the bitcoin blockchain is like a “large property rights database,” says Gallippi. Bitcoin contracts can be designed and enforced to eliminate or add third party approvals, reference external facts, or be completed at a future date or time for a fraction of the expense and time required to complete traditional asset transfers.

Access to Historically Inaccessible Markets

There are approximately 2.2 billion individuals with access to the Internet or mobile phones who don't currently have access to traditional exchange systems. These individuals are primed for the bitcoin market. Kenya's M-PESA system, a mobile phone-based money transfer, and micros financing service recently announced a bitcoin device, with one in three Kenyans now owning a bitcoin wallet.

Protection From Payment Fraud

Bitcoins are digital and cannot be counterfeited or reversed arbitrarily by the sender, as with credit card charge-backs.

Reduced Possibility of Identity Theft

When you give your credit card to a merchant, you give him or her access to your full credit line, even if the transaction is for a small amount. Credit cards operate on a "pull" basis, where the store initiates the payment and pulls the designated amount from your account. Bitcoins use a "push" mechanism that allows the bitcoin holder to send exactly what he or she wants to the merchant or recipient with no further information. Furthermore, bitcoins do not require names – just digital wallet IDs.

Lower Fees

There aren't usually transaction fees for bitcoin exchanges because the bitcoin miner is compensated by the network with newly issued bitcoins. Even though there's no bitcoin transaction fee, many observers expect that most users will engage a third-party service, such as Coinbase, in lieu of creating and maintaining their own bitcoin wallets. These services act like Paypal does for cash or credit card users, providing the online exchange system for bitcoin, and as such, they're likely to charge fees. It's interesting to note that Paypal does not accept or transfer bitcoins.

LIMITATIONS & RISKS OF BITCOINS

Critics of bitcoins range from noted economist and "New York Times" writer Paul Krugman, to MarketWatch's David Weidner, who claims advocates for bitcoins are essentially gold bugs: "The most paranoid class of investors. They're hoarding it to ward off what they believe is hyperinflation. They don't trust the Fed. They don't trust the government. They don't trust central banks."

They, and others, raise a number of concerns, some of which are substantial obstacles to the online currency, while others may resolve as the system matures.

Financing Illegal and Immoral Activities

Some believe the appeal of bitcoin is that it can be used anonymously for illegal or antisocial acts. According to Mercedes Kelley Tunstall of Ballard Spahr LLP, "Bitcoin has built its reputation and structured its virtual currency around being both anti-government and anti-establishment."

On October 2, 2013, the FBI closed the notorious website Silk Road, seizing more than 144,000 BTC worth $28 million. According to Paul Smocer, president of BITS (the technology policy division of The Financial Services Roundtable), Silk Road was “an operation that was allegedly used to anonymously buy or sell drugs, offer guns or assassins for sale, and provide tutorials for hacking ATM machines. The operation was completely reliant on digital currency for transactions.” He went on to say, “Digital currencies are being used to assist a broad array of criminal activities including illegal drug sales, stolen identities, child pornography, prostitution, human trafficking, and illegal weapons sales. It is also being used as a favorite of cyber criminals to pay for services such as developing and distributing malicious software to the movement of stolen funds resulting from account takeovers.”

Proponents of bitcoins, with the agreement of federal currency regulators and enforcement officials, respond that any financial institution, payment system, or medium of exchange has the potential to be used for money laundering and other illicit activities.

Excessive Volatility

According to an analysis published in The Wall Street Journal by Campbell Harvey, a finance professor at Duke University, bitcoins have been 7.5 times as volatile as gold, and more than eight times as volatile as the S&P 500 over the last three years. This coincides with the analysis of Marie Brière, associate professor of Universiteé Paris Dauphine in France, who calculated an annualized return of 370% for bitcoins with 175% volatility.

Such violent price movements within short time periods are not consistent with an ideal exchange medium for buyers or sellers, limiting bitcoins as a significant vehicle for businesses.

Many believe that bitcoins are speculative bubbles, similar to the Dutch tulip bulb mania of the 1600s. The evidence to date definitely suggests that the current market is mainly speculation, with three-quarters of mined bitcoins being hoarded, waiting for prices to rise.

High Risk of Loss

Timothy B. Lee, adjunct scholar at the Cato Institute and regular contributor to Forbes.com, identifies four reasons to be cautious about bitcoins:

- **Lack of Security** . There is no safety net or perfect way to protect your bitcoins from human error (passwords), technical glitches (hard drive failures, malware), or fiduciary fraud. According to an article in the UK edition of Wired, 18 of 40 web-based businesses offering to exchange bitcoins into other fiat currencies have gone out of business, with only six exchanges reimbursing their customers. The authors of the study estimate that the median lifespan of any bitcoin exchange is 381 days, with a 29.9% chance that a new exchange will close within a year of opening.
- **Increased Regulation.** While relatively benign guidelines are currently in place, law enforcement agencies could decide that bitcoins are a “giant money laundering scheme,” and enact more stringent regulations that would diminish the currency’s value.

- **Limited Scaling** . The design of the system limits the speed and number of transactions processed, making it unlikely that bitcoins will replace conventional credit card transactions.
- **Lack of Applications** . While acknowledging bitcoins' popular use for illegal transactions, Lee questions how useful bitcoins really are. To be truly disruptive to existing fiat currencies or electronic payment systems, Bitcoin would need applications for low-cost international money transfers, the creation of complex electronic contracts, or use in Kickstarter-style fundraising campaigns or micropayment transfers.

James J. Angel, associate professor of finance at the McDonough School of Business at Georgetown University, noted in an article on CNN that one of the largest Bitcoin exchanges is a former online site to trade cards used in the popular card game MAGIC: "An exchange based on trading kiddy cards does not seem like a sound foundation for a monetary system."

Many financial experts would concur that the issues inherent in currency and monetary exchange systems are considerably more complex than the artificial limits established in game software. Angel also predicted that Bitcoin mining software would become a magnet for computer viruses since there is no government regulating the participants within the system.

On December 8, 2013, the Financial Times reported that "Bitcoin has fueled a surge in the number of cyber-attacks," with more than 300,000 known incidents occurring in the preceding quarter. According to the article, cyber-attackers demand ransoms paid in bitcoins from owners of the computers that have been attacked, steal bitcoins by deciphering the long

codes, and hack the coining computers used to maintain the public ledger of bitcoin ownership.

Furthermore, Mr. Smocer, testifying before the Senate Subcommittee, noted that bitcoins are not broadly accepted by the established financial services industry, limiting their overall application and use.

HOW IS BITCOIN CREATED?

When computers successfully add a block to the blockchain, they are rewarded with cryptocurrency. Earlier we discussed how the amount of bitcoin produced every 10 minutes cuts in half every four years. At the time of writing, computers receive 12.5 bitcoin, or approximately $48,625 USD, for each block that they add to the blockchain.

If the tune of $48,625 sounds enticing, be warned that the process of adding blocks to the blockchain, what the cryptocurrency world calls “mining,” is not easy. In fact, the odds of solving one of these problems on the Bitcoin network are about one in seven trillion (12 zeros). To put that number in perspective, the odds of winning the jackpot lottery are one in 13 million. To solve complex math problems at those odds, computers must run programs that cost them significant amounts of power, energy, and money.

Similar to winning the lottery, solving hashes essentially comes down to chance—but there are ways to increase your odds of winning in both contests. With bitcoin, arriving at the right answer before another miner has almost everything to do with how fast your computer can produce hashes. Just a decade ago, bitcoin mining could be performed competitively on normal desktop computers.

Over time, however, miners realized that graphics cards commonly used for video games were more effective at mining than desktops and graphics processing units (GPU) came to dominate the game. In 2013, bitcoin miners began to use computers designed specifically for mining cryptocurrency as efficiently as possible, called Application-Specific Integrated Circuits (ASIC). These can run from $500 to the tens of thousands.

Today, bitcoin mining is so competitive that it can only be done profitably with the most up-to-date ASICs. When using desktop computers, GPUs, or older models of ASICs, the cost of energy consumption actually exceeds the revenue generated. Even with the newest unit at your disposal, one computer is rarely enough to compete with what miners call "mining pools."

A mining pool is a group of miners who combine their computing power and split the mined bitcoin between participants. A disproportionately large number of blocks are mined by pools rather than by individual miners. In July 2017, mining pools and companies represented roughly 80% to 90% of the computing power on the bitcoin network.

In the real world, the power from the millions of computers mining on the bitcoin network is close to what Denmark consumes annually. All of that energy costs money and according to a recent study from research company Elite Fixtures, the cost of mining a single bitcoin varies drastically by location, from just $531 to a staggering $26,170. Based on average utility costs in the United States, that figure is closer to $4,758.

HOW DOES BITCOIN WORK?

Bitcoin and other cryptocurrencies operate on a technology called "blockchain." You may have heard of blockchain referred to as a "distributed, decentralized, public ledger," but the technology is actually easier to understand than that definition sounds. At its most basic level, blockchain is literally a chain of blocks—only not in the traditional sense of those words. When we say the words "block" and "chain" in this context, we are actually talking about digital information (the "block") stored in an online database (the "chain"). Here's how it works.

You have all these people, all over the world, who have bitcoin. According to a 2017 study by the Cambridge Centre for Alternative Finance, the number may be as many as 5.9 million. Let's say one of those 5.9 million people wants to spend one or many of their Bitcoin. This is where blockchain comes in.

With other public recorders of information, like the Securities Exchange Commission (SEC), Wikipedia, or your local library, there's someone in charge of vetting new data entries. With blockchain, however, that job is left

up to a network of computers. These networks often consist of thousands (or in the case of Bitcoin, about 5 million) computers spread across the globe. When you go to make a purchase using bitcoin, that network of computers rushes to check that your transaction happened in the way you said it did. They confirm the details of the purchase, including the transaction's time, dollar amount, and participants.

When consumers make purchases using the U.S. dollar, banks and credit card companies verify the accuracy of those transactions. Bitcoin performs this same function without these institutions using a system called "hashing." When one person pays another for goods using bitcoin, computers on the bitcoin blockchain rush to check that your transaction is accurate. In order to add new transactions to the blockchain, a computer must solve a complex mathematical problem, called a "hash."

Solving a hash takes computers, and even supercomputers, an average of 10 minutes. During that time, computers also check the accuracy of new transactions on the bitcoin blockchain. If a computer is the first to solve a hash, they store newly-made transactions as a block on the blockchain, at which point they become unalterable.

IS BITCOIN ANONYMOUS?

Anyone can view a history of transactions made on the blockchain, even you. But while transactions are publicly recorded on the blockchain, identifying user information is not. When reviewing the transaction history of your bank account, for example, you'll notice that the names of vendors are included on your bank statement. On the bitcoin blockchain, however,

only a user’s public key appears next to a transaction—making transactions confidential but not anonymous.

This is an important distinction. International researchers and the Federal Bureau of Investigation (FBI) have claimed time and again that they can track transactions made on the blockchain to user’s other online accounts, including their digital wallet. That’s a direct result of that Anti-Money Laundering Policy we mentioned earlier.

HOW TO BUY BITCOIN

Bitcoin. It’s one of the biggest buzzwords in the financial technology industry right now, but also one of the least understood. With cryptocurrency back in the news again, now’s a better time than ever to delve into the weeds and learn more about how to invest. If you’re standing, sit down, because here’s a breakdown of everything you need to know before buying your first bitcoin—or deciding not to.

Investing in cryptocurrencies and Initial Coin Offerings ("ICOs") is highly risky and speculative, and this article is not a recommendation by Investopedia or the writer to invest in cryptocurrencies or ICOs. Since each individual's situation is unique, a qualified professional should always be consulted before making any financial decisions. Investopedia makes no representations or warranties as to the accuracy or timeliness of the information contained herein. As of the date, this article was written, the author owns no cryptocurrencies.

WHY PEOPLE BUY CRYPTOCURRENCY

You don't have to understand bitcoin to realize that banks, businesses, the bold, and the brash are cashing in on cryptocurrency. In 2016, the price of a bitcoin was $710.09. On Feb. 21, 2019, the exchange rate for a single bitcoin was $3,890. It doesn't take an economics degree to know that the folks who invested in bitcoin a few years ago are now patting themselves on the back—but the good news is, it's not too late to get in the game.

It may seem hard to believe that a digital currency could be worth thousands of dollars. After all, unlike physical currency like precious metals or printed money, bitcoin is just lines of code. So what makes bitcoin so valuable?

The Value of Currency

The worth of currency used to be stipulated by precious metals. From 1879 until 1933, for example, Americans could trade the federal government $20.67 for an ounce of gold. For the United States, that all changed at the height of the Great Depression when America faced mounting unemployment rates and spiraling deflation. In 1933, President Franklin D. Roosevelt decided to cut the United States' ties to gold, effectively allowing the Federal Reserve to pump more money into the economy than the federal government had the gold to back.

The United States now has what is called a "fiat" money system, meaning the dollar's value is determined by faith, rather than a physical asset. The

dollar, for example, is worth far more than the value of the ink and paper that it’s printed on.

Key Takeaways

- Bitcoin is a digital currency that promises lower transaction fees than traditional online payment mechanisms.
- The value of bitcoin depends on the faith of investors, cryptocurrency's integration into financial institutions, and the public’s willingness to learn.
- When someone pays for goods using bitcoin, computers on the bitcoin blockchain rush to check that the transaction is accurate.
- Consumers who want to trade bitcoin need a place to store them—a digital wallet, and connect it to a bank account, credit, or debit card.
- Traders can join an exchange or online marketplace to trade bitcoin for traditional currencies.

Fiat Principals of Bitcoin

Bitcoin functions by the same fiat principles as the U.S. dollar. Although the lines of code that make up each bitcoin are worthless in and of

themselves, the international market has come to value each bitcoin at thousands of dollars. That's because bitcoin is scarce and becomes more difficult to obtain over time. Here's why:

When the bitcoin program was launched on Jan. 3, 2009, bitcoin was produced at a rate of 50 bitcoin every 10 minutes, or 7,200 bitcoin every day. As of February 2019, 7,200 bitcoin was about $28 million, but at the time each bitcoin was worth just a few cents.

According to the bitcoin program, however, the rate that bitcoin is produced cuts in half about every four years. On Nov. 28, 2012, for example, the rate of production changed from 50 to 25 bitcoin every 10 minutes, or 3,600 bitcoin every day. That rate halved again on July 9, 2016, to 12.5 bitcoin every 10 minutes and is expected to halve a fourth time sometime in 2020. At this rate, the total number of bitcoins in circulation will approach a limit of 21 million.

WHAT DO I NEED TO BUY BITCOIN?

Digital Wallet

In order to conduct transactions on the bitcoin network, participants need to run a program called a "wallet." Bitcoin is not technically "coins," so it only seems right that a bitcoin wallet would not actually be a wallet. Instead of leather, wallets are made up of two unique and distinct cryptographic keys: a public key and a private key.

