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Global Cryptocurrency Market Report

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Executive Summary

The Global Cryptocurrency Market Report by Ibinex provides a comprehensive look at the current state of the cryptocurrency industry worldwide. The report highlights key statistics, developments, innovations and other findings on the status of the international cryptocurrency market.

The report delves into topical findings, some of which are presented with regard to a particular country or region, while also examining the four major sectors of cryptocurrency, along with other significant facets such as ICOs, the blockchain and regulations.

Additionally, the report provides information on a variety of companies and actors within the crypto space, presenting an in-depth, global observation.

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Bitcoin & Cryptocurrency Synopsis

The advent of Bitcoin marked the birth of cryptocurrency. Developed in 2008 and launched in 2009, Bitcoin was the first cryptocurrency creating a class of its own.

It revolutionized money in that prior to Bitcoin, digital currency free from mediation from any financial institution, (i.e. free from centralization), existed only in theory. Although the concept of digital money existed prior to Bitcoin, the idea was never fully developed.

Attempts at a digital currency system were in the works as early as the 1980s, but every effort to evolve the concept any further would ultimately fizzle out before it had gotten a chance to come to fruition. Bitcoin however, has become a breakthrough in digital money, giving rise and credence to cryptocurrency, the newest form of alternative currency.

Cryptocurrency is not merely money that exists in the digital space; it relies on a decentralized form of control, meaning that it is not regulated by banks, governments or any intermediating entity with a higher power. Instead, ownership, security and verification is based on a system of cryptography, which works as the medium of storing the currency and processing it.

New units and transactions are created via encryption techniques which no one can change unless specific conditions are met.

Transactions are stored digitally on a public ledger known as the blockchain. The units of currency have no physical form.

Instead of a central authority, networks of participants known as miners run the network in the blockchain, checking and verifying transactions with the incentive of being awarded some cryptocurrencies in return. A peer-to-peer network that verifies transactions removes the need for a financial institution or trusted third party. Essentially, Bitcoin was established based on the need for cryptography and a digital ledger to replace the traditional trust held with banks.

Bitcoin was created by a person or group under the pseudonym of Satoshi Nakamoto, whom no one knows the true identity of to this day. What started as a paper sent to a mailing list on cryptography soon became the genesis of an ever-growing industry and the foremost cryptocurrency on the market.

Besides accounting for the formation of cryptocurrencies, Bitcoin also drove the crypto sphere from obscurity into the mainstream.

Quick Facts

- The U.S. Dollar has lost more than 80% of its purchasing power in the last 40 years.
- The cryptocurrency market hit $350 million in total currencies as of April 2018.
- In August 22, 2018, the entire crypto sphere amassed $12 billion in one day for the top 100 altcoins and Bitcoin.

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Altcoins & Cyptocurrencies Beyond Bitcoin

Altcoins

The invention of cryptocurrency did not remain stagnant during the rise of Bitcoin's popularity. The inception of altcoins, or alternative coins, was brought into being as substitutes to Bitcoin. However, much like Bitcoin, these coins are also cryptocurrencies and use a similar peer-to-peer system of validating transactions (mining) and adding them to a blockchain. Their differences to Bitcoin mainly lie in proof-of-work algorithms and enhancements in use.

Besides giving those in the crypto sphere an alternative to Bitcoin in monetary worth, altcoins may also contain features Bitcoin does not offer. These features play a major role in the launching of altcoins. They give the coins the purpose

of market rivalry to Bitcoin by offering solutions to Bitcoin's limitations,, although some altcoins are forks (or variants) of Bitcoin, such as Bitcoin Cash. There are currently over 1,500 altcoins in the market but only a few have a stronghold in the crypto market. Despite the surge in altcoins, Bitcoin still retains the highest market capitalization and worth in the crypto market.

Tokens

Another form of cryptocurrency, tokens, also provide a decentralized payment method that is added to a blockchain. However, unlike altcoins, this cryptocurrency is issued on top of another blockchain. Furthermore, unlike coins, tokens possess a broader functionality as they do not work solely as digital money. As such, tokens can be used to represent a variety of assets so long as they are tradeable and fungible. Thus, tokens can encompass a wealth of commodities and utilities. Tokens also don't exist on the same blockchain that altcoins are recorded in; they are registered on special blockchains like that of Ethereum or Omni.

As representations of different assets, tokens help trace these assets to their origins by being assigned to them, i.e., by becoming their proxy. As far as

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what constitutes an asset, it can be anything that has monetary value, particularly if it can easily be converted to cash. This includes stocks, bonds, securities and shares. Due to cryptography, tokens can locate the owners of an asset, augment its security with the addition of smart contracts, divide the asset among owners and enhance the asset's liquidity.

Tokens also play a major role in ICOs (Initial Coin Offerings) which is a method of crowdfunding a company through cryptocurrency (see ICO section). The parties who have contributed coins to a company are granted a token in return. If the company receiving the ICO has increased sales, the tokens of the investing parties increase in value, allowing the token holders to divide the token up into smaller values or trade it in an exchange.

- Tokens raised over $900 million for ICOs in March 2018.

- The first gold-backed token, Digix, was launched on Ethereum in March 2018. Each token is worth 1 gram of gold.

Prominent Altcoins

The following altcoins have had the largest market capitalization and some of the largest user bases as of June 2018.

Ethereum (ETH)

The most eminent cryptocurrency provider aside from Bitcoin, Ethereum features both a proprietary altcoin known as Ether, as well as a decentralized system for computing and hosting decentralized applications (DApps). Similar to Bitcoin, Ethereum is based on a blockchain, except it has a broader functionality. Bitcoin tracks crypto transactions on its blockchain whereas the Ethereum blockchain also hosts the programming codes of decentralized applications. It uses its Virtual Machine to run smart contracts. Ether is the tradeable currency on the Ethereum network for which miners compete. Its market capitalization was $50,023,122,528 and worth $499.46 as of June 2018.

Litecoin (LTC)

Viewed as Bitcoin's closest competitor, Litecoin is known as the silver to Bitcoin's gold. It was launched in 2011 by a Google engineer named Charlie Lee. Litecoin offers faster transaction times and lower fees, a key difference to Bitcoin.

Litecoin has grown dramatically in price and market cap. Its price as of June 2018 was approximately $100, and $350 at the beginning of 2018. Its market cap was $5,597,009,156 as of June 2018.

Bitcoin Cash (BCH)

A hard fork of Bitcoin (major change to Blockchain protocol that makes prior invalid blocks valid), Bitcoin Cash was created in 2017 as an upgraded version of Bitcoin. Bitcoin Cash implements the SegWit scaling solution. Another major difference to the original Bitcoin is that Cash allows for larger block sizes, which in turn allow for quicker transactions and lower fees associated with these transactions. Bitcoin cash is valued at $869.01 and has a market cap of $14,933,912,366.

Dogecoin (DOGE)

Developed in 2013 by programmer Billy Markus and Adobe Systems marketer Jackson Palmer, Dogecoin has become one of the fastest-growing cryptocurrencies, with its one 100 billionth coin mined in 2015.

Dogecoin is an inflammatory coin, meaning there is no limit to how many of its coins can be produced. It is known for its use in smaller transactions. Its price was $0.0029 as of June 2018. Its market cap as of June 2018 was $338,268,999.

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Monero (XMR)

Launched in 2014 by an anonymous Bitcoin forum user, Monero has grown into one of the most used cryptocurrencies, having picked up transaction volumes in 2016.

Monero is known as a solid provider of privacy, as it equips users with the anonymity that goes as far as hiding the amounts within transactions. Monero (XMR) was worth $125.23 as of June 2018 and has a market cap of $2,020,372,738.

Dash (DASH)

Originally called Dark Coin in its 2014 inception, it transformed into DASH, meaning digital cash. Unlike Bitcoin, which uses a proof of work algorithm, DASH uses a proof of stake algorithm, which is a different method of coin mining. Originally created as a more private alternative to Bitcoin, DASH has changed its priority by seeking to become a daily use altcoin, ie, one that can be relied on for a variety of everyday transactions. It was worth $258.62 as of June 2018, with a market cap of $2,103,796,442.

Prominent Tokens

The following list includes the top five tokens as of June 2018.

IOTA (MIOTA)

Developed in 2015 by a group of engineers (David Sønstebø, Sergey Ivancheglo, Dominik Schiener and Serguei Popov), IOTA created its own algorithm to encrypt data.

Starting out as a blockchain project, IOTA is one of the most innovative tokens on the market.

It was meant to combine Blockchain technology with the Internet of Things (IoT). Instead of using a Blockchain, IOTA is recorded on a tangle, or an acyclic mathematical graph that processes transactions quicker than blockchains and features no transaction fee.

IOTA rose in price from $0.63 to $1.24 in June 2018; it has a market cap of $3,433,748,326.

EOS (EOS)

The most recently launched token, EOS, was introduced on June 8, 2018 and is already the fifth largest cryptocurrency on the market.

The EOS network is comprised of EOS.IO, a system that controls the EOS blockchain network and EOS, the token of the network. It raised $4 billion to build a network in which developers build and host scalable applications that rely on blockchain technology.

The app developer can use the network to run apps if they have the EOS tokens. EOS.IO is in direct competition with Ethereum, as it's a platform to build decentralized apps (dapps).

It is said to have the capacity of processing millions of transactions per second. It is priced at $10.87 and has a market cap of $9,740,786,520.

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Exchange Union (XUC)

XUC is the proprietary token used on the broader Exchange Union platform. Exchange Union is an exchange platform that empowers users to connect the individual digital asset exchanges they have around the world in an effort to amplify liquidity.

Dubbed a "meta exchange," it is built as a layer above centralized exchanges, operating as a decentralized network. XUC uses Ethereum as its blockchain provider and is used as an incentive on Exchange Union.

The market cap of XUC is $15,968,640,000 and it is priced at $5.32 per unit.

Veritaseum (VERI)

Launched in 2013, Veritaseum is a decentralized peer-to-peer platform that uses smart contracts. There are no banks, traditional exchanges or brokers running. Instead, it provides an ecosystem for capital markets in which users can transfer values and manage their investments, effectively acting as the consumers and middlemen on the platform.

That's where the VERI token comes in. Also known as Veritas, this token allows users to buy access rights to the smart contracts that the platform uses to run its services. Such services include self-custody escrow, asset tokenization and data/analytics.

Veritaseum is available for both corporations and individuals who want to take part in asset trading. VERI is used on Ethereum. It has a price of $68.72 and a market cap of $6,588,490,000.

Ontology (ONT)

ONT is part of the Ontology network launched by the Chinese blockchain development company Onchain in 2017. The Ontology network comprises a blockchain which has distributed identity verification, data exchange, data collaboration, procedure protocols, communities, attestation, and various industry-specific modules.

The primary goal of Ontology is to allow businesses with little to no knowledge or experience with blockchain to be able to incorporate it into their infrastructure.

Essentially, Ontology provides a trust ecosystem based on a peer-to-peer network that operates cross-system, cross-industry, and cross-device. ONT is a token that was airdropped to the NEO blockchain in March 2018.

ONT has never had a public ICO. Users can obtain it via airdropping by holding NEO on exchanges or wallets. ONT had a price of $6.15, as of June 2018 and a market cap of $6,154,210,000.

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Market Capitalization & Growth of Leading Cryptocurrencies by the Numbers

The expansion of cryptocurrency and its widening global usage directly correlates with the growing market capitalization of the industry. Market cap, or the amount of coins in circulation and their price, has a significant influence on the value of a crypto coin (as well as a traditional security).

In the crypto sphere, the market cap is determined by multiplying the current price of a coin by its circulating supply (as opposed to the stock price by the outstanding stock shares).

A coin's market cap highlights its value amongst other cryptocurrencies. It can also reveal the volatility of a coin or its potential risk of being crushed by bigger trades and market conditions.

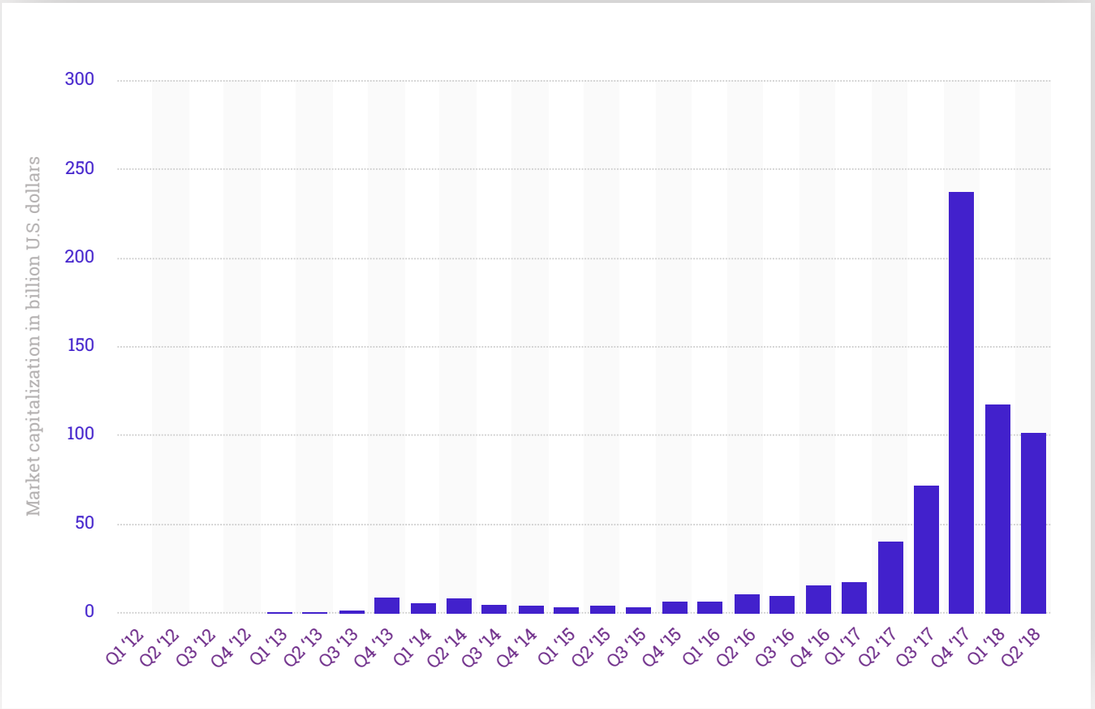
Cryptocurrency by Market Capitalization

- The market cap of all cryptocurrencies in February 2018 was approximately $417 billion.
- The highest market cap of all cryptocurrencies was over $800 billion in January 2018.
- According to Jesse Powell, the CEO of Kraken, the market cap of the entire cryptocurrency industry will eventually hit $1 trillion.

The following graphs show the market capitalizations of the premier altcoins and tokens, starting with the leading currency, Bitcoin. Each graph shows the state of each market capitalization within a specific timeframe.

Bitcoin Market Capitalization

1st Quarter of 2012 - 1st Quarter of 2018



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Altcoins:

Ethereum

October 2015 - July 2018

Litecoin Market Capitalization

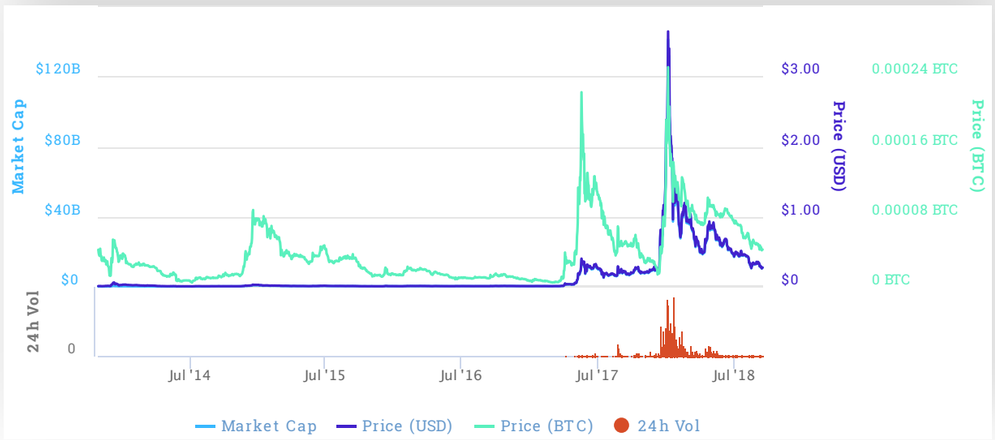
1st Quarter of 2012 - 1st Quarter of 2018

Bitcoin Cash Market Capitalization

June 2017- August 2018

Ripple Market Capitalization

Jan 2014 - August 2018



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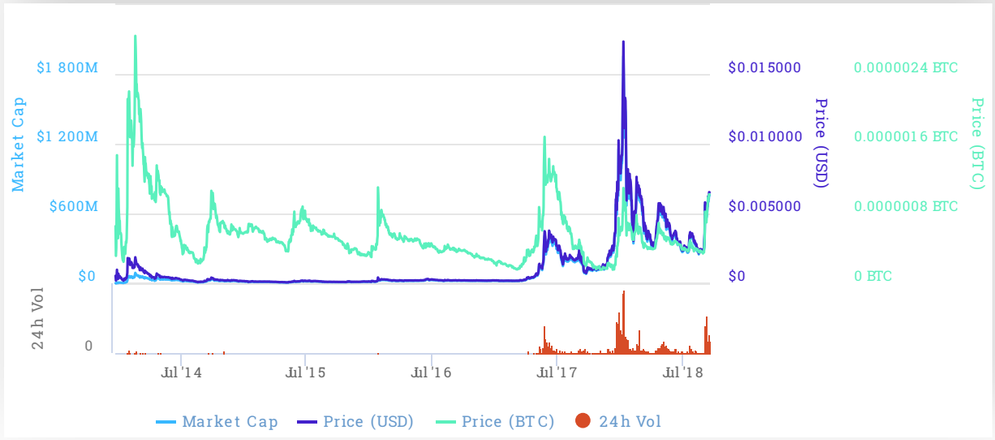
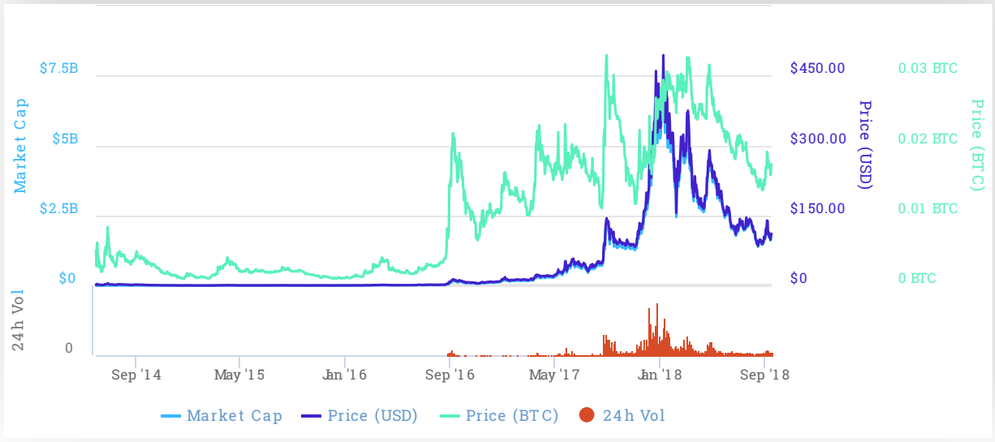
Dogecoin Market Capitalization

December 2013 - August 2018



Monero (XMR) Market Capitalization

May 2014 - August 2018



DASH Market Capitalization

February 2014 - August 2018

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Tokens:

IOTA Market Capitalization

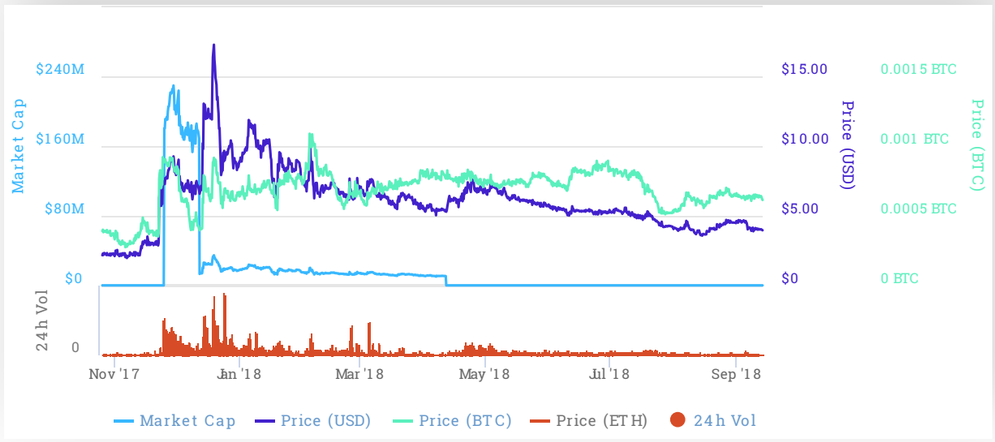
June 2017 - June 2018

Veritaseum (VERI) Market Capitalization

June 2017 - June 2018

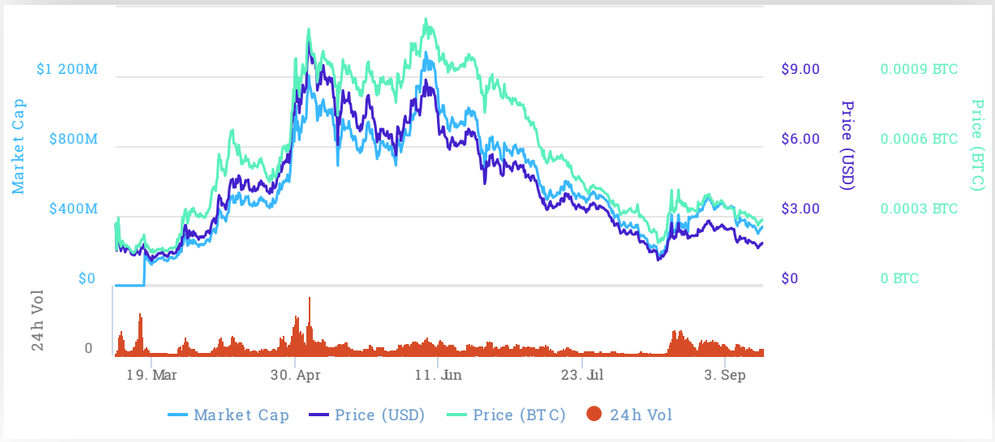
Exchange Union (XUC) Market Capitalization

October 2017 - June 2018



Ontology (ONT) Market Capitalization

March 2018 - June 2018



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Cryptocurrency by Market Share

Market capitalization (the number of available coins multiplied by the price of the coin) remains the determining factor of the economic stability of a cryptocurrency, as opposed to its price per coin. Expressed as a fiat amount and usually in USD, the market cap shows the profitability of a cryptocurrency. A cap of over $10 million is considered to be a high market cap.

Aside from the monetary figures market capitalization represents, market cap can also be expressed as a market share, or the portion of a market expressed as the percentage a single company controls. Market share, however, refers to the total sales of a company, out of all the sales in an industry.

Cryptocurrency market shares (aside from Bitcoin) have grown rapidly in the past year. Bitcoin remains the dominant cryptocoin by market share, though in recent years, altcoins have reduced Bitcoin's stature through their own rising market shares. The following graph displays the market shares of Bitcoin and major altcoins between April 2013 and June 2018.

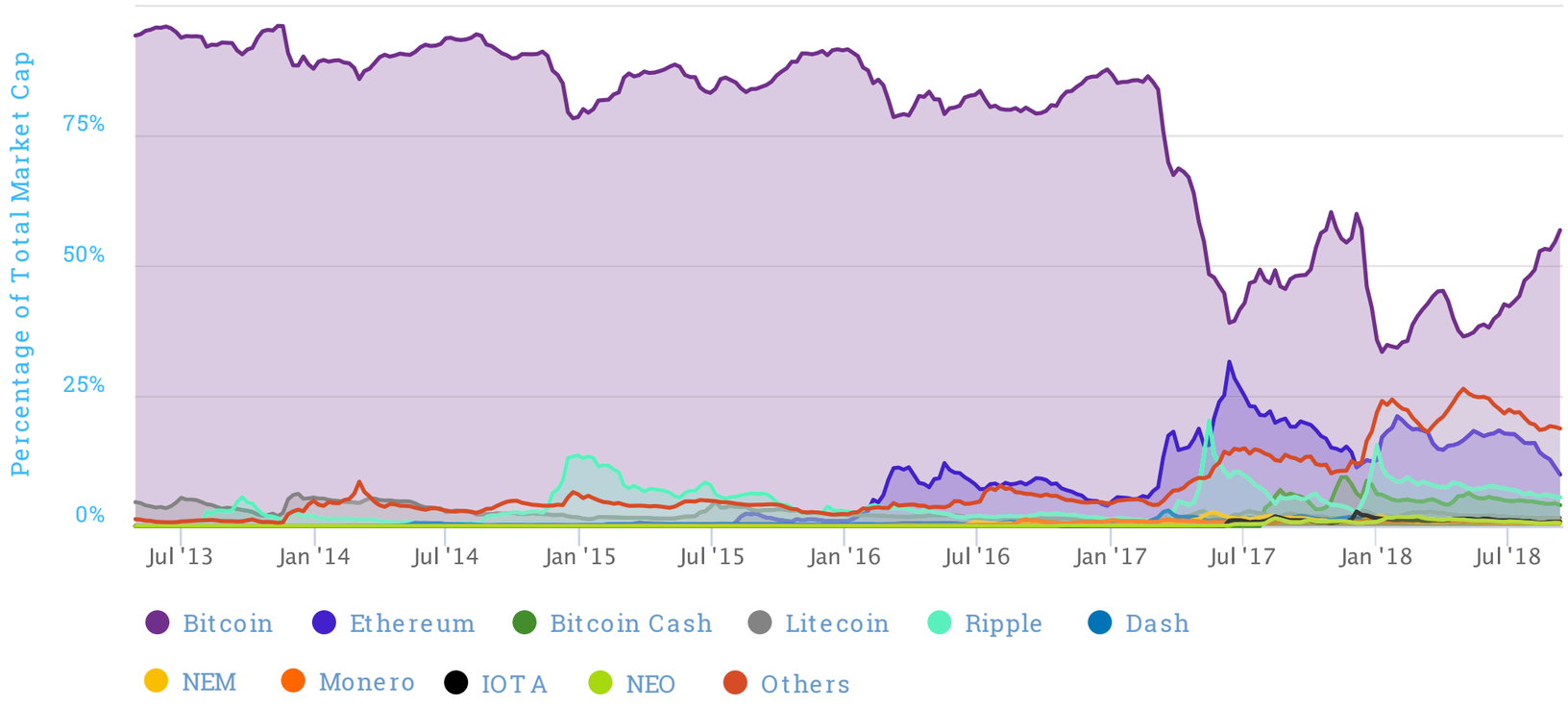
Although Bitcoin remains king of the crypto sector, its market share has declined considerably since 2017.

There is a stark contrast between Bitcoin's April 30, 2013 market share and that of its June 18, 2018 share, the former at 94.29% and the latter at a fractioned 40.07%.

The following graph displays the market capitalization of prominent altcoins between 2013 and 2018.

Percentage of Total Market Capitalization (Dominance)

April 2013 - August 2018



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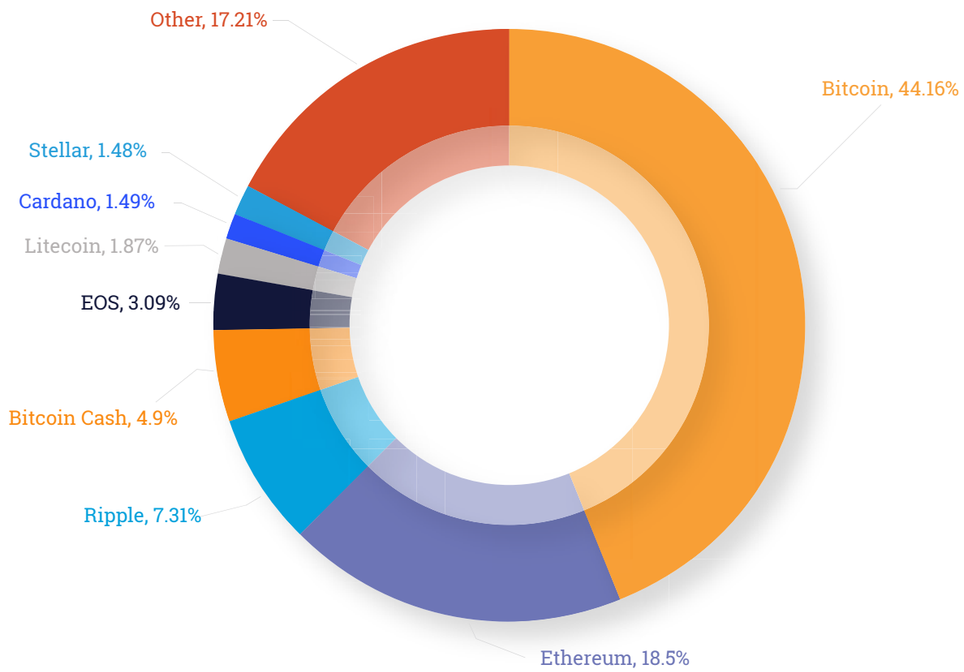
The following pie chart displays the market capitalization of altcoins as of the writing of this market report. (July/August 2018)

Cryptocurrencies by Market Cap

July / August 2018



Bitcoin
Ethereum
Ripple
Bitcoin Cash
EOS
Litecoin
Cardano
Stellar
Other

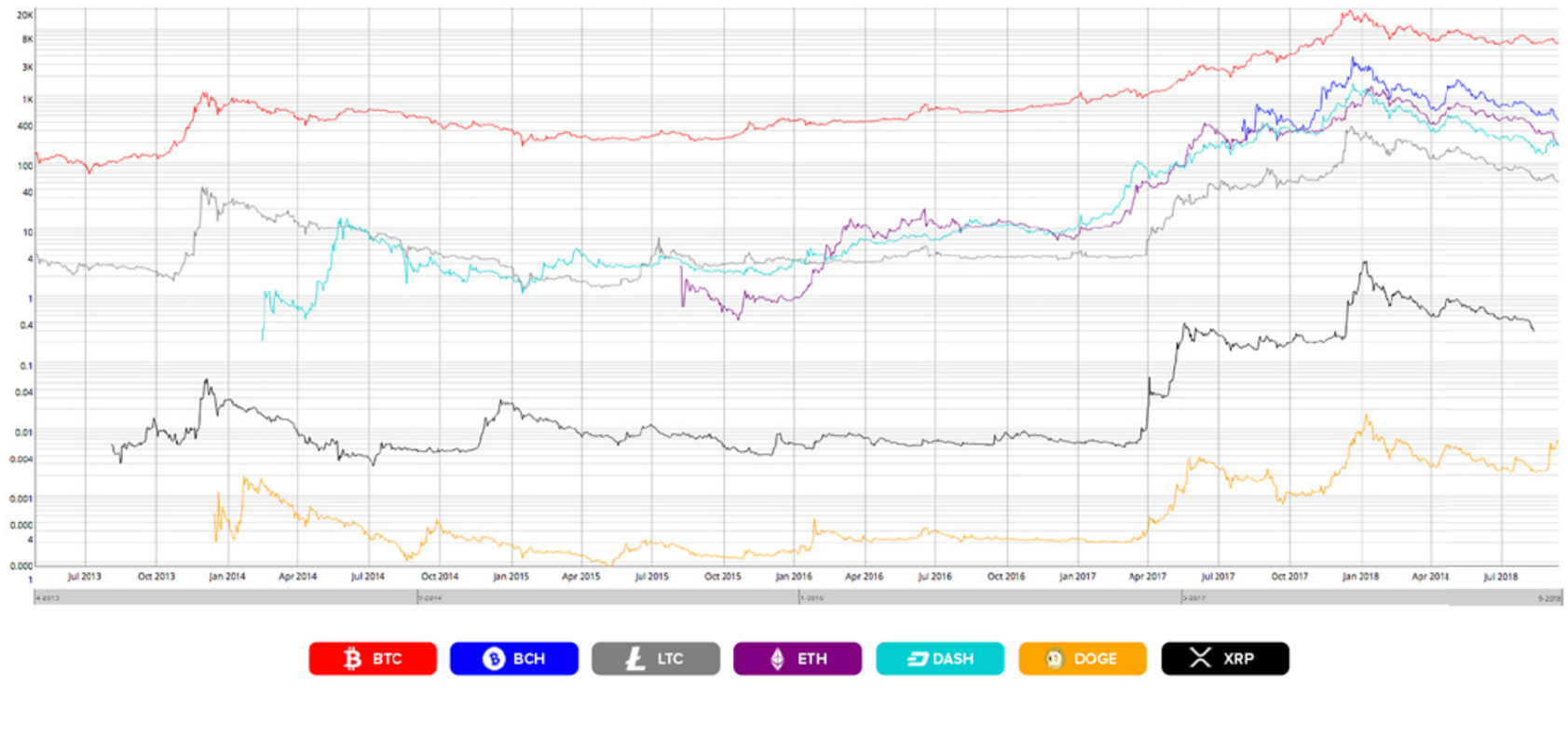
Transactions in the Cryptocurrency Space from 2013-2018

The following graphs show the transaction activity of some of the leading cryptocurrencies between 2013 and 2018. The steep rise in transactions began in 2017 when Bitcoin reached one of its highest transaction volumes ever of 20,000 daily transactions in December 2017.

