

Happy Birthday Bitcoin!

by Sue C. Quimby, CPCU, AU, CIC, CPIW, DAE



Happy Birthday Bitcoin! It may be hard to believe, but Bitcoin has been around for over 10 years. Registered in August 2008 and introduced in January 2009, Bitcoin is a digital cryptocurrency that is shared on a peer-to-peer network without the use of a central intermediary, such as a bank or government. People can send money, in the form of Bitcoin, to anyone over the Internet, even someone they don't know or trust. Bitcoin can be used to purchase anything, anywhere. Bitcoin's creator is anonymous, going by the name of Satoshi Nakamoto. According to Wikipedia, the first commercial Bitcoin transaction was the purchase of two Papa John's pizzas for 10,000 Bitcoin in 2010. In addition to Bitcoin, other popular cryptocurrencies are Litecoin and Ethereum.

Where does Bitcoin come from? Jordan Tuwiner of buybitcoin.com explains that Bitcoins are a reward for a process called mining. All Bitcoin transactions are monitored and verified by miners and are recorded in a public ledger called a blockchain. Miners utilize their combined computing power to verify transactions by solving complex mathematical calculations. Trillions of calculations are required in the mining process. Bitcoin are the reward to miners for performing the calculations and verifying transactions.

Bitcoin mining is not cheap, as it requires a large investment in computer equipment, cooling and storage. It cannot be done on a PC in the basement. Mining takes extensive computing power and tends to overheat the machines being used. A constant supply of cool air is needed to prevent overheating and meltdowns. Special software is required to perform the mathematical calculations. Most mining happens in large warehouses where there is access to cheap electricity. In May 2019, a man in China was arrested for allegedly stealing electricity from an oil well to power his mining operation.

One concern with anything digital is that it can be copied. Security is required to ensure the same Bitcoin is

not spent more than once. Cryptography is the mathematical process that provides security for Bitcoin. It involves complex mathematical equations or algorithms that encrypt and decrypt data. The data is encrypted so it is unreadable by anyone who does not have the key.

Even though Bitcoin is virtual, it is reported that the supply of Bitcoin is finite—there are 21 million in total. Once these are mined, the world's supply will be exhausted, barring any change in how Bitcoin's protocol operates. Since there will no longer be the lure of Bitcoins as a reward, the number of miners will most likely decrease, increasing the amount of time it takes to verify transactions.

Bitcoin's value comes from the fact that people are willing to accept Bitcoin as payment. It has been widely reported that the exchange rate has fluctuated wildly overtime, including in an article this past May by Interesting Engineering. The article celebrated Bitcoin Pizza Day, an unofficial holiday in honor of the software engineer who first purchased those two famous pizzas. Initial valuation for Bitcoin in 2009 was about 1 cent. In 2017, Bitcoin reached a peak exchange rate of nearly \$20,000. Since then, the value has plummeted. In mid-2019 the exchange rate was about \$8,000. The pizzas were purchased for 10,000 BTC back in 2010, which would now be valued at \$800 million, those are two expensive pizzas.

There are a number of reasons for Bitcoin's increasing popularity. Transactions are electronic, so they are very fast. Bitcoin is owned by the individual or business, and not subject to seizure by a government or loss from a bank failure. It is extremely secure, and theoretically may be used to purchase anything in the world. On the downside, Bitcoin can easily be used to launder money



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or finance terrorism. According to David Canellis' thenextweb.com blog, in its first 10 years of existence, over \$2.5 billion in dirty bitcoin was laundered over the dark web.

Bitcoin transactions are similar to cash transactions, in that they cannot be reversed. This eliminates the risk of chargeback fraud. Chargeback fraud is common in traditional credit card transactions. The customer may attempt to defraud the merchant in a number of ways, such as disputing a transaction, claim they never received the items or that they returned them. Dealing with chargebacks and chargeback fraud is expensive for the merchant.

The site coinreport.net lists many advantages and disadvantages of Bitcoin. Low transaction fees are one attractive feature of Bitcoin, because there is no set fee to accept or sell bitcoin. They are traded on exchanges, which convert bitcoins to fiat money, or government-issued currency. Fees charged by exchanges are often lower than those to use credit cards or services such as PayPal.