The public key is the location where transactions are deposited to and withdrawn from. This is also the key that appears on the blockchain ledger as a user's digital signature, not unlike a username on a social media newsfeed. The private key is the password required to buy, sell, and trade the bitcoin in a wallet.

Personal Documents

The U.S. Securities and Exchange Commission requires users to verify their identities when registering for digital wallets as part of its Anti-Money Laundering Policy. In order to buy and sell bitcoin, you will need to verify your identity using several personal documents including your driver's license and Social Security number (SSN).

Secure Internet Connection

If you choose to trade bitcoin online, use discretion about when and where you access your digital wallet. Trading bitcoin on an insecure or public wifi network is not recommended and may make you more susceptible to attacks from hackers.

Bank Account, Debit Card, or Credit Card

When you exchange USD or another currency for bitcoin, you will need funds to make those transactions. Bitcoin wallets can connect directly to your bank account, debit card, or credit card.

Bitcoin Exchange

After you've set up your wallet with a payment method, you'll need a place to actually buy bitcoin. Users can buy bitcoin and other cryptocurrencies from online marketplaces called "exchanges," similar to the platforms that traders use to buy stock. Exchanges connect you directly to the bitcoin marketplace, where you can exchange traditional currencies for bitcoin.

Step One: Get a Bitcoin Wallet

If you've made it through the winding road of explanations leading up to this point, congratulations! You may very well be ready to buy your first (fraction of a) bitcoin. The last thing you'll need before you're out the door is a place to store them.

When it comes to choosing a bitcoin wallet, you have options, but the Louis Vuitton and Gucci of the cryptocurrency world right now are "software" and "hardware" wallets. Software wallets are mobile applications that connect with your traditional bank account. These wallets allow for quick and easy access to bitcoin, but the drawback is they put your money in the hands of a third-party company.

Although the leading software wallets are trustworthy, popular third-party companies have collapsed, or been hacked, in the past. Much like you wouldn't store thousands of dollars in your mattress, users with larger sums of bitcoin should consider storing their money more securely.

Coinbase is the most popular software wallet available in the United States, in part because it has a website, mobile application, and stores 98% of

customer currencies offline for added security. For beginners, Coinbase is the best and easiest place to start because it is connected directly to a bitcoin exchange, which simplifies the buying and selling process.

Blockchain.info is another popular wallet connected to the bitcoin exchange, but the wallet is not supported by a mobile application. Users can also download mobile-only wallets such as Bitcoin Wallet for Android or Blockchain Bitcoin Wallet for iOS.

Hardware wallets are a little more old-school but tend to be considered more secure because they are kept offline. These wallets store a user's private key on a physical hardware device similar to a flash drive, which prevents hackers from accessing a user's private key through an internet connection.

By linking a bank account to your wallet, you can buy and sell bitcoin and deposit that money directly into your account.

Step Two: Connect a Bank Account

In order to purchase bitcoin, you need to connect your wallet to a bank account, debit card, or credit card. Although these payment methods all perform the same function—exchanging traditional currency for bitcoin—they each carry their own set of fees.

Transactions made using a bank account can take 4-5 days to process on Coinbase, but are generally recommended for first-time investors. By linking a bank account to your wallet, you can buy and sell bitcoin and

deposit that money directly into your account. Bank accounts are generally recommended if you are dealing with larger sums of money. At the time of writing, bank accounts allow users to spend as much as $11,250 per week.

Debit and credit cards, on the other hand, allow you to buy bitcoin almost instantly. The drawback is that on Coinbase and other popular exchanges, debit cards can only be used to purchase crypto—and even then, only in smaller amounts. Users cannot sell bitcoin or deposit money into their bank account when their wallet is connected to a debit card.

Exchanges can vary in reputation, reliability, security, processing fees, exchange rates, and cryptocurrencies available for trading.

Step Three: Join a Bitcoin Exchange

Bitcoin exchanges are online marketplaces where you can trade bitcoin for traditional currencies, say BTC for USD. Just like when you go to make a purchase online, you have options. There's eBay, Amazon, Etsy, and Alibaba—to say nothing of the millions of private retailers who use these websites to sell their product.

The same is true of buying bitcoin. Even if two exchanges trade the same cryptocurrency, it is likely that they each offer slightly different services. Exchanges can vary in reputation, reliability, security, processing fees, exchange rates, and cryptocurrencies available for trading. Before settling down with an exchange, date around. Here are our top five recommendations for where to start.

Best for Beginners: Coinbase

Coinbase is the most popular and respected digital currency exchange in the United States. Although Coinbase only trades in five cryptocurrencies—Bitcoin, Bitcoin Cash, Ethereum, Litecoin, and Ethereum Classic—the exchange offers a way to securely buy and store cryptocurrency in one location. Coinbase charges a one percent fee for U.S. transactions from a bank account or Coinbase USD wallet. Purchases made using a credit or debit card are charged a 2.49 percent fee. Plus, Coinbase secures cash balances up to $250,000 in the event of theft or breach in online storage.

Best for On the Go: Square Cash

The Square Cash app is a leader in peer-to-peer money transfers, right alongside PayPal-owned Venmo. The Cash app comes from Square, the company that makes those mobile credit card readers. Square is a huge financial technology company that includes many other services—one of which is trading bitcoin. The Cash App allows users to buy and sell bitcoin without processing fees. Unlike most online exchanges, the Cash App stores your bitcoin in your Square Cash Account, rather than a separate digital wallet. If you're worried about security, however, you can send the bitcoin in your Square Cash Account to another wallet of your choosing. Square limits purchases at $10,000 per week, but there is no limit to what you can sell.

Best for Bitcoin on a Budget: Robinhood

Robinhood launched in 2013 as a fee-free stock brokerage. In February 2018, the company expanded into the bitcoin and ethereum markets, along with market data for another 15 currencies, allowing users to trade cryptocurrency without a fee. As is the case with Square, Robinhood stores bitcoin in the same Robinhood account that is used for stocks. Robinhood is mobile first and just recently added a Web version, so it is best for people comfortable managing money from their phone or tablet. The drawback of trading bitcoin on Robinhood is that the application is only available in 17 states, as of February 2019.

Best for Big Spenders: Coinbase Pro (Formerly GDAX)

If you feel comfortable trading on Coinbase and want to step up your trading volume, you may be ready to switch from Coinbase to Coinbase Pro. Formerly known as Coinbase Global Digital Asset Exchange (GDAX), the trading platform uses interfaces similar to Bloomberg terminals and active stock, commodity, and option trading platforms. Coinbase Pro offers options to make market orders, limit orders, and stop orders in addition to traditional buying and selling. Instead of trading exclusively from USD to cryptocurrency, Coinbase Pro allows users to trade between cryptocurrencies, say between Ethereum and Bitcoin. Coinbase Pro charges fees ranging from 0.10 percent to 0.30 percent based on your trading volume. Most people trade less than $10 million per month and will fall into the 0.30 percent tier. If you want to try Coinbase but with much higher volume, this platform is the way to go.

Best for Branching Out: Binance

Binance may be your best bet if you're looking to diversify your cryptocurrency portfolio. The online exchange supports multiple currencies and even more digital currencies, including Bitcoin, Ethereum, Ethereum Classic, Litecoin, Ripple, Bitcoin Cash, and many fledgling cryptocurrencies you may not have heard of. Many exchanges that trade this many cryptocurrencies charge higher fees, but Binance charges a flat rate of 0.1 percent for trades. While this is platform offers a huge range of currencies at a low cost, there are some bugs reported with the Android mobile app and some users have reported delays withdrawing certain currencies.

Best for Buying in Cash: Peer-to-Peer

If you have a wallet, but it isn't connected to a bank account, debit, or credit card, you can buy bitcoin using cash through a peer-to-peer exchange. Unlike typical bitcoin wallets, peer-to-peer exchanges work similarly to Craigslist for cryptocurrency, allowing buyers and sellers in the same areas find each other and meet up to trade bitcoins for cash. With peer-to-peer exchanges, it's important to remember that you are trading high-value currency with strangers you have never met before. If you choose to trade bitcoin in this way, we recommend that you meet buyers and sellers in a public place with high visibility.

Best Bitcoin Wallet Practices

Your bitcoin exchange and bitcoin wallet do not need to be the same. While most exchanges offer wallets for their users, security is not their primary business. If you do choose to use a wallet offered by an exchange other than

Coinbase, we do not recommend that you use that exchange's wallet to store bitcoins in large amounts or for long periods of time. Instead, make your transaction and transfer your bitcoin to a more secure wallet.

Step Four: Place Your Order

One exchange, three steps, and four thousand words later, you're now ready to buy your first bitcoin. It's important to keep in mind that although one bitcoin costs several thousand dollars, bitcoin can be divided up to eight decimal points. That means you can buy 1 bitcoin for $3,890, 0.1 bitcoin for $389, or even 0.00000001 bitcoin for $.0000389 if it suits your budget.

BITCOIN MINING

Bitcoin mining gets its name from the fact that when transactions are added to the public ledger (blockchain) new coins are created (mined).

Bitcoin mining is an integral part of how bitcoin works. The bitcoin network relies on miners to verify and update the public ledge of bitcoin transactions, to verify that bitcoin users aren't trying to cheat the system, and to add newly-discovered bitcoins to the money pool.

WHAT IS BITCOIN MINING?

Mining is the process by which special bitcoin users (called miners) compete with each other to "discover" new bitcoins and add recent bitcoin transactions to bitcoin's public ledger (the transaction blockchain).

In order to send or receive bitcoins, a bitcoin user must create a transaction and broadcast it to the entire network. Then, for this transaction to successfully go through, it must be permanently recorded on the blockchain. Mining is the process of adding recent transactions to the blockchain, and thereby making them a permanent part of the bitcoin "public ledger."

WHAT DO MINERS DO?

Let's dive into how this works. In order to add transactions to the blockchain, all of the miners collect the transactions recently broadcasted by other bitcoin users, verify that the transactions are valid (according to the current blockchain), and compile them down into a transaction block – a condensed record of all the transactions for that period of time.

Of course, if any miner could simply create a transaction block and immediately add it to the permanent ledger, then anyone who wanted to could just create a fake transaction block (for example, one in which they spend bitcoins that they don't own) and add it to the ledger.

Because of this, the bitcoin algorithm is designed to make mining difficult. Instead of being able to add a transaction block to the blockchain at will, a miner has to solve a very difficult computational puzzle – called a proof-of-

work scheme. This proof-of-work scheme was designed to have solutions that are easy to verify, but very difficult to find.

In other words, what bitcoin miners are actually doing is competing with each other to see who can solve a difficult, cryptographic puzzle first. When one miner finds the solution to the problem, they broadcast their solution to all of the other miners. The other miners then verify that the solution is correct. If it is, the network permanently adds the successfully-mined block to the publicly accepted block chain.

The miner who won the “mining race” and was the first to successfully solve the puzzle is then rewarded for the effort with 25 newly “discovered” bitcoins. This possibility of reward acts as an incentive for miners to keep investing computational time and effort into mining bitcoin. This new creation of bitcoins also acts as a way to add to the overall bitcoin money supply.

EQUIPMENT NEED TO MINE

Either a GPU (graphics processing unit) miner or an application-specific integrated circuit (ASIC) miner. These can run from $500 to the tens of thousands. Some miners--particularly Ethereum miners--buy individual graphics cards (GPUs) as a low-cost way to cobble together mining operations. The photo below is a makeshift, home-made mining machine. The graphics cards are those rectangular blocks with whirring circles. Note the sandwich twist-ties holding the graphics cards to the metal pole. This is probably not the most efficient way to mine, and as you can guess, many miners are in it as much for the fun and challenge as for the money.

BENEFITS OF MINING FOR BITCOIN

Most of us online consumers today may have already heard about Bitcoin, cryptocurrencies, and blockchain technology at one point or another.

Some of us may have grown our interest in these revolutionary digital assets and have invested our time doing research as well as our money on buying cryptocurrencies that we believe in.

However, there are still many of us who are still clueless about Bitcoin, the technology behind it, and its advantages.

Here below are five benefits of mining Bitcoin

You may either join a pool or try your luck.

To increase your chances of earning Bitcoin, you may consider joining a pool. A single pool combines the hash power of all miners involved in order to increase the chances of solving a block. Once the reward has been sent, the amount will be split according to the hash rate that you have contributed to the pool.

You also have the option to try your luck by mining Bitcoin all by yourself. Your chances of solving a block might be very slim, but the number of rewards you may get will surely be worth the risk.

Help strengthen the security of the network.

As more and more miners contribute hash power to the network, it becomes less vulnerable to 50% + 1 attacks. Cybercriminals would need to gain control over more than half of the Bitcoin mining equipment simultaneously in order to disrupt the Bitcoin network, which is almost close to zero in probability. The participation of miners greatly helps the stability of the network.

Earn Bitcoin as a reward.

Bitcoin transactions are compiled into groups called blocks and confirmed roughly every 10 minutes. Through a series of mathematical equations, mining computers will attempt to solve a block and the first one to successfully do it will receive the block reward currently set at 12.5 Bitcoins.

Miners will also receive all the transaction fees that are included in the block. As you can see, Bitcoin mining can be a good source of passive income if done properly.

Avoid high fees and get your coins instantly.

In contrast to buying cryptocurrencies, mining Bitcoin involves smaller fees (if you decide to join a pool) and the transactions are usually faster. With Bitcoin mining, you can save from deposit and withdrawal fees, as well as from transfer and trading fees.

The rewards can also be sent to your wallet in almost real-time after your request has been made.

Earn other cryptocurrencies from your hardware.

Depending on the quality of your hardware, electricity costs, and the current price of Bitcoin, Bitcoin mining can have different rates of profitability. Nonetheless, you may always switch to other currencies depending on what you see is the most profitable.

WHAT ARE BITCOIN MINING POOLS?

Mining pools allow small miners to receive more frequent mining payouts.

By joining with other miners in a group, a pool allows miners to find blocks more frequently.

But, there are some problems with mining pools as we'll discuss.

As with GPU and ASIC mining, Satoshi apparently failed to anticipate the emergence of mining pools.

Pools are groups of cooperating miners who agree to share block rewards in proportion to their contributed mining power.

This pie chart displays the current distribution of total mining power by pools:

While pools are desirable to the average miner as they smooth out rewards and make them more predictable, they unfortunately concentrate power to the mining pool's owner.

MINING: ISN'T ELECTRICITY A WASTE?

Certain orthodox economists have criticized mining as wasteful.

It must be kept in mind however that this electricity is expended on useful work:

Enabling a monetary network worth billions (and potentially trillions) of dollars!

Compared to the carbon emissions from just the cars of PayPal's employees as they commute to work, Bitcoin's environmental impact is negligible.

As Bitcoin could easily replace PayPal, credit card companies, banks and the bureaucrats who regulate them all, it begs the question:

Isn’t traditional finance a waste?