DASH and Bitcoin Cash have seen the sharpest rising transaction volumes between the third and fourth quarters of 2017. The year 2017 in its entirety has seen the greatest spikes in transactions and overall crypto activity.

Throughout the five-year range from 2013-2018, Bitcoin has been the incontestable leader in transactions, surpassing every other major cryptocurrency, even as the crypto sphere has continued to expand the last few years.

Bitcoin Cash, a fork of Bitcoin, exceeded Ethereum's transactions almost as soon as it split from Bitcoin in August 2017. Ethereum has been jostling with Litecoin and DASH since Q1 in 2016, during which time the three coins neared second place in transactions after Bitcoin and have been bordering on third place ranking since Q3 in 2017 when Bitcoin Cash was introduced.



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The Composition of Cryptocurrency in Detail

Cryptocurrencies are a new form of money, rooted in decentralization and recorded in a distributed public ledger called the Blockchain. Besides these core aspects, each cryptocurrency is bound by the same traits that ultimately make crypto a distinct and separate industry within the larger sphere of finance and financial technology.

The following list of elements is a breakdown of the characteristics unique to cryptocurrency:

1. **Cryptographic Nature:** Cryptocurrencies have an added layer of security through the way in which the coins are transacted. First-off, they are stored via cryptography, a system based on encryption techniques which secures coins from theft/ unauthorized transactions. As well, each user is granted two keys for safe transactions. One key is the public key, an alphanumeric address identifying the holder of the currency, and the second key is called the private key, which allows users to "sign" transactions digitally so they are confirmed and can be carried out.

2. **Irreversible Transactions:** Once the funds of one crypto address get sent to another, there can be no reversal. This permanent nature of cryptocurrency rests in the mechanism in which transactions get signed (or approved) with a private key and are then added to a block on the blockchain. Once the hash (a fixed and smaller-sized representation of the data) has been created, there is no going back. Although all transactions are final, users can obtain escrow services to safely mediate their transactions.

   *Bitcoin has approximately 12,000 transactions per hour as of June 2018.

3. **No Authorization to Join:** Anyone can participate in the crypto sphere if they choose to, unless a country has regulations against cryptocurrency set in place.

   If not, anyone can download the software required to buy, sell and mine cryptocurrencies.

   There is no authority to turn to in order to get permission to join a crypto network or conduct

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mining or transactions. It is open to the public with no controlling party.

*Only 4% of Bitcoin addresses own 96% of Bitcoin (a total of 2.9 million BTC).

4. **Pseudonymous:** Cryptocurrency bestows a kind of anonymity for its users, though it is not comprehensive. Since accounts are tied to public keys, i.e., chains of numbers and letters, rather than the names or other key identifiers of users, their identities are safeguarded, but in a manner that is more pseudonymous than completely anonymous. This is due to the accessibility of all transactions on the blockchain. Also, the transaction patterns of users can be analyzed and their IP addresses can be traced. Data from social media can also be collected to match a person to a public key. However, some cryptocurrencies offer solutions for increased privacy.

*There are over 50 privacy coins on the market as of early 2018. These coins provide an additional layer of privacy by hiding the path of users' transactions on the blockchain.

5. **Limited Supply:** Cryptocoins are not infinite; they all have a restricted supply in terms of coin totality. Unlike fiat money, which can be printed over and over again, cryptocurrency has a limited scope in its coin creation. For example, Bitcoin has permitted a total of 21 million of its coins to be mined. Limiting the coin supply helps regulate the inflation rates of currencies. The monetary supply is encoded in the coin, so anyone can learn how much of it is available. Bitcoin is scheduled to run out of coins by the year 2140.

* As of April 2018, 80% of Bitcoin has been mined; this accounts for 17 million bitcoins.

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The Cryptocurrency Industry on a Global Scale

Bitcoin

The value of Bitcoin rose more than 1,300% in 2017

There is 20% of Bitcoin left to mine.

99 nations allow Bitcoin transactions to take place unrestricted.

At its April 2018 market cap of $300 billion, Bitcoin's market cap is larger than 97% of S&P 500 companies

Bitcoin hit its peak value at nearly $20,000 in Q4 of 2017.

Bitcoin's market cap is larger than the money supply of South Africa, Columbia and Argentina.

Cryptocurrency at Large

In the beginning of 2017, cryptocurrencies had a market valuation of **$17.7 billion**. Toward the end of 2017, cryptocurrencies had a market cap of **$613 billion**.

The crypto gain in market cap and valuation from the beginning to the end of 2017 saw a rise of 3,300%.

Over 80% of ICOs are scams

Google, Facebook, Twitter, Weibo, Tencent and Baidu have banned crypto-related ads and ICOs from appearing on their websites

Altcoins

Although Ethereum has held a steady second place in market cap after Bitcoin, in January 2018, Ripple (XRP) surpassed Ethereum, taking second place with a **50% growth and a market cap of $100 billion.**

Since January 2017, Ripple (XRP) has grown by **17,500%** in USD value.

In January 2018, the altcoin Aeron (ARN) had a massive price rise of 337.29% in a mere 24 hours.

Russia will launch its own national cryptocurrency called the Cryptoruble in 2019.

19 countries (including Russia) have launched or are planning to launch national cryptocurrencies including Iceland, Spain, Germany and Israel.

69% of people who use financial service apps and sites on their phones are more aware of crypto compared to 59% of users without mobile banking who have not yet explored the industry.

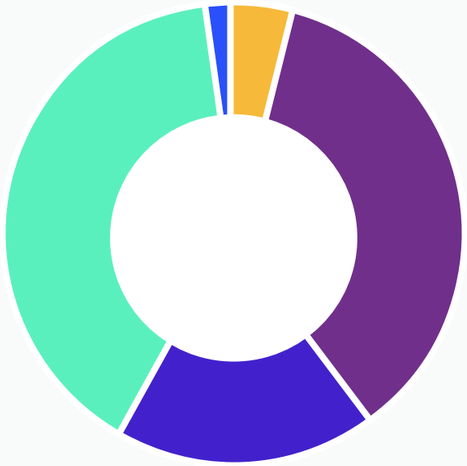
Global Usage/Ownership of Cryptocurrency

The charts below explore the worldwide demographics of cryptocurrency usage, specifically Bitcoin, primarily throughout the first 90 days of Q2 2018. The statistics were amassed by bitcoinx.io later acquired by Bitcoin.com.

These statistics present Bitcoin ownership predominantly as follows:

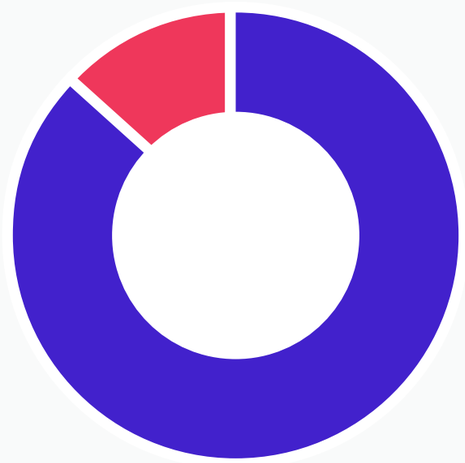
- **European: 33.9%**
- **Male: 86.9%**
- **Ages 25-34: 38.2%**

Continents



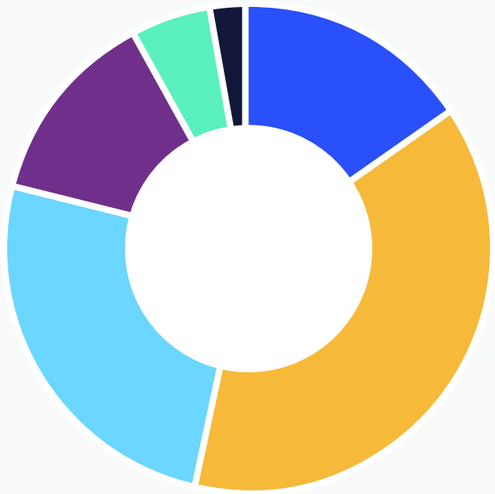
Africa	4.1%
Americas	35.8%
Asia	18.2%
Europe	39.9%
Oceania	2%

Gender



Male	86.9%
Female	13.1%

Age



18-24	15.3%
25-34	38.2%
35-44	25.5%
45-54	13.1%
55-64	5.2%
65+	2.7%

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Global Knowledge of Cryptocurrency

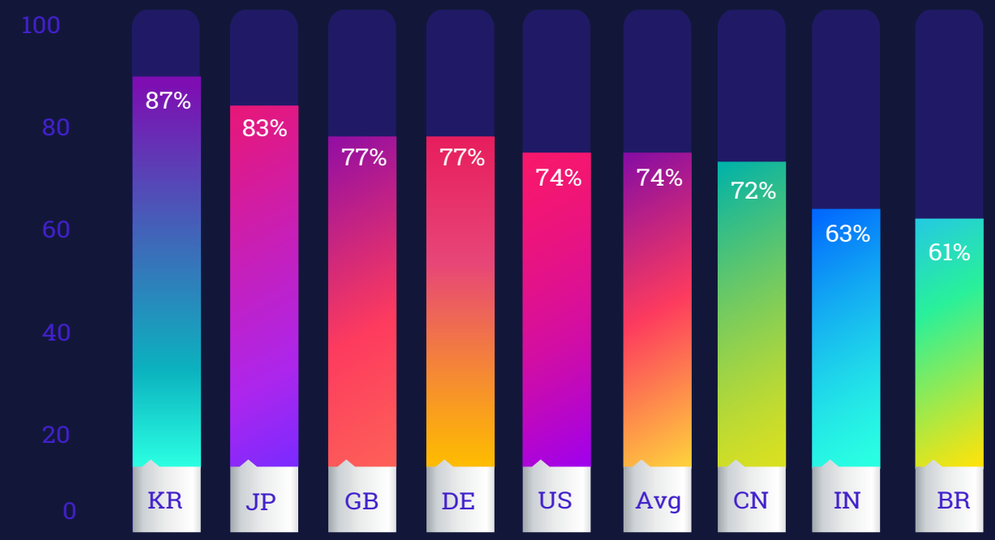
Aside from the ownership of cryptocurrency, people's understanding of how it works is key to its ultimate success. Although crypto has seen a large rise since its inception, especially in the year 2017, there are still people across the globe who have little to no knowledge of its existence.

Dalia Research performed a statistical survey on the global knowledge of cryptocurrency in some of the world's largest economies.

The following graphs illustrate people's differing levels of crypto knowledge, their intent to buy it and the variances in crypto ownership levels as of March 2018.

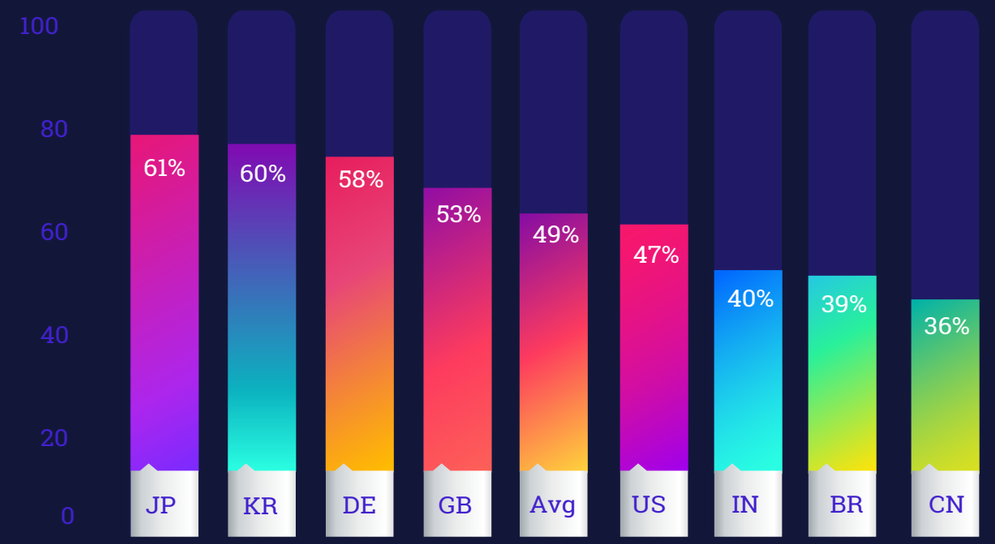
Cryptocurrency Awareness

Do citizens of the following countries know that cryptocurrency as a method of payment and investment exists?



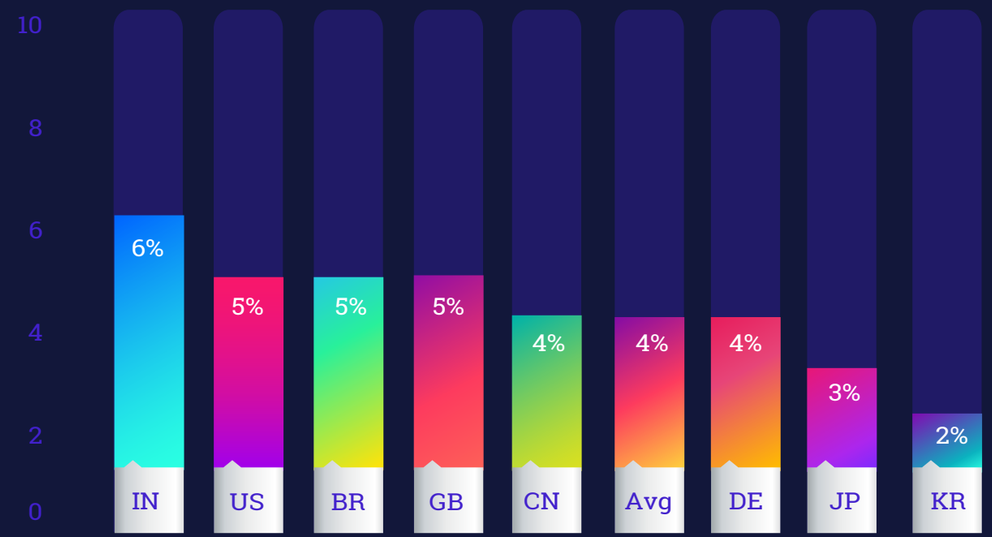
Cryptocurrency Knowledge

Do global citizens have somewhat of an understanding of what cryptocurrency is and how it functions?



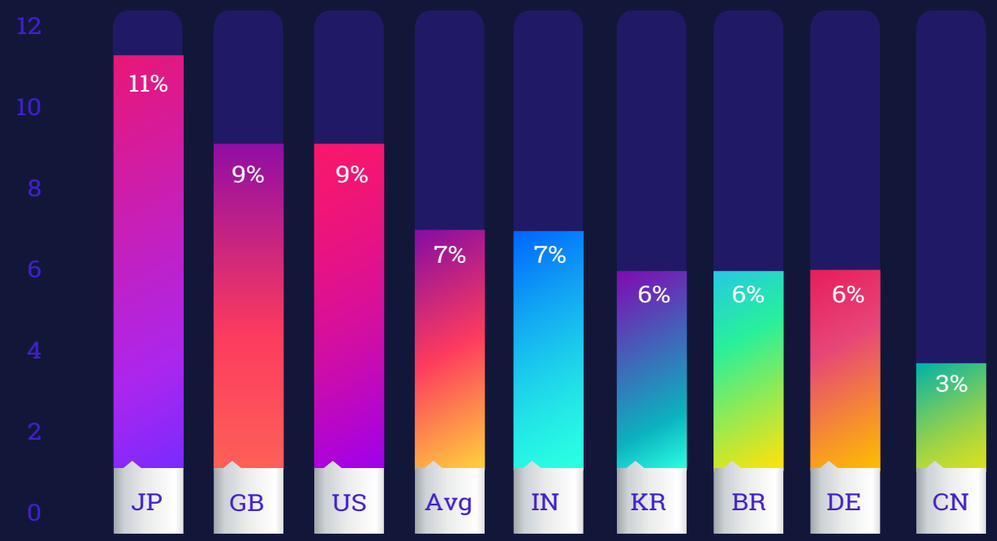
Cryptocurrency Intention to Buy

Do global citizens who do not own any crypto plan on buying it in the next 6 months?

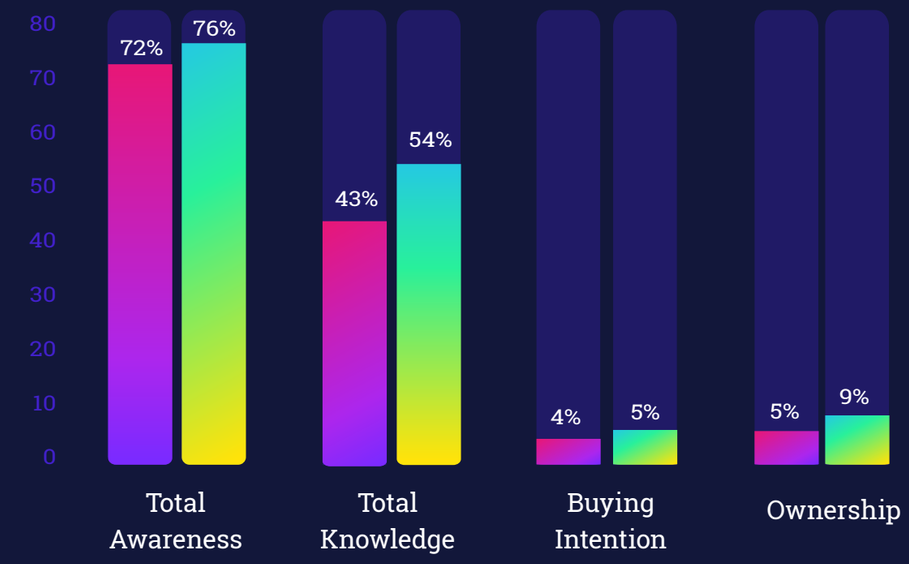


Cryptocurrency Ownership Across the Globe

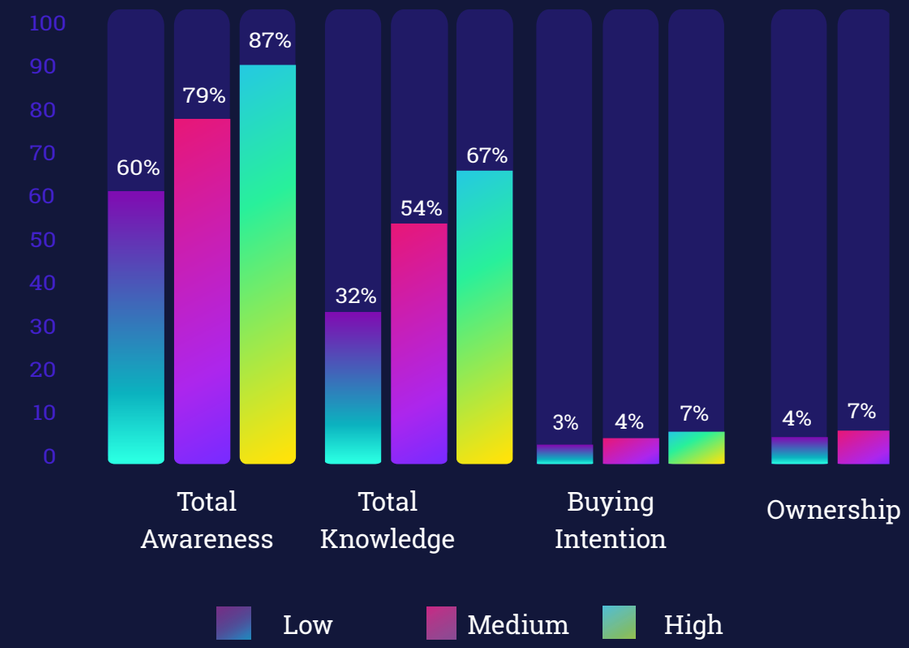
What percentage of people in developed nations own cryptocurrency?



Cryptocurrency & Gender Worldwide



Cryptocurrency & Education Worldwide



The Cryptocurrency Boom in Asia

Several Asian countries have experienced a clamp down in regulations on cryptocurrency, including the Chinese ban on exchanges, the (recently reversed) South Korean ban on ICOs, and trading taxation in Singapore.

Despite regulatory movements, Asia has been dubbed the “Crypto Hub,”. Research conducted by Dalia Research confirms this designation, particularly in Japan and South Korea (see the above section on global crypto knowledge).

In addition to these specific country residents possessing the highest awareness of cryptocurrency, the majority of countries in Asia - in particular Japan and South Korea - are home to crypto-fever, with extremely high volumes of ownership, trading, investments, payments and major exchanges (Binance, Bithumb, Huobi, HADAX and OKEx are all East Asian-based).

Below are a few findings that further substantiate the Asian region’s dominance of the crypto market. Asia has proven to hold a large sway in the global share of crypto.

SOUTH KOREA

South Korea is home to 3 of the largest exchanges

20%

South Korea accounts for 12% of global trading volumes and 20% of worldwide Bitcoin trades.

40% of Ethereum traffic comes from South Koreans.

31%

In July 2018, 31% of South Koreans were involved in cryptocurrency investing

18.3% of South Korean crypto investors invested between 1-2 million won.

Why are South Koreans investing in crypto?

54.2% say it’s the easiest way to earn money, 47.8% say it’s due to the ease of investing small funds in crypto.

JAPAN

40-60%

Japan has 40-60% of global trading volumes.

30-50% of cryptocurrency trading in Japan is comprised of Japanese retail investors.

56.2% of Bitcoin is made up of the Japanese yen.

3.5M

There are 3.5 million cryptocurrency traders in Japan, according to the Japanese Financial Services Agency (FSA).

The trading volume of BItcoin in Japan rose from 22 million in March 2014 to 97 billion in March 2017.

Japan recognized Bitcoin as a legal form of payment in April 2017.

Japanese brands like Bic Camera, Capsule Hotels and Peach Airlines have all started integrating Bitcoin payments in the country.

Taiwan: Reaching towards a Liberated Crypto Environment

- Taiwan will not issue an outright ban on crypto-related activities as China and South Korea had previously done.
- Financial Supervisory Commission chairman Wellington Koo seeks to model Japan's deregulatory stance on crypto to enrich the fintech space.
- The Financial Technology Development and Innovative Experimentation Act, passed on January 2018 and enacted April 2018, is a bill that permits crypto and blockchain startups to operate in a regulation-free space.
- The crypto and blockchain community are made up of a community of approximately 25,000 people.
- OwlNest, the world's first blockchain-based hotel management service, was launched in November 2017.

Singapore: Growing in the Crypto Space

- In October 2017, Singapore signed a fintech deal with Hong Kong, another Asian financial hub, to work in partnership on blockchain technology projects.
- In February 2018, the Monetary Authority of Singapore determined that there is not a strong enough need to ban crypto trading as it doesn't pose a risk to the safety of SIngapore's financial system.
- In late June 2018, a new blockchain-based exchange,1exchange, launched as a platform for private shareholders and investors. It reached nearly $1.9 million in trading volume in June 2018.

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Although cryptocurrency was dominant in the Asian region during the crypto boom of 2017, several countries have undergone massive fluctuations since then in their legality and attitude towards cryptocurrency. China, for example, exceeded Japan in cryptocurrency exchanges at one point in December 2016 accounting for 90% of all Bitcoin and Ethereum trading. However, after the Chinese September 2016 ban on exchanges, the Yuan to Bitcoin trades fell to below 30%.

Despite the exchange ban, the Chinese government wasn't entirely successful in wiping out crypto trading from its nation for good. In February 2018, the nation took a more rigorous approach to ban exchanges, with the People's Bank of China (PBOC) blocking all ICO and trading websites both on and offshore. Despite their crackdown on crypto, it's likely not to disappear from China's future, as major retail JD.com in February 2018 launched its Al Catapult Blockchain incubation program to fund blockchain startups and cryptocurrency breakthroughs.

South Korea is another nation that had in recent years experienced turbulence on its crypto stance. Following China's mid-September 2017 ban on exchanges, the South Korean government banned ICOs just two weeks later. The objective of the ban was fraud prevention and protection for investors. The parameters of the ban were ambiguous as different Korean news sources reported different accounts of the ban's exact details. News1 Korea reported there would be a blanket ICO ban in effect while newsource JoonAng communicated the ban would only impact startups as opposed to individual investors.

In March 1, 2018, South Korea hardened its stance against crypto dealings by outlawing the trading and holding of cryptocurrencies by government officials. In June 2018, the Korea Financial Intelligence Unit (KFIU) along with other financial agencies announced that crypto exchanges will be regulated like commercial banks. This includes the implementation of anti-money laundering (AML) laws to avoid criminality within cryptocurrency operations. In July 2018, South Korea issued regulations on the due diligence of exchanges, a move to prevent hacks and money laundering while being otherwise welcoming to crypto trading.

Despite the rigid regulations on crypto in South Korea, the ICO ban proved to be finite, with government officials seeking to lift the ban on ICOs in May 2018.

The National Assembly of South Korea proposed a policy that would legalize domestic ICOs by way of investor protection provisions preparation. With laws and hearings that legitimize the crypto sphere and public outcry over rigid policies, South Korea appears increasingly open to the crypto sector. Also, with AML policies and the treatment of exchanges like banks, the country is granting the cryptocurrency industry more legitimacy in the international financial arena.

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Cryptocurrency Regulation in Asia

Although inundated with cryptocurrency innovations and crypto startups launching throughout the continent, Asia poses a volatile regulatory environment to the crypto industry at large. In Japan, cryptocurrency, like Bitcoin, has been made legal tender, and the business sector is accepting of ICOs. But in other nations like China, big-name crypto companies like the Binance and Bitfinex exchanges are relocating to Europe. Some nations like South Korea have a particularly inconsistent regulatory history with crypto, with blanket bans and then their reversal months later. The following graph explains the laws pertaining to cryptocurrency along with the status of cryptocurrency within several Asian nations.

Country	Date	Ruling/ Status	Reasoning
China	September 2017	ICO and investment schemes are banned. Exchanges in the country must terminate operations.	The Central Bank reported that 90% of ICOs were used for illegal fundraising and fraud. Exchanges are seen by regulators as too risky.
Japan	April 2017 July 2018	Bitcoin and other cryptocurrencies are legal tender. Privacy coins like Monero are blacklisted. Cryptocurrency transitioned from legal tender to financial product.	The government has embraced the use of cryptocurrency. Privacy coins are banned to prevent money laundering and other illegal financial trading. For protection due to hack attacks and security breaches.
Malaysia	March 2018	Cryptocurrency exchanges must Implement KYC requirements. This includes obtaining customer identification data and ID documentation and subjecting anyone offering services to exchange cryptocurrencies to the rules of the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001.	To ensure measures against money laundering and terrorism financing and to increase the transparency of cryptocurrency activities.
Philippines	August 2018	A draft that requires registration for ICOs and cryptocurrency has been approved.	ICOs are positive and regulations on them will pave the way for legal purchase of crypto.

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Country	Date	Ruling/ Status	Reasoning
Singapore	December 2017 May 2018	Cryptocurrency is not legal tender, but legal to use. Three-tiered system of regulation for exchanges in which smaller market companies will have an easier way to set up their business.	High financial risks, mainly that of loss. To make the exchange sector more competitive and attractive to attract more companies.
South Korea	September 2017 December 2017 January 2018 March 2018 May 2018	ICOs are banned. Private trading and other crypto transactions are banned. Only real-name transactions are permitted. Exchanges will be taxed by 24.2% corporate tax and a 2% local income tax. Government officials and minors are banned from holding and trading crypto. Officials plan to lift the ICO ban. BItcoin is a legally recognized asset.	ICOs are viewed as a gamble and are difficult to intermediate. The government seeks to curb cryptocurrency speculation. As part of an anti-money laundering probe of 6 major banks with a 36 time increase in commissions from accounts linked to exchanges Officials would be violating the prohibition of forbearance duties under the civil servants' law. To enhance the legal status of cryptocurrency, as part of the country's 4th industrial revolution. To improve transparency of trading. Bitcoin can be traded on an exchange and used to buy things, thus accepting bitcoins is a means of earning

Country	Date	Ruling/ Status	Reasoning
Thailand	June 2018	Seven cryptocurrencies used for ICOs can be traded as trading pairs.This includes Bitcoin, Ethereum, Bitcoin Cash, Ethereum Classic, Litecoin, Ripple, and Stellar. Cryptocurrency-dealing companies have to apply for licenses under the new regulation.	The Digital Asset Business Decree made the SEC responsible for investor protection through new laws.
Vietnam	October 2017	Cryptocurrency payments are illegal. The issuance and supply of crypto is illegal.	Cryptocurrency is not seen as an acceptable form of payment.

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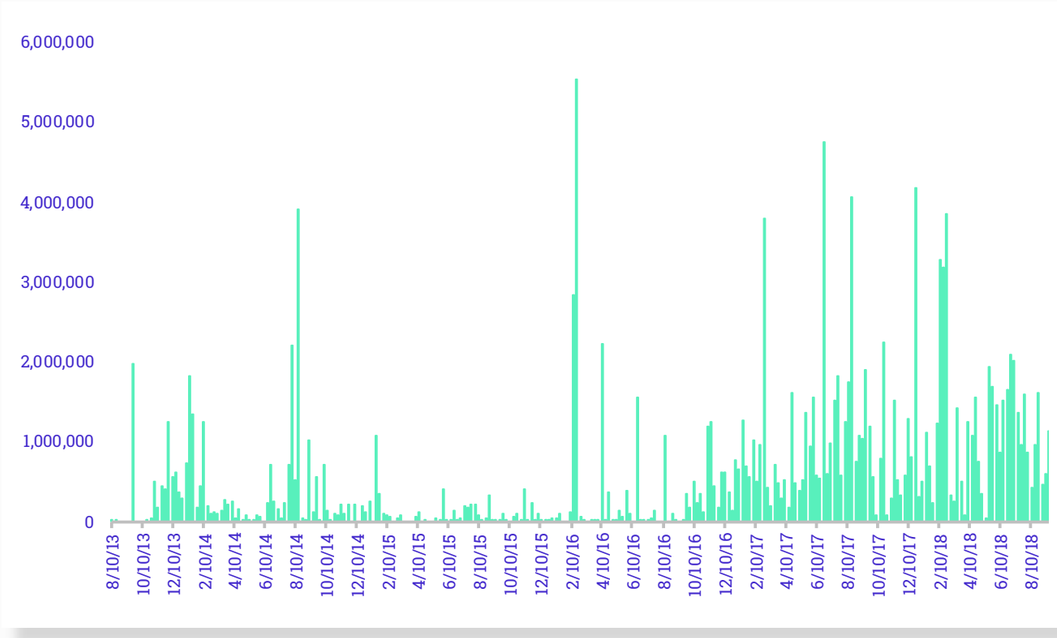
Crypto Trading Volumes in Asia

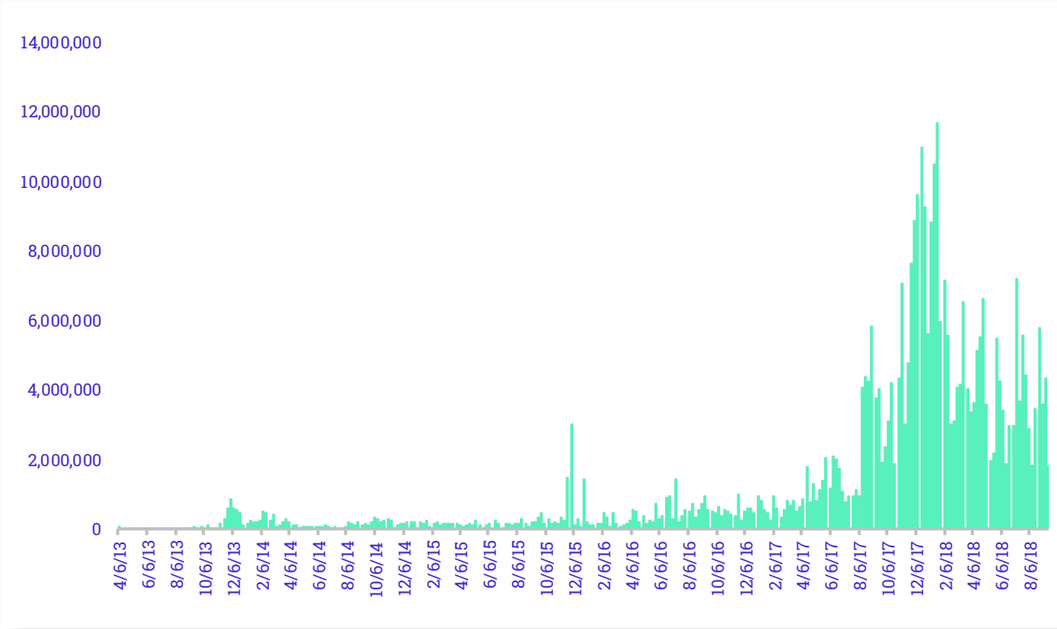
Though the entire Asian continent has not experienced the same kind of crypto boom as Japan and South Korea, there are still a number of countries who have had a sizeable amount of crypto activity as well as trades. Even countries with smaller economies and less of a fixation on cryptocurrency have shown to participate in a substantial amount of trading.