Bitcoin transactions cannot be censored or blocked. Proof of Work (PoW) is the complex algorithm used to confirm transactions and create new blockchain transactions. According to coindesk.com and cointelegraph.com, new blocks are built upon the previous blockchain.

There are a number of disadvantages to Bitcoin, including limited acceptance, volatile pricing, potential obsolescence, scams, potential loss of access, and a finite number of bitcoins in existence to mine. Bitcoin can only be used at businesses that agree to accept them. Despite all the attention Bitcoin has received, it is still only accepted by a small number of businesses.

As with any financial risk, insurance coverage is key. According to CoinDesk it is estimated that the total amount insurers are willing to provide is approximately \$6 billion, woefully short of the actual exposure. For example, some of the larger financial exchanges trade \$1 billion in cryptocurrency per day. Crime is a true concern. Once the thieves gain access to the wallet, the money is gone. The site coindesk.com explains that one reason for the shortage in insurance capacity is the lack of claims and loss data to use to determine adequate loss costs.

There are two types of insurance coverage that could apply, crime and specie. Crime coverage is needed for



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assets that are held online in “hot wallets”, which are online repositories that are ripe targets for hackers. Ideally, crime coverage would extend to cover losses due to hacking as well as a blockchain failure. Specie coverage applies to assets “at rest” and would apply to assets held in cold storage, such as passkeys kept in a vault. Initially, most coverage for cryptocurrency came out of Lloyd’s of London.

There have been a number of scams involving Bitcoin, including hardware wallet theft and shady exchanges bilking unwitting investors. A hardware wallet is a physical device used as offline storage for the keys that investors use to access their Bitcoin accounts. Unfortunately, in some cases, these wallets contain vulnerabilities that could make them accessible to hackers. Some of the wallets have been sold with scratch off codes that are used to set up accounts. Once the accounts are set up, hackers can access and drain them.

Exchange scams come into play when the exchanges that trade the cryptocurrency turn out to be fraudulent. According to CoinDesk several South Korean exchanges were shut down when they were determined to be scams. There are a number of “red flags”—unrealistic prices, such as heavy discounts on Bitcoin, should be a warning to investors to check out the exchange more carefully.

Regulation of cryptocurrencies is increasing. As with any technology, obsolescence is very much a concern. The website snapmunk.com advises that one issue is that Bitcoin transactions are much slower than other processes. Bitcoin can handle seven transactions per second (TPS), as compared to the Visa network which processes 56,000 TPS. This increases the cost of the transactions.

Bitcoin is perceived as a questionable investment by many, due to its highly volatile valuation. Part of the reason for this volatility is that some early players were highly suspect. Some exchanges have gone bankrupt and closed due to involvement in illegal drug trafficking. According to Investopedia, concerns about potential regulation, including unclear tax ramifications, are also contributors to the uncertainty.



As of April 2019, it is estimated that there are around 2,000 types of cryptocurrencies, of which approximately 800 are considered “dead” or worth less than a penny, according to Bloomberg News. In January 2019, investment analysts at JP Morgan Chase postulated that, in many cases, bitcoin costs more to mine than it is worth. They estimated that in the third quarter of 2018, the worldwide average cost to produce a bitcoin was \$4,060. Some miners, notably those in China, have the advantage of paying less by directly purchasing electricity from companies that generate excess power, such as aluminum smelters.

The Wall Street Journal reports that Facebook is preparing to launch its own cryptocurrency, Libra, funded by a consortium of investors. The Libra Consortium includes such well-known companies as Visa, Mastercard and UBER.

It should be apparent that entering the cryptocurrency world, both as an investor and an insurer, is not for the faint of heart. The technology is confusing, and the risks are real. CNBC reports that noted investor Warren Buffett called Bitcoin “rat poison squared” and a “gambling device” that has generated a lot of fraud. But he also commented that the blockchain technology that is central to Bitcoin does hold promise. Only time will tell if Bitcoin and cryptocurrencies are the next big thing, or the Edsel of finance.

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