Not just of electricity, but of money, time and human resources!

Mining Difficulty

If only 21 million Bitcoins will ever be created, why has the issuance of Bitcoin not accelerated with the rising power of mining hardware?

Issuance is regulated by Difficulty, an algorithm which adjusts the difficulty of the Proof of Work problem in accordance with how quickly blocks are solved within a certain timeframe (roughly every 2 weeks or 2016 blocks).

Difficulty rises and falls with deployed hashing power to keep the average time between blocks at around 10 minutes.

Block Reward Halving

Satoshi designed Bitcoin such that the block reward, which miners automatically receive for solving a block, is halved every 210,000 blocks (or roughly 4 years).

As Bitcoin’s price has risen substantially (and is expected to keep rising over time), mining remains a profitable endeavor despite the falling block reward… at least for those miners on the bleeding edge of mining hardware with access to low-cost electricity.

Honest Miner Majority Secures the Network

To successfully attack the Bitcoin network by creating blocks with a falsified transaction record, a dishonest miner would require the majority of mining power so as to maintain the longest chain.

This is known as a 51% attack and it allows an attacker to spend the same coins multiple times and to blockade the transactions of other users at will.

To achieve it, an attacker needs to own mining hardware than all other honest miners.

This imposes a high monetary cost on any such attack.

At this stage of Bitcoin's development, it's likely that only major corporations or states would be able to meet this expense… although it's unclear what net benefit, if any, such actors would gain from degrading or destroying Bitcoin.

Mining Centralization

Pools and specialized hardware has unfortunately led to a centralization trend in Bitcoin mining.

Bitcoin developer Greg Maxwell has stated that, to Bitcoin's likely detriment, a handful of entities control the vast majority of hashing power.

It is also widely-known that at least 50% of mining hardware is located within China.

However, it's may be argued that it's contrary to the long-term economic interests of any miner to attempt such an attack.

The resultant fall in Bitcoin's credibility would dramatically reduce its exchange rate, undermining the value of the miner's hardware investment and their held coins.

As the community could then decide to reject the dishonest chain and revert to the last honest block, a 51% attack probably offers a poor risk-reward ratio to miners.

Bitcoin mining is certainly not perfect but possible improvements are always being suggested and considered.

HOW DOES BITCOIN MINING WORK?

This simplified illustration is helpful to explanation:

Spending

Let's say the Green user wants to buy some goods from the Red user. Green sends 1 bitcoin to Red.

Announcement

Green's wallet announces a 1 bitcoin payment to Red's wallet. This information, known as transaction (and sometimes abbreviated as " tx") is broadcast to as many Full Nodes as connect with Green's wallet – typically 8. A full node is a special, transaction-relaying wallet which maintains a current copy of the entire blockchain.

Propagation

Full Nodes then check Green's spend against other pending transactions. If there are no conflicts (e.g. Green didn't try to cheat by sending the exact same coins to Red and a third user), full nodes broadcast the transaction across the Bitcoin network. At this point, the transaction has not yet entered the Blockchain. Red would be taking a big risk by sending any goods to Green before the transaction is confirmed. So how do transactions get confirmed? This is where Miners enter the picture.

Processing by Miners

Miners, like full nodes, maintain a complete copy of the blockchain and monitor the network for newly-announced transactions. Green's transaction may, in fact, reach a miner directly, without being relayed through a full node. In either case, a miner then performs work in an attempt to fit all new, valid transactions into the current block.

Miners race each other to complete the work, which is to “package” the current block so that it’s acceptable to the rest of the network. Acceptable blocks include a solution to a Proof of Work computational problem, known as ahash . The more computing power a miner controls, the higher their hashrate and the greater their odds of solving the current block.

But why do miners invest in expensive computing hardware and race each other to solve blocks? Because, as a reward for verifying and recording everyone’s transactions, miners receive a substantial Bitcoin reward for every solved block!

And what is a hash? Well, try entering all the characters in the above paragraph, from “But” to “block!” into this hashing utility. If you pasted correctly – as a string hash with no spaces after the exclamation mark – the SHA-256 algorithm used in Bitcoin should produce:

“6afc21238f2d33e24e168195888721dd5ace05d76196671d6739789af92201ed.”

If the characters are altered even slightly, the result won’t match. So, a hash is a way to verify any amount of data is accurate. To solve a block, miners modify non-transaction data in the current block such that their hash result begins with a certain number (according to the current Difficulty, covered below) of zeroes. If you manually modify the string until you get a 0… result, you’ll soon see why this is considered “Proof of Work!”

Blockchain Confirmation

The first miner to solve the block containing Green's payment to Red announces the newly-solved block to the network. If other full nodes agree the block is valid, the new block is added to the blockchain and the entire process begins afresh. Once recorded in the blockchain, Green's payment goes from pending to confirmed status.

Red may now consider sending the goods to Green. However, the more new blocks are layered atop the one containing Green's payment, the harder to reverse that transaction becomes. For significant sums of money, it's recommended to wait for at least 6 confirmations. Given new blocks are produced on average every ten minutes; the wait shouldn't take much longer than an hour.

The Longest Valid Chain

You may have heard that Bitcoin transactions are irreversible, so why is it advised to await several confirmations? The answer is somewhat complex and requires a solid understanding of the above mining process:

Let's imagine two miners, A in China and B in Iceland, who solve the current block at roughly the same time. A's block (A1) propagates through the internet from Beijing, reaching nodes in the East. B's block (B1) is first to reach nodes in the West. There are now two competing versions of the blockchain!

Which blockchain prevails? Quite simply, the longest valid chain becomes the official version of events. So, let's say the next miner to solve a block adds it to B's chain, creating B2. If B2 propagates across the entire network

before A2 is found, then B's chain is the clear winner. A loses his mining reward and fees, which only exist on the invalidated A -chain.

Going back to the example of Green's payment to Red, let's say this transaction was included by A but rejected by B, who demands a higher fee than was included by Green. If B's chain wins then Green's transaction won't appear in the B chain – it will be as if the funds never left Green's wallet.

Although such blockchain splits are rare, they're a credible risk. The more confirmations have passed, the safer a transaction is considered.

ANALYSIS ON THE ELECTRICITY USE OF BITCOIN & WHY IT'S NOT A WASTE

In March 2016, Motherboard projected this:

Bitcoin's electricity consumption will grow to rival that of the nation of Denmark by 2020.

Whatever the accuracy of Motherboard's math, there's no disputing the fact that Bitcoin uses a great deal of energy.

On an industrial level, Bitcoin may be considered a system which converts electricity directly into money.

There are two major camps which object to Bitcoin mining due to its electrical cost:

The Eco-conscious

The eco-conscious seek to generally diminish global power consumption.

Given that electricity is, at present, primarily generated through unsustainable methods, eco-activists hold that all energy expenditures must be critically weighed against their (debatable) contribution to climate change.

Skeptical Economists

Secondly, there are those dubious economists who doubt Bitcoin's viability.

This group is best exemplified by Paul Krugman, who argues that Bitcoin (and to a lesser extent, gold) has no real value to society and so represents a waste of resources and labour.

Defending Bitcoin's Power Usage

While disproving the "economic experts" is as simple as referring them to Bitcoin's current market price and continued existence, explaining why Bitcoin is worth its electrical cost to the eco-conscious requires a more thoughtful approach.

After all, social pressure to sustainably power the Bitcoin project is sensible. We need to maintain a healthy balance between nature and technology.

That said, until advances in green energy diminish or negate Bitcoin's draw on ecologically-costly energy sources, Bitcoiners must endeavor to defend the expenditure by conveying the importance of this revolutionary peer-to-peer currency!

Here are good reasons which, taken together and in our opinion, completely justify the world's admittedly high expenditure of electricity on the Bitcoin project:

Protection from Inflation and Avoidance of Capital Controls

Of course, it's your money. I just tell you what it's worth and what you can do with it.

As alluded to in Reason 1, many rulers are diluting the value of "their" national currencies, either as an economic stimulus (mostly to the net-worth of elites) or as a means to cheapen their tremendous debt.

Such debasement punishes savers in particular, as the value of their stored wealth is eroded. Savers naturally seek to protect their fiat savings by translating them to a more durable form, such as foreign currency or investments.

Rulers often block their citizens' flight to monetary safety by imposing capital controls. China is known for its particularly strict limitations.

Bitcoin mining represents an excellent, legal way to circumvent such restrictions.

Investing in a mining operation brings a steady stream of bitcoins; a form of money largely beyond the control of the ruling class.

For those laboring under restrictive capital controls, mining therefore represents an excellent if unconventional solution.

Given the relative costs and risks of other wealth-preservation measures, it may even be worthwhile to mine Bitcoin at a loss!

Consider one of the popular alternatives, real estate:

Bloomberg estimates that $1 trillion left China in 2015, 7 times more than was offshored in 2014! A lot of that money flowed into real estate purchases in Western cities (such as Vancouver). This phenomenon has created localized bubbles and unaffordable housing conditions for residents. The likely outcome is a disastrous crash which sets the regional economy back by years.

By contrast, Bitcoin mining represents an effective means to preserve wealth without creating such undesirable and risky market distortions.

Bitcoin is Backed by Electricity (and Ingenuity)

You mean there isn’t an ounce of gold in the bank for every paper Dollar?

Over the millennia, history has repeatedly shown that prosperity depends on sound money. Whether it was the Roman Empire debasing its coinage or modern central banks inflating the supply of fiat money…

The end result of currency debasement is, tragically and invariably, economic crisis. Mr. Mike Maloney’s superb series, “The Hidden Secrets of Money,” thoroughly explores this timeless historical lesson in Episode 5.

Simply put, currency with no backing but faith in its controllers tends to be short-lived and ruinous in its hyper-inflationary death throes.

Bitcoin was designed with one monetary goal foremost in mind: avoiding the dismal fate of previous monetary forms by preventing the evils of debasement.

Rather than trust in some distant, unaccountable human authority’s wisdom and restraint, Bitcoin’s supply limit is enshrined in its code; its “digital DNA,” as a matter of unanimous consensus.

Unlike fiat currency, Bitcoin’s value is also backed by tangible, measurable resources: code running oncomputing hardware powered by electricity.

Given money’s (over-)importance to our modern world, maintaining a technologically-superior alternative to flawed fiat currencies is certainly worthwhile.

Mining is a Profitable and Promising Industry in a Slow Global Economy

Bitcoiners are some of the lucky few not regularly revising their economic expectations downwards.

The major determinants of profitability in the fiercely competitive world of Bitcoin mining are low electricity costs, access to cutting-edge ASIC mining hardware and deep knowledge of Bitcoin and business.

Keen businessmen only need apply for this “license to print money.”

Mining tends to be concentrated in China due to several regional advantages; China produces most of the world’s ASIC hardware and has several provinces which over-invested in power generation.

Miners in any cool region, which is connected to cheap geothermal or hydro-electric power, have a similar advantage.

However:

it’s estimated that at least 50% of miners are Chinese. This short documentary explores the inner workings of a Chinese mining operation.

Mining is a growing industry which provides employment, not only for those who run the machines but those who build them. Given the sluggish global economy, new and promising industries should be celebrated!

Bitcoin Ultimately Requires Fewer Resources than the Fiat System

"We require more Vespene gas." -Zerg Overseer

If we take Motherboard's linear extrapolation that Bitcoin will consume as much power as Denmark by 2020, then add the assumption that Bitcoin will have scaled sufficiently by then to cater to every user of the fiat system… it becomes possible to compare the two systems, in an admittedly rough-and-ready fashion.

Allowing that Bitcoin will replace banks, ATMs, brokers, exchanges and payment services (like VISA, MasterCard and PayPal) around the world, we can offset the electricity required by all those services. Considering the combined electric costs for these operations (covering lighting, air-conditioning, data-centers, website hosting, office equipment and more) the total probably approaches or even exceeds Denmark's current power usage.

Besides raw electricity, there are many other resources necessary for the continued operation of the fiat system but not to Bitcoin. For example:

- Printer paper and other office supplies,
- The armored cars used to transport cash,
- The paper, textiles, ink and power needed to create that cash,
- The gasoline used by all employees driving to and from work every day,
- The resource cost of building offices,
- And so on, ad infinitum.

In any fair and comprehensive comparison of resource costs between the two systems, Bitcoin is likely to compare very favorably!

Mining Generates Subsidised Heat

Excess heat from Bitcoin mining – problem or solution?

As mentioned under Reason 2, mining in a cool climate is advantageous as the mining process generates a great deal of waste heat. However, enterprising Bitcoin miners can capture and use this heat productively!

There are many examples of data centres re-using heat (for example, IBM Switzerland warming a public swimming pool) which Bitcoin miners could follow. Waste heat can even be useful to aquaculture and it's also possible to harness hot exhaust air for drying processes.

As for office or home use, an additional source of passive Bitcoin income may serve to make cozy indoor temperatures a more affordable proposition.

Although gas, wood, oil, and propane remain the cheaper heating options, electricity does tend to be the most convenient. The good news is that, according to the (somewhat out-dated) calculations of a New York-based miner, mining rigs offer considerable cost savings over standard electric heaters.

As an additional benefit, mining rigs may be precisely controlled via common computing hardware, such that a customized heating schedule or adaptive climate control system may be programmed with relative ease.

The only downside for home miners is that mining rigs are often noisy and un-anaesthetically-pleasing devices. As a result, they tend to be sequestered in the basement or garage for the sake of domestic harmony. A little ingenuity may be called for to pipe their heat to where it's more needed in the house.

Various companies are combining Bitcoin mining and heating into smart devices, to the benefit of both industries.

***Bitcoin Mining can support the IoT (Internet of Things*)**

Rise of the Digital Autonomous Corporations and other buzzwords!

Continuing the theme of Bitcoin integration with household and industrial devices, this is the precise business model of potentially-disruptive Bitcoin company, 21.co.

21 raised $120 million in venture capital, a record for a Bitcoin company. As their initial product offering, 21.co released a Raspberry Pi-like device with built-in Bitcoin features; mining included.

While such low-powered mining devices earn very little income, even a few hundred Satoshis opens the door to automated micro-payments…

It's long been known that Bitcoin offers real potential for machine-to-machine payments. This potential is likely to be realised soon™ with the deployment of the first Lightning Network. The results are bound to be

interesting; perhaps even the beginning of a profound technological shift in how we conduct our lives and business!

Smart, interconnected devices offer great promise in terms of self-reporting of problems and supply shortages, even the self-calibration and the self-diagnosis of problems. Bitcoin and additional layers are the most likely payment avenues to cater for these new, developing industries. After all, machines don't have bank accounts or credit cards. How else will machines pay for their own inputs and how better could they charge for their outputs?

Certainly, the possibility of enabling such exciting and potentially transformative technologies is worth the energy cost… particularly given the synergy between smart devices and power saving through increased efficiency.