The following graphs present the trading volumes across several countries in Asia over different timeframes. Each country has had different degrees of exposure to crypto and as a result each country's volume was recorded at different start times in different years.

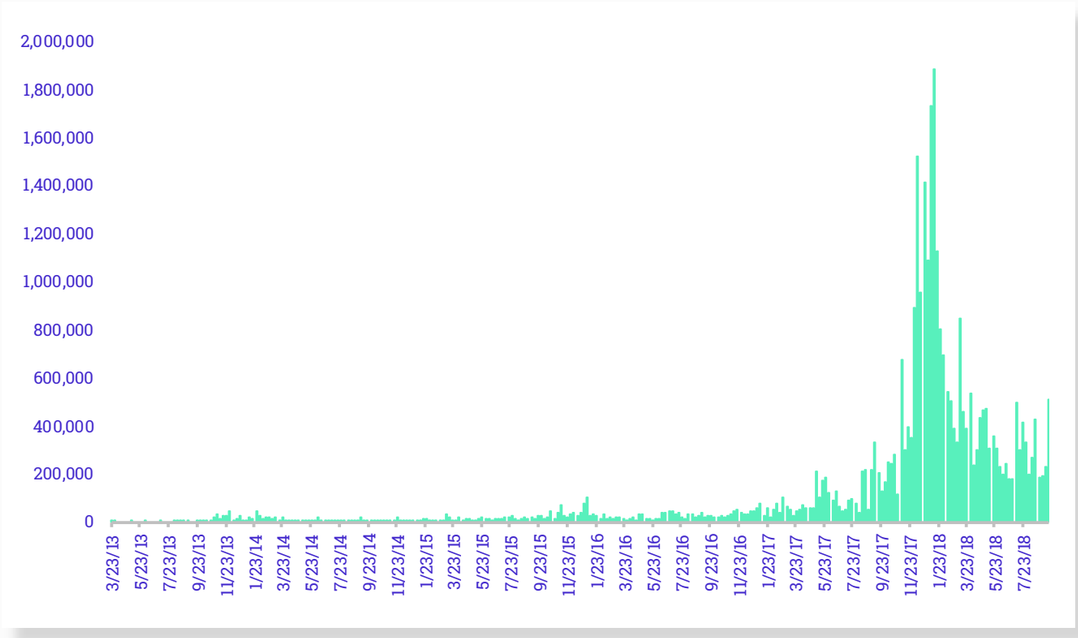
Japan- Highest Estimated Trading Volume: 5.5 mil Yen



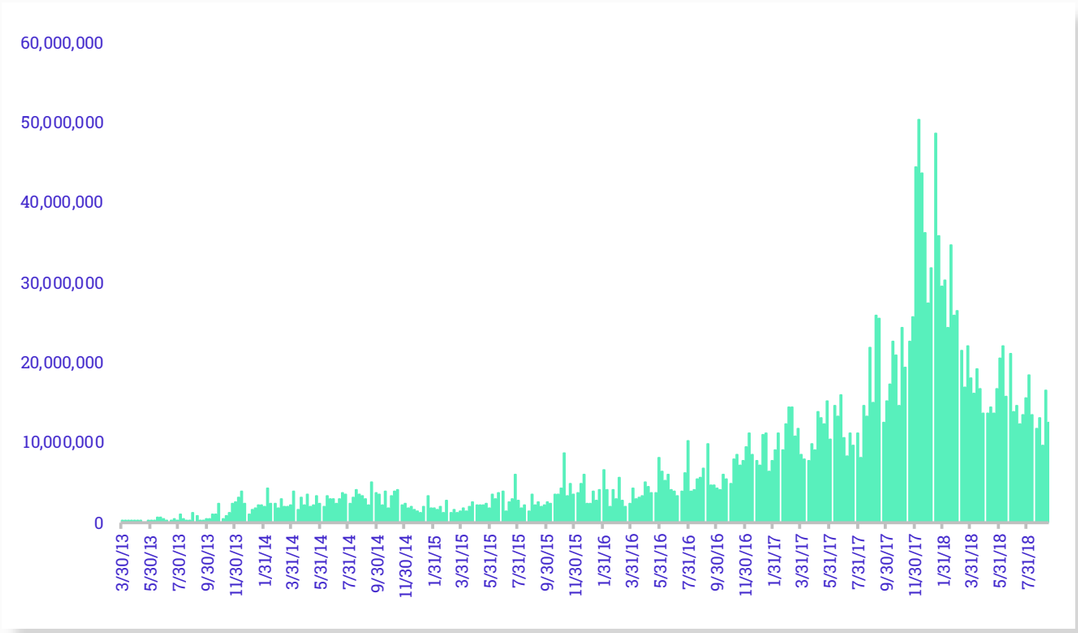
Hong Kong- Highest Estimated Trading Volume: 11.6 HKD



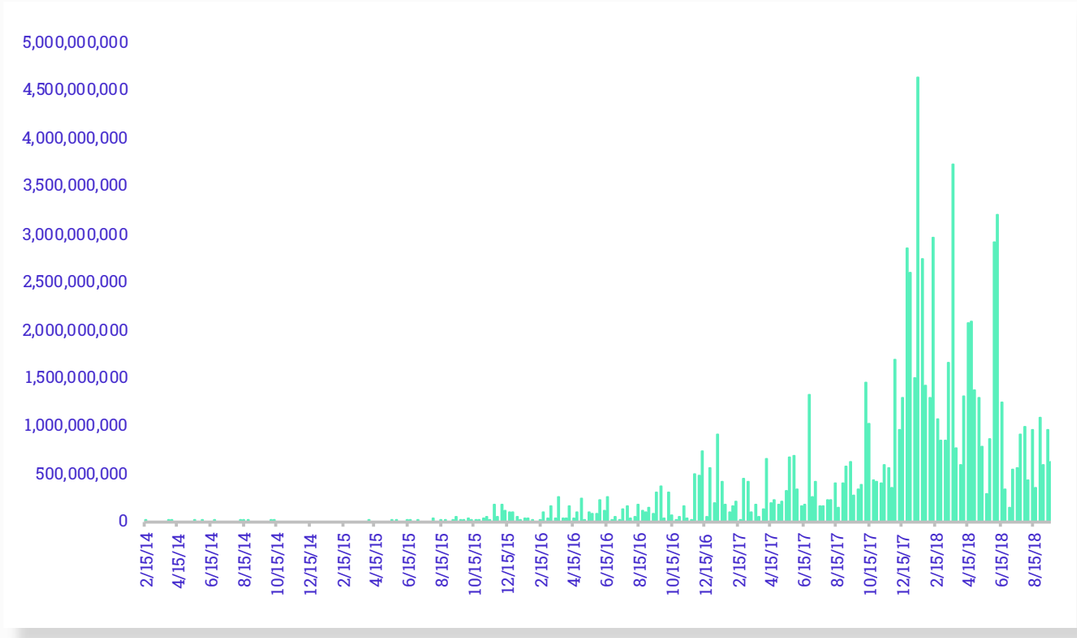
Singapore- Highest Estimated Trading Volume: 1.9 mil Singapore Dollars



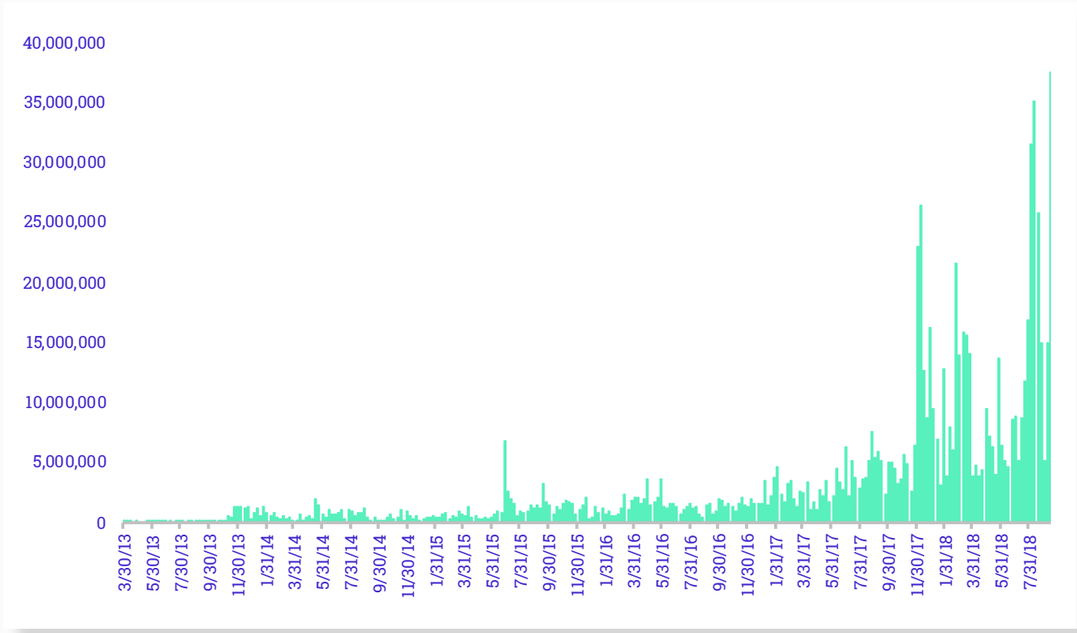
Thailand- Highest Estimated Trading Volume: 50 mil Thai Baht



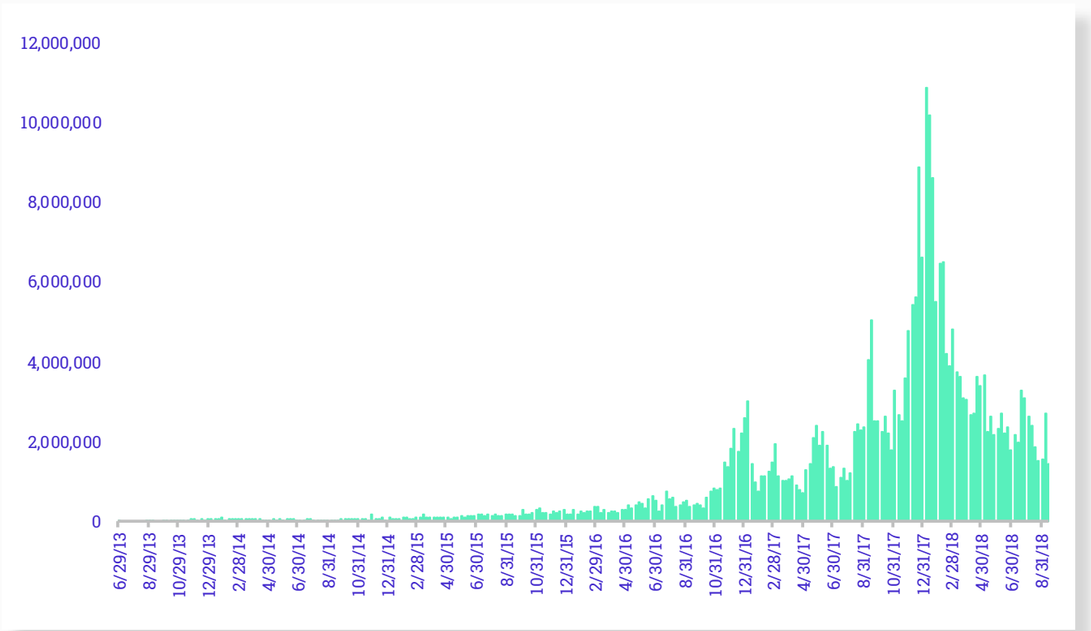
Vietnam- Highest Estimated Trading Volume: 4.6 bil Dong



Philippines- Highest Estimated Trading Volume: 37 mil Pesos



Malaysia- Highest Estimated Trading Volume:
10.8 mil Ringgit



Cryptocurrency in Europe

The cryptocurrency boom was not limited to the Asian continent.

The wave of cryptocurrency interest and activity quickly made its way to countries all across Europe and with it, legislation and regulation trailed behind, varying by country to country.

The EU has also set crypto regulations in place for its 19 affiliate countries.

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The EU in Favor of More Strigent Crypto Regulation

In April 2018, the European Parliament reached an agreement demanding tighter regulations of cryptocurrency in the EU. As part of the EU Anti-Money Laundering Directive, these regulations decreed that exchanges and wallet providers must institute customer due diligence programs including: identity verification, registration to operate and the removal of anonymity obtained from payment card issuers.

The clampdown on anonymity stems from the risks of crypto, primarily the money laundering aspect that gave rise to the 2015 Paris and 2016 Brussels terrorist attacks. These regulations were put in place due to lack of cohesive rulings in the European crypto sector as individual member-states used their own rules or awaited legal structure.

Aside from the EU regulation, individual countries in the region still govern cryptocurrencies on their own, i.e., without a single, pan-European regulatory framework. Thus, there are no laws governing the treatment of income and profits gained from crypto that apply to all member-states and no single stance on taxation.

EU nations enact their own tax laws and several nations follow the outcome of the 2015 EU Court Of Justice VAT (value added tax) ruling, which determined that cryptocurrencies are exempt from VAT tax.

The following table demonstrates which nations uphold the Court Of Justice VAT ruling and their approach to crypto taxation.

Country	Crypto Taxation Position	Exempt from the VAT?
Belgium	▸ 33% tax on crypto profits on those who trade in foreign exchanges ▸ Up to 50% on businesses	✓
Denmark	▸ Taxes on crypto businesses ▸ No taxes on individuals trading crypto	✓
Estonia	▸ Subject to capital gains + VAT taxes ▸ Cryptocurrencies are investments	✗
France	▸ Income tax on capital gains reduced from 45% to 19% ▸ Gains on occasional crypto transactions are non-commercial profits	✓
Germany	▸ Tax applies when used to pay for goods/services ▸ Tax-free exchanges ▸ Taxes on individuals with profits > €600 or held for < 1 year.	✓
Italy	▸ No crypto taxes as of Q3 2017 ▸ Regulated by the Italian Ministry of Economics	✓

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The Netherlands	▸ Crypto holdings must be reported on tax forms ▸ Tax on crypto holdings based on income tax rate	✓
Russia	▸ 13% tax on crypto income ▸ 24% corporate profit tax on companies	✗
Slovenia	▸ No tax on trading ▸ Individuals/businesses must report income for taxes	✓
Switzerland	▸ Capital gains taxes on professional traders ▸ Wealth tax on crypto holders & investors ▸ 35% withholding tax on profit distribution on equity tokens/ payments on debt tokens ▸ 0.15% securities transfer tax on security tokens for domestic instruments ▸ No VAT on crypto sales	✓
United Kingdom	▸ Taxed when used for goods/services ▸ Income tax, corporation tax or capital gains depends on activities and parties involved. ▸ Profits from trading subject to income tax	✓

The above table does not represent an exhaustive list of European nations and their respective crypto tax treatments, as some have not established theirs yet, or are currently proposing them.

For example, in Spain, the government has filed a law proposal to incentivize small businesses in crypto. Tax relief is still under consideration for crypto entrepreneurs as it is for companies that use blockchain technology.

The People's Party has been setting forth such legislation for these crypto entities to receive tax exemption, which has yet to be passed as amendments from lawmakers.

In Bulgaria, a 10% capital gains tax is issued to those who trade crypto, but the country has still not resolved how to tax incomes and sales.

Poland issued a temporary suspension on crypto taxes in May 2018. Meanwhile, its Ministry of Finance will administer an analysis on the crypto sector to improve their regulations on taxes.

This suspension came into effect after a Chang.org petition decried previously applicable income taxes. The Ministry is also seeking to produce a new regulation that would end crypto transaction taxes. Poland had a prior 23% VAT tax on the sale of mined bitcoins. Ukraine has also proposed rules and regulations for the crypto sphere that have not fully come into effect.

In May 2018, the Ukrainian government revealed it was formulating a plan to legalize cryptocurrency working in tandem with crypto experts. The goal of the proposed law is to produce rules pertaining to crypto, to expand the use of blockchain technology and create transparency in the Ukrainian crypto market.

Ukraine has been attempting to devise crypto regulations since January 2018, citing a lack of government oversight as a threat to the economy and national security.

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Cryptocurrency Regulation in Europe

The regulatory environment of cryptocurrency is still undergoing development in Europe due to the fact that the industry itself is still gaining traction within the European financial sector.

For several countries in Europe, the EU parliament rules, with laws its sets for all of its 19 member states. The EU has developed regulations on wallets, exchanges and other crypto platforms, requiring them to register with authorities in order to avert money laundering and terrorism financing.

In May 2018, the EU Parliament issued laws that minimized the anonymity of crypto by mandating know-your-customers (KYC) procedures in crypto platforms.

However, individual EU states still decree their own rulings on crypto matters, including declaring the status of cryptocurrency in their own nation.

The following chart shows the laws and statuses of cryptocurrency in a select group of European countries:

Country	Date	Ruling/ Status	Reasoning
Croatia	November 2017	Cryptocurrency is not electronic money nor a legal means of payment. Cryptocurrency is not foreign money.	Cryptocurrency does not fit under the Electronic Money Act, as it does not represent a monetary claim on the issuer. Cryptocurrency does not comply with the legal criteria to be a legal form of payment. It is not pursuant to the Foreign Exchange Act.
Estonia	November 2017	Cryptocurrency is not legal tender but can be used for trading and as a payment instrument. Businesses that offer exchange and wallet services must be authorized by the Financial Intelligence Unit.	To define digital currencies and prevent terrorism financing and money laundering. For risk management, compliance and customer protection.
France	April 2018 May 2018	Cryptocurrency is legally categorized as movable property, will have a lower tax rate of 19%. An ICO regulatory framework is in the works for the option to allow companies to issue coins to raise funds; they must follow criteria to protect investors. This includes a whitelist to provide a reference for investors who want to finance serious projects.	Crypto is separate from a commercial or non commercial activity. Blockchain offers opportunities for French startups to raise funds by issuing coins in Initial Coin Offerings.

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Country	Date	Ruling/ Status	Reasoning
Germany	March 2018	Cryptocurrency is legal tender and therefore tax exempt.	Crypto is legal when used as a means of payment, thus accepted as an alternative and contractual payment type by the transacting parties.
	June 2018	Income from selling and buying crypto is subject to income tax.	Only as a means of payment can crypto go tax-free, i.e., exempt from the VAT.
Italy	February 2018	Cryptocurrency traders, issuers, merchants and service providers must inform customers that crypto is not issued by the central bank or any public authority. All exchange activities must be reported to the ministry of finance.	To explore and understand the nuances of the cryptocurrency phenomenon. To prevent money laundering and terrorism financing and to increase the transparency of cryptocurrency activities.
Portugal	January 2019	Cryptocurrency does not hold a legal tender status.	The Finance Minister and president of the Eurogroup follows European guidance on crypto since they are "overseeing the general picture."
	May 2018	Portugal is seeking to create a regulatory framework on cryptocurrency, such as the issuance of new coins and ICOs.	In order to attract more businesses, make crypto and blockchain operations easier and to become a crypto hub.
Russia	January 2018	Cryptocurrency is not legal tender; it is a digital financial asset.	Legalizing crypto use would lessen fraud and bring transparency, banning it would lead an emergence of a black market.
	March 2018	Cryptocurrencies can be used as a payment instrument, but only in cases established by the law and the Central Bank of Russia,	To enable experts to track digital forms of currency in and apply legacy rights and inheritance rights. Also to encourage exchanges and smart contracts.
	July 2018	Crypto miners and holders in Russia will be regulated under the Internal Revenue Code. Users involved with cryptocurrency circulation must pay personal income tax, while legal entities must pay taxes in accordance with their business.	To minimize the risks associated with digital assets. To establish norms in the digital economy in accordance with the Russian Federation Civil Code.
Spain	June 2018	Cryptocurrency is not legal currency, but a digital good and must comply with the barter rules in Spain's civil code. All parties working with crypto must comply with information disclosure duties to the Spanish Treasury and file their tax returns.	Due to a lack of supervisory framework, and to introduce the crypto and blockchain technology to the Spanish market via controlled testing environments. Due to the dangers associated with high-risk financial holdings and to protect users from bad actors.

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Country	Date	Ruling/ Status	Reasoning
Sweden	January 2017	Trading crypto is a financial service subject to mandatory reporting requirements. The report has also issued warnings against the use of ICOs, noting that they are unregulated and not subject to its review.	Due to the Exchange Act, cryptocurrency trading is classified as other financial activity.
	March 2018	Cryptocurrency is not money.	The Swedish Central Bank deemed that cryptocurrencies are not seen as currencies as described in a financial report.
United Kingdom	November 2017	Exchanges are legal and must register with the Financial Conduct Authority (FCA). Cryptocurrency is not legal tender.	To follow anti-money laundering laws. There are 3 main functions of money: a medium of exchange; a measure of value; and a store of value. Crypto does not fall under medium of exchange and it is not a store of value, due to its volatility of price values.

Highest Crypto Trading Volumes in Europe

Spikes in the crypto industry have in turn spurred trading volumes of cryptocurrency, particularly those of Bitcoin in a host of European nations.

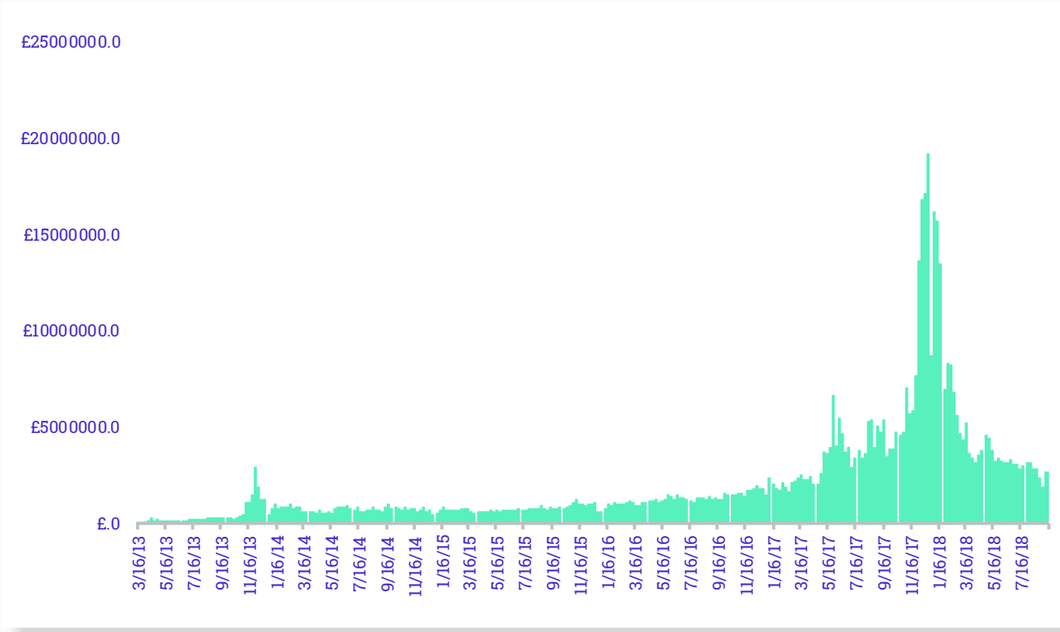
The following graphs provide data on the trading volumes of cryptocurrency across Europe.

The graphs feature countries with the highest volumes based on monetary value.

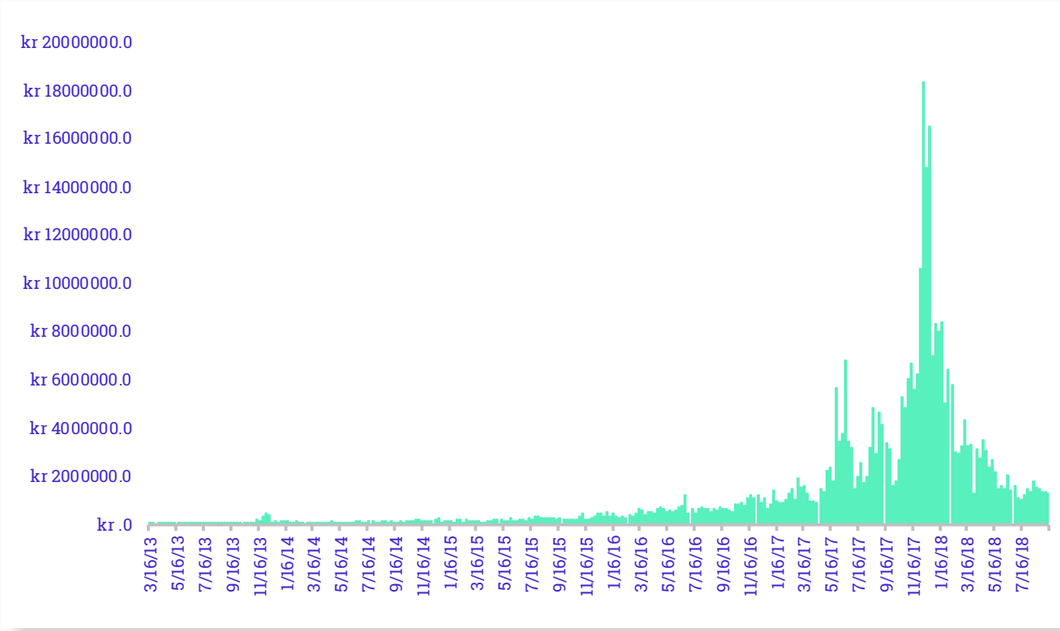
As such, each graph displays the value of crypto trading volumes based on the official currency of the respective country.

The graphs follow a timeline of the trading volumes between 2013-2018.

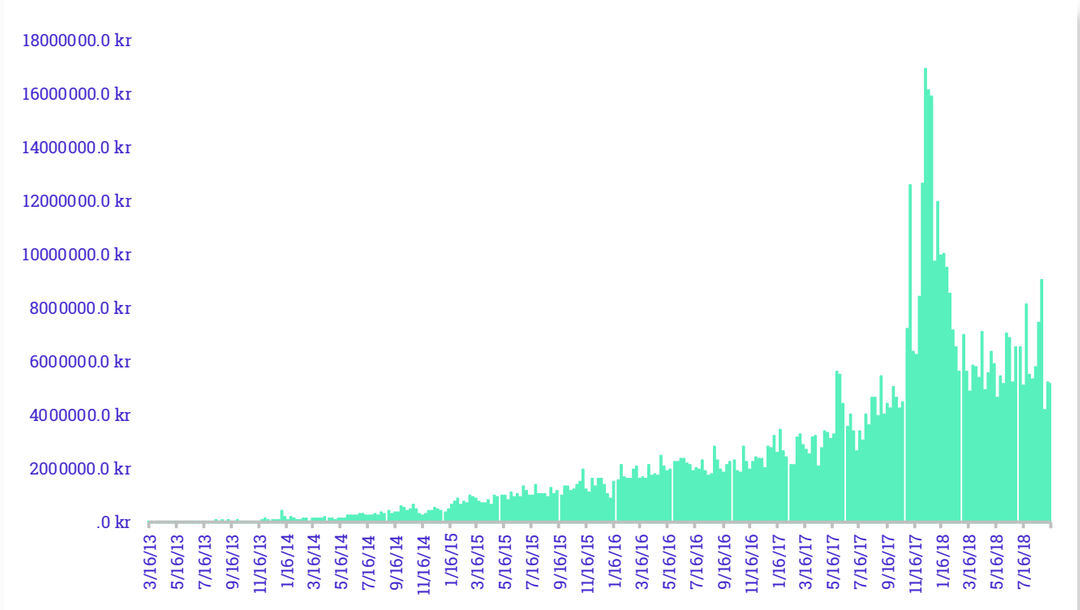
United Kingdom- Highest Estimated Trading Volume: 20 mil pounds



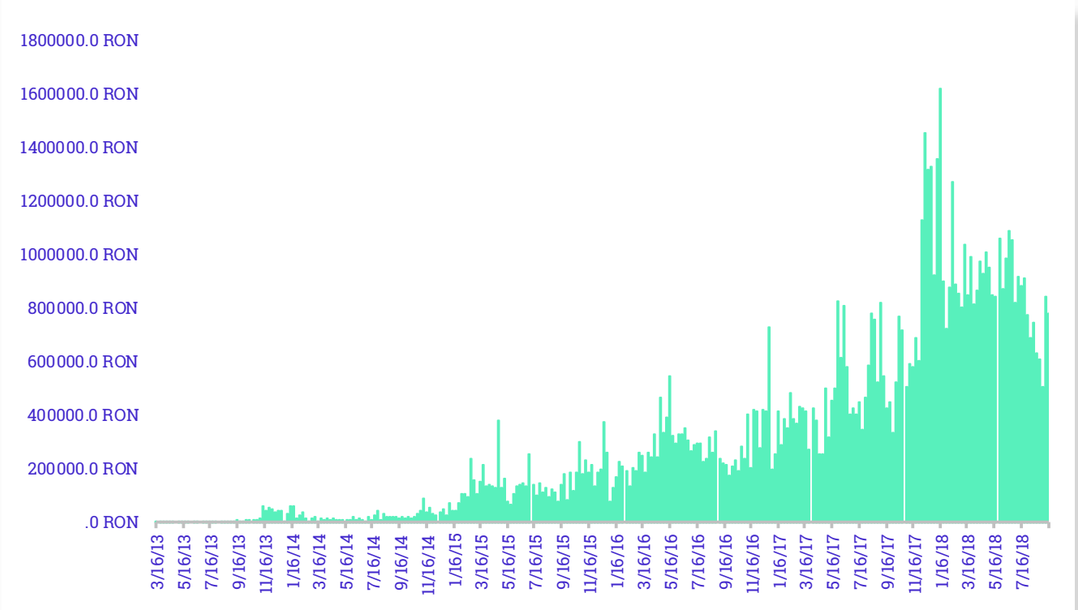
Norway- Highest Estimated Trading Volume: 19 mil Kr



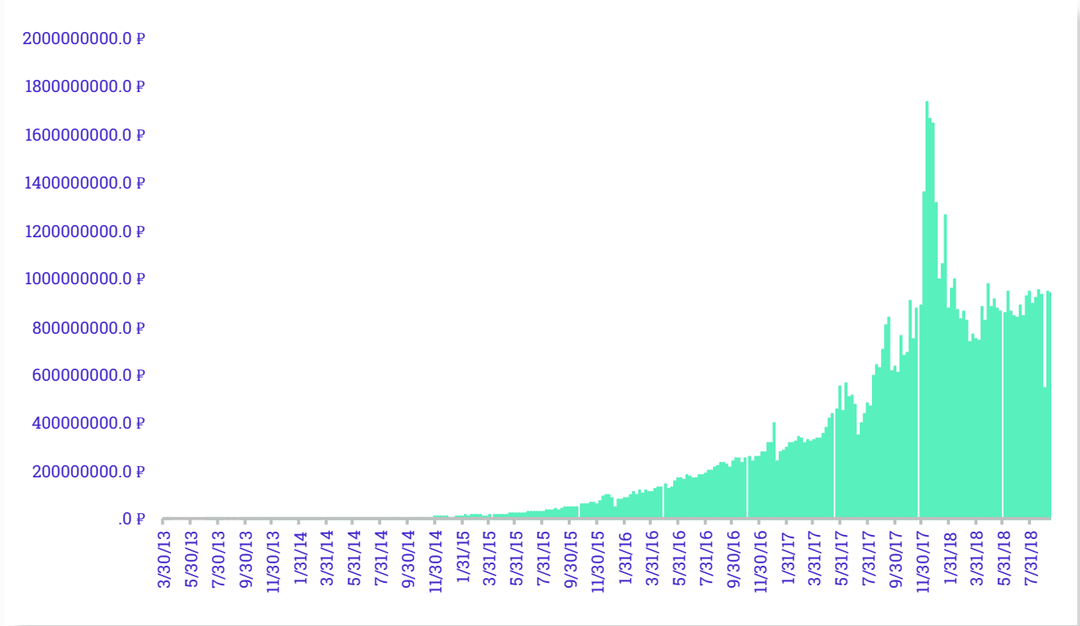
Sweden- Highest Estimated Trading Volume: 17mil Kr



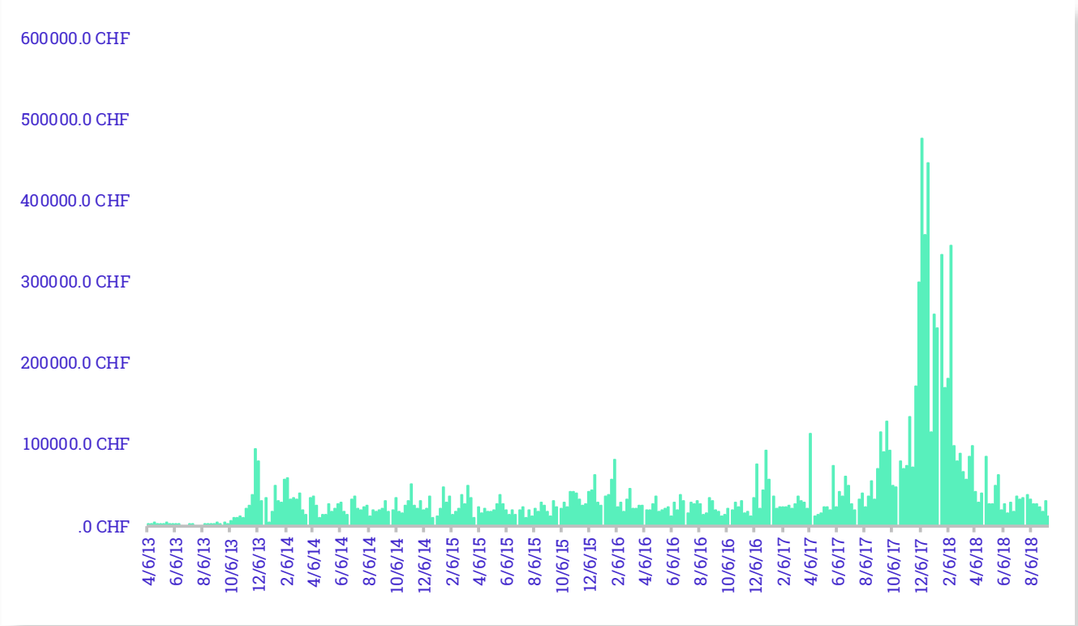
Romania- Highest Estimated Trading Volume: 1.7 mil Leu



Russia- Highest Estimated Trading Volume: 1.8 mil Rubles



Switzerland Highest Estimated Trading Volume: 500CH



Cryptocurrency in the Middle East

The Middle East, or the Gulf Coast and Southeast Asia, have recently opened its doors to the use and development of cryptocurrency.

The crypto market in the Middle East particularly began to flourish in April 2018, after cryptocurrency was officially labeled as halal by the Islamic scholar Abu Bakar.

Prior to this declaration, cryptocurrency was not considered to be in compliance with sharia law in the Gulf States, given that in the Islamic world, economic activity is based on real and tangible assets, as opposed to speculation.

When Abu Bakar, a certified Muslim legal expert, declared that cryptocurrency was halal, or permissible in sharia law, the crypto market opened up to 1.6 billion potential crypto users. It was during this time — April 2018, that the price of Bitcoin rose by $1,000 due to the upsurge in Arab traders.

The functionality of cryptocurrency is limited to payments in the Arab world, because according to Bakar, trading crypto should not be for investment purposes nor for benefits that traditional money systems do not offer. This restriction is applied to keep crypto in line with sharia law.

Cryptocurrency was not completely out of reach in the Muslim world before the complimentary announcement; in May 2017, a Dubai startup produced OneGram, a cryptocoin backed by gold.

Each coin is, as its name suggests, backed by one gram of gold. This gave cryptocurrency a physical grounding and reduced its speculation. It was essentially produced to convince the Muslim population that holding crypto is congruent with their Islamic faith. Following suit, Malaysian firm HelloGold produced GoldX, another gold-backed cryptocurrency launched in late 2017 that received Islamic certification.

Besides being physically backed by gold, GoldX has an issuing and auditing process that adds transparency, certainty and immediacy to transactions. These principles are of importance in sharia law's handling of financial matters.

With the acceptance of cryptocurrency as halal, the Middle East broke new ground with crypto, with a variety of countries taking their own approaches to advance cryptocurrency. The breakthrough of crypto in the Arab sphere has bolstered the crypto trading community, with more traders and users of cryptocoins, including Bitcoin.

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Cryptocurrency has the potential to improve the Middle East's economic freedom and grant it more latitude to compete in the global and digital economic spheres. The following section details the developments in crypto and blockchain in several Middle Eastern countries.

United Arab Emirates

The United Arab Emirates has been heavily involved in cryptocurrency and blockchain technology in recent years, most notably between 2017-2018. The city of Dubai, in particular has seen the most developments in the fintech and crypto spaces. The Dubaicoin (DBIX) was the Middle East's first cryptocurrency, developed by ArabianChain, a Dubai-based blockchain start up in March 2017. Its innovation was combined with ArabChain's production of the Arab world's first blockchain.

In October 2017, Dubai issued its official state currency, the emCash. It then proceeded to create a cold storage vault to hold cryptocoins. The facility offered stores of precious metals and will bestow physical insurance, which can be used as a protection from hacking and natural disasters.

The UAE government decided to ramp up innovation in the crypto and tech spaces in November 2017 with the Future Foundation, which has attracted companies from around the globe using $300 million in funds from an accelerator program. It has even gained the attention of the New York-based ConSensys, a blockchain software company.
In January 2018, ArabianChain launched a UAE crypto exchange that hosts the trading of Bitcoin, Ethereum, Litecoin and other cryptocoins. The world's first cold storage vault launched in Dubai in February 2018. Regal RA DMCC, a Dubai gold trading company received the first cryptocurrency trading license in the Middle East.

Dubai is also home to a bitcoin exchange, BitOasis, the first Middle Eastern wallet, featuring multi-signature technology. UAE has had a number of startups and other key players in the crypto sphere.

Saudi Arabia

Although Saudi Arabia has stronger crypto regulations, the country has developed several partnerships in the blockchain and crypto spaces.

In February 2018, the country announced that its banks will partner with Ripple (XRP) to run Ripple's xCurrent software, which allows banks to settle cross-border payments using end-to-end tracking. This improves Saudi banks in that it gives them cross-border payment capabilities.

In March 2018, the country's Ministry of Communications and Information Technology (MCIT) partnered with the Ethereum blockchain startup and cryptocurrency development studio ConsenSys. The purpose of the collaboration was to create a blockchain bootcamp in an effort to augment the country's technological development.

The bootcamp consists of a 3-day program of acquainting the participants with blockchain technology, its applications and features. It also teaches the members how to build decentralized apps with Ethereum smart contracts and how to integrate the dApps with web apps.

Interconnectivity of Saudi Arabia and UAE Crypto Markets

In December 2017, the central banks of Saudi Arabia and the United Arab emirates formed a consolidatory project to create a cryptocurrency that allows cross-border transactions between the countries.

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This was the first instance of monetary authorities from two countries cooperating on blockchain technology, according to UAE Central Bank governor Mubarak Rashid Al-Mansouri.

The currency is for the exchange of coins between the two financial institutions and other commercial banks in the two countries, as opposed to catering towards retail customers. UAE bank governor Al-Monsouri also stated that regulations are in the process of being drafted on fintech, specifically on crowdfunding platforms.

Israel

With its large lineup of tech startups (Wix, ICQ, Waze, etc.), Israel has significantly contributed to the crypto and blockchain sectors, with a host of companies and services within these fields launching every day.

The amount of blockchain companies in Israel rose by 50% in 2017, rising from 38 in 2016 to 60 in 2017.

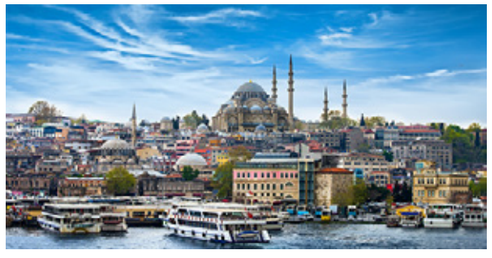
In November 2017, the Israeli Blockchain Association was formed and began to take specific note of the blockchain startups across Israel including those that feature blockchain technology at the core of the product as well as those that incorporate it into their products. The association recorded 75 startups by the end of December 2017.

Hapoalim, Israel's largest bank, entered the blockchain market in September 2016, after developing a blockchain-based platform that supplies bank guarantees. It was the first Israeli bank to integrate blockchain technology into financial contracts. Erik Pinto, the CEO of the bank, noted that blockchain is a revolutionary platform that will be at the forefront of the future smart economy.

In December 2017, Israel revealed it is planning to launch a national cryptocurrency, the digital shekel, which would correspond in price with the shekel. This initiative seeks to minimize money laundering, corruption, and tax evasion.

In February 2018, an Israeli diamond exchange launched two cryptocurrencies that are backed by diamonds: Carat and Cut. In March 2018, the Israel Securities Authority Committee (ISA) announced that cryptocurrency is not a security; they are a medium of payment, exchange and clearing.

Turkey



There has been no regulatory framework on cryptocurrency in Turkey until ambitions for a national currency were publicly realized. In November 2017, cryptocurrency was deemed un-Islamic by Turkey's Directorate on Religious Affairs. Citing crypto's inability to be audited and surveilled, the directorate judged that it would lead to money laundering and other illegal activity. In February 2018, the national tone on cryptocurrency changed course, with Turkish government officials in the Nationalist Movement Party (MHP) in talks of launching a national cryptocurrency called the Turkcoin. The Justice and Development Party (AKP) of Turkey, which holds the largest sway as the nation's ruling political party, also supported a national cryptocurrency.

The Turkcoin would be backed by the state and work toward tokenizing asset-backed securities for issuance. This attempt is for Turkcoin to create less risks than other altcoins. Major companies in Turkey's wealth fund would contribute to the asset basket including the Istanbul Stock Exchange, Turk Telekom and Turkish Airlines.

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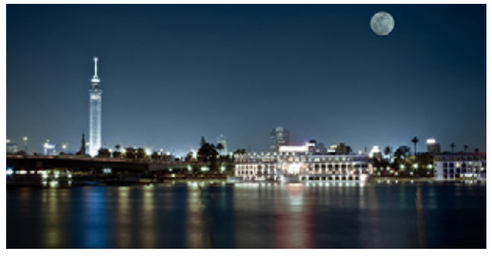
Deputy chairman of the Nationalist Movement Party, Ahmet Kenan Tanrikulu, expressed that with Turkey's adoption of a national cryptocurrency there would be a strong need for laws and regulations on cryptocurrency to avoid illegality. Supported by the Nationalist Movement Party, Turkey's Finance Ministry and Capital Markets Board is currently developing regulations on cryptocurrency with the inclusion of taxation.

Egypt



The cryptocurrency market in Egypt has been slowed with a January 2018 ban on its trading and transactions. Prior to this, the country was heading forward in cryptocurrency developments, with a startup that attempted to launch its Egyptian exchange platform to become the country's first registered Bitcoin exchange. The cryptocurrency startup Bitcoin Egypt attempted to launch the exchange in mid-August 2017 but was halted by the government. Grand Mufti Shawki Allam, the highest official of Egypt's religious law, labelled cryptocurrency unlawful under sharia law, making it illegal to be bought, sold, traded or used in transactions.

Bitcoin Egypt originally registered as a stock exchange with the government, but the Financial Regulatory Authority announced that only the government will launch a stock exchange for commodities. In April 2018, a report from The Citizen Lab, a laboratory at the University of Toronto, found that Egypt has secretly been involved in crypto mining operations to raise capital.

At present, cryptocurrency, especially Bitcoin dealings occur surreptitiously, including within the black market.

Cryptocurrency Regulation in the Middle East

Attitudes toward cryptocurrencies in the Middle East vary country to country, even after Islamic scholar Abu Bakar's pronouncement of cryptocurrency as halal, or permissible. Aside from the above Middle Eastern countries with thriving crypto/blockchain markets, countries with fewer crypto innovations and activities have also introduced laws in the sector.

The following graph presents the laws pertaining to cryptocurrency, along with the status of cryptocurrency from several Middle Eastern nations.

Country	Date	Ruling/ Status	Reasoning
Algeria	October 2017	The National Finance Bill is in motion to ban the use and ownership of Bitcoin.	Drug trafficking, money laundering and tax evasion from the users' anonymity in every transaction.
Algeria	January 2018	The Central Bank of Indonesia sent out a warning to investors that bans selling, buying or trading cryptocurrency.	Bubble risks and the susceptibility of being used for money laundering and terrorist financing.
Egypt	January 1, 2018	Cryptocurrency is issued a fatwa (Islamic ruling), banning the trade of Bitcoin.	Crypto is considered haram (against religious teachings) Commercial/trade transactions must be governed by rules and contracts.

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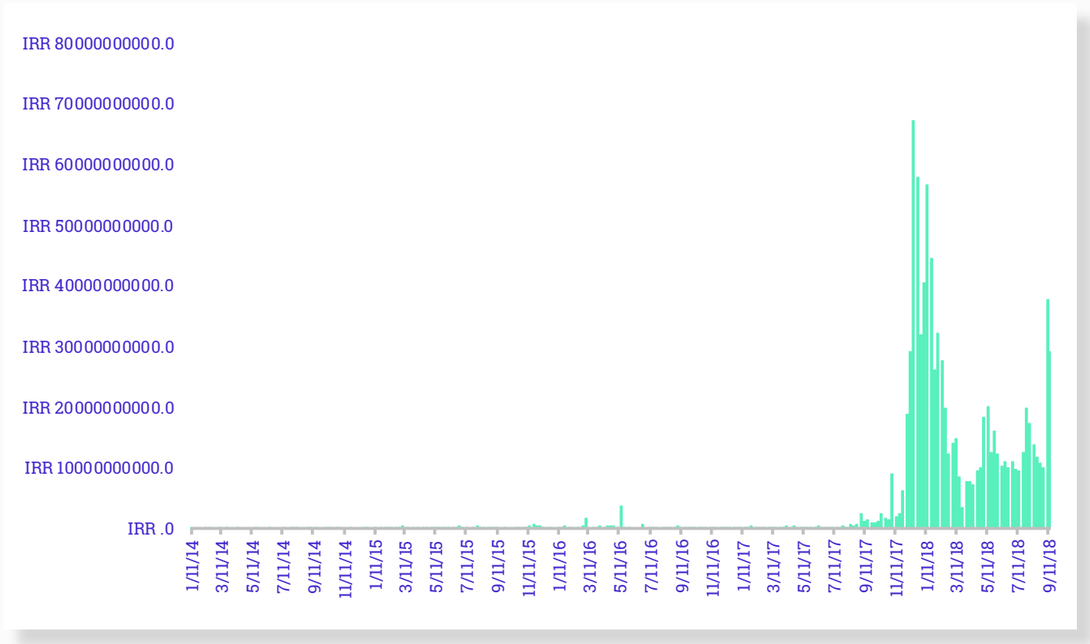
Country	Date	Ruling/ Status	Reasoning
Iran	April 2018	The Central Bank declared that banks and other financial institutions are prohibited from buying, selling or handling cryptocurrency.	Money laundering and terrorism financing risks.
Israel	January 2018	The Bank of Israel (BOI) declared that cryptocurrency does not have recognition as actual currency. It classifies cryptocurrencies as an asset and a property.	Difficulty in producing regulations that monitor the risks to banks and their clients.
Kuwait	December 2017	The Central Bank of Kuwait banned banks and financial institutions from trading cryptocurrency.	Trading is beyond the control of Kuwait's financial institutions.
Lebanon	October 2017	Cryptocurrency is classified as a non-currency. The central bank of lebanon banned the use of cryptocurrency.	Crypto is a commodity with fluctuating prices with no justification. Threat to Lebanese fiat.
Qatar	February 2018	Qatar Central Bank stated that crypto trading and transferring is illegal across all banks	Cryptocurrency is volatile and can be used for financial crimes, electronic hacking and loss of value since there are no guarantors or assets. To ensure safety of the financial and banking systems.

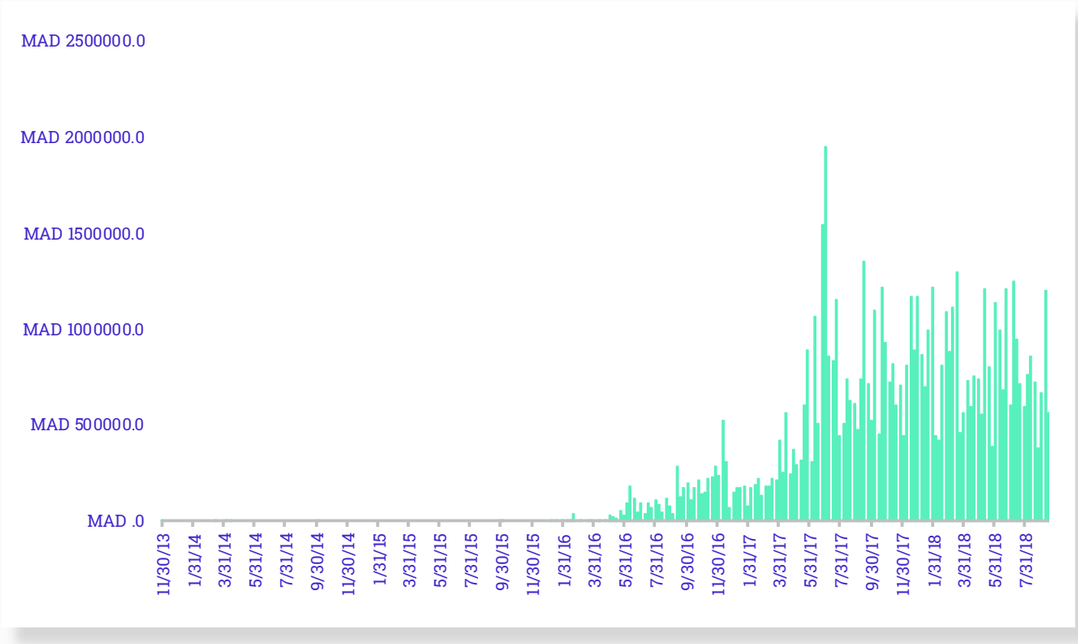
Highest Crypto Trading Volumes in the Middle East

Cryptocurrency has steadily gained traction across many Middle Eastern nations. The trading volumes of cryptocurrency before and after the announcement of its halal status have been recorded. Thus, the following graphs provide data on the trading volumes of cryptocurrency across select countries in the Middle East. The timeline of each country falls between 2013 to the present (2018).

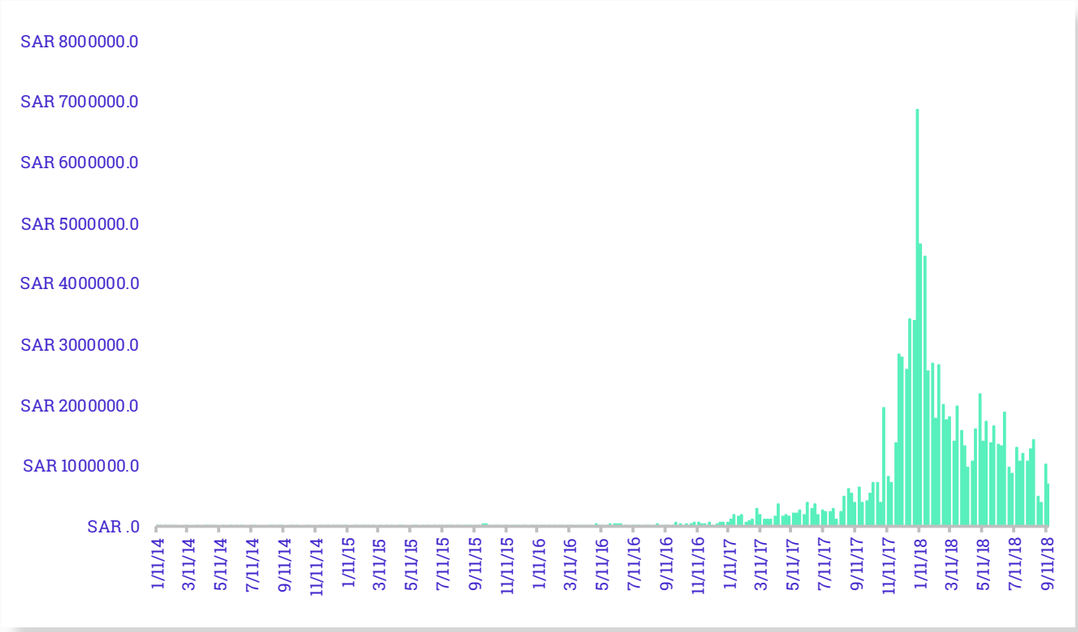
Iran- Highest Estimated Trading Volume: 67 Bil Rial



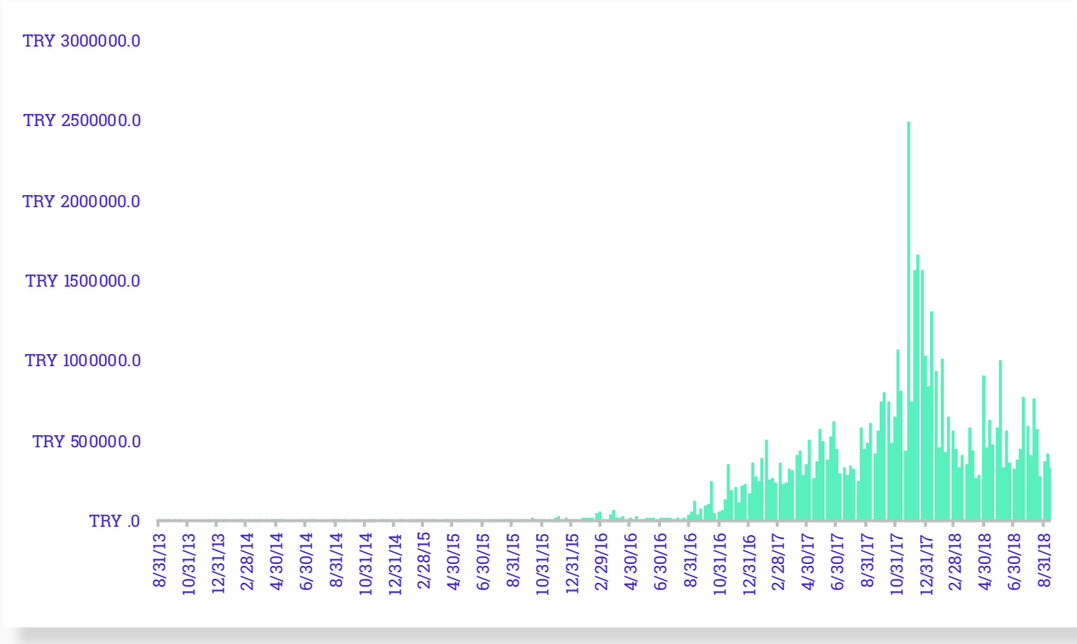
Morocco- Highest Estimated Trading Volume: 1.9 Bil Dirham



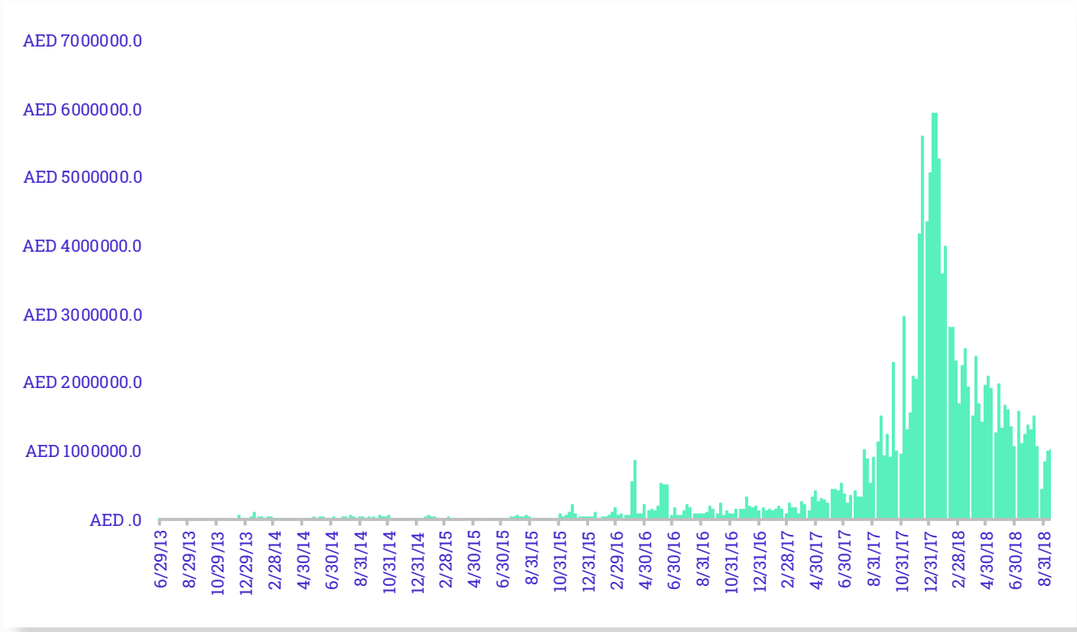
Saudi Arabia- Highest Estimated Trading Volume: 6.8 Mil Riyal



Turkey- Highest Estimated Trading Volume: 2.5 Mil Lira



United Arab Emirates- Highest Estimated Trading Volume: 5.9 Mil Dirham



Cryptocurrency in Latin & South America

Cryptocurrency has made major headway in South and Latin America with an enormous rise observed in everyday crypto use and crypto ownership. This jump forward in the sector was propelled in large part by a lack of traditional banking systems.

According to a World Bank 2014 study, 49% of adult Latin American residents had a bank account, which can be attributed to the region's lengthy bureaucratic processes and inconvenient costs associated with banks.

Cryptocurrency offers residents a more favorable alternative to a bank, which has largely spurred the crypto boom.

Besides it being a banking alternative, cryptocurrency has surged in lieu of credit and debit cards. With few Latin Americans owning debit and credit cards, payments are usually made in cash. Thus, cryptocurrency offers a digital option for a variety of transactions. However, much like credit cards, which carry fees, cryptocoins with high fees also have a small user base.

Along with banking and card issues, Latin Americans often contend with international transfers, especially those who live in first-world countries. Latin Americans spend 5% of their paychecks when sending international wire transfers, whereas transfers with cryptocurrency typically cost them much less.

Inflation combined with a strict government stronghold on monetary affairs have also played crucial roles in the upward trend of cryptocurrency. Several countries in the region have endured high degrees of inflation, which ultimately devalued the once-high savings of citizens down to nothing.

Crypto has thus been a savings alternative to inflating fiat currencies. Then there are the countries with monetary policies with a more authoritarian bent. For example, Venezuela has a stringent policy on currency conversion, in that it restricts individuals and private companies from converting the national currency, the Bolivar, into foreign currencies. In turn, this hampers financial transactions and opportunities, such as paying debts to foreign countries in their respective currencies and buying products from abroad. Cryptocurrency has provided Venezuela and other such countries the financial agility to get past these regulations.

The following discusses the developments of cryptocurrency in prominent South American

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countries including findings on its usage, growth and status of the cryptocurrency space.

Mexico

Hailed as the cryptocurrency leader in South America, specifically in the exchange trading subsector, Mexico has an auspicious climate for cryptocurrency. This is in part due to cryptocurrency's decentralization, as a sizable portion of Mexicans do not trust banks. 44%, or 29 million people of Mexico, do not have a bank account due to a distrust in financial institutions.

In 2017, the Mexican Peso was the 18th most traded fiat currency for crypto. It is home to several exchanges, over 10 of which also cater to other countries in South America; these exchanges include Bitso, Volabit and Bitlem.

In September 2017, the Mexican firm Amar Hidroponia, launched Agrocoin, a cryptocurrency backed by the Mexican habanero chili, with every $27 (500 pesos) backed by a square meter of chili.

The general director of Agrocoin explained that the purpose behind the altcoin is to provide the public with a profitable cryptocurrency for investments, with its annual 30% yield. Mexico has a wealth of fintech startups: 238, making it a leader in the sector in the South American region.

In April 2018, the Mexican government announced a Blockchain project that tracks bids for public contacts. The project was initiated to help the government determine which government-serving companies are trustworthy. It would grant transparency to the process of public tender and store data on the bidding process. This project is namely to preempt government corruption, as Mexico has seen public contract corruption involving bribery and President Enrique Pena Nieto.

Brazil

Brazil has not ignored the worldwide rise of cryptocurrency, also steadily becoming a major participant in the market. Brazil is one of the largest economies in South America. It has become a leader in cryptocurrency exchange systems, with the largest exchanges joining forces and merging into Associação Brasileira de Criptoeconomia (Brazilian Association of Crypto-economy), or ABCrypto, an association that advocates on behalf of the crypto interests of its customers.

The association has remained intent on codifying cryptocurrencies as legal financial assets in the country. Another similar merger occurred between other cryptocurrency companies called the Associação Brasileira de Criptomoedas e Blockchain (Brazilian Association of Cryptocurrencies and Blockchain) or the ABCB, which aims to help the cryptocurrency markets in Brazil by defending privacy and advocating for regulations conducive to innovation.

It is meant to link businesses with regulators to ensure these objectives are met. Although ABCrypto and ABCB are rivals, they confirmed they plan to collaborate on their efforts to propel the cryptocurrency sector forward.

The Brazilian crypto market is one of the largest in South America. The 3 largest Brazilian exchanges handle approximately > 500 bitcoins daily. In 2017, Bitcoin trading totalled approximately $2.4 billion. In May 2018, Brazil had 36% of the crypto market share in the Brazilian exchange Foxbit alone. The exchange has over 400,000 registered users out of the 1.4 million plus+ that have opened accounts. Another exchange gaining ground is CriptoHub which has daily trades of 75 million dollars in bitcoins

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and is slated to become Brazil's largest exchange. In April 2018, CriptoHub revealed its offering of a proprietary altcoin, the CriptoHub Coin (CHBR).

Another interesting trend is that more Brazilians have been opening crypto trading accounts rather than brokerage accounts. In April 2018, Brazil's largest investment firm XP Investimentos revealed it will offer an OTC exchange renamed as XDEX, as stated to the São Paulo State Board of Trade. The company has altogether received $7.4 million in capital injection.

It isn't just the traders and investors participating in the cryptocurrency space in Brazil. The Central Bank of Brazil has joined the R3 Blockchain alliance in an effort to produce Blockchain for various needs in Brazil's financial infrastructure. The Central Bank is also planning to use Blockchain for real-time gross settlement systems. The Brazilian government has implemented Blockchain in a land-titling to register property ownership and preempt illegal land development in the Amazon rainforest.