Denmark and Germany Occasionally Struggle with Excess Power

"On Sunday, May 8 [2016] Germany produced so much electric power that prices were actually negative. As in, customers got paid to use the electrical system." – Fortune.com

It was recently reported that Germany's solar and wind generation nearly overloaded its electric grid over a particularly sunny and windy day. Power companies paid their customers to use more power so that the energy could be safely dispersed.

Somewhat ironically, considering Motherboard's comparison, similar excess power situations are known to occur in nearby Denmark.

This means that if you set up in a location which experiences electricity oversupply from variable green sources, it's possible to get paid for mining Bitcoin as a public service!

Mining Powers Bitcoin's Tokenized Assets, Secondary Layers and Merge-Mined Coins

Mining Bitcoin isn't just mining Bitcoin!

If the mining process is the powerful engine driving Bitcoin, then it's certainly a unique engine in that it loses no efficiency for driving additional processes. Namecoin, the very first altcoin, uses the same SHA-256 Proof of Work algorithm as Bitcoin, which means miners any find solutions to both Bitcoin and Namecoin blocks concurrently. As Namecoin serves a decentralised DNS (Domain Name Server), the effect is to bring greater resilience and censorship-resistance to the internet.

Somewhat similar to Namecoin in concept, but more closely tied to Bitcoin, are side-chains. These are essentially separate blockchains which are pegged to Bitcoin's blockchain. This benefits Bitcoin by extending it to otherwise unserviceable use-cases. It also benefits the side-chain by backing and securing it cryptographically with the huge power of the Bitcoin mining industry.

Tokenized coins are another technology layer with far-reaching implications, which are similarly backed and secured by Bitcoin mining.

By associating particular units of bitcoin with digital, financial or physical assets, ownership of such assets may be exchanged. This works with everything from stocks to in-game items to land deeds and so on. Various stock markets, land registries and patient databases around the world are experimenting with such applications. Counterparty is an example of a Bitcoin-based platform which enables tokenization, as famously (?) seen in the Rare Pepe Directory.

Mining Efficiency is Constantly Increasing

Finally, it must be noted that the efficiency of Bitcoin mining is constantly improving, so less power is used to provide more cryptographic security.

Since Bitcoin's release in 2009, mining hardware has evolved from computer CPUs to graphic card GPUs to FPGAs (Field-Programmable Gate Array) and now to ASICs (Application-specific Integrated Circuit). ASIC mining chip architecture and processes are under continuous development, with lucrative rewards on offer to those who bring the latest and greatest innovations to market.

HOW TO MINE BITCOINS

Actually, want to try mining bitcoins?

Well, you can do it. However, it's not profitable for most people as mining is a highly specialized industry.

Most Bitcoin mining is done in large warehouses where there is cheap electricity.

To be real:

Most Bitcoin mining is specialized and the warehouses look something like this:
Source ieee.org

That's who you're up against! It’s simply too expensive and you are unlikely to turn a profit.

However:

For hobby mining, we’ll show you some steps you can take to get started mining bitcoins right now.

Step 1: Get Bitcoin Mining Hardware

You won’t be able to mine without an ASIC miner.

ASIC miners are specialized computers that were built for the sole purpose of mining bitcoins.

Don’t even try mining bitcoins on your home desktop or laptop computer! You will earn less than one penny per year and will waste money on electricity.

Step 2: Select a Mining Pool

Once you get your mining hardware, you need to select a mining pool.

Without a mining pool, you would only receive a mining payout if you found a block on your own. This is called solo mining.

We don't recommend this because your hardware's hash rate is very unlikely to be anywhere near enough to find a block solo mining.

How do mining pools help?

By joining a mining pool you share your hash rate with the pool. Once the pool finds a block you get a payout based on the percent of hash rate contributed to the pool.

If you contributed 1% of the pools hashrate, you'd get .125 bitcoins out of the current 12.5 bitcoin block reward.

Step 3: Get Bitcoin Mining Software

Bitcoin mining software is how you actually hook your mining hardware into your desired mining pool.

You need to use the software to point your hash rate at the pool.

Also in the software you tell the pool which Bitcoin address payouts should be sent to.

If you don't have a Bitcoin wallet or address learn how to get one here.

There is mining software available for Mac, Windows, and Linux.

Step 4: Is Bitcoin Mining Legal in your Country? Make Sure!

This won't be much of an issue in MOST countries.

Consult local counsel for further assistance in determining whether Bitcoin mining is legal and the tax implications of doing the activity.

Like other business, you can usually write off your expenses that made your operation profitable, like electricity and hardware costs.

Step 5: Is Bitcoin Mining Profitable for You?

Do you understand what you need to do to start?

You should run some calculations and see if Bitcoin mining will actually be profitable for you.

You can use a Bitcoin mining calculator to get a rough idea.

I say rough idea because many factors related to your mining profitability are constantly changing.

A doubling in the Bitcoin price could increase your profits by two.

But:

It could also make mining that much more competitive that your profits remain the same.

HOW TO MINE BITCOINS ON ANDROID OR IOS

Here's what's funny:

You actually CAN mine bitcoins on any Android device.

Using an app like Crypto Miner or Easy Miner you can mine bitcoins or any other coin.

What's not so fun?

You'll likely make less than one penny PER YEAR!

Why?

Android phones simply are not powerful enough to match the mining hardware used by serious operations.

So, it might be cool to setup a miner on your Android phone to see how it works. But don't expect to make any money.

Do expect to waste a lot of your phone's battery!

WHAT IS BITCOIN MINING HARDWARE

Bitcoin mining hardware (ASICs) are highly specialized computers used to mine bitcoins.

The ASIC industry has become complex and competitive.

Mining hardware is now only located where there is cheap electricity.

When Satoshi released Bitcoin, he intended it to be mined on computer CPUs.

Enterprising coders soon discovered they could get more hashing power from graphic cards and wrote mining software to allow this.

GPUs were surpassed in turn by ASICs (Application Specific Integrated Circuits).

Nowadays all serious Bitcoin mining is performed on ASICs, usually in thermally-regulated data-centers with access to low-cost electricity.

Economies of scale have thus led to the concentration of mining power into fewer hands than originally intended.

BITCOIN TRADING BASICS

Before an investor trades bitcoin, they should be sure to review the basics. By doing so, they can increase their chances of meeting their investment objectives, whether they want to generate robust returns or simply use bitcoin to diversify their portfolio.

Why Trade Bitcoin?

For starters, investors may want to first consider why they would want to trade bitcoin. After all, many market observers have stated that digital currencies come with substantial risk. For example, European Union regulators warned in early 2018 that cryptocurrencies are "highly risky."

Legendary investor Warren Buffett has repeatedly warned investors about digital currencies, telling CNBC in 2018 that "in terms of cryptocurrencies, generally, I can say with almost certainty that they will come to a bad ending."

While some have warned about bitcoin's risky nature, the digital currency has experienced some very impressive gains. In 2017, for example, Bitcoin's price rose from less than US$1,000 to more than US$20,000.

Bitcoin's price has also frequently moved out of sync with the price of other digital assets, making it a prime candidate for diversification strategies. Because the digital currency's price movements do not follow those of other asset classes, incorporating it into a portfolio can help maintain greater stability.

INVESTING VS. TRADING

Once an individual has evaluated whether bitcoin is right for them, they can begin looking into whether it makes more sense to invest in the digital currency or trade it. While these two may sound the same, they are different.

When differentiating the two, the easiest way to think of it is that investing is a long-term activity, and trading is a more short-term activity. For example, many people invest for retirement, accumulating wealth over time so that they can build up a viable nest egg. Alternatively, they may save up for their children's college education.

Trading can be far more short-term, however, as a person could purchase a security with the intention of selling it later the same day. High-frequency trading, a more extreme example, involves buying and selling assets within fractions of a second.

Investors should keep in mind that bitcoin is notoriously volatile. Its price has experienced both sharp rallies and notable declines. As a result, these investors should remember that they could potentially lose the value of their principal rather quickly by trading bitcoin. On the other hand, they could potentially generate some very compelling returns by trading this digital currency.

CRYPTOCURRENCIES OTHER THAN BITCOIN

Bitcoin has not just been a trendsetter, ushering in a wave of cryptocurrencies built on a decentralized peer-to-peer network, it's become the de facto standard for cryptocurrencies, inspiring an ever-growing legion of followers and spinoffs.

What Are Cryptocurrencies?

Before we take a closer look at some of these alternatives to bitcoin, let's step back and briefly examine what we mean by terms like cryptocurrency and altcoin. A cryptocurrency, broadly defined, is virtual or digital money which takes the form of tokens or "coins." While some cryptocurrencies have ventured into the physical world with credit cards or other projects, the large majority remain entirely intangible.

The "crypto" in cryptocurrencies refers to complicated cryptography which allows for a particular digital token to be generated, stored, and transacted

securely and, typically, anonymously. Alongside this important “crypto” feature of these currencies is a common commitment to decentralization; cryptocurrencies are typically developed as code by teams who build in mechanisms for issuance (often, although not always, through a process called “mining”) and other controls.

Key Takeaways

- A cryptocurrency, broadly defined, is virtual or digital money which takes the form of tokens or “coins.”
- Beyond that, the field of cryptocurrencies is always expanding, and the next great digital token may be released tomorrow, for all anyone in the crypto community knows.
- Bitcoin continues to lead the pack of cryptocurrencies, in terms of market capitalization, user base, and popularity.
- Virtual currencies such as ethereum and ripple, which are being used more for enterprise solutions, are becoming popular.
- Some altcoins are being endorsed for superior or advanced features vis-à-vis bitcoins.

Cryptocurrencies are almost always designed to be free from government manipulation and control, although as they have grown more popular this foundational aspect of the industry has come under fire. The currencies modeled after bitcoin are collectively called altcoins and have tried to present themselves as modified or improved versions of bitcoin. While some of these currencies are easier to mine than bitcoin is, there are tradeoffs, including greater risk brought on by lesser liquidity, acceptance and value retention.

Below, we'll examine some of the most important digital currencies other than bitcoin. First, though, a caveat: it is impossible for a list like this to be entirely comprehensive. One reason for this is the fact that there are more than 1,600 cryptocurrencies in existence as of this writing, and many of those tokens and coins enjoy immense popularity among a dedicated (if small, in some cases) community of backers and investors.

Beyond that, the field of cryptocurrencies is always expanding, and the next great digital token may be released tomorrow, for all anyone in the crypto community knows. While bitcoin is widely seen as a pioneer in the world of cryptocurrencies, analysts adopt many approaches for evaluating tokens other than BTC. It's common, for instance, for analysts to attribute a great deal of importance to the ranking of coins relative to one another in terms of market cap. We've factored this into our consideration, but there are other reasons why a digital token may be included in the list as well.

Bitcoin Cash (BCH)

Bitcoin Cash holds an important place in the history of altcoins because it is one of the earliest and most successful hard forks of the original bitcoin. In the cryptocurrency world, a fork takes place as the result of debates and arguments between developers and miners. Due to the decentralized nature of digital currencies, wholesale changes to the code underlying the token or coin at hand must be made due to general consensus; the mechanism for this process varies according to the particular cryptocurrency.

When different factions can't come to an agreement, sometimes the digital currency is split, with the original remaining true to its original code and the

other copy beginning life as a new version of the prior coin, complete with changes to its code. Bitcoin cash began its life in August of 2017 as a result of one of these splits. The debate which led to the creation of BCH had to do with the issue of scalability; bitcoin has a strict limit on the size of blocks, 1 megabyte. BCH increases the block size from 1 MB to 8 MB, with the idea being that larger blocks will allow for faster transaction times. It also makes other changes, too, including the removal of the Segregated Witness protocol which impacts block space. As of February 9, 2019, BCH had a market cap of $2.23 billion and a value per token of $126.49.

Steem

Steem is a blockchain-based social media platform where anyone can earn rewards. Cryptocurrency tipping platforms require users to give something up to reward other for their contributions. With Steem, rewarding others is as simple as voting for a post, such you may on Reddit, or as you would Like a post on Facebook. The blockchain distributes payouts as 50% Steem Power for voting and 50% Steem Dollars. Rewards are distributed by the blockchain, similar to how miners are paid by Bitcoin, and occur roughly 24 hours after content and votes have been submitted. Steam is a form of esteem, which means to prize or value. Steam is also a homophone for steam, which is frequently associated with power, and a step further, steam powered trains gave influence to English idioms, such as ‘this conversation is picking up steam.’ The associations with prizing, language and empowerment only felt right.

Zcash (ZEC)

Zcash, a decentralized and open-source cryptocurrency launched in the latter part of 2016, looks promising. “If bitcoin is like HTTP for money, zcash is HTTPS," is one analogy zcash uses to define itself. Zcash offers privacy and selective transparency of transactions. Thus, like https, zcash claims to provide extra security or privacy where all transactions are recorded and published on a blockchain, but details such as the sender, recipient, and amount remain private.

Zcash offers its users the choice of “shielded” transactions, which allow for content to be encrypted using an advanced cryptographic technique or zero-knowledge proof construction called a zk-SNARK developed by its team. As of February 9, 2019, Zcash had a market cap of $291.25 million and a value per token of $49.84.

Dash (DASH)

Dash (originally known as darkcoin) is a more secretive version of bitcoin. Dash offers more anonymity as it works on a decentralized master code network that makes transactions almost untraceable. Launched in January 2014, dash experienced an increasing fan following in a short span of time. This cryptocurrency was created and developed by Evan Duffield and can be mined using a CPU or GPU. In March 2015, ‘Darkcoin’ was rebranded to Dash, which stands for “digital cash” and operates under the ticker DASH. The rebranding didn't change the functionality of any of its technological features including DarkSend and InstantX. As of February 9, 2019, Dash had a market cap of $640.76 million and a per token value of $74.32.

Peercoin

Peercoin seeks to be the most secure cryptocoin at the lowest cost, rewarding all users for strengthening the network by giving them a 1% annual PPC return when minting. Peercoin is one of the truly unique alternative coins. Although its code is based on Bitcoin, Peercoin is the first coin to introduce Proof of Stake to secure the network. Proof of Work is also used in Peercoin, to promote fair coin distribution, but is not necessary for the security of the network.

- Fair Distribution – Proof of Work mining is used to spread the distribution of new coins, while the security of the network is maintained entirely by Proof of Stake minting. This means that Bitcoin mining vulnerabilities such as Selfish Mining do not impact Peercoin security.
- Compatible with Bitcoin – Peercoin uses the same mining algorithm as Bitcoin, known as SHA-256. Any hardware that works on the Bitcoin network can also be used to mine Peercoins.
- Sustainable Reward – The reward for mining a block gradually declines as the computing power of the network grows. Over time, mining will have an ever-decreasing impact on the growth of the money supply.