Argentina

Argentina has a favorable environment for cryptocurrency developments and growth. In November 2017, Mercado de Termino de Rosario, or Rofex, one of the most crucial futures markets in the country, announced it would offer services to cryptocurrency investors.

The offering included custody services that accept cryptocurrency for guarantees on futures contracts. 2017 was a year of heightening cryptocurrency activity, with the volume of Bitcoins used in Argentina rising to over 2.1 million. Argentina is also exploring Blockchain technology with Caja de Valores, a depository of securities in the nation, which is considering

solutions outside of the crypto realm such as for voting and other applications as services.

The country's cooperative stance towards cryptocurrency came to a culmination in April 2018 as Buenos Aires celebrated Bitcoin Day, an event attended by 500 people designed to inform residents about digital money.

During the same month, Inbest Network, an Argentine startup that works with investors, financial institutions and developers, unleashed its app for investors to enter the crypto market.

The startup has already built a blockchain-based marketplace with its own cryptocurrency, the IBST, which unlike other altcoins, cannot be used as a financial asset. Instead, it is a token that provides a way to access investment funds. Inbest works with financial partners as well with a marketplace that allows them to offer products to investors. Essentially anyone who works with the IBST can present financial products.

In an unprecedented move towards the favorability of crypto at a prestigious financial level, the Argentine bank Banco Masventas dropped out of the international SWIFT network in May 2018, replacing it with bitcoin for international transactions.

The bank partnered with a South American payment service called Bitex, which will work as an intermediary that converts bitcoin to fiat and sends funds to recipients. According to the bank, this approach will minimize the costs of international transfers.

Banco Masventas is the first bank in the world to use Bitcoin for their customers' remittances. Following these pro-crypto endeavors, Argentinian bankers are also now beginning to provide services exclusively for crypto companies. Overall, the country has embraced the crypto sphere since its inception and this trend is continuing.

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Venezuela

Although Venezuela carries the brunt of possessing one of the world's worst economies, it too has made several advancements in the crypto space. Its federal government launched a national cryptocurrency, the Petro (PTR), in February 2018, which is backed by Venezuelan oil and exists on top of the Ethereum blockchain. It's a token that abides by the ERC20 token standard, though some reports state it will run on the NEM blockchain.

Each Petro is backed by one barrel of crude oil. Petros are in the control of the government, as they are "pre-mined," which means only the government can produce and control it. On its first pre-sale day, Petro raised $735 million. In April 2018, trading between Petro and the fiat Bolivar exceeded $1 million. The Venezuelan government argued that the sale of Petros can help alleviate some of the country's financial imperatives.

In March 2018, U.S. President Donald Trump signed an executive order that banned the Petro for US citizens; thus the Petro cannot tap into the US crypto market with all Petro transactions prohibited. However, several countries such as Brazil, Honduras, Vietnam and Denmark have agreed to accept payments for their goods with Petros. Furthermore, crypto business people from Brazil have invested $300 million into the cryptocurrency. Poland had originally been listed as one of the nations to do business with Venezuela through accepting Petro, which Poland later denied.

It's not only the Venezuelan mainstream populace that deals in cryptocurrency. The Venezuelan government has started to turn its attention toward private investors as well, and has begun auctioning off the Petro via Dicom, a foreign exchange platform. Venezuelan president Nicolas Maduro began the process of selling cryptocurrency to investors with the aim of offsetting the effects of U.S. sanctions.

Despite Maduro's political opposition and the country's congress declaring Petro illegal and unconstitutional, the cryptocurrency has not slowed in trading or transactions. The government has created a free tutorial and training course for citizens, teaching them how to buy, sell and trade the Petro. In April 2018, the country declared Petro will become legal tender in 120 days for all government transactions.

Columbia

The cryptocurrency market began to take hold in Columbia in 2017, at which point the demand for Bitcoin led to several conferences and workshops that educated the public on the topic. These discussions were generally free, including the October 2017 Risks and Opportunities of Cryptocurrencies conference which taught some 300 participants how the market works and what moves it.

There have also been crypto seminars for experts held by financial education platforms. The year 2017 also saw rise of Bitcoin trading with Colombian pesos as cryptocurrency transactions with Colombian pesos grew by 1,200%, putting it in third place, only behind China (2,000%) and Nigeria (1,400%). A survey of 600 investors found that the majority of cryptocurrency investors are between 25 and 44 years old. Furthermore, 44% are in the independent sector, 42% are employed, 8% are in the investment sphere and 5% are students.

Marcelo Granada, the director of Colombian financial education company Investopi, noted that the surge in cryptocurrency interest in the country is mainly

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due to the high banking costs of international transfers and the generally complicated nature of carrying them out. Other factors include the possibility of an investment alternative, low investment amounts and short-term profitability. Economist and Rokk3r board member Germán Montoya credited the rise in crypto popularity in Columbia with investors' needs for short-term liquid assets. The anonymity that cryptocurrencies give users also plays a big role, granting users easier access to the black market.

Montoya also believes the application of blockchain technology will help restore foreign investment in Colombia, as fraud and corruption have recently disincentivized it.

Cryptocurrency is especially popular in small retail operations. In early 2018, the Colombian cryptocurrency economy grew to over 2% of the GDP, almost as much as the tourism sector, which contains 2.8% of the GDP. Although the Central Bank declared that crypto is not a real currency and cannot be used as a legal form of payment, this does not stop private transactions from taking place. In May 2018, the country formed the Colombia Blockchain Association, a startup consisting of a merger of 6 fintech companies seeking to integrate blockchain into the country.

Chile

The Chilean cryptocurrency environment has bounced between unfavorability and major progress. Banks have been the cause of strife for exchanges, as they've closed down the accounts of the exchange companies.

The banks cited directives to not open accounts for those who using cryptocurrency. This prompted the exchanges to plea to the Association of Banks and Financial Institutions (ABIF) for

clearer regulations and stances on cryptocurrency and exchanges.

The Chilean government had once been in support of the exchange SURBTC, as it was used to facilitate donations to the country after its devastating earthquake of 2015; but the 2017 rise of crypto has led to ambiguous regulatory action.

In April 2018, a more suitable environment for crypto arrived with the Financial Stability Board (CEF) of Chile, an extension of the Ministry of Finance, stating that cryptocurrency is not a financial threat.

The CEF prepared a report that found that digital currency does not constitute a danger to the Chilean economy.

Although it expressed cryptocurrency isn't threatening, the CEF still cautioned investors to be vigilant of its high risk potential, volatility and susceptibility to scams and hacking.

The Board had a more positive stance on blockchain technology, which the CEF deemed beneficial to markets and competition.

In May 2018, Bancoestado, the only public bank of Chile, reopened the accounts of the two exchanges that filed a court order to the Tribunal for the Defense of Free Competition (TDLC).

The other banks that closed down accounts for exchanges, Scotiabank and Itaú, have attempted to appeal the TDLC's measure.

Although banks and the cryptocurrency industry have been at odds, the rise of cryptocurrency in the region will eventually lead to an adoption, or at least a partial one, by the Chilean banking system.

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Cryptocurrency Regulation in South America

Regulation of cryptocurrency is still not fully realized in all of South America. Some nations have outright banned cryptocurrency, while others have more lenient laws or have simply issued warnings against money laundering and risks.

However, as the sector rises and as actors from other industries, ie, banks, come into ideological competition with each other, additional laws will have to be put in place. In nations across the region, cryptocurrencies are subject to capital gains taxes, as are other assets. Brazil and Argentina subject crypto to income tax under certain conditions.

The following graph presents the laws pertaining to cryptocurrency, along with the status of cryptocurrency in several South American nations.

Country	Date	Ruling/ Status	Reasoning
Argentina	June 2018	Cryptocurrency is not a legal currency; it can be considered money but not a legal currency to settle debts/obligations. Considered a good.	Only the government monetary authority can issue currency.
Bolivia	June 2014	Cryptocurrency is banned.	To protect the fiat Boliviana, as well as citizens, from losing money.

Country	Date	Ruling/ Status	Reasoning
Brazil	January 2018	Investment funds are prohibited from investing in cryptocurrency.	Cryptocurrency cannot be considered a financial asset, as per the Securities and Exchange Commission.
Chile	May 2018	Chile's Central Bank is open to regulating cryptocurrencies, but regulations are not confirmed as of yet.	To monitor and reduce the risks of cryptocurrency. To prevent money laundering, terrorist financing.
Colombia	June 2017	Cryptocurrency is not illegal but it is not currency or a security and is unauthorized. Not eligible for deposit insurance.	Crypto has no value under the Capital Markets Reform bill, thus not part of securities infrastructure.
Ecuador	July 2014 February 2018	Bitcoin and other cryptocurrencies are banned. (Punishment for crypto use has decreased) Downloading a mobile electronic payment wallet is prohibited.	The government put out its own state-issued digital currency backed by the assets of the Central Bank (BCE). A private financial system will be the only type authorized to manage electronic payments.
Mexico	March 2018	Cryptocurrency is not legal tender. Exchanges will be under the jurisdiction of the central bank.	To bring clarity on the status of cryptocurrency, and to prevent illicit acts like money-laundering.
Venezuela	April 2018	The use of cryptocurrencies is legal. It was approved by the Venezuelan Constituent Assembly which drafted the Constituent Decree on Cryptoassets and the Petro.	To advance the economic development of Venezuela.

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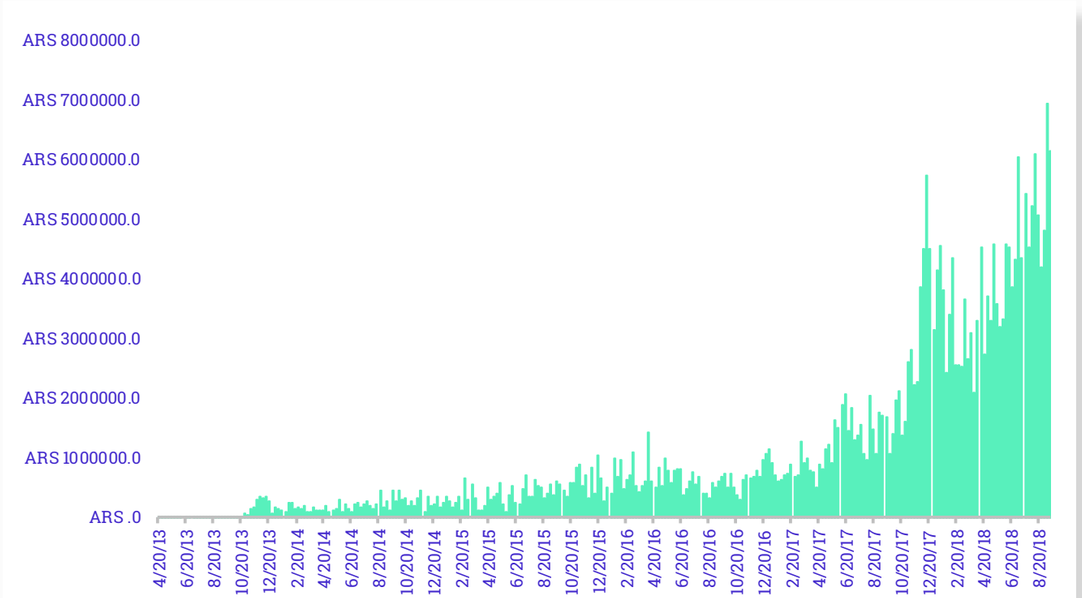
Highest Crypto Trading Volumes in South America

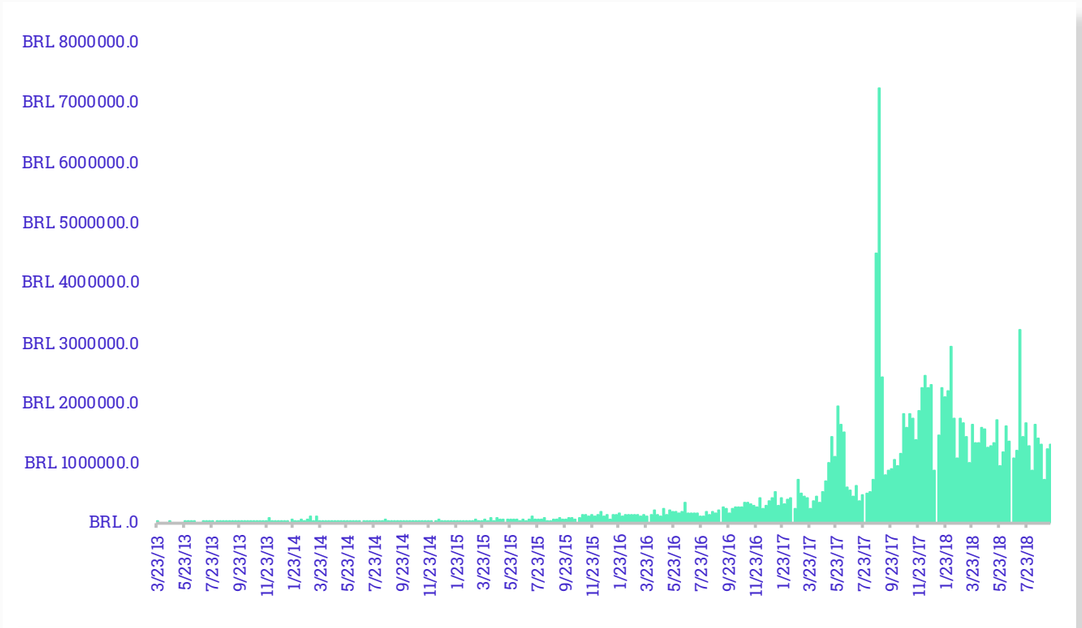
The rapid increase of cryptocurrency use worldwide has propelled its popularity in South and Latin (including central) America. Despite being ruled as illegal tender in several countries, the trend of cryptocurrency has continued to climb in the last few years. Thus, trading has seen a general upswing in most nations.

The following graphs provide data on the trading volumes of cryptocurrency across select countries in Latin and South America. The timeline of each country falls between 2013 to the present (2018).

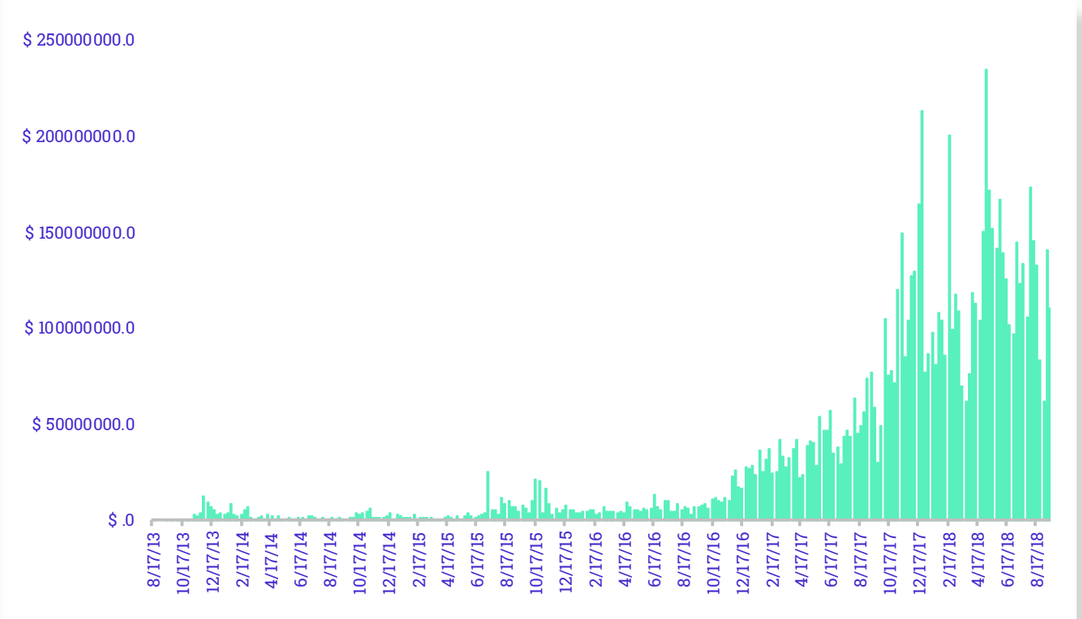
Argentina- Highest Estimated Trading Volume: 6 Mil Argentine Pesos



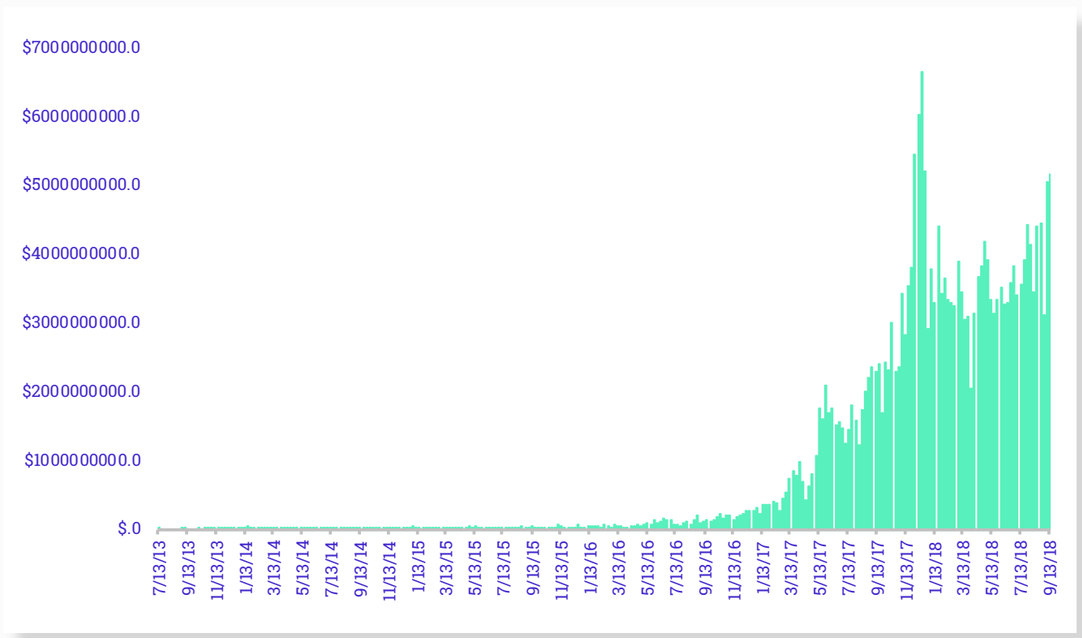
Brazil-Highest Estimated Trading Volume: 2.7 Mil Real



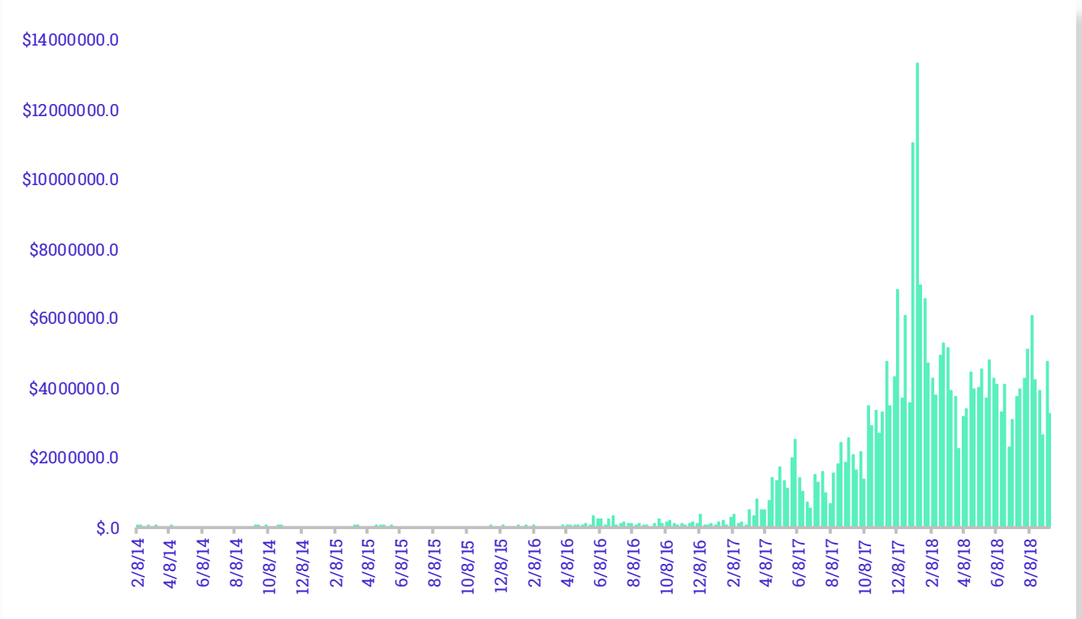
Chile- Highest Estimated Trading Volume: 240 Mil Chilean Pesos



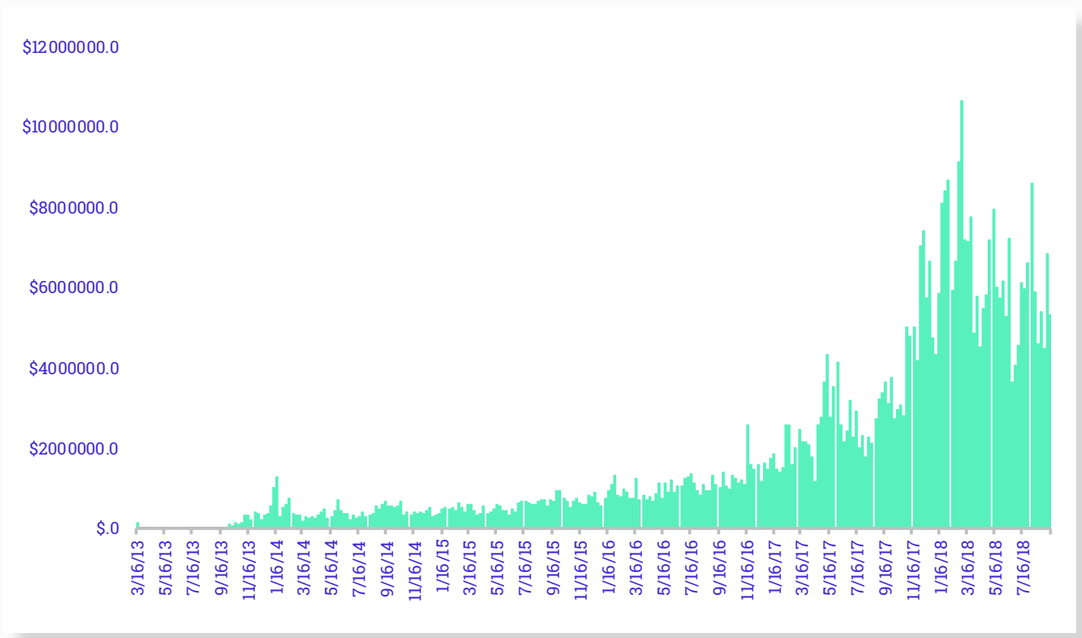
Colombia- Highest Estimated Trading Volume: 6.6 Bil Colombian Pesos



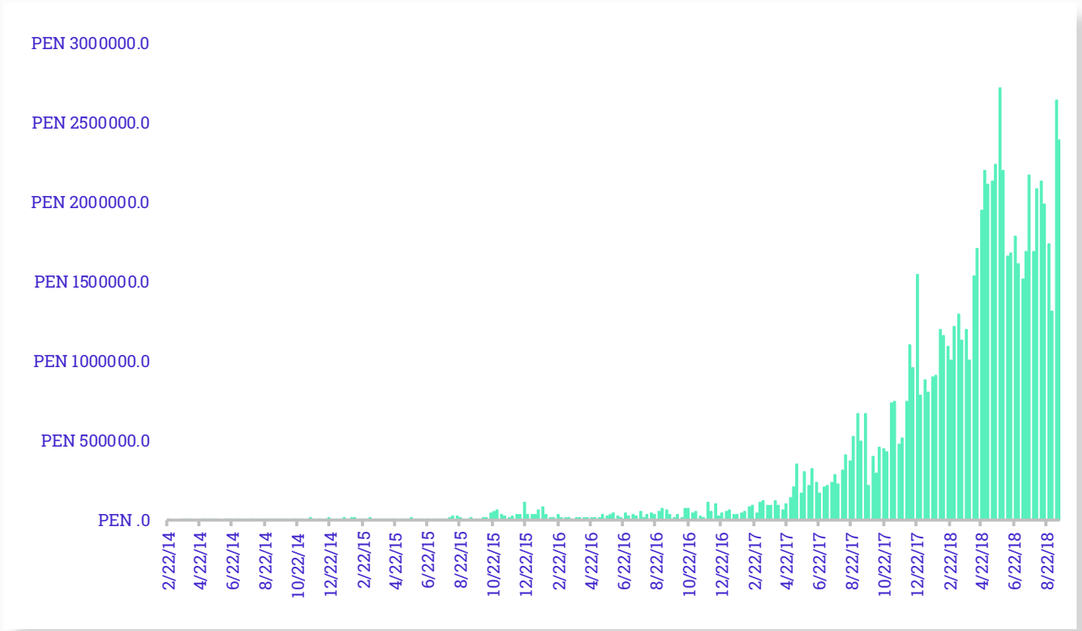
Dominican Republic- Highest Estimated Trading Volume: 13.3 Mil Dominican Pesos



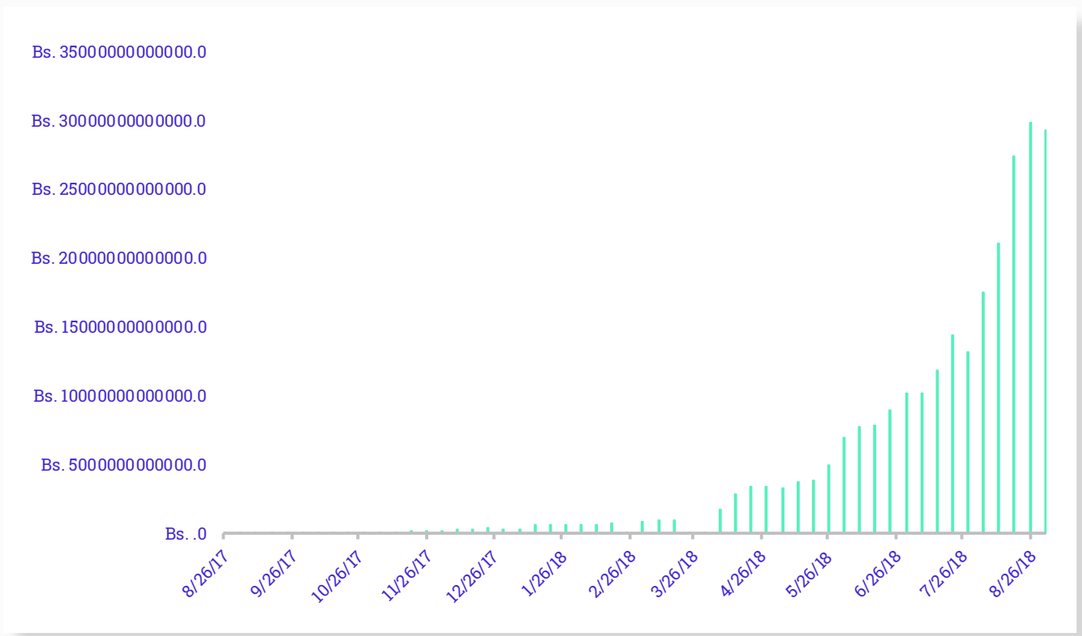
Mexico- Highest Estimated Trading Volume: 10.6 Mil Mexican Pesos



Peru- Highest Estimated Trading Volume:
2.7 Mil Sol



Venezuela- Highest Estimated Trading
Volume: 14 tril Bolivar



Cryptocurrency in Africa

Cryptocurrency entered the continent of Africa as a disruptive technology, one that offered residents inclusivity to the digital market without the need for an intermediary such as a bank.

“Digital” refers purely to the accessibility of online transactions with a debit or credit card, which were previously less accessible, as banks in the continent are known to be expensive.

Thus, cryptocurrency gave Africans an alternative to banking systems that were either too costly or dated.

Several countries in Africa are underdeveloped economically with widespread impoverishment and largely unbanked populations.

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In this respect, cryptocurrency has provided another means of payment aside from paper money and bartering.

In late 2017, the African community embraced cryptocurrency with the launching of a pan-African cryptocurrency: the Nurucoin. This altcoin was predicated on the ease of a single currency that acts as a utility across nations and borders in the continent.

Previously, those trading money in Africa were met with high exchange rates, as the currencies differ in valuation across countries. The Nurucoin made it possible to buy goods and services in various nations without the need to exchange, which incurred heavy exchange rates.

Nurucoin also incorporates a loyalty program for loyalty coins running on the Nuru block. Given that blockchain and crypto are still new to the market, Nurucoin does not require users to open a Bitcoin or Ethereum wallet.

Since the 2017 crypto boom, the adoption of cryptocurrency has been relatively slow on the continent. This is due to lack of education in technology and low internet usage.

The global internet usage rate is 48% compared to Africa's 22%. Nonetheless, there are pioneering cryptocurrency nations in Africa like Kenya, Nigeria and South Africa. Smaller economies such as Tanzania are also welcoming cryptocurrency, with smaller numbers, albeit growing user bases.

Cryptocurrency has undergone a few setbacks which generally make users and governments wary of the digital money (e.g. ponzi schemes). In March 2018, the continent was hit with such a scheme, as 27,500 individuals, including South Africans, were swindled out of $50 million via an online wallet that holds bitcoins.

The Sunday Times of South Africa deemed it one of the biggest scams to befall the nation.

Despite this, Africa is open to cryptocurrency, in that it provides an economic threshold for a region that is otherwise plagued with economic exclusion.

Due to hyperinflation among local currencies such as those in South Sudan, Egypt and Zimbabwe, a distrust in banking systems and the need for a dependable economic system, the governments in African countries take a casual approach to cryptocurrency, with no current rigid regulations.

Remittances also present a strong case for cryptocurrency in Africa, as cryptocurrency remittances have become the main alternative to Western Union.

Blockchain technology has been used by a number of international organizations that assist refugees. In short, the world of cryptocurrency can help financially liberate the continent and assist those living in impoverished African nations. With nations large and small making headway in the industry, crypto will prove to be as disruptive a force as mobile phones and the internet were at their inception.

Smart phone usage in Africa rose by 2x in the past 2 years.

Smartphone usage in Africa: 226 million

The following lists a select amount of African nations and their relationship with cryptocurrency. This includes historical and new happenings and developments.

Kenya

Kenya has been one of the leaders in cryptocurrency on the continent, while some actors, including the government, took a more cautious stance.

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In March 2018, the Central Bank of Kenya (CBK) issued a warning to other banks that deal in crypto, to halt any crypto-related transactions, though no official regulation has been set. The governor of the bank alluded to the anonymity of cryptocurrency, its decentralized control and illegal activities within the warning.

This message echoed the 2015 warning, in which banks were advised against crypto due to its lack of regulation and recognition as legal tender. In spite of viewing cryptocurrency as a danger to the financial sector, the governor praised its blockchain technology.

Prompted by President Uhuru Kenyatta's supportive stance of blockchain for the country, the globally-recognized blockchain firm Finterra opened its first African headquarters in Kenya.

The president also ordered a blockchain taskforce to form, stating that he envisions blockchain technology as a path towards the Big Four priorities: food security, affordable housing, universal healthcare and manufacturing.

He also cited that the technology will foster financial inclusion and the necessary data to drive agriculture. Blockchain enthusiasts are looking forward to its application in mobile money services and land ownership registries.

Leading the pack, Bitpesa , a Kenyan exchange, opened up in November 2013, originally targeting those who sent remittances from the UK to Kenya. By November 2017, it extended its services to African and international businesses that sent money to and from Africa. Kenya is also home to TagPesa, an exchange that provides a full-scale trading platform. It is based out of East Africa and has expanded its operations to 50 countries.

South Africa

South Africa has launched several cryptocurrency and blockchain initiatives that date back to 2015.

In November 2016, South Africa launched its first cryptocurrency and blockchain startup called Project UBU. This included the innovation of its proprietary tokens, the UBU and the secondary UBX. A Universal Basic Income project, UBU aims to curb poverty levels throughout Africa by way of distributing cryptocurrency to lower-income populations. The goal is to create a global currency that will economically liberate those in need around the world.