NEO (NEO)

NEO began life in 2014. Originally called AntShares, the coin was later rebranded by creator Da Hongfei. To date, it is the largest cryptocurrency which has emerged from China and is sometimes referred to as a “Chinese

Ethereum" because of its similar use of smart contracts. In 2017, NEO experienced its most successful year to date. From a value of $0.16 per token in January of 2017, NEO climbed to about $162 per token by one year later. This constitutes a return of more than 111,000%. One key to NEO's success has been its support of programming in many existing languages, including Go, Java, C++, and others.

Further, NEO has experienced benefits as a result of its positive relationship with the Chinese government, which is generally known for its harsh positions on cryptocurrencies. As of February 9, 2019, NEO had a market cap of $492.48 million and a value per token of $7.58.

Namecoin

Namecoin is an experimental open-source technology which improves decentralization, security, censorship resistance, privacy, and speed of certain components of the Internet infrastructure such as DNS and identities. Namecoin was the first fork of Bitcoin and still is one of the most innovative "altcoins". It was first to implement merged mining and a decentralized DNS. Namecoin was also the first solution to Zooko's Triangle, the long-standing problem of producing a naming system that is simultaneously secure, decentralized, and human-meaningful. What can Namecoin be used for?

- Protect free-speech rights online by making the web more resistant to censorship.
- Attach identity information such as GPG and OTR keys and email, Bitcoin, and Bitmessage addresses to an identity of your choice.

- Human-meaningful Tor .onion domains.
- Decentralized TLS (HTTPS) certificate validation, backed by blockchain consensus.
- Access websites using the .bit top-level domain.
- Proposed ideas such as file signatures, voting, bonds/stocks/shares, web of trust, notary services, and proof of existence.

Litecoin (LTC)

Litecoin, launched in 2011, was among the initial cryptocurrencies following bitcoin and has often been referred to as “silver to bitcoin’s gold.” It was created by Charlie Lee, an MIT graduate, and former Google engineer. Litecoin is based on an open-source global payment network that is not controlled by any central authority and uses "scrypt" as a proof of work, which can be decoded with the help of CPUs of consumer-grade. Although Litecoin is like bitcoin in many ways, it has a faster block generation rate and hence offers a faster transaction confirmation. Other than developers, there are a growing number of merchants who accept Litecoin. As of February 9, 2019, Litecoin had a market cap of $2.63 billion and a per token value of $43.41.

Ripple (XRP)

Ripple is a real-time global settlement network that offers instant, certain and low-cost international payments. Launched in 2012, ripple “enables banks to settle cross-border payments in real-time, with end-to-end transparency, and at lower costs.” Ripple’s consensus ledger (its method of conformation) is unique in that it doesn’t require mining. In this way, ripple

sets itself apart from bitcoin and many other altcoins. Since Ripple's structure doesn't require mining, it reduces the usage of computing power and minimizes network latency.

Ripple believes that "distributing value is a powerful way to incentivize certain behaviors" and thus currently plans to distribute XRP primarily "through business development deals, incentives to liquidity providers who offer tighter spreads for payments, and selling XRP to institutional buyers interested in investing in XRP." So far, ripple has seen success with this model; it remains one of the most enticing digital currencies among traditional financial institutions looking for ways to revolutionize cross-border payments. As of February 9, 2019, ripple had a market cap of $12.69 billion and a per token value of $0.308.

Primecoin

Primecoin is an innovative cryptocurrency, a form of digital currency secured by cryptography and issued through a decentralized mining market. Derived from Satoshi Nakamoto's Bitcoin, Primecoin introduces an unique form of proof-of-work based on prime numbers.

- Advantages of Primecoin – The innovative prime proof-of-work in Primecoin not only provides security and minting to the network, but also generates a special form of prime number chains of interest to mathematical research. Thus primecoin network is energy-multiuse, compared to bitcoin.
- Value Behind Primecoin – Primecoin network searches for special prime number chains known as Cunningham chains and bi-twin

chains. The distribution of these prime chains are not well-understood currently as even for its simplest case twin primes their infinite existence is not proven.

Monero (XMR)

Monero is a secure, private and untraceable currency. This open-source cryptocurrency was launched in April 2014 and soon spiked great interest among the cryptography community and enthusiasts. The development of this cryptocurrency is completely donation-based and community-driven. Monero has been launched with a strong focus on decentralization and scalability, and it enables complete privacy by using a special technique called “ring signatures.”

With this technique, there appears a group of cryptographic signatures including at least one real participant, but since they all appear valid, the real one cannot be isolated. Because of exceptional security mechanisms like this, monero has developed something of an unsavory reputation; it has been linked to criminal operations around the world. Nonetheless, whether it is used for good or ill, there’s no denying that monero has introduced important technological advances to the cryptocurrency space. As of February 9, 2019, Monero had a market cap of $808.50 million and a per token value of $48.18.

Feathercoin

An Internet currency free from any central bank or institution. feathercoin bypasses the old banking system by using peer-to-peer technology.

Payments are borderless and can be processed by anyone with affordable computer hardware using free software. This work is rewarded with new feathercoins which are issued by the network. Feathercoin is based on NeoScrypt and implements many features not seen in the majority of crypto coins. We have open source projects for ATM's and Point of Sales equipment, t-shirt wallets, laser etched physical Feathercoins and Raspberry Pi based projects. There really are too many things to list but here are some of the technical aspects which differentiate Feathercoin from most.

- NeoScrypt Algorithm
- Current Gen ASIC resistance
- 80 Coin reward per block
- 336 million coins total
- Block target is 1.0 minutes
- Block reward halves every 2,100,000 blocks
- Retarget every block with 15, 120 and 480 block averages and 25% damping.
- Default Feathercoin network port is 9336
- Default RPC mining port is 9337
- eHRC (enhanced Hash Rate Compensation)
- ACP (Advanced Checkpointing)

Cardano (ADA)

Charles Hoskinson, one of the co-founders of ethereum, launched cardano in September of 2017. For supporters of this digital currency, ADA offers all of the benefits of ethereum, as well as many others. Cardano offers a platform for Dapps and smart contracts, like ethereum before it. Beyond

that, ADA aims to solve some of the most pressing problems plaguing cryptocurrencies everywhere, including interoperability and scalability.

Cardano also hopes to tackle issues related to international payments, which are typically both timely and expensive. Thanks to its focus on this area, ADA was able to take international payment processing times from days down to just seconds. As of February 9, 2019, cardano had a market cap of $1.16 billion and a per token value of $0.041.

Ethereum (ETH)

Launched in 2015, Ethereum is a decentralized software platform that enables Smart Contracts and Distributed Applications (DApps) to be built and run without any downtime, fraud, control or interference from a third party. The applications on ethereum are run on its platform-specific cryptographic token, ether. Ether is like a vehicle for moving around on the ethereum platform and is sought by mostly developers looking to develop and run applications inside ethereum, or now by investors looking to make purchases of other digital currencies using ether.

During 2014, ethereum launched a pre-sale for ether which received an overwhelming response; this helped to usher in the age of the initial coin offering (ICO). According to ethereum, it can be used to “codify, decentralize, secure and trade just about anything.” Following the attack on the DAO in 2016, Ethereum was split into Ethereum (ETH) and Ethereum

Classic (ETC). As of February 9, 2019, Ethereum (ETH) had a market cap of $12.49 billion and a per token value of $118.71.

EOS (EOS)

One of the newest digital currencies to make our list is EOS. Launched in June of 2018, EOS was created by cryptocurrency pioneer Dan Larimer. Before his work on EOS, Larimer founded the digital currency exchange Bitshares as well as the blockchain-based social media platform Steemit. Like other cryptocurrencies on this list, EOS is designed after ethereum, so it offers a platform on which developers can build decentralized applications. EOS is notable for many other reasons, though.

First, its initial coin offering was one of the longest and most profitable in history, raking in a record $4 billion or so in investor funds through crowdsourcing efforts lasting a year. EOS offers a delegated proof-of-stake mechanism which it hopes to be able to offer scalability beyond its competitors. EOS consists of EOS.IO, similar to the operating system of a computer and acting as the blockchain network for the digital currency, as well as EOS coins. EOS is also revolutionary because of its lack of a mining mechanism to produce coins. Instead, block producers generate blocks and are rewarded in EOS tokens based on their production rates. EOS includes a complex system of rules to govern this process, with the idea being that the network will ultimately be more democratic and decentralized than those of other cryptocurrencies. As of October 5, 2018, EOS had a market cap of $2.49 billion and a per token value of $2.74.

Novacoin

Novacoin is the coin of the feature. It's unique way of utilizing both Proof-of-Work and Proof-of-Stake for block generation with separated target limits make it stand out. Though Novacoin is similar to PPCoin in some things but it's a project with own ideology and independent codebase, that's why it's hard to perform such comparison. We can say definitely, that:

- Novacoin uses newer version of bitcoin as the base.
- NovaCoin has a different emission model (floating reward per coin-year).
- NovaCoin uses scrypt hashing function for proof-of-work.
- NovaCoin uses the both proof-of-work and proof-of-stake for chain trust score computation.
- NovaCoin has separated target limits for proof-of-work and proof-of-stake.
- NovaCoin has no proof-of-work block signatures.

BITCOIN WALLET

A Bitcoin wallet is a software program where Bitcoins are stored. To be technically accurate, Bitcoins are not stored anywhere; there is a private key (secret number) for every Bitcoin address that is saved in the Bitcoin wallet of the person who owns the balance. Bitcoin wallets facilitate sending and receiving Bitcoins and gives ownership of the Bitcoin balance to the user. The Bitcoin wallet comes in many forms; desktop, mobile, web, and hardware are the four main types of wallets.

Breaking Down Bitcoin Wallet

A Bitcoin wallet is also referred to as a digital Wallet. Establishing such a wallet is an important step in the process of obtaining Bitcoins. Just as Bitcoins are the digital equivalent of cash, a Bitcoin wallet is analogous to a physical wallet. But instead of storing Bitcoins literally, what is stored is a lot of relevant information like the secure private key used to access Bitcoin addresses and carry out transactions. The four main types of wallet are desktop, mobile, web, and hardware.

Desktop wallets are installed on a desktop computer and provide the user with complete control over the wallet. Desktop wallets enable the user to create a Bitcoin address for sending and receiving the Bitcoins. They also allow the user to store a private key. A few known desktop wallets are Bitcoin Core, MultiBit, Armory, Hive OS X, Electrum, etc.

Mobile wallets overcome the handicap of desktop wallets, as the latter are fixed in one place. These take the form of paid apps on youOnce you run the app on your smartphone, the wallet can carry out the same functions as a desktop wallet, and help you pay directly from your mobile from anywhere. Thus a mobile wallet facilitates in making payments in physical stores by using "touch-to-pay" via NFC scanning a QR code. Bitcoin Wallet, Hive Android, and Mycelium Bitcoin Wallet are few of the mobile wallets. Bitcoin wallets do not generally work on both iOS and Android systems. It's advisable to research your preferred mobile Bitcoin wallet as several malware softwares posing as Bitcoin wallets are an issue.

As for web wallets, they allow you to use Bitcoins from anywhere, on any browser or mobile. The selection of your web wallet must be done carefully since it stores your private keys online. Coinbase and Blockchain are popular web wallet providers.

Hardware wallets are by far the most secure kind of Bitcoin wallet, as they store Bitcoins on a physical piece of equipment, generally plugged into a computer via a USB port. They are all but immune to virus attacks, and very few instances of Bitcoin theft have been reported. These devices are the only Bitcoin wallets which aren't free, and they often cost $100 to $200.

Keeping your Bitcoin wallet safe is essential as Bitcoin wallets represent high-value targets for hackers. Some safeguards include: encrypting the wallet with a strong password, and choosing the cold storage option, i.e., storing it offline. It's also advisable to frequently back up your desktop and mobile wallets, as problems with the wallet software on your computer or mobile device could erase your holdings.

THE BEST BITCOIN WALLETS

We are committed to researching, testing, and recommending the best products. We may receive commissions from purchases made after visiting links within our content. Learn more about our review process.

Bitcoin has taken the world by storm, offering a currency alternative to the government-backed currencies we all know from daily use. Proponents argue that the digital currencies are easier, safer and offer better privacy than traditional currencies. Because the value of a Bitcoin compared to the

U.S. dollar and other currencies has skyrocketed over the last couple of years, it has shown up on some people's radar as an investment opportunity as well.

Before you put a dollar into Bitcoin or any other cryptocurrency, it is important to understand the risks. Bitcoin could easily double in value over the next few years, but it could just as easily drop to near zero in value. Only put in what you can afford to lose because there is a chance you won't get it back. If you understand the risks and you're ready to move forward, any of these best Bitcoin wallets should have you covered.

Exodus

Exodus is a software wallet like Electrum, but much more beautiful and more intuitive to use. It offers similar benefits for security but looks a lot different. The desktop only wallet turns your digital currencies, Bitcoin and many others, into a portfolio with graphs and charts. You can exchange coins through the app with ShapeShift exchange integration in addition to storage.

There is no account setup, so your currency and wallet are just for you. Be careful with that computer! Exodus includes private key encryption and other useful security tools. Thanks to the portfolio and graphic views, it is great for anyone with a background in investing who wants to jump to digital currency.

Mycelium

Mycelium is a mobile-only Bitcoin wallet, with Android and iPhone versions available. Mycelium is known for being a bit more complicated to use than some other Bitcoin wallets. But advanced users should be just fine navigating the experience.

There is no Web or desktop interface but as many people now use their phone as their primary computer, that may not be a reason to be scared off from trying it out. It is very secure, allows for anonymity and keeps your Bitcoin in your pocket or bag pretty much everywhere you go.

Blockchain.info

Blockchain is the technology that allows Bitcoin and other digital currencies to exist. Expect to hear more about Blockchain far beyond the digital currency world. Blockchain.info is similar to Coinbase in that it is an online wallet, but you can't buy or sell directly through Blockchain, which means your Bitcoin storage is separate from your Bitcoin marketplace.

Because it isn't a full exchange, it is considered to be more secure than a site like Coinbase, where you can bet that bad guys are constantly attempting to hack. If you are not a "computer person," using an exchange like Coinbase is much easier. This separation adds a level of security, but also a level of complexity in your Bitcoin use.

Robinhood

Robinhood started as a free stock trading platform and has recently expanded to include support for options and other investments, including

cryptocurrencies such as Bitcoin. Robinhood is both a wallet and an exchange, so like Coinbase everything is in one place. Robinhood is a mobile-first platform and has not even rolled out the Web version to all stock trading customers.

But what really sets Robinhood apart is the cost: free. There are no commissions when buying or selling Bitcoin, just like stocks on the platform. Some may argue it is less secure for reasons we already discussed, but if it is secure enough for your stocks, it is secure enough for your coins.

Coinbase

Coinbase is one of the easiest ways to buy, sell and hold cryptocurrencies, which earns it the first spot on this list. With Coinbase, you can connect to a U.S. bank account and easily transfer dollars in or out of your dollar wallet. You can use those dollars, or transfer in new ones, to buy and sell. In addition to Bitcoin, Coinbase currently supports Bitcoin Cash, Ethereum and Litecoin. There are constant rumors of additional currencies like Ripple getting support from Coinbase as well.

While the big upside of Coinbase is ease of use, that is offset with some worries about security. Mt. Gox was at one point the dominant platform for Bitcoin and other currencies. That is until it was hacked and lost nearly half a billion dollars in user currency. But Coinbase did learn from Mt. Gox's loss, and has very firm security in place and regularly updates and improves the entire user experience.

Trezor

Trezor isn't a full buying and selling platform like Coinbase. Instead, it is simply a place to store your Bitcoin. Trezor is a physical device that plugs into your computer, tablet or phone to access your coins. The Trezor wallet works with multiple currencies and works as a password manager, two-factor authentication device and other useful features.

This wallet offers some protections against lost passwords and lost devices, but you should learn from other's sad lessons and make sure that never, ever happens. The entire point of this digital Bitcoin wallet is to keep others from stealing your Bitcoin, so you can assume the recovery process is not necessarily an easy one.

Electrum

Electrum is a software wallet, which means your Bitcoin is stored in a set of files on your laptop or desktop computer. It is currently available for Windows, Mac OS X, Linux, and Android. Electrum can work with some physical wallets and has some flexibility compared to just using a hardware wallet like the Trezor.

The big benefit is that you can quickly get up and running and store your Bitcoin on your own computer. But if that computer crashes, is lost in a house fire, or ends up hacked or corrupted, you could lose your coins. The app does support a recovery process and allows you to create a physical "cold storage" with a printed or handwritten set of keys.

HOW TO CREAT A WALLET

In basic terms, a wallet is a database kept either online or offline that stores the private key for coins in your possession. When you make a transaction, you sign for the transaction with your private key, which confers your ownership of the coins and your right to initiate the transaction. The blockchain encodes the transmitted bitcoin with the recipient's private key, formally transferring ownership. This is roughly equivalent to a physical wallet, where taking money out of your wallet and permitting someone else to place that money in his or her wallet conveys a money transfer.

Wallets can exist as physical devices, on paper (which is just a printout of both your public and private keys; the actual coins exist on the blockchain), as software on a private computer, or a managed web account. Should a wallet ever become inaccessible, the private key would be inaccessible, making the bitcoin "lost" or not spendable. Proper wallet management requires protection of passwords and any physical assets, management of backups, and informing appropriate individuals about how to access the wallet in the case of your incapacitation or death.

Many exchanges, including Coinbase, automatically create wallets for new accounts as a courtesy. All a new subscriber has to do to use such wallets is to load them with bitcoin or altcoins. However, as managed wallet providers tend to charge transaction fees for any outside transaction, it may be cheaper to consider a non-managed option.

There are plenty of free wallet options available. Using a web-based wallet option means, however, sharing your private key with a third party. For the privacy-minded, this may be a no-go, but for the new user, this is the easiest option available.

Setting Up a New Wallet

For this example, we are looking setting up a new wallet at blockchain.info:

Step 1. At the blockchain.info homepage, scroll to "New to Digital Currencies?" Click on "Get a Free Wallet."

Step 2 . Enter your email and password. Confirm the password and toggle the Terms of Service box. Hit "Continue." Make sure that you pick a password you are unlikely to forget and read the terms of service thoroughly.

Step 3 . Click "Get Started."

Step 4 . Your wallet is now online. You can now create an address with which to receive coins by hitting "Request." You will need an exchange account to fund your wallet. Once funded, you can send coins by hitting "Send."

HOW TO SETUP A COINBASE BITCOIN WALLET

Why Do I Need a Cryptocurrency Wallet?

Pretty much every person today has a PayPal account and uses it to make purchases or send and receive payments from other people. A cryptocurrency wallet provides the same functionality, but with a couple differences.

- Coinbase is for cryptocurrencies such as Bitcoin, Ethereum, and Litecoin and not for currencies such as USD or EUR.
- Coinbase is used as an exchange between your local currency and cryptocurrency. So if a person wanted to own Bitcoin, Ethereum or Litecoin as a investment they can simply buy the currency with USD and hold it in the wallet. If the price goes up you can then exchange your cryptocurrency back to USD for a profit.
- One of the reasons I use my cryptocurrency wallet is to have my cloud mining proceeds deposited in BTC daily. I can then exchange my proceeds to USD or leave as BTC in hopes of a price increase relative to USD.

Creating Your Coinbase Account

When you go to Coinbase.com to create your wallet a screen will be presented where you can enter your first/last name, email address, and password. Select the checkbox and then click the Sign Up button.

Once your wallet is created there are a few steps necessary for security purposes and to link your bank account, PayPal, and credit/debit card so you can start exchanging your currency for Bitcoin, Ethereum, or Litecoin.

- Phone Verification
- Add Payment Accounts
- Validate Identity

Phone Verification

Phone verification is necessary to serve as a secondary authentication source to further protect your wallet. The one caveat to this is you will need to enter your cell phone number. Once you enter your phone number you will receive a text message with a verification code to enter on the site. Enter the code and verification is now complete.

Add Payment Accounts

Now that our phone number is validated we need to link a bank account, credit/debit card, or PayPal to transfer money into and out of the Coinbase wallet. I chose to link both my PayPal (for funding my account) and bank account (for withdrawals). This allows me to have funds available immediately when transferring to my Coinbase wallet that I use when purchasing hashpower at Genesis-Mining.com.

During this part of the setup process I would recommend linking your bank account as no ID verification is required for that step.

Linking Your PayPal Account

For this next step or for credit/debit card you are required to validate your ID. If you have a camera on your computer you can upload the image that way. I found it easier to install the Coinbase app on my smartphone and upload my ID that way.

If you do it through your computer you will go to Settings > Payment Methods > Add Payment Method

Select PayPal or Credit/Debit Card and then click on the upload ID link. This will enable your camera and allow you to upload your ID. Once your ID has been verified you will be able to complete your account linking and start transferring funds.

Accessing Account Settings

Add Payment Method

Available Payment Methods

Identity Validation

The last thing we need to do is validate our identity by filling out your account profile form. When you go to your account settings you will see a link like the one below. Click that and it will take you to the Identity Verification form. Enter your information and this step is complete and your wallet is now active.

Identity Verification Form

Receiving Bitcoin Funds

Now that your Coinbase wallet is active and your accounts are linked you can send or receive Bitcoin. To receive Bitcoin you simply provide people with your Bitcoin wallet address that they send the funds to. To find your wallet address click on BTC Wallet and then Wallet Address. A window will pop-up as shown below. The long alpha-numeric address is the address to your wallet. Provide this address or your email to people sending you BTC. This is also the address you can use to have your mining profits sent to you.

Send/Request Bitcoin Funds

You can also use the Send/Request function of the Coinbase wallet to send BTC or ETH to other users via email or their BTC/ETH wallet address as well as send requests for funds.

For example if you purchase hashpower from a cloud mining site like Genesis Mining, when your purchase is complete they provide a BTC

address to send the funds to. Copy that address and use it to send the BTC funds, which will complete the transaction.

Congratulations Your Wallet is Now Setup

You now have a fully functioning cryptocurrency wallet that you can use to purchase and send/receive Bitcoin, Bitcoin Cash, Ethereum, and Litecoin. You can also use this wallet to receive Bitcoin mining proceeds

WHY SHOULD YOU TRADE IN CRYPTOCURRENCY?

The modern concept of cryptocurrency is becoming very popular among traders. A revolutionary concept introduced to the world by Satoshi Nakamoto as a side product became a hit. Decoding Cryptocurrency we understand crypto is something hidden and currency is a medium of exchange. It is a form of currency used in the blockchain created and stored. This is done through encryption techniques in order to control the creation and verification of the currency transacted. Bitcoin was the first cryptocurrency which came into existence.

Cryptocurrency is just a part of the process of a virtual database running in the virtual world. The identity of the real person here cannot be determined. Also, there is no centralized authority which governs the trading of cryptocurrency. This currency is equivalent to hard gold preserved by

people and the value of which is supposed to be getting increased by leaps and bounds. The electronic system set by Satoshi is a decentralized one where only the miners have the right to make changes by confirming the transactions initiated. They are the only human touch providers in the system.

Forgery of the cryptocurrency is not possible as the whole system is based on hard core math and cryptographic puzzles. Only those people who are capable of solving these puzzles can make changes to the database which is next to impossible. The transaction once confirmed becomes part of the database or the blockchain which cannot be reversed then.

Cryptocurrency is nothing but digital money which is created with the help of coding technique. It is based on peer-to-peer control system. Let us now understand how one can be benefitted by trading in this market.

Cannot be reversed or forged: Though many people can rebut this that the transactions done are irreversible, but the best thing about cryptocurrencies is that once the transaction is confirmed. A new block gets added to the blockchain and then the transaction cannot be forged. You become the owner of that block.

Online transactions: This not only makes it suitable for anyone sitting in any part of the world to transact, but it also eases the speed with which transaction gets processed. As compared to real time where you need third parties to come into the picture to buy house or gold or take a loan, you only need a computer and a prospective buyer or seller in case of

cryptocurrency. This concept is easy, speedy and filled with the prospects of ROI.

The fee is low per transaction: There is low or no fee taken by the miners during the transactions as this is taken care of by the network.

Accessibility: The concept is so practical that all those people who have access to smartphones and laptops can access the cryptocurrency market and trade in it anytime anywhere. This accessibility makes it even more lucrative. As the ROI is commendable, many countries like Kenya has introduced the M-Pesa system allowing bit coin device which now allows 1 in every three Kenyans to have a bitcoin wallet with them.

Do Your Own Research

This one may sound like a given, but it is particularly important for traders considering a highly volatile asset like bitcoin. The digital currency is a very new asset relative to many other securities.

While stocks and bonds have been around for some time, the first bitcoins were produced in 2009. At the time of this writing, the digital currency has been around for less than a decade, making it rather new compared to more established assets.

There are plenty of cryptocurrency scams out there, too. Many initial coin offerings (ICOs) have been taking place in the digital currency space, and these sales of newly created digital tokens have provoked warnings from prominent market experts such as ether co-founder Vitalik Buterin.

Further, the regulatory environment surrounding digital currencies is very immature, meaning that varying government agencies and other entities have provided disparate guidance. The Commodity Futures Trading Commission (CFTC) in the U.S., for example, declared in 2015 that bitcoin was a commodity like gold or oil. As a result, the CFTC has the authority to regulate the digital currency.

The U.S. Securities and Exchange Commission has also provided guidance on digital currencies, indicating in 2017 that the digital tokens sold through ICOs could in some cases be securities. In the instances where these tokens are securities, they are subject to U.S. federal securities law.

However, the developments involving the CFTC and SEC only speak to U.S. regulations. When examined through a global lens, digital currency regulation can become even more confusing.

Cryptocurrencies were a major topic of discussion at the 2018 G20 event in Argentina, where representatives of major economies reportedly worked toward a consensus that bitcoin—and other digital tokens—are in fact assets.

"Whether you call it crypto assets, crypto tokens—definitely not cryptocurrencies—let that be clear a message as far as I'm concerned," stated Klaas Knot, who heads De Nederlandsche Bank, the central bank of the Netherlands. "I don't think any of these cryptos satisfy the three roles money plays in an economy."

Given these considerations, it is even more important for would-be bitcoin traders to conduct their due diligence before getting involved with the digital currency.

There are many places that investors could start when researching bitcoin. They may benefit from scouring industry terminology, learning terms like HODL (hold on for dear life), FUD (fear, uncertainty and doubt) and shill (a person who promotes coins they own in order to turn a profit).

In addition to determining whether bitcoin is right for them, investors should evaluate how the digital currency fits in with their financial objectives and any existing portfolio they have. Bitcoin traders may also want to familiarise themselves with the broader cryptocurrency ecosystem by learning about the prominent personalities and their unique voices.

Learn Bitcoin's Price Drivers

In order to trade bitcoin effectively, investors should be familiar with the major variables that help determine the digital currency's price.

At the most basic level, bitcoin's price is a function of supply and demand. The total supply of this digital currency is capped at 21 million, which means only 21 million total units of bitcoin can exist at any time, according to current rules.

At the time of this writing, 16.9 million of these digital tokens have been mined. These units are created through the process of mining, which involves processing transactions into a "block" in bitcoin's blockchain.

Every time a block is mined, a "mining reward" is provided. This reward gradually declines over time. While mining the first block released 50 units of bitcoin (BTC), the mining reward has been cut in half (halved) approximately every four years. At the time of this writing, the mining reward was 12.5 BTC.

While these figures might prove helpful, it is worth keeping in mind that the information needed for many bitcoins has been lost. Nicholas Gregory, CEO of blockchain infrastructure company CommerceBlock said in late 2017, "There's probably two or three million bitcoin that will probably never be used. There's quite a lot that have been lost."

While the aforementioned information covers the supply side, the demand side must also be explored in order to provide a full explanation.

Some market analysts believe that bitcoin's price is largely a function of market sentiment, which could also be referred to as "animal spirits," a term coined by legendary economist John Maynard Keynes to explain the emotional approaches that many investors take to decision making.

There is evidence to support the belief that media coverage is a major driver of bitcoin's price movements, too. The digital currency's price has experienced sharp increases during times when it was covered by the mainstream media.

This development can result in bitcoin following what is known as a hype cycle. Basically, widespread media coverage can cause the hype

surrounding a technology (like a digital currency) to peak temporarily before eventually falling to a substantially lower level.

Bitcoin has already experienced several cycles where it underwent sharp price appreciation followed by notable losses. While it is difficult to attribute its price movements to a single variable, the digital currency suffered substantial volatility as it drew mainstream media coverage.

Another major factor that analysts have often cited as driving bitcoin's price movements is macroeconomic and/or geopolitical turmoil. Analysts have repeatedly described bitcoin as a safe-haven asset.

Chris Burniske, a prominent analyst who worked for investment manager ARK Invest, told CNBC that bitcoin could be referred to as "digital gold," stating that the cryptocurrency has many of the same qualities as the precious metal.

"When you look at the global markets, there's lots of fear, uncertainty, and doubts," Burniske said. Investors have frequently flocked to safe-haven assets like gold during times of market turmoil.

Another major variable is regulatory developments. As stated earlier, the regulatory framework surrounding digital currencies is very immature, meaning it could change quite a bit over time. Digital currency exchanges have sometimes found that in order to attract institutional investors, they must proactively develop robust compliance in order to stay in accordance with regulations.

Select An Exchange

Finding the right exchange is a crucial step for a new bitcoin trader. Many digital currency exchanges have been hacked, including Bitfinex, which has at times been described as the world's largest bitcoin exchange.

Bitfinex suffered a hack during the summer of 2016, during which it lost roughly US$70 million worth of bitcoin. The exchange survived the experience, spreading the losses it suffered across all accounts and compensating account holders with newly created digital tokens, which is in turn bought back.