The blockchain sector has been particularly thriving in South Africa, with yearly conferences that date back to 2015 and preeminent contributors to Africa's development.

Beginning in 2015, Johannesburg has held the Blockchain Africa Conference, a conference with 400 delegates from countries worldwide, covering an array of blockchain and crypto-related topics including financial inclusion, Blockchain as a Service (BaaS), and property management.

The conference focuses on opportunities surrounding blockchain as well as the need for more regulation in the related ICO and cryptocurrency fields. Participants of the conference include leading contributors such as IBM and Microsoft.

In February 2018, South African banks announced their adoption of Springblock, a blockchain technology that they hope will be utilized for all financial transactions.

The development of Springblock was in large part due to the scandal involving then president Jacob Zuma, who stole billions of Rands from different government institutions by awarding

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government contracts to offshore shell companies. In addition, the South African Reserve Bank (SARB) created the Financial Technology Program, which will track and parse through cryptocurrency developments and work with policymakers in the development of legal frameworks.

South Africa has a wealth of Bitcoin exchanges including Luno, Cindirect and Paxful, some of which offer the trading of other cryptocurrencies such as Ethereum, Litecoin and Ripple. These exchanges have garnered a large user base. The country also implemented its first multi-currency Bitcoin ATM in Johannesburg in May 2018.

The ATM gives users a means to buy a variety of cryptocurrencies via cash and without the need of a bank account. As the continent's second-largest economy and home to a multitude of cryptocurrency developments, the sector is slated to become a mainstay in South Africa despite the fact that cryptocurrency is not legal tender.

Nigeria

Bitcoin and other cryptocurrency usage has seen large spikes in Nigeria which has the biggest economy in West Africa. The nation has also proven to be a major player in the crypto sphere, as it carries the 3rd-largest percentage of Bitcoin holdings per GDP, surpassed only by Russia and New Zealand, according to Citigroup.

Users of cryptocurrency in the nation find it especially beneficial to the remittance side of conducting business and the remittance market in general. Payment providers often consider global remittances, especially those coming out of and into the continent as too dangerous.

Cryptocurrency provides an alternative route to an otherwise stringent market of banks and payment companies which suspect remittances may finance terrorism.

Average users make up a large part of the cryptocurrency market, especially within the subsector of trading. In 2017, Bitcoin trading surged in the nation by 1,500%, overtaking Colombia, Venezuela, Peru and a cluster of other countries, including the U.S.

The Central Bank of Nigeria has also taken notice of cryptocurrency, commissioning a study called Virtual Currency as an Emerging Medium of Exchange in August 2017.

The study was part of a meeting set on exchanging ideas with industry leaders and collecting information on the scope of cryptocurrency activity in the country.

It was specifically designed to explore topics of interest to individual investors, exchanges, miners, wallet providers and software developers.

At the same time, Nigeria hosted its first blockchain conference. Chimezie Chuta, the Coordinator of Blockchain Nigeria User Group, said the conference was organized with the aim of encouraging more blockchain and crypto startups to form in the near future.

Although Nigeria does not have any regulations on cryptocurrency set in place, in March 2018, the Nigeria Deposit Insurance Corporation (NDIC) warned that cryptocurrency is a financial instrument not backed by the Central Bank of Nigeria and therefore not insured by the NDIC.

The move came in the wake of ponzi schemes that falsely represented themselves under the umbrella of cryptocurrency when they in actuality they were investment plots led by scam artists.

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Uganda

Even Uganda, one of the poorest countries in the world, has seen an expanding market for cryptocurrency, especially Bitcoin.

Residents of the impoverished nation are turning to cryptocurrency trading as a means of financially supporting themselves. Retailers as well have lost faith in fiat currencies, making some believe that cryptocurrency is set to be the currency of the future. In March 2017, the Bank of Uganda (BOU) issued a warning to Ugandans to avoid the use of cryptocurrency. However, that hasn't deterred foreign investors from opening up exchanges within the country.

Although skeptical with regards to cryptocurrency, the Ugandan government is keen to promote and support the utilization of blockchain technology mainly as an information database to improve public service delivery.

This includes payment systems and record management.

The country also hopes to position itself in the global marketplace, which is technology-driven, so implementing the blockchain technology is significant.

In April 2018, Ugandan Blockchain organization Crypto Savannah partnered with leading exchange Binance in a move to better the economic development of the country.

Additionally, the Blockchain Association of Uganda, which is supported by the Ugandan government, hosted The Africa Blockchain Conference in May 2018.

The conference was centered on the ways in which blockchain can transform the continent and how to support a successful blockchain and business ecosystem.

Binance continued its strong crypto presence in the country, with a June 2018 announcement of a fiat-crypto exchange to be launched in the country.

The endeavor will be called Binance Uganda and it will be the country's first major fiat-to-cryptocurrency trading platform. Changpeng Zhao, the CEO and founder of Binance, explained that he isn't only focused on the most developed nations, and that the move is part of an effort to bring cryptocurrency to the whole world.

The launch of Binance Uganda has garnered strong support from the government as well.

***Only 11% of the Ugandan population.**

*** In 2016, Uganda had a $615.31 USD GDP per capita.**

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Cryptocurrency Regulation in Africa

For a continent rife with economic hardship, low trust in banks and crippling GDPs per capita, cryptocurrency is an appealing concept. It has also proved to be a highly effective alternative to sending remittances and doing cross-border trading.

Many jurisdictions in the continent support digital currency and blockchain technology as a means to further their economies in the global playing field, as well as to create economic inclusion for its residents.

Despite this, cryptocurrency is still not considered legal tender in most countries and has been banned totally in some regions. The following graph displays the laws pertaining to cryptocurrency along with the status of cryptocurrency in several African nations.

Country	Date	Ruling/ Status	Reasoning
Algeria	October 2017	Total ban on cryptocurrency by way of the 2018 Finance Bill. (No transactions or possession)	National People's Congress (NPC) seeks to have a tight control over cryptocurrency and digital transactions. Crypto anonymity can lead to drug trafficking, money laundering and tax evasion.
Botswana	February 2018	No regulations on cryptocurrency, warning issued only. No intention to study/regulate.	When more blockchain startups and businesses accepting cryptocurrency open, the central bank will reconsider.
Ghana	January 2018	Cryptocurrency is not licensed under the Payments System Act of 2003, the public is warned to do business with parties licensed with the Bank of Ghana. Cryptocurrency use and trading is illegal. Cryptocurrency is not a legitimate form of currency.	The Bank of Ghana considers the warning as a method of keeping stability in the financial sector. The Bank of Ghana states that crypto use requires regulations; they currently do not exist. A settlements and payment bill that parliament is considering will determine cryptocurrency use in the future.
Kenya	July 2018	Awaiting whether crypto is legal tender.	Due to a warning in April 2018 by the Central Bank of Kenya (CBK).
Nigeria	January 2018	Cryptocurrency is not protected by law. There are no regulations.	Traders are at risk of losing all of their money. Cryptocurrency transcends the regulation of the Central Bank of Nigeria. Must be under legislative review.

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Country	Date	Ruling/ Status	Reasoning
South Africa	May 2014 July 2018	Cryptocurrency is legal, but not legal tender. Regulations are pending with core issues which regulators must consider when moving forward with the regulation of the cryptocurrency industry.	Cryptocurrency is high-risk with high price volatility. There are core issues regulators must explicate, such as classification and plans for anti-money laundering.
Tanzania	February 2018 March 2018	Cryptocurrency is illegal tender. Bank of Tanzania issued a warning against using cryptocurrency.	The Bank of Tanzania does not consider a legal method of payments. Cryptocurrency is a high-risk investment prone to fraudulent acts.
Uganda	March 2017	The Bank of Uganda(BoU) issued a warning against cryptocurrency. Cryptocurrency is otherwise unregulated.	Cryptocurrency is not licensed by the BoU via the Financial Institutions Act of 2004. It is conducting business outside the BoU's regulatory authority.
Zimbabwe	November 2017 May 2018	Cryptocurrency is not legal tender. The ban that prohibited banks and financial institutions from trading cryptocurrency has been lifted.	Funds can be lost without recourse. The Reserve Bank of Zimbabwe (RBZ) could not defend its action in its lawsuit filed by one of Zimbabwe's largest cryptocurrency exchanges. Golix contended the ban: RBZ did not have the authority to rule cryptocurrencies illegal.

Highest Crypto Trading Volumes in Africa

Cryptocurrency has been adopted by a large majority of the African continent. The crypto sector has allowed young entrepreneurs and other individuals to find alternative ways to bolster their employment, whether through crypto mining, crowdsourcing or raising capital for startups.

At a national level, cryptocurrency has given nations with hyperinflation a means to enter a more stable financial market.

This has especially been felt in nations debilitated by cash shortages as a result of hyperinflation, which thereby created an illiquid market, like that of Zimbabwe. Nations with macroeconomic instability have turned to cryptocurrency as a stronger means of investing. With the creation of national cryptocurrencies like Ghana's Finchcoin combined with the implementation of exchanges and general interest in blockchain, Africa has the potential to expand into a large-scale cryptocurrency market.

The following graphs provide data on the trading volumes of cryptocurrency across select countries in Africa. The timeline of each country falls between 2013 to the present (2018).

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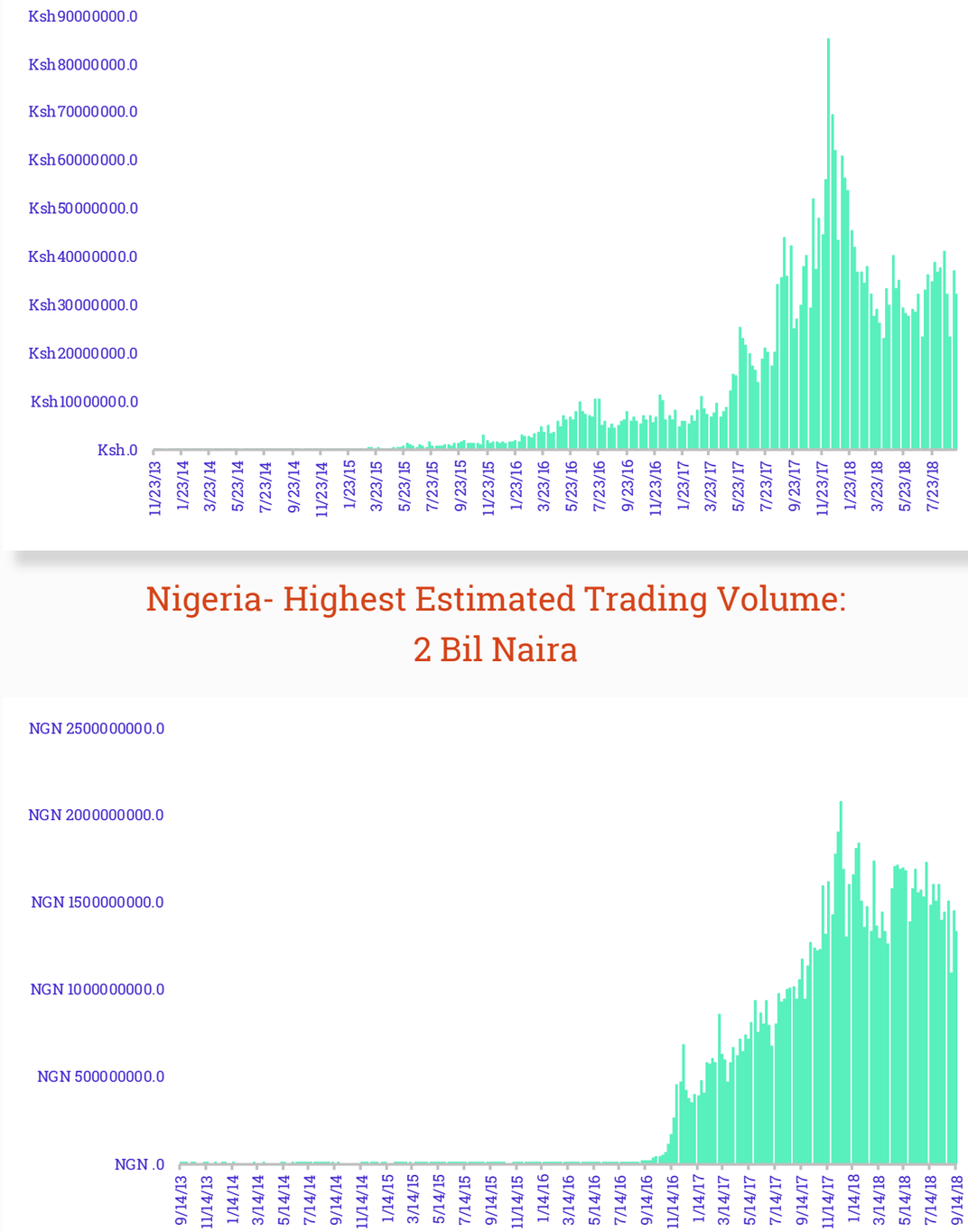
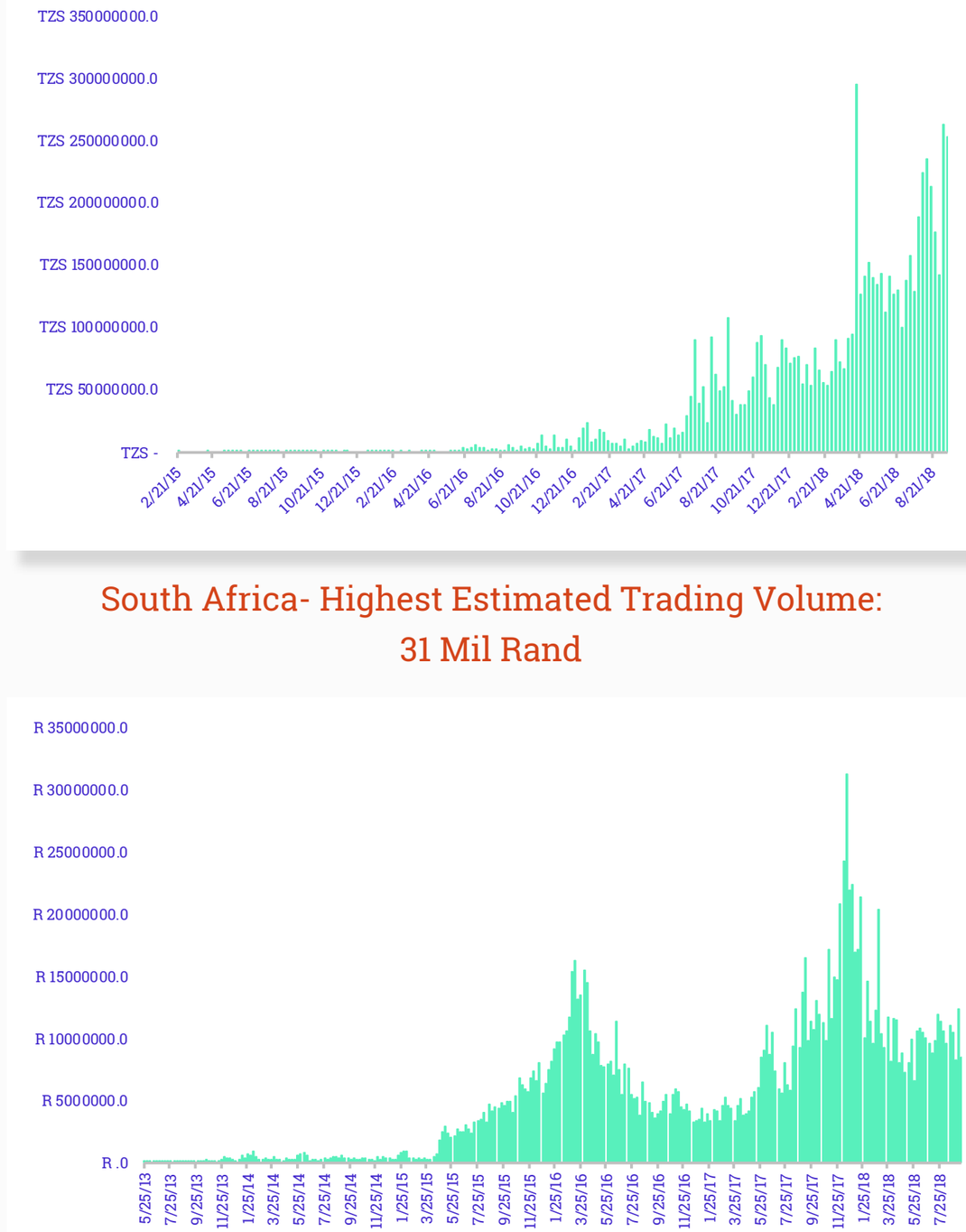
Kenya- Highest Estimated Trading Volume: 85 Mil Kenyan Shillings



Nigeria- Highest Estimated Trading Volume: 2 Bil Naira

Tanzania- Highest Estimated Trading Volume: 294.7 Mil Tanzanian Shillings



South Africa- Highest Estimated Trading Volume: 31 Mil Rand

The Blockchain Technology Market Worldwide

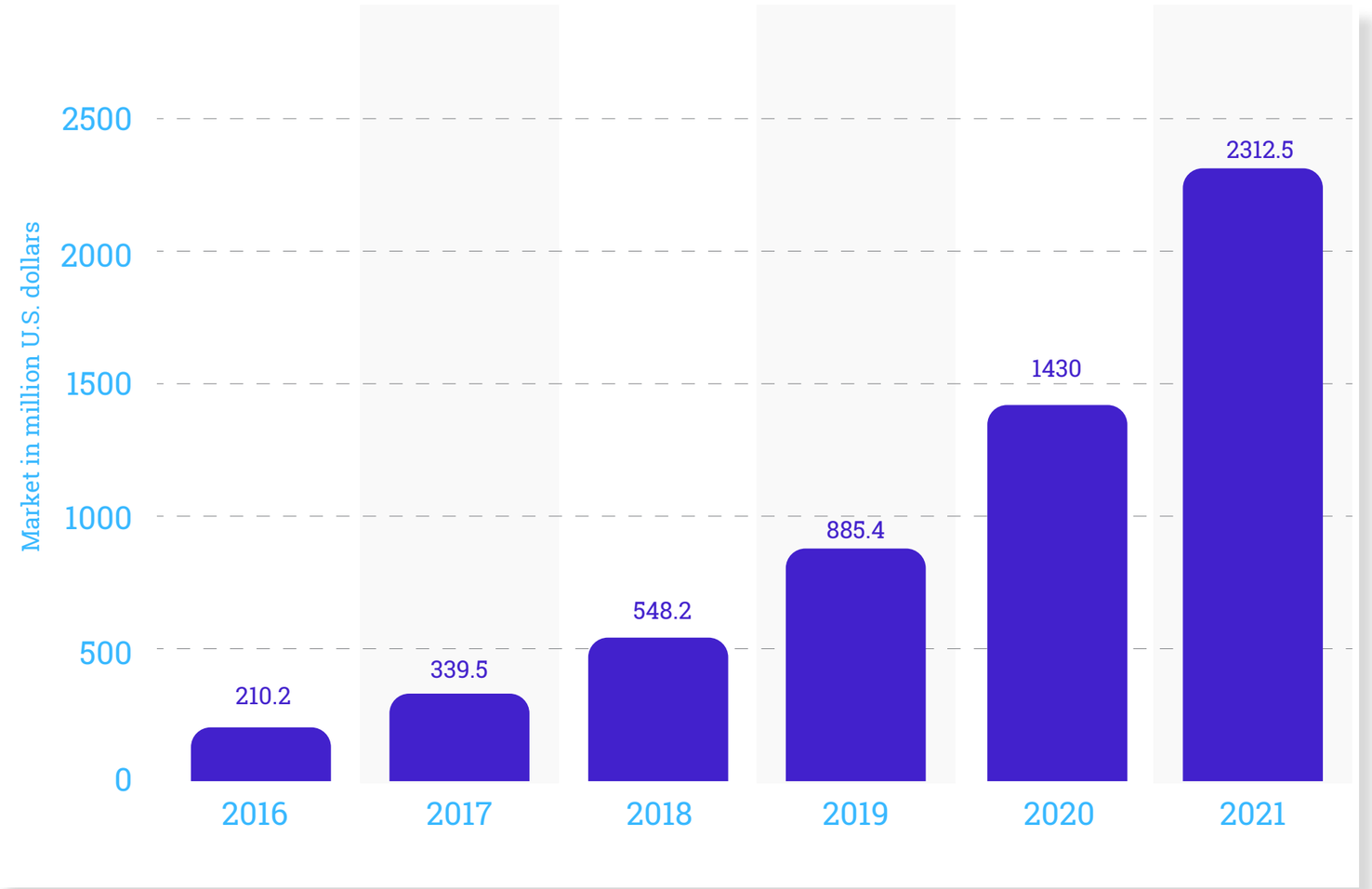
(2016- Projected 2021)

Considered the most significant, if not the sole underpinning of cryptocurrency, blockchain technology is a disruptive force that has allowed cryptocurrency to evolve. As both the crypto and financial technology space grow alongside one another, the use of blockchain technology will become paramount.

The following graph provides a view of the global worth of blockchain over the course of 5 years, with a forecast beyond the year 2018. The monetary amount is in US dollars.

Blockchain Growth

- Blockchain jobs have become the second-fastest growing sector in the job market.
- 3x: The LinkedIn job postings for blockchain-related jobs have tripled since 2017.
- The global revenue from enterprise blockchain applications is expected to rise from $2.5 billion to $19.9 billion in 2025.



- 36% of financial services executives said their companies are in preparation to make blockchain technology investments in the next 3 years.
- 86% of financial services executives said their employees have not yet developed blockchain skills.
- 57% of large corporations are in the process of or considering use of blockchain technology.

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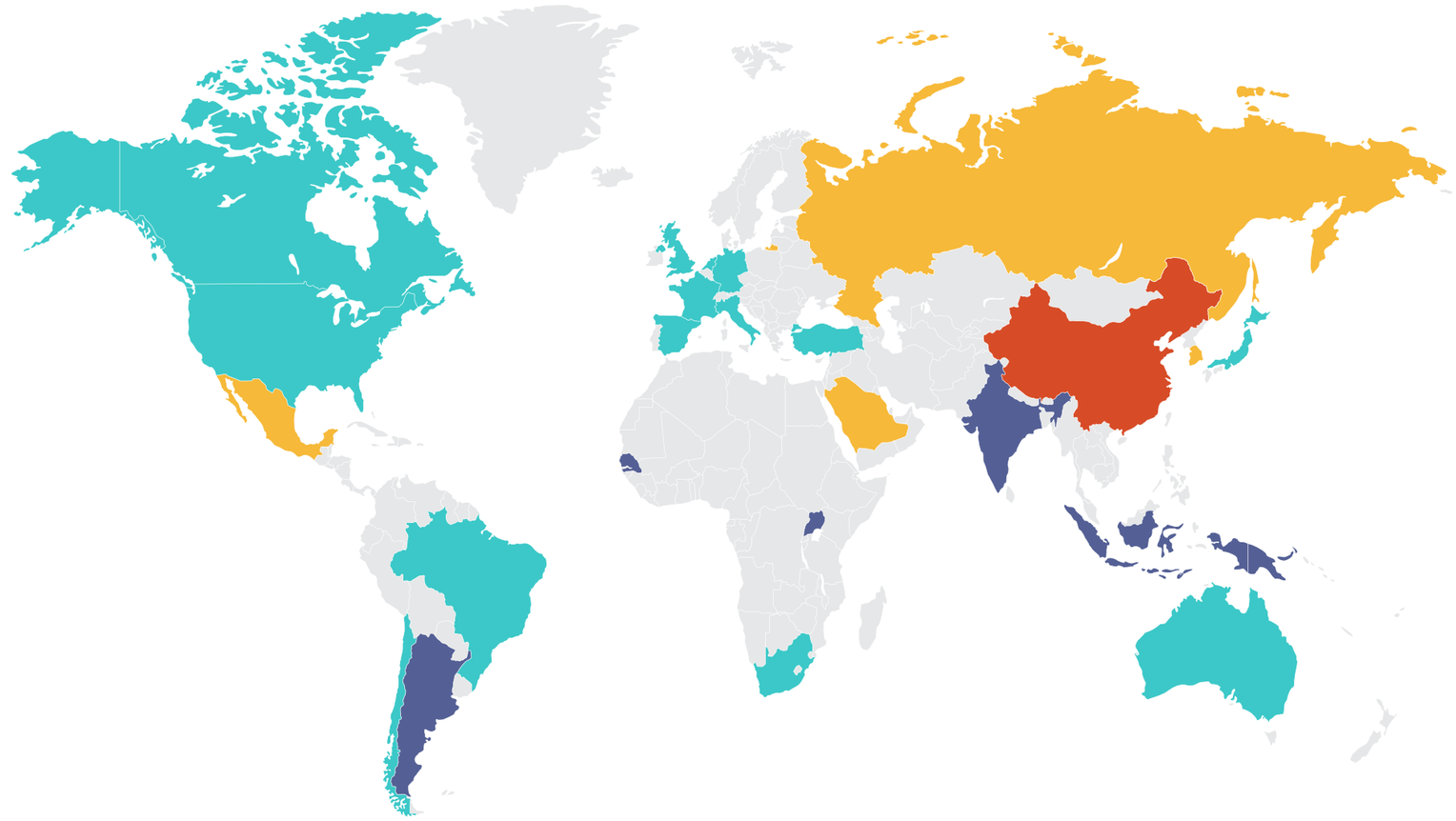
Worldwide Legality of Cryptocurrency

The G20 2018 Summit Meeting has constructed a worldwide graphic, listing the legal stance towards cryptocurrency on a country by country basis. While not every country in the world has been observed in the list, all the major countries on every continent of the globe have been reviewed on a regulatory basis in regards to crypto. The graph shows the legal status of crypto in a variety of countries in four categories: neutral, legal, illegal and restricted.

Most nations represented in this graph illustrate that cryptocurrency is still mostly legal, if not for minor restrictions and regulations. China remains the only country in which cryptocurrency has an illegal status.



Argentina	Neutral	Germany	Legal	Netherlands	Legal	South Korea	Restricted
Australia	Legal	India	Neutral	Rwanda	Neutral	Spain	Legal
Brazil	Legal	Indonesia	Neutral	Russia	Restricted	Turkey	Legal
Canada	Legal	Italy	Legal	Saudi Arabia	Restricted	UK	Legal
Chile	Legal	Jamaica	Neutral	Senegal	Neutral	USA	Legal
China	Illegal	Japan	Legal	Singapore	Legal	Malta	Legal
France	Legal	Mexico	Restricted	South Africa	Legal		

Neutral Legal Illegal Restricted

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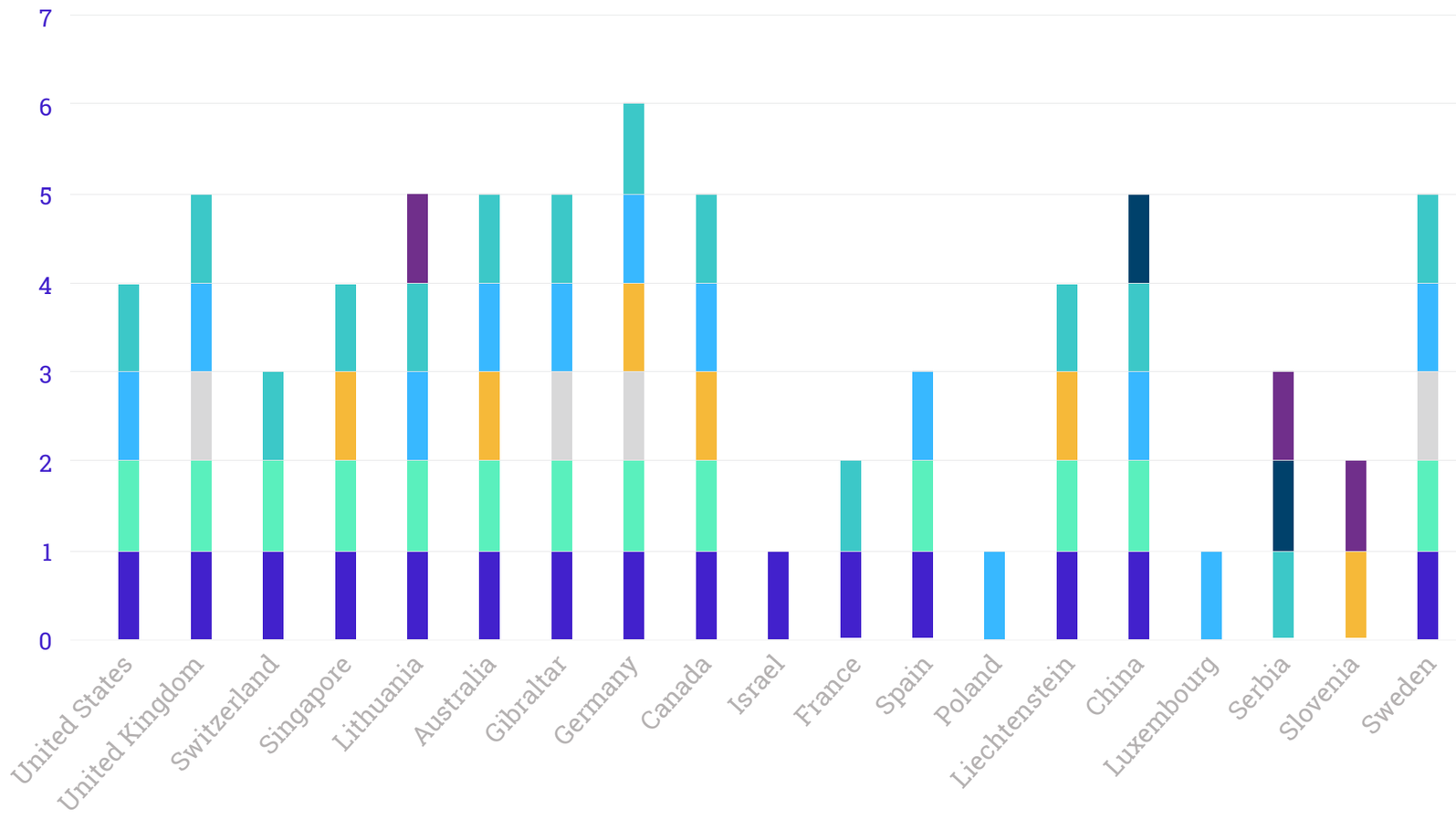
Worldwide Regulation Breakdown

The cryptocurrency industry and all of its sub-sectors face growing, worldwide regulations as the industry sweeps past the peripheral and into the mainstream. Every country deals differently with cryptocurrency and its associating constituents. For example, some are silent on ICOs, while some are silent on exchanges and more active in other areas of crypto adoption.

The following map outlines what the 25 top cryptocurrency usage companies address in their crypto regulations.



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The ICO

The ICO (initial coin offering), is an emergent method that startups and businesses use to raise funds for new projects.

Although a relatively new system, the ICO has maintained a strong grip on the cryptocurrency and financial markets.

The ICO is a means of crowdfunding, similar to the IPO (initial public offering), except it requires a blockchain and the sale of cryptocurrencies. In an IPO, a company sells its shares to investors in order to raise capital, while in an ICO, a company sells its coin or token in exchange for other cryptocurrencies.

An ICO project is usually the undertaking of a startup that has not yet developed its altcoins, while an IPO occurs during the later stages of a company's formation.

The altcoins in the creation of an ICO can be sold for fiat money, depending on the need and preference of the startup.

An ICO project begins with a white paper, a detailed account of the new cryptocurrency, the problems it solves, its utility and growth potential.

The goal of a white paper is to persuade investors of the altcoin's value to inspire them to invest in the ICO.

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Investors interested in helping fund the ICO send the money (either crypto or fiat), while the ICO's startup sends the developing altcoins. The ultimate goal is to increase the use of the new altcoin so that it grows in value.

As it relies on the value of a cryptocurrency, which is known for its fluctuation, an ICO can be a dangerous financial venture, owing to the speculative nature of cryptocurrency and the novelty of the coin in the making.

Thus, some jurisdictions view an ICO as a security, and as such, regulate it, with the mandate of registration and the application of restrictions (in the US), while some countries such as China have declared an outright ban on ICOs altogether.