While Bitfinex managed to pull through a hack unscathed, Tokyo-based exchange Mt. Gox was also compromised by nefarious parties, which resulted in the loss of US$460 million. Mt. Gox went into bankruptcy, and a trustee named Nobuaki Kobayashi started selling digital currencies on behalf of creditors in March 2018.

Investors can benefit substantially from conducting their due diligence on any exchanges before using them. There is a shortlist of digital currency exchanges that have not been hacked at the time of this writing. For instance, Coinbase has never been hacked. However, its customers have been hacked after falling victim to elaborate schemes.

BASIC SECURITY TECHNIQUES

In addition to picking out the right exchanges, investors can reduce their chances of getting hacked by learning more about security techniques.

One of the most basic techniques is two-factor authentication, which requires users to take more than one step to confirm their identity. Not all forms of two-factor authentication are created equal, though. Using Google Authenticator instead of SMS, for example, can make a big difference.

If investors want to use Google Authenticator for two-factor authentication, they should be sure to turn off their SMS two-factor authentication, according to Dan Romero, vice president, and general manager of Coinbase.

Another way investors can prevent their money from getting hacked is contacting their cellular service provider and taking every effort to protect their account, said Sean Everett, Coinbase's VP of product management. Traders can request that their mobile service provider refrains from porting any phone numbers, which adds another layer of protection.

COMMON TRADING MISTAKES

Great, you made it this far, and by now you should have enough know-how to go out and get some field experience. However, it’s important to remember that trading is a risky business and that mistakes cost money.

Let’s go over the most common mistakes that people make when they start trading—in the hopes that you’ll be able to avoid them.

Not learning the lesson

Regardless of whether or not you made a successful trade, there’s always a lesson to be learned. No one manages to only make profitable trades, and no one gets to the point of making money without losing some money on the way. The important thing isn’t necessarily whether or not you made money. Rather, it’s whether you managed to gain some new insight into how to trade better next time.

Leaving money on an exchange

This is the most basic ground-rule for any crypto trader: NEVER leave your money on an exchange that you’re not currently trading with. If your money is sitting on the exchange, it means that you don’t have any control over it. If the exchange gets hacked, goes offline, or goes out of business, you may end up losing that money. Whenever you have money that isn’t needed in the short term for trading on an exchange, make sure to move it into your own Bitcoin wallet or bank account for safekeeping.

Risking more than you can afford to lose

The biggest mistake you can make is to risk more money than you can afford to lose. Take a look at the amount you feel comfortable with. Here’s the worst-case scenario: You’ll end up losing it all. If you find yourself trading above that amount, stop. You’re doing it wrong. Trading is a very

risky business. If you invest more money than you're comfortable with, it will affect how you trade, and it may cause you to make bad decisions.

Not having a plan

Another mistake people make when starting out with trading is not having an action plan that's clear enough. In other words, they don't know why they're entering a specific trade, and more importantly, when they should exit that trade. So clear profit goals and stop-losses should be decided before starting the trade.

Giving into fear or greed

Two basic emotions tend to control the actions of many traders: fear and greed. Fear can appear in the form of prematurely closing your trade, because you read a disturbing news article, heard a rumor from a friend, or got scared by a sudden dip in the price (that may soon be corrected). The other major emotion, greed, is actually also based on fear: the fear of missing out. When you hear people telling you about the next big thing, or when market prices rise sharply, you don't want to miss out on all the action. So you may get into a trade too soon, or even delay closing an open trade. Remember that in most cases, our emotions rule us. So never say, "This won't happen to me." Be aware of your natural tendency towards fear and greed, and make sure to stick to the plan that was laid before you started the trade.

PRACTICAL WAYS TO MAKE MONEY WITH BITCOIN

So you want to get your hands on some free bitcoin, eh? By now, you might have heard of how you can make money with bitcoin, magic internet money and digital currency that can be traded or used to make purchases. This digital money uses encryption to make safe and secure transactions instantly from anywhere in the world. Not regulated by any bank, government or Federal Reserve, this open network is managed by the users and investors themselves. Here is our guide to earning real money with bitcoin in 2019.

Contrary to people's knowledge, getting bitcoin is easy, there are a number of ways to earn bitcoin online- some more popular than the others. There are methods that involve a minimal effort with the minimal return and others more lucrative that requires you to have better expertise in the industry.

Below are some of the most famous ways to make money with bitcoin.

Pay To Click (PTC) Websites

There are several websites that will pay you in bitcoins if you watch an ad or click to a certain page containing ads. If you are ad immune and want to make quick crypto buck–this can be a good idea. Bear in mind, to make any significant money is still very hard work and a rather tedious task. BTC4ADS pays around 100 satoshis (0.00000100 ฿) and Coinadder pays around 25 satoshis per click.

Doing Micro Jobs

Much like Microworkers and Cloudfactory, which pay you a small fee to complete very simple tasks like watching a YouTube video or completing someone's survey, there are several micro working sites that will pay you in bitcoin. Bitcoinget is the major player in this market which will pay you around 20,000 satoshis per task while there are several others like Cointasker that will pay you a slightly lower sum.

Mining Bitcoin

No, you don't have to raise the ground to get bitcoin. Not in that sense anyway.

So, why do you call it mining? Similar to gold miners, bitcoin miners have to bring out the gold, in this case, bitcoin into the surface.

Did you dare to ask how? While paper money has a government, who prints and distributes it, Bitcoin has miners who use special software to solve

math problems and are issued with bitcoins in exchange. This system is what makes the Bitcoin network go round.

Mining Bitcoin used to be relatively simple, and the earliest miners were able to mine thousands of Bitcoin using their home computers. However, in today's very competitive and volatile market, miners buy expensive computer parts, that the high street customer has little access to, required for more processing power in order to mine more difficult algorithms. Since this is a race who can solve blocks faster, miners team up in what we call mining pools where they combine their processing power in order to solve each transaction first. The reward mostly comes from several miners' fees, is then split up by members of the pool.

Remember that bitcoin mining is not as profitable as it used to and many are claiming it to be the end of profitable mining.

The future of mining in 2019 will depend on the price of Bitcoin. If the price goes up, mining will continue to evolve and the number of miners will increase. If the price goes down, miners will gradually disappear.

It presents new miners with new challenges and also unique opportunities to come into the market when everyone else is leaving and then the price of bitcoin will go up. It all depends on your ability to analyze the market and correctly predict future changes.

Bitcoin Faucets

If you don’t mind looking at a few ads and answering surveys, you can visit a bitcoin faucet website. Generally, these websites generate revenue from advertisements placed on their pages. Those who visit their site and answer short questions or captchas will be paid from the small portion of their revenue.

Help Others, Get Tipped In Bitcoin

You can also get tipped in bitcoins by helping other people. One of the most notable platform to do so is bitfortip, which tips bitcoins as an incentive for helping people. Bitcoin is a new technology and there are people who are genuinely passionate about it and excited about what is to follow so incentives like this helps to build a positive vibe around the community and also help people solve their problems.

Gambling Bitcoins

Though its not advisable to anyone, if you are self aware enough, the bitcoin gambling market can still be a good source of income. Just like any form of gambling, the people in general always lose and the casinos always win but since bitcoin gambling is a very little heard of term, you can get huge bonus for joining or even several rounds of your stake to start with. Sites like Bitstarz and mbit are major players in Crypto gambling business.

Writing about Bitcoins

Cryptocurrency in general is a new niche and there is a scarcity of writers who genuinely know this niche. This means the market is flooded with newbie copywriters who simply rehash the content that contributes to the deterioration of quality. However, if you really know this niche and you have decent writing skills, you can actually make money.

There are several websites that will pay you for writing about bitcoins.

Buying and Holding

Start with creating a wallet to keep your bitcoins safe. There are many places that allow you to do so. Paxful, for example, provides a free digital wallet whenever you sign up for an account. This is the easiest way if you are planning on buying and holding bitcoins. Make sure that the website you're using is a safe and reliable one.

Investing in Bitcoin is a waiting game of its value to rise. This lets you decide when is a good time to buy or sell. There are several factors that contribute to how bitcoin is valued and you never know what will trigger the next bear market.

"Hodl", a term the Bitcoin community whenever they are holding their coin with the belief their coin will be profitable one day. The slang word earned the backronym "Hold On for Dear Life" in the cryptocurrency space.

Note that this method can be tricky so don't take anyone's advice about it. Research and learn about Bitcoin and come up to your own conclusion.

Running a signature campaign in Bitcoin Talk forum

Bitcointalk is one of the oldest bitcoin forum set up by Satoshi Nakamoto himself. This is probably the most popular forum in crypto sphere and used by millions of people. If you are an avid follower of the forum and you have racked up some authority from consistent posting, then your posts of bitcointalk will have a sponsored signature and you'll get paid by sponsors for every post you make on the forum.

According to Steemit,you can easily make a bit of coin doing simple forum posting – for example a full member can earn 0.0003 btc per post

Bitcoin Trading

There is potential to make big money trading bitcoin. Unlike buying and holding, trading bitcoins means you buy at a low price and sell them back at a higher price. This requires practice and knowledge of the market and to some extent a crystal ball. Given that the cryptocurrency market is extremely volatile, this method can be very risky.

TOP TIPS FOR INVESTING IN CRYPTOCURRENCY

Cryptocurrency is the newest trend in the money market that contains the elements of computer science and mathematical theory. Its primary function is to secure communication as it converts legible information into an unbreakable code. You can track your purchases and transfers with cryptocurrency. Following are the top ten tips for investors to invest in cryptocurrency.

It's Just Like Investing in Commodities

Investing in cryptocurrency is just like investing in any other commodity. It has two faces - it can be used as an asset or as an investment, which you can sell and exchange.

Buy Bitcoin Directly

Buy Bitcoins directly if you do not want to pay the fee for investing or if you are interested in possessing real Bitcoins. There are a lot of options all over the world including Bitcoin.de, BitFinex, and BitFlyer from where you can buy Bitcoins directly.

Only an Absolute Minority Uses Cryptocurrency

Today, Bitcoin is the most common cryptocurrency in the world of investment. In the United States, only 24% of the adults know about it, and surprisingly only 2% Americans use it. It is good news for the financial investors as the low usage represents a fruitful investment for the future.

Usage is Growing

The combined market cap of the cryptocurrencies is more than 60 billion American dollars. It includes all cryptocurrencies in existence including hundreds of smaller and unknown ones. The real-time usage of the cryptocurrencies has gone up, showing a rise in trend.

Usage is the Key Criteria

As an investor, the usage must be the key for you. The demand and supply data of cryptocurrencies exhibits a decent investment opportunity right now. There exists a strong usage of the currencies for facilitating payments between financial institutions and thus, pushing transaction costs down meaningfully.

The Market Cycle

Currently, the cryptocurrency market is in euphoria. It is the point where the investment may not appear as a golden opportunity to you but the values will go higher from here. Businesses, governments, and society across the globe will soon be considering cryptocurrencies.

It will Solve Problems for You

Money is to solve problems, and so is the cryptocurrency. The bigger problem it solves, the higher potential value it gets. The sweet spot for possessing cryptocurrency is that it provides access to money and basic bank functions including paying and wiring.

Crypto to Money

Today, cryptocurrencies can be exchanged to conventional paper money. Therefore, the lock-in risk that existed a while ago is gone now.

Create Your Portfolio

Since cryptocurrencies are exchangeable, they have become another way to build your portfolio. You can now store cash in the form of crypto and exchange it for cash anytime you need the traditional money.

Read the Right Resources

'Everyone and his uncle' becomes a guru during any hype. Be very skeptical while selecting reading sources and people who do cryptocurrency investment.

HOW BITCOIN WILL PROMOTE LATIN AMERICAN GROWTH

There has been much ado concerning Bitcoin and how authorities and businesses in China and the United States have reacted to it, but possibly more intriguing possibilities may lie ahead for this currency and other cryptocurrencies. The Wall Street Journal ran a piece a week ago about the obvious divide that exists in Latin America. The Atlantic facing countries have more command oriented economies while the Pacific facing countries, with the exception of Ecuador and Nicaragua, have more market-oriented economies. Latin America has become a continent of focus on a global scale with stifled European growth and an Asia-Pacific region that has already been welcomed into the global economic conversation. Alternative currencies will make their mark on Latin America and it will affect both sides in a different fashion. In the end, Bitcoin and Latin American Growth will go together as they both are in spotlight at the same time and cryptocurrencies (including Bitcoin) will afford Latin American businesses and entrepreneurs the opportunity to operate on a level playing field with the rest of the globe.

Notable State Oriented Economies of Latin America

- Ecuador
- Bolivia
- Cuba
- Brazil
- Argentina
- Nicaragua
- Venezuela

These countries have economies that are more beholden to national interests. The most extreme state run economy on this list is Cuba, which has a Communist regime that has made slight concessions to economic liberalization. Venezuela has arguably the second most extreme state run economy and is in the midst of a socioeconomic and political crisis. Argentina has had its fair share of instability and command-oriented economic events courtesy of President Cristina Fernandez de Kirchner including price controls, drama concerning possession of the Falkland Islands, inflation of 26%, police strikes, and the nationalization of YPF just to name a few measures. Brazil is always feared to resort to its old ways and currently there is still a great deal of red tape and taxation is comparatively higher than peers.

Notable Market-Oriented Economies of Latin America

- Mexico
- Colombia
- Panama
- Chile
- Peru
- Belize

Mexico's efforts to attract and grow business is not just limited to Mexico City, but Guadalajara has been emphasized as a growth destination in the digital and tech space much like the way Bogota is the established economic powerhouse city in Colombia and Medellin has broken out a youthful, digital force. Mexico is currently the 14th largest economy and growing. Mexico is still plagued by the drug cartels as demand for drugs

across the northern border still exists. Ciudad Juarez is plagued by cartel-induced violence, which is considered so bad that the Sun Bowl strongly discouraged visitors from traveling across the border as the college bowl game was an opportunity to promote both El Paso, Texas and Ciudad Juarez for tourism and business.

Colombia still is combatting FARC, but it is clearly winning the battle after President Uribe's term. FARC has been more limited to the jungle areas of Colombia. Active peace talks with FARC are also being negotiated to an extent. The Colombian economy has much room to grow in terms of agriculture, energy, finance, tourism, and digital technology.

Belize is actively courting Americans to purchase real estate in the country marketing their pristine beaches, tax policies, and English fluency. Belize has a lot more growing to do and it has to shake stigmas.

Chile is considered by the Heritage Foundation to be #1 in economic freedom in Latin America. Chile enjoys a trade surplus, a central bank policy rate of 4.5% that would be attractive to investors outside of Chile. Trading the Chilean Peso may be a worthy endeavor for those wishing to take advantage of the carry trade against countries/economic zones that have extremely low interest rates such as the United States, European Union, and Japan. Chile has low inflation and has policies that benefit not just copper exports, but other exports to help maintain the surplus. Morgan Stanley expects Chile, Peru, Colombia, and Mexico to grow on average 4.25% in 2014.

These countries are not facing looting outbreaks, fights over toilet paper, nor do they have leaders that are trying to escalate action against another country.

Bitcoin's Impact on State-Oriented Economies

In all of these state-oriented economies, there are currency controls. Venezuela and Argentina are infamous for their price controls. Brazil's government influence in the economy stems from their excessive influence, possible corruption issues, and inflationary concerns. Entrepreneurs, investors, and ordinary individuals will be looking to the marketplace to meet their needs. Rationing, red tape, high costs, and possible surveillance are associated with these state-oriented economies. Bitcoin and cryptocurrencies will meet the needs of many that have access to the internet.

Competing globally in countries that wish to be more insular comes with negative ramifications, but the usage of the internet and the ability to transact in a possibly untraced fashion in a global marketplace will enable competitive pricing for citizens to receive the goods and services needed. Venezuelans will be able to buy toilet paper from foreign sources without having to use a currency that is being grossly debased. Venezuelans will also have the opportunity to engage in entrepreneurship while still in Venezuela to fund their endeavors and possible defection to other countries such as Colombia. Over 26% of Venezuelans use the internet on a daily basis. Venezuela has not filtered the internet just yet and purchasing Bitcoin is far more secure than holding onto Bolivar.

Bitcoin usage could take the government's tight grip on the economy away by rendering its presence useless by adopting the private currency. Less tax revenues can be collected, a populace that is armed financially and possibly literally (you could have bought anything on Silk Road), and decreased influence from political leaders and enforcers as cryptocurrency usage becomes viral. This thought process can be applied to Venezuela-lite in Argentina, which is an economy with a lot of potential.

The Brazilian economy could grow further by giving businesses more exposure overseas and overcoming the exotic sovereign currency issue. Lower transaction costs, currency familiarity, and nationality ambivalence with Bitcoin customers will help Brazilian firms seeking to do business outside of Brazil. With a large influx of tourists and business-people coming to Rio de Janeiro and São Paulo, the acceptance of Bitcoin and other cryptocurrencies will remove the barriers of having to convert currencies and engage in secure purchases. Brazil may be a more command-oriented economy like Argentina, but global expectations and aspirations should push them away from past tendencies.

For the state-oriented economies, Bitcoin and its competitors offer greater freedom, monetary security, entrepreneurship opportunities, transaction security, and privacy. In the case of Venezuela, it could spark a change in governance much like the way social media was credited for bringing in the Arab Spring to life. Much of the problems surrounding Venezuela are economic in nature and the black market is a natural alternative. Prevention of seizure of assets by keeping them in a digital wallet in the cloud is far more secure than keeping funds in a bank regulated by the Venezuelan government.

Bitcoin's Role in Economic Growth for the Pacific Countries

Entrepreneurship as described in the previous section is on a smaller level than what may be in Colombia, Mexico, Chile, and Peru. Colombia and Mexico have cities that have hopes to global players in the digital space. Attracting business from Europe, Canada, and the United States would be easier with lower exchange and transaction fees. Credit cards and PayPal place transaction fees on users wishing to make international transactions and this fee would be reduced.

Latin American outsourcing can experience growth as call centers, development and design firms, and independent contractors are able to not only competitively bid as they do now, but they would be able to accept Bitcoin and other cryptocurrencies and this will drive in more business. It is not a fad, it is a matter of making an easier and cheaper transaction. Less barriers to making the purchase will make the sale and it will help Latin American businesses be able to be global, which can lead to Venture Capital growth.

Bitcoin will lead to greater international business transactions for Latin America and enable economic growth. The benefits are different for these countries as the need for stability is not pressing, but rather these countries have an insatiable appetite for growth. Entrepreneurship, competing globally, lower transaction fees, transactional security, competitive biddng, improved economic development, and changing perceptions are all benefits of adopting cryptocurrencies in these countries. A startup in Medellin or Cartagena can compete with a firm in Toronto and another firm in

Indianapolis for a services contract. Removing the barriers of nationality from the transaction to focus solely on the services provided and costs involved are a major benefit.

Consumers win too in these countries as they would gain purchasing power because some items are more expensive in their domestic markets than foreign markets. Ex-pats and immigrants can send money to family members in their native country in a simple, inexpensive, quick, and secure fashion. This can help boost local economies.

Bitcoin and other cryptocurrencies help make the world a smaller place just like the way air travel, the internet, telecommunications, and social media have done. Cryptocurrencies promote globalization and Bitcoin will help provide that opportunity to Latin America, which is eager to compete and grow in the global marketplace.

CONCLUSION

Technology has made the world a smaller place over recent years. Bitcoin is a child of the technological revolution. As the first pan-global currency (or commodity) that can be used by people all over the world as a medium of exchange without involving governments, the cryptocurrency will continue to attract interest and resistance.

In nations where currency flows are subject to stringent government control, Bitcoin offers a method to transfer wealth to regions of the world

where restrictions are less onerous. Additionally, since Bitcoin transactions are anonymous, the cryptocurrency will continue to attract transactions connected to nefarious and outlawed activities.

It is clear that Bitcoin is gaining interest and use around the globe. In 2016, the majority of Bitcoin transactions occurred in China. In fact, the massive volatility in Bitcoin's value at the beginning of 2017 that took the price from $1129 to under $800 on the same day was likely due to speculation from China. Bitcoin, and its operational child, blockchain technology, have a future in the world markets. However, it is likely that governments all over the world will resist a pan-global asset that operates beyond their reach and can facilitate activities that run counter to their laws and rules or political agenda.

BITCOIN FAQ

Bitcoin is a digital currency — a virtual form of cash — that allows users to make anonymous payments online. Bitcoin transactions are validated by a vast network of computers, instead of banks or governments, making it a decentralized form of money that many have hailed as a privacy-friendly answer to corporate banking and a recession-proof alternative to inflationary currencies.

Computers track and encrypt bitcoin transactions in a process called mining, saving the data in a record called a blockchain. New bitcoins are created in the mining process. The bitcoin blockchain is a public ledger of every bitcoin transaction between any two parties. Because it's constantly validated by thousands of computers, this ledger is said to be virtually

incorruptible, as a hack would need to outstrip the combined processing power of every computer working on the bitcoin blockchain.

What can I use bitcoins for?

Bitcoin was designed to transfer sums of money between two strangers without the need for an intermediary to verify the validity of the transaction. This means you can pay another person directly online, without having to provide identifying details such as a PayPal account or credit card information.

Because of bitcoin's ability to facilitate anonymous purchases online, nearly half of all bitcoin transactions are associated with illegal trade (think the type of black market activity found in the murkier dark web of the internet).

Mainstream retailers from Microsoft to Expedia are opening their registers to bitcoin. In theory, bitcoin could become a viable way to pay for things online without leaving the same type of trail a credit card leaves — and without adding to the in-depth profile advertisers have of what you like, buy and search for.

Its meteoric rises and falls have even put bitcoin on two major stock exchanges, as U.S. regulators approved derivatives trading on bitcoin futures and swaps (but not direct ownership of bitcoin itself).

How secure is bitcoin?

There are definitely concerns about the security of bitcoin holdings. Hackers have attacked major bitcoin exchanges such as Bitfinex and Mt. Gox, making off with millions of dollars' worth of currency, leaving users bereft with no institutional backup.

As more people have been getting in on bitcoin — and other cryptocurrencies — there has also been a rise in attacks on investors' wallets. For example, there have been phishing attempts for login details and a particularly virulent phone-porting scam to try and gain control of users' cryptocurrency accounts.

It's imperative, therefore, to use a bitcoin wallet that requires at least one offline means of logging in, making it more difficult for online thieves to hack. "Before trusting a bitcoin wallet with my bitcoins, I'd make sure it offers good encryption with second-factor authentication," says Sophos senior security advisor Chester Wisniewski. "The less convenient it is to access, the more secure it generally is."

Unfortunately, for now, there's little protection against the losses incurred when bitcoin exchanges are hacked. (Nonetheless, some providers have been hit by lawsuits for losing their users' cash; after a 90-minute blackout at the world's largest exchange, BitThumb, cost traders millions of dollars, users subsequently filed a class-action lawsuit.)

Does bitcoin have a future?

Central banks around the world, including in the U.S., have floated the idea of a government-backed digital currency — but it's early days for bitcoin

and other cryptocurrencies in the eyes of the Federal Reserve, which noted that there were technical and privacy issues to overcome.

"Bitcoin is not yet a money in the standard sense of a commonly accepted medium of exchange — you can purchase a pretty limited set of things with bitcoin at present," White says. "There is acknowledgment that the technology is remarkable and has potential uses, but it is too soon to tell whether further advances can make bitcoin a more user-friendly, everyday currency."

What's the catch with using bitcoin?

The growing numbers of people transacting in bitcoin has slowed down the bitcoin network, as it struggles under the processing load. At points, this has increased transaction times from a few minutes to more than a day and raised transaction fees, making it a rather costly way to pick up that bitcoin bucket of KFC.

"Bitcoin was not designed as an everyday currency," says Lawrence H. White, economics professor at George Mason University and an expert on monetary policy. "As it stands, it's useful for occasional peer-to-peer remittances without the need for third-party verification."

New payment processors such as Lightning promise to increase the capacity for bitcoin transactions, which could facilitate the use of bitcoin for smaller purchases. That said, bitcoin isn't a popular medium of exchange at the moment, partly due to its "lack of a killer app," says White, which keeps the

number of bitcoin spenders below a critical mass that might help keep its oscillating value steadier.

"The volatility of bitcoin had been declining before last year's spike, but now it's as high as it's ever been," White says. "The more people use it as a medium of exchange, the more you would expect that to calm down — but people are not keen to hold on to bitcoin as a payment method because it's so volatile, so it's a bit of a chicken-and-egg problem."

Financial institutions are also making it difficult to get bitcoin in the first place — Citigroup, Bank of America and JPMorgan Chase are among the major U.S. credit card issuers banning purchases of bitcoin and other cryptocurrencies from known exchange platforms, making it harder for first-timers to enter the bitcoin market.

Should I invest in bitcoin?

That depends on your appetite for risk. This hyper-volatile currency rose by nearly 1,400% in 2017 (before crashing to its current, relatively modest $8,400 per bitcoin) — fantastic if you bought some a few years ago; less so if you bought at peak value. "Nobody should put the large share of their retirement savings into bitcoin, but it does diversify your portfolio," White notes.

There's also the fact that around 1,000 people are thought to hold 40% of the bitcoins in circulation, which would make it possible for these big money players to manipulate the value of bitcoin — just as a Tokyo bitcoin holder caused a slump by selling $400 million worth of bitcoin.

Unlike with real-world — government-supported — currency, there's no guarantee that bitcoin will have any value in the coming years (or that it won't). Many banks have denounced the "bitcoin bubble," suggesting its market will collapse and the value of a bitcoin will fall to zero — though White doesn't predict that will happen.

Should I mine bitcoin?

No. The scale of the computing equipment needed in the mining process to create new bitcoins is unfeasible for the average person, and the vast amounts of electricity consumed are unlikely to make it worth your while.

When the first bitcoins were mined in 2009, a personal computer could have turned out a couple of hundred bitcoins in a few days. That's no longer possible, due to the escalating difficulty of the mining process, which requires increasingly more computing power as the total number of bitcoins created approaches its supply cap of 21 million.

Today, 80% of bitcoins have been mined and miners need customized rigs designed to do nothing but solve blocks of bitcoin problems. As an individual miner, you'd usually join forces with a pool of other miners, but this involves fees that cut into your profits.

How can I get bitcoins?

First, you'll need a place to keep your bitcoins — a wallet. This wallet is a string of text that people can use to send you bitcoins. It's a bit like a bank

account number; the only difference is that it isn't linked to any identifying information about you. Signing up for a wallet is as easy as signing up for a new email account. All you need is an email address to receive a verification link.

Wallets (that is, the strings of text identifying your bitcoin holdings) can be held online, offline in "cold storage" hardware such as a USB stick or even on paper (this more complex method involves a piece of paper with a QR code that, when scanned, offers access to an online wallet). Keeping this wallet ID safe is critical — several billions of dollars' worth of bitcoin is estimated to be lost through losing access to wallets, whether by throwing them out or misplacing details.

Blockchain is a popular, free wallet with 15 million users. It can be accessed via a web browser as well as Android and iOS apps. Unlike many others, it doesn't require identification details (although you'll be encouraged to add some to facilitate account recovery).

Because there's always the possibility that a wallet can be hacked (like any other online account), if you intend to keep a large amount of bitcoin, it's a good idea to store most of your haul in a cold-storage wallet.

Electrum is a newer, also free online wallet for desktop and Android, with a relatively easy-to-use interface and the option to save the bulk of your bitcoin stash offline in cold storage. (As of publishing, there had been a security breach which has been addressed.)

Ledger Nano S is a hardware option with wallet software on a USB stick that keeps your bitcoin safely offline and can plug into a computer to send or receive bitcoins instantly. A backup and recovery sheet contains your wallet details, so if you lose the stick, your coin is safe. Available for $98.99 at Amazon.

Where can I get bitcoins?

The easiest way to score some bitcoin is to head to a bitcoin exchange site, of which there are dozens, based around the world. Bitcoin exchanges are a platform for buyers and sellers of bitcoin to conduct transactions, for a fee. San Francisco-based Coinbase is one of the best-known exchanges, and allows transactions between bitcoin and your local currency, cashing out to your bank account or debit or credit card (if you use a bank that doesn't ban cryptocurrency purchases). You can also trade in two other digital currencies — ethereum and litecoin — as well as sign up for a Coinbase wallet for seamless trading on its exchange.

If you live in the U.S., you might want to choose a U.S.-based coin exchange to avoid foreign transaction fees from your bank.

You'll find that the value of a bitcoin varies somewhat across exchanges — this is due to the different demand (from would-be buyers) and supply (from users holding bitcoin) on each exchange, and varying transaction fees.

There is also a small number of bitcoin ATMs — about 1,600 in the U.S. at press time — where you can withdraw cash from your debit account to a

bitcoin wallet or deposit cash as bitcoin (in other words, buy bitcoin).

Is bitcoin really anonymous?

You might have spotted a seeming contradiction above — how anonymous is using bitcoin if a wallet ID can be linked to a real-world bank account? The answer is that bitcoin transactions often can be traced back to identifying details, especially as more third-parties require credentials — such as wallet providers and coin exchanges — spring up in its nascent ecosystem.

Because all transactions are public in the bitcoin blockchain, it's also possible to track the payments made and received by a particular wallet and build a profile based on where bitcoins are spent, especially if they happen to be spent at a real-world retailer or cashed out to a bank account. Researchers at Princeton University found that the data leaked through cookies and trackers by web retailers about bitcoin transactions could be sufficient to link the transactions to buyers' information such as an email address.