The ICO Industry

The ICO is a risky endeavor but has a history of successes. Several altcoins with the biggest market caps and shares have begun with an ICO. The idea behind the ICO originated as early as 2012, when J.R. Willett, a software developer, proposed the ICO through a white paper called The Second Bitcoin White Paper.

The ICO was made public in 2013, at a San Jose Bitcoin conference, in which Willet was a panelist and posited his idea that a new layer of protocol could be built on top of Bitcoin and then pitched this idea to investors.

Later in 2013, Willett became the first launching entity of the ICO, having released Mastercoin, which is now Omni (OMNI). He raised $500,000 in Bitcoin originally, after which, the funds surged to $5 million. When Mastercoin arrived at 100 multiples of its ICO price, Willett sold roughly 2-3% of his altcoin.

Within a year, the value decreased by a near hundred-fold, proving the volatility and risk of an ICO. The value and market share remained low, until the cryptocurrency boom of 2017, during which time

Omni regained a portion of its value, shooting up to a high point of over $97 and a $54,000,000 market cap in January 2018.

Following Omni, there have been a variety of high-profile ICOs. The ICO industry has spawned some of the highest-valued altcoins, proving that an ICO can oscillate in its resulting outcome. The following timeline highlights the most auspicious ICOs after 2013's Mastercoin.

ICOs by the Years

The following timeline displays the most successful ICOs and their ensuing tokens in each year following the first ICO. Some of these ICOs have materialized into the highest-valued altcoins, such as Ether, while some have remained stagnant or declined in their prices.

2014: Ethereum

The Ethereum ICO took 42 days to raise $18 million, making it one of the most successful and top-funded ICOs in history. Ethereum has disrupted the crypto space as not only a currency (the Ether), but a new technology as well.

Ethereum allows fintech companies to build programs on its blockchain. It also enables businesses to program their own smart contacts or computer protocols that automatically enforce the stipulations of a

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contract. This capability comes from the Ethereum blockchain, as it allows for a wider set of computational instructions.

Ethereum has become the second highest-valued cryptocurrency and is backed by a group of Fortune-500 companies, known as the Enterprise Ethereum Alliance, working together to employ Ethereum's blockchain technology. Ethereum launched with the ICO price of $0.30 and has maintained a price of approximately $300 in the present day.

2015: Neo

Originally launched as Antshares, Neo has run two ICOs, the first which concluded in October 2015 and another that ended in September 2016. The former raised 2,100 BTC while the latter raised 6,119 BTC, through which the platform was able to earn $4.5 million.

Neo launched in December 2016 and began rising in price as of July 2017. In the second quarter of 2018, Neo's value granted it a steady ranking in the top 10 highest-valued cryptocurrencies. Neo is known for its popularity among startups which turn to the platform to run their ICOs because Neo offers a scalable network for

DApp development. Neo launched with an ICO price of $0.032 and its highest traded amount is nearly at $50, an increase of over 150,000%. It is presently worth about $18.

2016: Stratis

Stratis is a blockchain solutions company that offers a proprietary, eponymous coin, also called the STRAT.

Launching its ICO in June 21, 2016, Stratis accrued 915 BTC, worth about $675,000 at the time it closed its ICO on July 26, 2018. Stratis is a blockchain solutions company that provides the development, deployment and testing of blockchain applications.

In May 2018, it began offering its ICO platform, which includes customizable designs for branding over 50 cryptocurrency funds and acceptance and deployment within minutes.

Stratis launched with a token price of $0.007 and had a highest traded price of over $21, which is over 140,000% above the ICO price. Currently, STRAT is over $1.

2017: EOS

Developed by Block.one, a software developer that specializes in blockchain technology, EOS has risen to be among the highest-valued cryptocurrencies. EOS is a part of EOSIO, a blockchain protocol which features

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decentralized application scaling with accounts, authentication, databases, and app scheduling. Block.one revealed that it raised $185 million in five days after selling the EOS crypto token.

After a year of the ICO, which began in late June 2017 and ended on June 1, 2018, EOS had raised almost $.8 billion. EOS began with the price of $0.925 and was traded at more than $5 only a few days after it was released. As of the writing of this report, EOS is worth almost $5 and is the 5th highest-valued cryptocurrency by market capitalization.

2018: Dragon

Dragon Corp. is a fintech company that provides blockchain payment solutions for the entertainment industry; it is also a casino operator. Dragon began its ICO in mid-February 2018 and closed in mid-March 2018. It raised $320 million, dwarfing its original goal of $500. Launched in Macau, an autonomous region in China, Dragon managed to bypass the Chinese ICO ban with a successful launch and fundraising.

Its proprietary altcoin, the Dragon Coin (DRG) is a cryptocurrency intended for use by gamblers in casinos. Dragon Coin lives in the Dragon blockchain and the token is exchanged for Dragon Global Chips (DGC), a cryptocurrency gaming chip used in casinos.

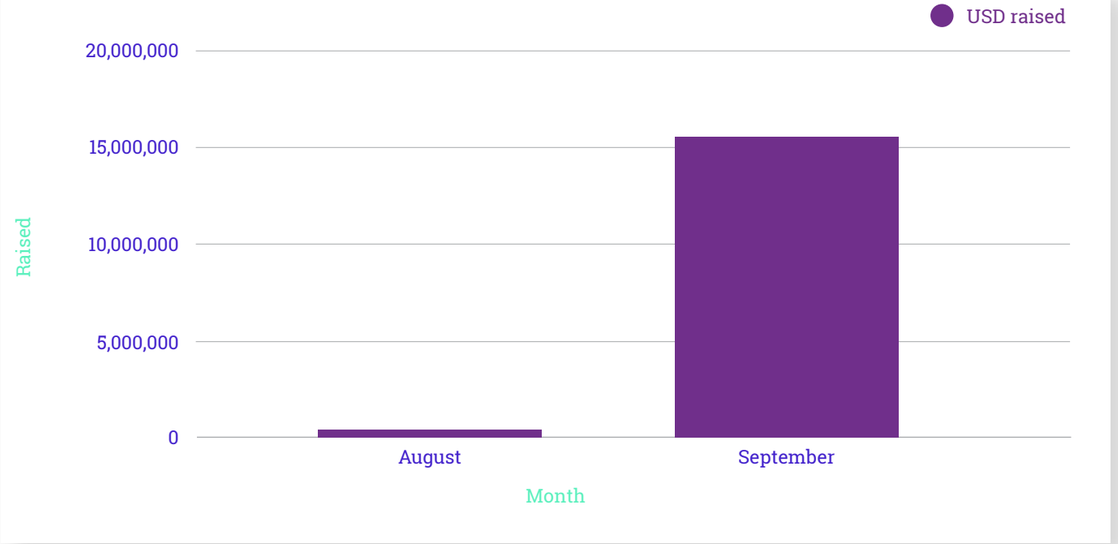
Dragon aims to provide an alternative financial mechanism for casinos. Its first funding pool was used to fund a floating casino in Macau. Dragon Coin is worth about $0.16 and has a market cap of $36,884,329.

ICO Funds Raised

The ICO market rakes in big business in both successful and nonsuccessful ventures (i.e., those that did not maintain and steady coin valuation.

The following graphs show the amounts of capital raised by ICOs over the years, presented in USD.

ICO Funds Raised in 2014



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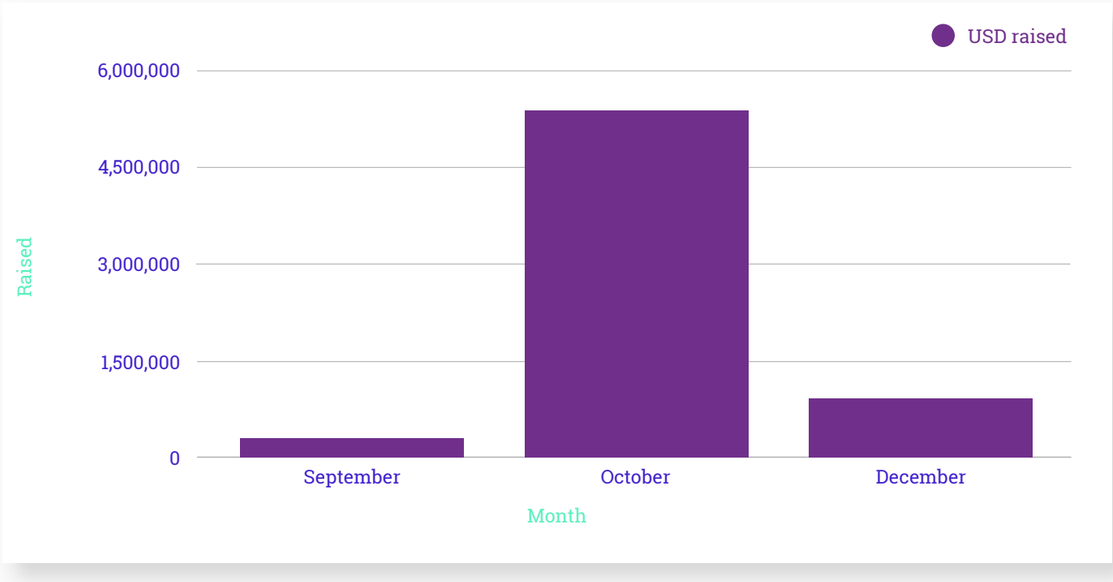
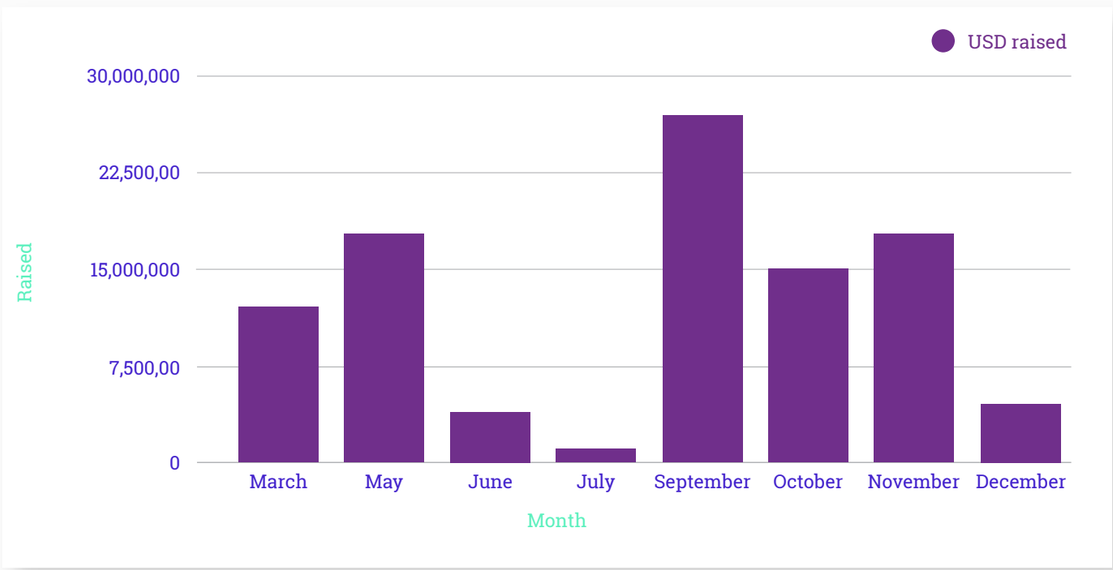
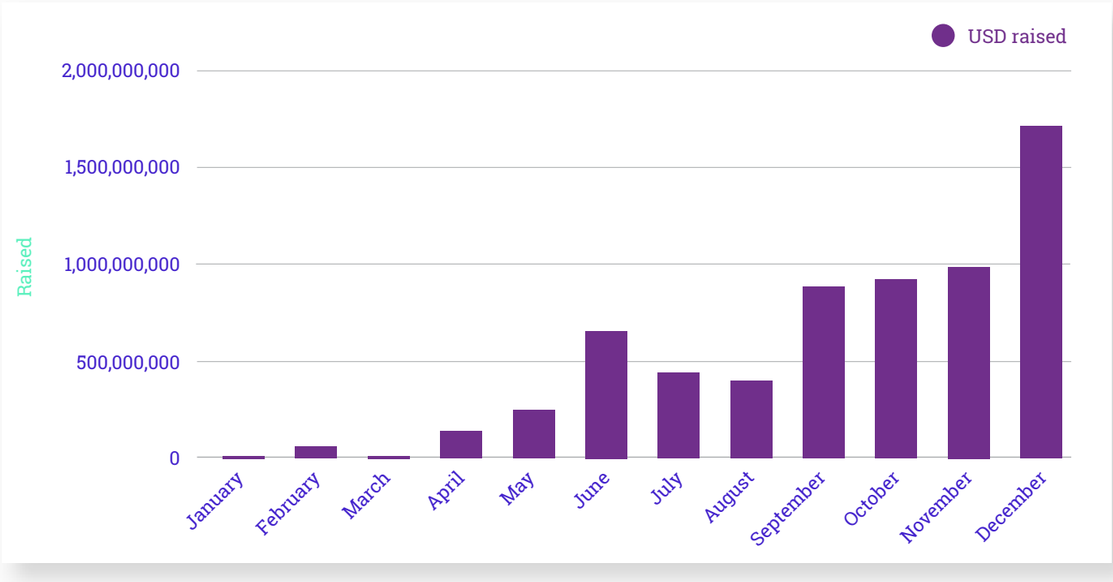
ICO Funds Raised in 2015



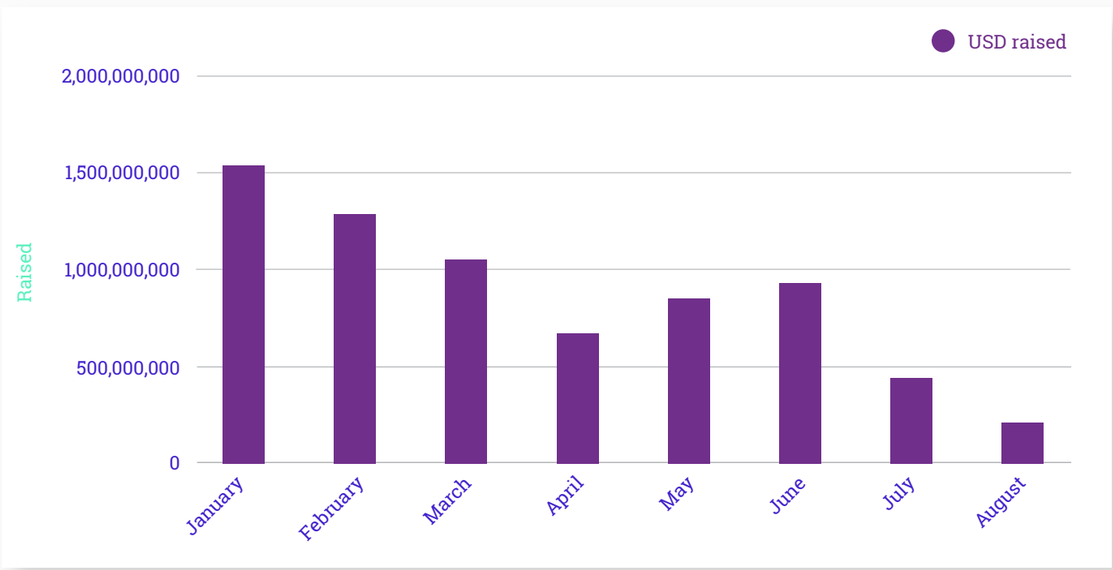
ICO Funds Raised in 2016



ICO Funds Raised in 2017



ICO Funds Raised in 2018



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ICOs Around the World

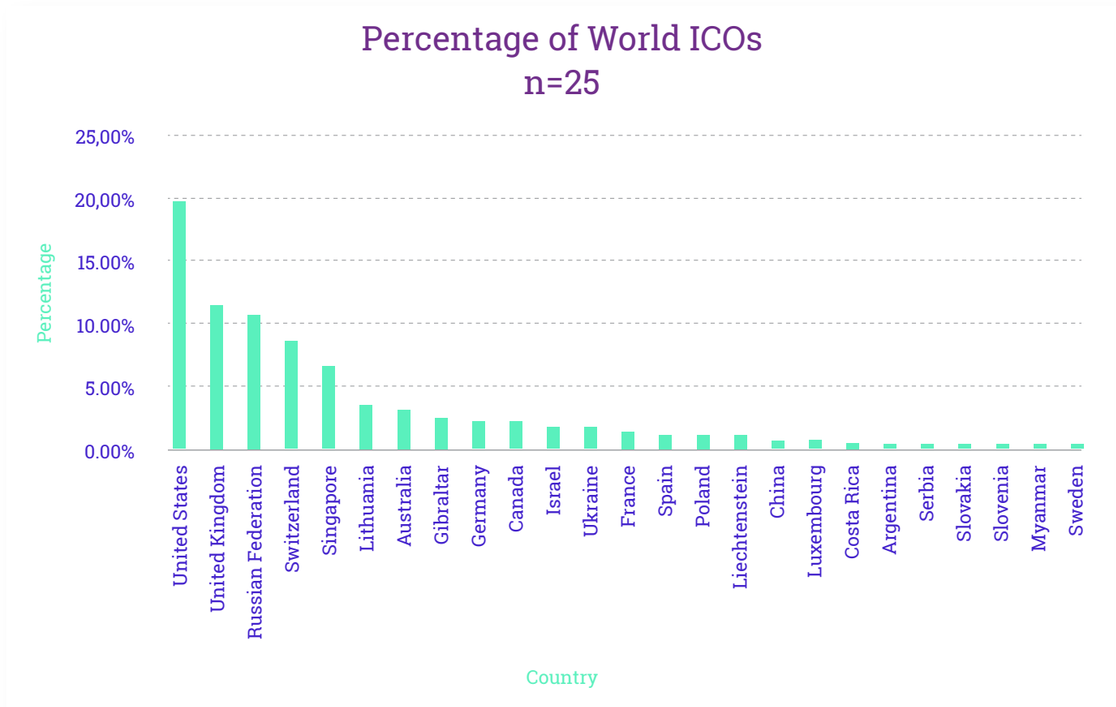
Top 25 Countries for ICOs

The following graph displays the top 25 countries in the world's ICO market by the percentage.

These percentages mark the the countries with the largest amounts of ICOs in existence, without taking into account the amount of money these countries raised via their ICOs.

The United States is currently in the lead with 20% of the world's ICOs.

Although comparatively low on the graph, China too has a significant presence in the global ICO market, in spite of the Chinese ICO ban.

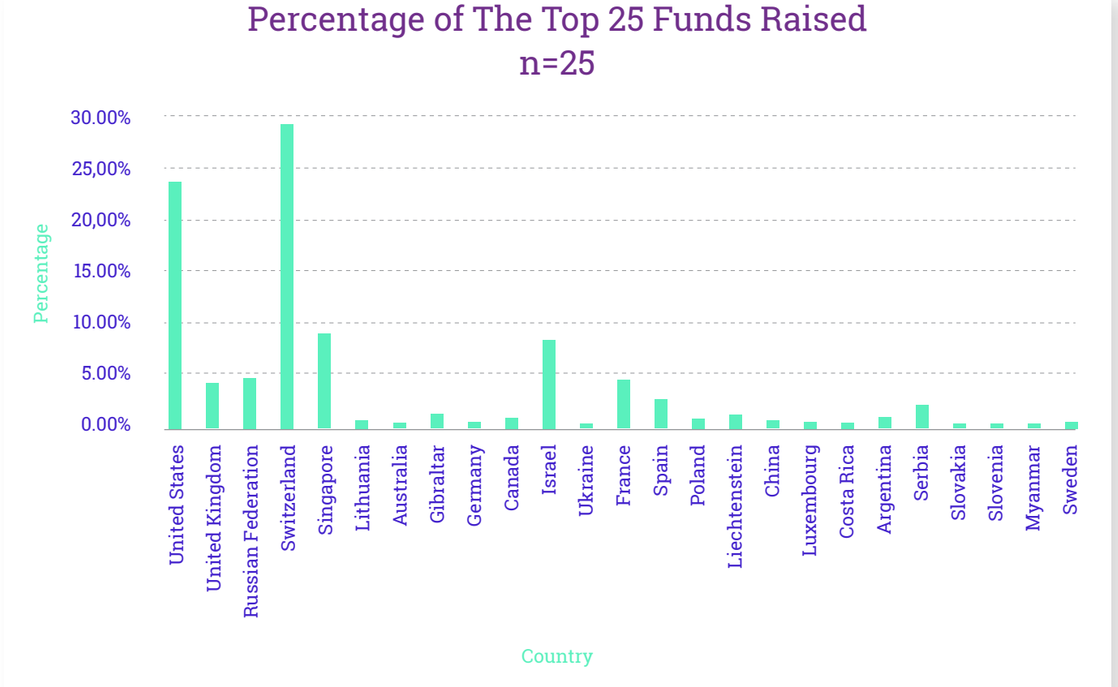


Countries with the Highest Funds Raised in ICOs by Percent (%)

Although the former graph displays the countries with the highest amounts of ICOs, the funds that the ICOs raised in their respective countries are not in exact alignment with the amount of ICOs of each country.

Some countries retain the largest percentage of ICO funds, despite being lower in rank compared to other countries by ICO amount.

The following graph shows the countries with the highest percentage of funds raised by the top 25 ICO countries from the first graph.



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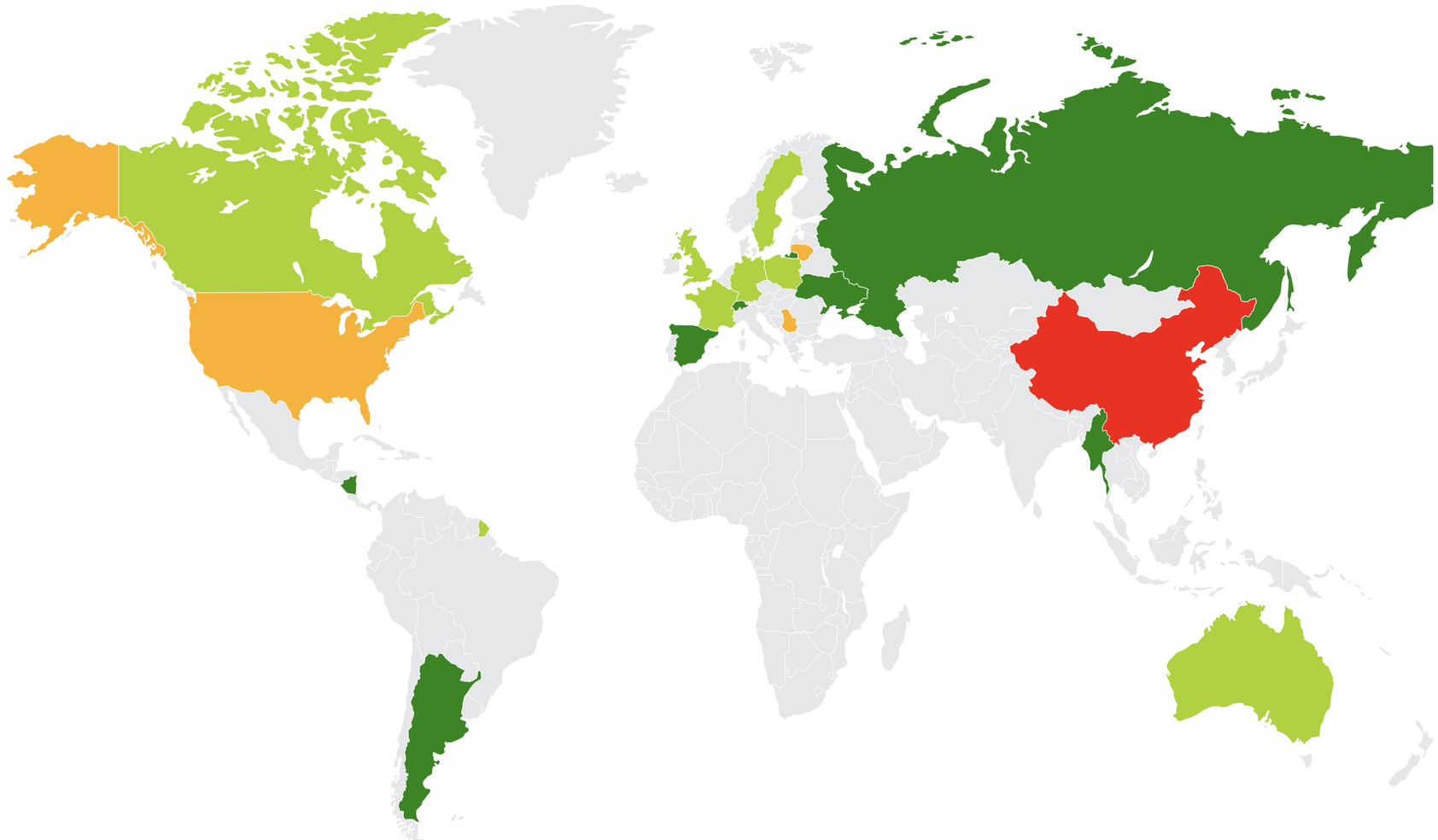
ICO Regulation on a Global Scale

Upon examination of the top 25 countries for ICOs, the following graph represents the degree of ICO regulations across each of the top ICO countries.

The regulation type is presented on a heat map, with each color depicting a different type of regulation. The countries in dark green display governments that have delayed regulation or have not passed any.

The countries in red represent governments that have banned ICOs.

Those in light green and orange present regulatory environments in the middle of the red-dark green spectrum, with the light green areas illustrating some regulations and the orange ones representing tighter ones.



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ICO by the Numbers

- In 2013, Ripple pre-mined 1 billion XRP tokens and sold them to investors for Bitcoin and fiat.
- As of the writing of this report, there was a total of $6,794,292,082 ICO funds raised in 2018.
- As of the writing of this report, there were 1045 ICOs raised in 2018.
- ¼ ICOs in Q1 2018 (109 out of 412) did not have a legal entity during the ICO.
- The highest funding for Q1 2018 was $50 milion, larger than that of Q4 2017.
- Approximately $2.94 billion was raised in ICOs in March 2018, which is more than the 2 best months of Dec. 2017 and Jan. 2018 combined.
- About 30-35% of tokens with huge discounts (those of up to 50%) go to funds and angel investors.
- 32.4% of ICOs in 2018 lasted 10-30 days, while 23.2% of ICOs lasted 30-50 days.
- There were 195 ICOs listed on ICObazaar that planned to close sales. Only 91 public sales were closed, from the $2.57 billion raised.
- 13.1% of 2018 ICOs targeted the finance sector, beating out all other categories, e.g. blockchain, media, asset management, etc.

Pro-Crypto Jurisdictions

As the cryptocurrency market expands, the attitudes towards it has led bodies of governments to take action on its regulation.

The following countries and jurisdictions have procured or have begun the process of obtaining legal status of cryptocurrencies. The list is a compilation of the ten most crypto-friendly jurisdictions in the world.

This list also reports the different regulations, statuses and taxations that crypto is subject to in each respective nation, as crypto standards and rulings differ from nation to nation. The list is not comprehensive, rather it contains the countries with the most favorable regulatory approaches and advocacy towards cryptocurrency in 2018.

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1. **Switzerland:** The highest-ranking pro-crypto country, Switzerland has made great strides in creating a prolific market for its national cryptocurrency industry. 4 out of 10 of the largest ICOs have been generated in Switzerland, and that can be due to The Swiss Financial Market Supervisory Authority (FINMA) assisting startups in launching their ICOs with guidelines that clearly point out how to do so while abiding to Swiss law.

According to a PwC report, a town called Zug has been dubbed as the "Crypto Valley," as it houses major crypto companies: The Ethereum Foundation, a blockchain company, as well as Cardano, a wallet company. In 2015, FINMA (Financial Market Supervisory Authority) initiated legal status for cryptocurrency in regards to foreign currencies. Crypto users can take part in transactions with no restrictions, though they must acquire a license for such transactions.

2. **Japan:** With its complementary regulations towards the crypto field, Japan is one of the friendliest countries regarding cryptocurrency. In March 2017, Japan officially decreed crypto as a legal tender, the first country in the world to do so.

Japan has also taken regulatory steps to ensure that the crypto market is safe to partake in, with a host of legislations in January 2017 which endeavored to preempt bankruptcies in crypto exchanges. For example, exchanges are required to register with the Japanese Financial Services Agency for legality. The Japan Times reported that Japanese Yen, the national currency is used in over 50% of Bitcoin trading internationally. A merger of the Japan Blockchain Association and the Japan Cryptocurrency Business Association has come into being to act as a self-regulatory organization that formulates penalties on violations of self-imposed rules. This body will commence in April 2018.

3. **United Kingdom:** The UK has essentially adopted a non-interventionist regulatory structure for cryptocurrency, as the Financial Conduct Authority, or FCA, the body which presides over businesses and other financial institutions, has no regulations on brokers and other crypto businesses. This approach grants these entities a great deal of autonomy for their undertakings. Exchanges however, are slightly regulated, given that they must register with the FCA and follow standards set in place to prevent money-laundering and terrorism. Much like the crypto mergers in Japan, the UK has also seen a crypto coalition, with 7 of the largest crypto companies combining to form CryptoUK, the first UK blockchain industry trade group. It's also the first cryptocurrency organization in the country that self-regulates. Part of its goal is to work with UK blockchain startups so they are in compliance with KYC and AML rulings.

4. **Australia:** Ranked as the 14th largest country in Bitcoin volume, the Australian crypto market is steadily expanding, enough to compete at a global level.

As for regulation, it is relatively lax and altogether favorable for crypto. In April 2018, the government required exchanges located in the country to register with the Australian Transaction Reports and Analysis Centre (AUSTRAC).

They must also now comply with AML/CTF (anti-money laundering / counter-terrorism financing).

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According to AUSTRAC CEO Nicole Rose, these regulations were decreed so that the public can gain trust in the crypto sphere, as opposed to stifling the industry. In July 2017, Australia officially proclaimed Bitcoin and several other cryptocurrencies to be legal tender.

In 2017, the Australian Securities and Investments Commission (ASIC) launched a set of guidelines on ICOs, which declare that the legal dealings of ICOs depend on how the ICOs are structured — as utilities or securities. Thus, companies can choose which direction to take with their ICOs.

5. **The Netherlands:** Cryptocurrency has become increasingly popular in the Netherlands and the country has even launched its own cryptocurrency, the De Nederlandsche Bank "DNBcoin." Regulation on crypto has been relatively slack, until March 2018, when the Minister of Finance Wopke Hoekstra sought to regulate crypto trading. Regulations have been implemented such as those requiring exchange platforms and storage providers to be subject to anti-money laundering rules, which are to be put into practice towards the end of 2019.

The Netherlands aims to protect crypto users against overwhelming financial risks with the short term implementation of measures laid out by Hoekstra, including the ban of advertising financially risky products to consumers. Hoekstra also seeks to protect ICO investors in same manner in which IPOs are protected. Thus, the AFM (Dutch Authority on Financial Markets) will oversee ICOs. The city of Amsterdam has been called the best tech startup city in Europe. It also holds the most dense amounts of Bitcoin ATMs than anywhere else in the world.

The Dutch Blockchain Coalition is producing a regulatory system to foster the development of blockchain and cryptocurrency. Comprising 20 organizations, this coalition works to follow KYC and AML requirements via the enforcement of digital identities.

6. **Denmark:** Denmark has been said to be in favor of going completely cashless. Experts even consider the country to be at the forefront of financial technology development. It is home to several crypto exchanges and startups, one of which is

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the blockchain development company CCEDK.

Denmark declared a 0% tax on crypto trading as it was not considered a legal tender, in March 2014. In 2014, the Liberal Alliance of Denmark was the first political party in the country to use blockchain technology for an internal election. The Liberal Alliance also accepts bitcoin donations.

In 2017, the crypto directive reversed course to an extent, as Denmark's Financial Services Authority asserted that cryptocurrency companies would be taxed as are other businesses. But for individuals, the tax-free trading will still hold true.

7. **Slovenia:** Slovenia is the richest Slavic nation as per capita GDP and has a welcoming standpoint on cryptocurrencies. It is even home to a vital international exchange: Bitstamp, which was founded there in 2011. The cloud mining service NiceHash is also headquartered in the country.

Crypto is determined to be virtual money in Slovenia, however it is neither a financial instrument nor a monetary asset. Crypto exchanges and brokers are subject to anti-money laundering rules, compliance procedures and transparency orders.

The Financial Administration of Slovenia (FURS) issued its guidelines on cryptocurrency in 2017, spelling out the fact that cryptocurrency taxes depend on the trader, transaction and other components.

Individuals and businesses must pay taxes on bitcoin if it is received as an income, but if an individual profits from crypto trading, they do not have to pay any taxes.

Capital gains reaped from crypto businesses are treated as income and subject to a 19% tax rate. Culturally, Slovenia is pro-crypto, inaugurating

the world's first Bitcoin monument in its city of Kranj in March 2018.

8. **Hong Kong:** Although officially a part of China, Hong Kong operates as an independent country, with its own laws and legal currency, and very much unlike in China, cryptocurrency is legal and has light regulations in Hong Kong. Crypto is deemed a virtual commodity as opposed to a currency and as such is not managed by official financial regulation bodies like the HKMA or SFC.

Hong Kong has a relatively lenient legislation of commerce, meaning that cryptocurrency trading is not regulated by the organisations that supervise commodities trading.

Unlike many other countries, there is no Value Added Tax (VAT) or Capital Gain tax on crypto in Hong Kong. Income tax must be reported and paid, regardless of whether it is cashed, checked or applied on crypto.

In an April 2018 report on money laundering, published by the Hong Kong Financial Services and Treasury agency, cryptocurrency was not linked to money laundering and terrorist financing. In January 2014, the Customs and Excise Department stated that Bitcoin exchanges, forex booths and Bitcoin ATMs are not required to obtain a Service Operator License (MSO). Although government regulation is rather lax, it may increase as the popularity of crypto rises.

9. **Estonia:** Popular for its innovation of Skype software, Estonia is a wealthy nation and is known for its economic freedom. It was rated 4th for such a freedom in all of Europe, and 12th in the world for ease of business.

Such ease has translated to crypto, since it is regarded

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as the easiest Baltic nation in which to open a cryptocurrency business. Operating a crypto business requires e-residency (for foreigners to establish legality and a banking presence) and for citizens, as providers of business services, which is inexpensive. Businesses must also meet licensing obligations.

Crypto is considered an alternative to money and is not viewed as a security. Those making profits on crypto are exempt from VAT taxes but are subject to an approximately 25% capital gains tax. The country had originally planned to launch its own cryptocurrency, the Estcoin, but a recent report suggests that it will instead be a token for the e-residency program.

10. **Singapore:** Possessing a highly developed market economy and the status as a world financial hub, Singapore is one of the most crypto-friendly countries in the world.

The Inland Revenue Authority recognized Bitcoin, and by extension, cryptocurrency, as goods instead of currency. Companies that use crypto must pay the goods and services tax (GST) when trading and buying with crypto; the tax is currently at 7%.

They also must pay commission fees when buying or selling crypto to clients. In November 2017, the Minister of the Monetary Authority of Singapore (MAS) has decreed to bring crypto, exchanges and other monetary services under a single regulation. This would streamline payment services including Bitcoin to hold only one license. It was also created to deter money laundering and terrorist financing, as well as to secure customer funds.

In February 2018, the Deputy Prime Minister of Singapore and MAS declared that there is no reason to ban cryptocurrencies and that Singapore is generally tolerable towards them. Moon Banking reports that Singapore banks have a generally open attitude towards crypto.

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Cryptocurrency in the United States of America

American Cryptocurrency Ownership

- 92% of Americans do not own crypto, while 8% of Americans plan on investing in crypto in the future.
- 8% of Americans own cryptocurrency, according to a survey by Finder.com.
- Crypto Ownership by Gender: 21.8% of men vs 8.9% of women
- 84.67% of the American population does not own or plan on buying crypto.
- An early 2018 survey found that 26 million Americans own crypto.
- American men are more than twice as likely to buy cryptocurrency than American women. (Same site, survey courtesy of Finder.com)
- Millennials exceed baby boomers in crypto ownership, as 17.2% of millennials own crypto, while 2.2% of boomers own crypto. 8.7% of Generation X owns crypto.

The Cryptocurrency Industry in the United States

- Firms raised $12 billion in ICOs in Q1 2018.

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Cryptocurrency Regulations in the United States

Much like the EU lacks a comprehensive or blanket mandate on cryptocurrency for its 19 member states, the U.S. also does not have a single ruling towards cryptocurrency by which the entire nation must abide.

Instead, some individual states pass their own rulings and no individual body is in charge of regulating crypto. There has been a correlation between the growth of crypto, both in the US financial market and those of markets worldwide, with the increase of crypto regulation in several states.

In February 2018, a bipartisan effort was put into effect for the legislation and regulation of cryptocurrency. Republican and Democratic officials alike voiced their wishes for crypto to come under regulation, citing various reasons for such regulation which include the popularity of crypto, its need for protection against fraud and its destabilizing factor, which can wreak havoc on the entire economy. Some states have already introduced regulations on cryptocurrency.

Aside from state governments, the responsibility of crypto regulation in the U.S. also falls on 4 other bodies: the US Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), the Treasury Department, the U.S. Department of Justice and the Federal Reserve. Some of these financial bodies have already taken legal measure on cryptocurrency. The following shows which crypto regulations have been established and/or changed by their respective government body.

Date	Governing Body	Regulation / Status of Crypto
July 2017	SEC Distributed Ledger Technology Group (DLTWG)	Offerings from the DAO (Decentralized Autonomous Organization) are securities and must abide by securities regulations.
February 2018	U.S. Commodity and Futures Trading Commission (CFTC)	Cryptocurrencies are commodities and thus are subject to anti-fraud laws.
March 2018	U.S. Securities and Exchange Commission (SEC)	ICO tokens legally classified as securities. (Later defined as money transfers by Oregonian Senator Ron Wyden, afterwards ruled as commodities by Federal Judge Jack Weinstein of New York.
May 2018	U.S. Commodity and Futures Trading Commission (CFTC)	4 exchanges — Coinbase, Bitstamp, Kraken and itBit — were subpoenaed to release comprehensive trading data, as part of a probe into illegal trading with the U.S. Department of Justice.

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Federal U.S. Tax Rules & Facts on Cryptocurrencies

Cryptocurrency laws differ from state to state, but there is a federal consensus of the state of cryptocurrency in relation to taxes. For tax purposes crypto is classified as property or capital asset. These include bonds, stocks and other investments.

Cryptocurrency is not considered currency like the U.S. dollar. Thus, it is dealt with as real estate or gold and is thereby subject to capital gains taxes (both short and long-term). These come into play when crypto is used for investments. There are other rules about cryptocurrency taxes in different conditions (such as transactions).

Below are some examples of cryptocurrency tax implications and rules applicable to all of the U.S.

Taxable or Non-Taxable?

A “taxable event” refers to realizing capital gains and losses at fair market values during the event a crypto user sells, trades or uses their cryptocurrency.

1. Cryptocurrency → fiat currency trading is a taxable event.
2. Cryptocurrency → cryptocurrency trading is a taxable event.
3. Paying for goods & services with cryptocurrency is a taxable event.
4. Gifting cryptocurrency is not a taxable event.
5. A wallet-to-wallet trade is not a taxable event.
6. Buying a cryptocurrency via the USD is not a taxable event.

There are no gains until you trade, sell or use a cryptocurrency. If you keep crypto for over a year, then you realize long-term capital gains.

Crypto Tax Rules

1. Although cryptocurrency is treated as real estate or stocks, not every rule on those applies to crypto.

2. Taxes are incurred when users sell, trade, or use forked coins or mined coins.

3. Users must count their gains and losses and deduct them from their cost basis to determine what they owe.

4. Crypto is not subject to the Wash Rule, as Section 1091 Wash Sale Rules state securities, instead of intangible property.

5. Hiding crypto assets is considered tax evasion, which is a federal offense.

6. Paid in crypto = paid in gold, or income as an investment property. Users must calculate USD value and assume taxes owed based on USD. Calculate USD when trading out of crypto and record the profits & losses.

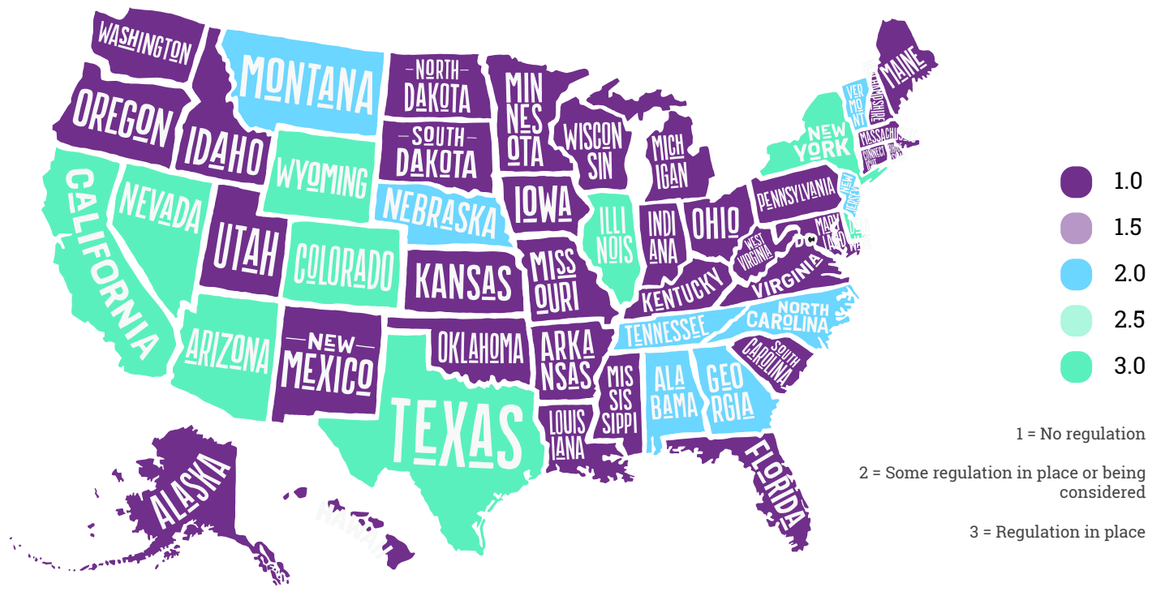
Cryptocurrency Regulation State by State

Although federal officials have sought greater regulations on the crypto sphere, it is the states that rule in the founding and execution of such laws.

Each state implements cryptocurrency rulings by way of addressing different aspects that may raise legal concern, for example, the state of smart contracts or that of exchanges working as money transfers. As such, crypto rulings from state to state differ in terms of issues. There are several states with no rules under consideration on cryptocurrency, while some like New York, California and Texas have already instituted regulations.

The map on the right shows the degree to which crypto regulation stands in all U.S. states.

United States Cryptocurrency Regulation



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The following details the laws each state has either proposed or legislated in regards to the cryptocurrency industry. These bills range from tax policies, to the definition of cryptocurrency to task force creation.

Alabama:

In May 2017, the Monetary Transmission Act (SB173/HB215), a law written by the Alabama Securities Commission (ASC), was passed to govern non-banking entities engaging in financial transactions found among crypto. This includes the selling, issuing or dispensing of checks and the transfers of money on behalf of those who use these services.

This act replaces the Sale of Checks Act of 1961 to better rule modern financial actions, such as those of the crypto space. This ruling requires businesses that use cryptocurrency to obtain a money transmitters license.

Alaska:

The HB 180 was introduced to the Alaska House in March 2017. It defined cryptocurrency as "digital units of exchange that have a centralized repository... are decentralized, disruptive, open-source, math-based, peer-to-peer virtual currency with no central administering authority and no central monitoring or oversight." Businesses that deal with cryptocurrency must obtain a money transmission license, as they are considered money transmitters.

Arizona:

HB 2417 was passed in March 2017, which legalized signatures, electronic transactions and blockchain contracts. HB 2216 was passed in April 2017, which ruled that it is unlawful to require a person to "use or be subject to electronic firearm tracking technology," this includes a "shared ledger, distributed ledger, or blockchain technology.

Other crypto-related bills include: SB 1091, which allows residents to pay their income tax in the form of cryptocurrency. SB 1145 is a law that explains the taxability of losses and gains associated with crypto holders. HB 2602 rules that no city or town can prohibit anyone from running a node on blockchain technology in a residence. HB 2601 lists regulations on how virtual coin offerings are to be handled.

Arkansas:

There are no cryptocurrency laws in place or being proposed.

California:

SB843 is a 2016 legislation that delves into the legality of raffles; it applies to cryptocurrency in that it rules that raffle tickets cannot be sold in exchange for cryptocurrency. AB 2658 was introduced in February 2018 and deals with blockchain.

Firstly, the law calls for the Secretary of the Government Operations Agency to designate a blockchain working group to manage blockchain in state government and business, along with evaluating its risks, legal implications and benefits, best practices and more. The ruling also states that the term "contract" would encompass "smart contracts" and that an electronic signature is lawful. Also, a person storing personal information on a blockchain when partaking in interstate commerce is the legal owner of such information.

Colorado:

SB 86 permits Colorado's Chief Information Security Officer to form a group of metrics that identify, assess and monitor every public agency data system on its risks, liabilities, platform descriptions, vulnerabilities, employee access control and the costs and benefits to adopt blockchain technologies and encryption.

The motivation for this law lies in the need for blockchain to integrate with local and state governments to simplify the management of state records and sensitive state information. It would also reduce costs.

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Connecticut:

HB 6800 was passed in November 2015 as an amendment to Connecticut's Money Transmission Act. It requires businesses that send cryptocurrency to be licensed with the Department of Banking. HB 7141 was stipulated in November 2017 and rules that license holders who have custody or control of cryptocurrency on someone else's behalf should hold the same type and amount of cryptocurrency that is owed to such a person. In February 2018, Bill No. 5001 proposed to impose a fee on transfers or trades of cryptocurrency.

Delaware:

The Delaware Blockchain Initiative was created in May 2016 in an effort for the state to embrace blockchain technology and smart contracts. It was predicated on the benefits of helping businesses reduce fraud, lower transaction costs and automate manual processes.

SB 69 was introduced in July 2017 as an authoritative document for Delaware corporations to refer to when engaging with blockchain and other electronic databases as part of the maintenance and creation of such databases.

Florida:

HB 1379 is a bill that went into effect in July 2017 and incorporates cryptocurrency into the anti-moneyLaunderinglaw,specifically including cryptocurrency into the list of currency and negotiable instruments. The law also defines cryptocurrency as "medium of exchange in electronic or digital format that is not a coin or currency of the United States or any other country." HB 1357 was enacted in January 2018 and ruled that it would "implement protocols for issuing an optional electronic credential and procure a related technology solution."

Georgia:

HB 811 was signed into law in April 2016 and bestowed state regulators with the power of creating regulations on cryptocurrencies.

In February 2018, SB 464 was proposed, requiring the state revenue commissioner to accept and convert cryptocurrencies into US dollars for tax payments and license fees. Essentially, it authorized cryptocurrencies as legal tender for paying off taxes.

Hawaii:

HB 1481 stipulated the creation of a working group that studies the uses of blockchain and formulates best practices. Two bills were introduced in January 2018, defining cryptocurrency within the Money Transmitters Act. The updated ruling proclaims rules for entities transmitting cryptocurrency. SB3082 changes a 2017 law which required licensed cryptocurrency transmitters to have a reserve of the USD.

Those who intend to apply for cryptocurrency transmission will be mandated to provide personal information such as the applicant's name, business activity, principal address and more.

They will also have to provide customers with receipts for each cryptocurrency sale. SB 2853 is a bill that defines cryptocurrency and discusses permissible investments and statutory trust, specifically that permissible investments must be held in trust for the purchasers and holders of the licensee's outstanding payment obligations.

Idaho:

There are no cryptocurrency laws in place or being proposed.

Illinois:

In June 2017, the Department of FInancial and Professional Regulation passed the Digital Currency Regulatory Guidelines, which dictated that individuals or entities engaging in the transmission of cryptocurrency will not have to obtain a TOMA (Transmitters of Money Act) license.

HB 5335 was passed in February 2018, amending the Department of Revenue Law of the Civil Administrative Code of Illinois to

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permit the payment of taxes in cryptocurrency. HR120 is a bill that founded the Illinois Legislative Blockchain and Distributed Ledger Task Force to observe the benefits of using blockchain to keep records of service delivery.

Indiana:

There are no cryptocurrency laws in place or being proposed.

Iowa:

There are no cryptocurrency laws in place or being proposed.

Kansas:

In June 2014, the Office of the State Bank Commissioner put out a guidance document called Regulatory Treatment of Virtual Currencies under the Kansas Money Transmitter Act.

The document was established for clarification on how cryptocurrency applies to the Kansas Money Transmitter Act, especially when dealing with entities that transmit cryptocurrency. It states that entities relying solely on cryptocurrency transmissions are not required to acquire a license with the state of Kansas.

Kentucky:

There are no cryptocurrency laws in place or being proposed.

Louisiana:

There are no cryptocurrency laws in place or being proposed.

Maine:

SB 950 was a bill introduced as a means to study the use of blockchain technology in paper elections. It consisted of a 90-day field study which was forwarded by both the Senate and the House. The bill failed to be passed into law in April 2017.

Maryland:

In March 2018, two bills were introduced for the study and regulation of blockchain. Collectively, House Bill 1634 and Senate Bill 1068 asserts

that the Financial Consumer Protection Commision can survey blockchain to determine if it is adequate for government use.

Specifically, the Maryland FCPC will observe cryptocurrencies, ICOs, exchanges and blockchain technologies. Additionally, it will seek out ways to introduce regulations on cryptocurrency.

This is the only crypto-related regulation from the state since the April 2014 legal advisory notice on cryptocurrency, which detailed what cryptocurrency is and its associated risks.

Massachusetts:

In 2014, the Division of Banks released the Selected Opinion 14-004, which discussed the licensure and registration requirements of Bitcoin kiosks.

Formatted as a letter, it determined that Bitcoin kiosks are not financial institutions, as marked in Massachusetts General Laws chapter 167B, section 1. Thus, Bitcoin kiosks are rendered non-bank ATMs, making Bitcoin exempt from foreign currency transmission regulations.

In January 2018, Secretary of State William Galvin took steps against ICOs, which he claimed led to the illegal sales of securities. His office filed administrative charges against a company that sold digital assets via an investment program focused on cryptocurrencies.

Michigan:

The Michigan Department of Treasury released guidance on cryptocurrencies as they relate to taxation in 2015. It proclaimed that purchases made with crypto are not subject to sales tax.

In June 2018, a bill was introduced that makes it illegal to counterfeit or alter data on a blockchain. HB 6257 states that “altering a record made utilizing distributed ledger technology” is illegal regardless if the ledger is “public or private, permissioned or permissionless, and that may include the use of electronic currencies or electronic tokens as a medium of exchange.”

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Minnesota:

There are no cryptocurrency laws in place or being proposed.

Mississippi:

There are no cryptocurrency laws in place or being proposed.

Missouri:

A cease and desist order from the office of the Secretary of State in June 2016 declared that selling stock in bitcoin is equivalent to selling unregistered securities in the state.

In June 2015, a private letter ruling from the Michigan Department of Revenue deemed that if bitcoin is bought through an ATM it is not subject to sales tax, as bitcoin is considered intangible property. Sales tax in Missouri is only applied to tangible personal property.

Montana:

There are no transmission laws on cryptocurrencies, as there are no money transmission laws from the Montana Division of Banking. The Electronic Contributions Act has been amended, making the reporting of donations made through payment gateways that include Bitcoin a requirement.

There is otherwise a lack of guidance on blockchain and cryptocurrency. In June 2017, Montana became the first state to invest in a Bitcoin mining operation. No other state had been directly invested in a bitcoin mining operation prior.

Nebraska:

LB 691 was introduced in January 2018 with the purpose of adopting the Nebraska Virtual Currency Money Laundering Act, a law that would define and redefine some terms in the Nebraska Money Transmitters Act. LB 695 is a law that gives a legal definition to smart contracts and the authority to use blockchain for digital signatures. LB 694 is a law that would ban the regulation or taxation of blockchain technology by cities, counties and villages.

LB 987 is a bill that adopted the Uniform Regulation of Virtual-Currency Business Act, which lays out a regulatory structure for cryptocurrency businesses.

Nevada:

SB 398 is a June 2017 bill dealing with blockchain technology that had been signed into law. In turn, it made Nevada the first state to outlaw blockchain and smart contract taxes. The law also legalized the use of electronic signatures in blockchains, i.e., making them legally acceptable.

New Hampshire:

In 2015, HB 552 attempted to incite the state treasurer to establish a plan for the state of New Hampshire to accept bitcoins as tax payments. The bill did not successfully pass. In June 2017, HB 436 was signed into law, making holders of cryptocurrency not liable to register as money transmitters.

New Jersey:

A 2015 memo from the New Jersey Division of Taxation delineated the state's stance on cryptocurrency, markedly on sales and taxes.

It announced that sellers and retailers of taxable products and services that use cryptocurrency for business shall determine the fair market value of the crypto in USD.

They must also charge sales tax on each transaction. In September 2017, Chris Christie approved AB 3433, also called the Uniform Fiduciary Access to Digital Assets Act, which legalizes agents, guardians, executors or trustees "under certain circumstances" to handle the electronic records of trust creators. AB 1906 was introduced on January 2018, referring to the Assembly Science, Innovation and Technology Committee, with the purpose of creating a regulatory structure via the Digital Currency Jobs Creation Act.

New Mexico:

Originally a state that did not require licenses and did not regulate money

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transmitters, New Mexico's Financial Institutions Division had a favorable environment for cryptocurrency. As such, the first state to implement bitcoin ATMs was New Mexico.

This approach changed significantly with the introduction of HB 250 in 2017, which has been signed into law. It states that money transmitters must obtain a license beginning in January 1, 2017. The bill does not directly mention cryptocurrency transmitters, making the legality of such activity uncertain.

New York:

In August 2015, the New York State Department of Financial Services produced a thorough regulatory framework for cryptocurrency businesses. Called BitLicense and 23 NYCRR 200, the measure requires transactions of operations that use any type of cryptocurrency to obtain a state license.

All applicants must have strict compliance and supervisory policies, as well as anti-money laundering/know-your-customer and cybersecurity programs. Applicants must also pay a $5,000 application fee. In November 2017, 4 bills that deal with blockchain technology were introduced.

AB 8780 legalized the use of smart contracts in commerce while also making signatures, records and contracts stored on blockchain technology legally viable. AB 8792 maintained that the board of elections would study blockchain technology, specifically to protect voter records and election results. AB 8793 is a bill that establishes a task force that studies the use of blockchain technology in state record keeping, information storage, and service delivery. Similarly, AB 8783 creates a task force that studies the effects of cryptocurrencies on financial markets statewide. In February 2018, AB 9685 was created to establish a task force to study the effects of state-issued cryptocurrency in New York.

In the same month, the Department of Financial Services released guidance to business entities with the 23 NYCRR Part 200 license in order to prevent and respond to fraud. As per the guidance, licensees must report all wrongdoing to the Department of Financial Services.

North Carolina:

The North Carolina Money Transmitters Act, or HB 289, has become the law on June 2016. This law serves as an update to the Money Transmitter Act, with the inclusion of transmitters of cryptocurrency in the act. In July 2017, HB 229 was signed into law, prescribing cryptocurrency traders as money transmitters by definition. These cryptocurrency transmitters are by law, required to obtain licenses to operate. They also are also subject to insurance requirements.

North Dakota:

Intended as legislative management study, SB 2100 was a March 2017 bill predicated on studying cryptocurrency and whether it needs to be regulated. It failed to pass during its second reading. The Business and Labor Committee of the legislature was critical of the bill and their votes ultimately led to the rejection of the bill.

Ohio:

In April 2014, the Ohio Department of Public Safety ruled that Bitcoin cannot be used as a payment for alcohol in the state.

The reason behind this ruling lies in the fluctuation of Bitcoin, thus it cannot be realized as legal tender, fitting more into the definition of a commodity. In May 2018, SB 300 was introduced, functioning as an amendment to the Uniform Electronic Transactions Act. SB 300 would make the Uniform Electronic Transactions Act include blockchain records and smart contracts as electronic records. Specifically the ruling renders blockchain technology to be used as storage for electronic information and for the provision of ownership rights.

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Oklahoma:

In 2014, an official comment was added to the Okla. Stat. Ann. § 1-9-332, a commercial law that deals with the transfer of funds. Enacted by the Oklahoma state legislature, the updated law specifies that those who transfer bitcoin are not given the same protections as other money transferees. Those who sell products and services and accept bitcoin are not to receive any cryptocurrency without an existing security interest.

Oregon:

SB 277 became a law on May 2015, obliging cryptocurrency exchanges to register as money transmitters. These exchanges must also obtain a license from the Department of Consumer and Business Services. The law resulted in the international Bitcoin exchange CEX.IO to terminate its operations in the state of Oregon.

In June 2018, the Secretary of State submitted a change to the administrative rules of financing campaigns, to include the legality of accepting cryptocurrency donations. The draft incorporates the policies of the Federal Elections Commission (FEC), which allows donations but not expenditures. The proposal has not yet been signed into law. (Not until August)

Pennsylvania:

In November 2016, HB 850 was signed into law. The law is an amendment to the state's money transfer laws, proclaiming that such laws must include cryptocurrency within the definition of money in the state.

Rhode Island:

There are no cryptocurrency laws in place or being proposed.

South Carolina:

AB 266 was enacted in June 2016 as a means of regulating cryptocurrencies within money transmitters.

The law requires licensing and other stipulations for money transmitters. Investment securities and other such cryptocurrency financial assets must be properly registered.

South Dakota:

There are no cryptocurrency laws in place or being proposed.

Tennessee:

In December 2015, the Tennessee Department of Financial Institutions released a memo with guidance for cryptocurrency companies operating in the state.

The memo explains how the Department interprets the Tennessee Money Transmitter Act and how to apply its interpretation to different financial activities that involve crypto.

Under this law, cryptocurrency is not realized as money, thus receiving it for a service is not considered a money transmission. Two bills were introduced in January 2018, the HB 1507 and the HB 2093. The former permits blockchain technology and smart contracts to conduct electronic transactions. It also protects the rights to ownership of some of the information stored on a blockchain. The latter bill prohibits trustees of any contribution plan or investment vehicle that is marked as a health benefit (by the state insurance company) from crypto investments.

Texas:

In April 2014, the Texas Department of Banking put forth a memo with guidance on how cryptocurrency companies are to operate in the state.

The memo reveals that cryptocurrency is not classified as money under the Money Services Act in the state. In turn, receiving it for a promise is not a money transmission.

In March 2017, HJR 89 proposed to amend the Texas Constitution, specifically in regards to the right to use and own any mutually agreed upon type of exchange. The bill was not passed into law. The first bitcoin-only real estate

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transaction occurred in Texas in September 2017.

Utah:

HRC 006 was proposed in 2015 to allow residents to use bitcoin to pay taxes; it did not pass into law. SB 175 was passed in March 201, altering the Uniform Unclaimed Property Act to include cryptocurrency, including what legally constitutes as cryptocurrency. It also allowed the state's unclaimed property to include cryptocurrencies.

Vermont:

In June 2016 HB 868 has been be signed into law, legally bringing blockchain data to the Vermont court system. HB 182 was signed in May 2017, updating the state's money transmission rules by way of defining cryptocurrency, or virtual currency.

A working group that studies blockchain technology to find ways in which it can help the state was written into law in June 2017 with SB 135. In January 2018, SB 269 was introduced and referred to the Committee on Economic Development, Housing, and General Affairs to forge a regulatory structure for blockchain technology usage.

Virginia:

In February 2017, the Uniform Fiduciary Access Act or HB 1608 was passed, granting fiduciaries the power to manage digital property including web domains, computer files and cryptocurrency.

Additionally, the Virginia Bureau of Financial Institutions put out a notice to residents, stating that although the Bureau does not regulate cryptocurrency, transactions that involve the transferring of fiat and crytpo are subject to Chapter 19 of Title 6.2 of the Code of Virginia's Money Order Sellers and Money Transmitters.

In January 2018, the HJR 153 bill was introduced to produce a subcommittee predicated on studying the effects of blockchain technology in state services. These include service delivery, information storage and recordkeeping.

Washington:

SB 5031 was signed into law in April 2017; it updated the money transmission laws with the inclusion of cryptocurrencies, specifically, businesses that deal with them, along with exchanges.

The bill dictates that exchanges must be licensed with the state's Department of Financial Institutions and must hold cryptocurrency reserves equivalent to the money they keep on behalf of their customers. There are other rules exchanges must abide by, including getting their systems audited by third-party security audits and posting surety bonds (to act as security deposits in the event that customers need to be compensated), valued between $10,000 and $550,000.

This led major exchanges such as Bitfinex, Bitstamp, Kraken and Polonoiex to shut down their operations in the state. HB 1045 was signed in January 2018 and ruled for licensing and enforcement provisions in use with money transmitters.

West Virginia:

In April 2017 HB 2585 was passed, defining the state's interpretation of cryptocurrency. In West Virginia, cryptocurrency is legally a monetary instrument. The bill also points out that residents should not use it for criminal activity.

Wisconsin:

There are no official regulations on cryptocurrency, however the Wisconsin Department of Financial Institutions has released a statement that claims that companies with a license to either sell or issue checks or to receive fiat currency for transmissions are allowed to transmit virtual currencies via an agreement with the division.

Two such crypto companies have settled an agreement with the division: Coinx Inc. and Circle Internet Financial Inc. The statement also elucidates that the department cannot regulate cryptocurrency, thus it can neither license nor oversee companies dealing with crypto.

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However, companies that transmit cryptocurrency with sovereign currency are subject to licensure.

Wyoming:

There are two bills under consideration by the legislature: HB 70 and HB 19. Known as the utility token bill, HB 70 defines a utility token and an open blockchain token as being neither a security nor traditional money.

Parties that exchange these tokens are not characterized as traditional brokers or securities. Dubbed the Bitcoin BIll, HB 19 exempts cryptocurrencies from the Wyoming Money Transmitters Act.

These two bills passed their second readings and are currently in the state of awaiting further approval.

There are also three other bills under consideration that were filed in February 2018. HB 101 provides an update to the Business Corporations Act, allowing corporations to electronic networks and databases to store corporate records.

HB 126 grants the establishment of “series LLCs” which provide a fitting state for decentralized protocols. HB 111 prevents cryptocurrency from being liable to Wyoming state property taxes.

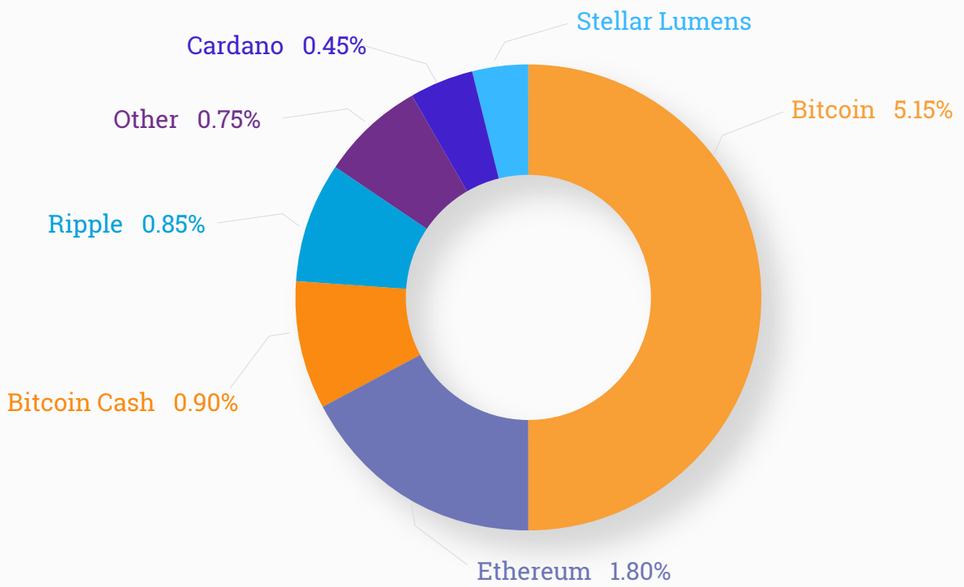
Although a rural state, Wyoming is aiming to become a crypto haven.

Most Popular Cryptocurrencies in the United States

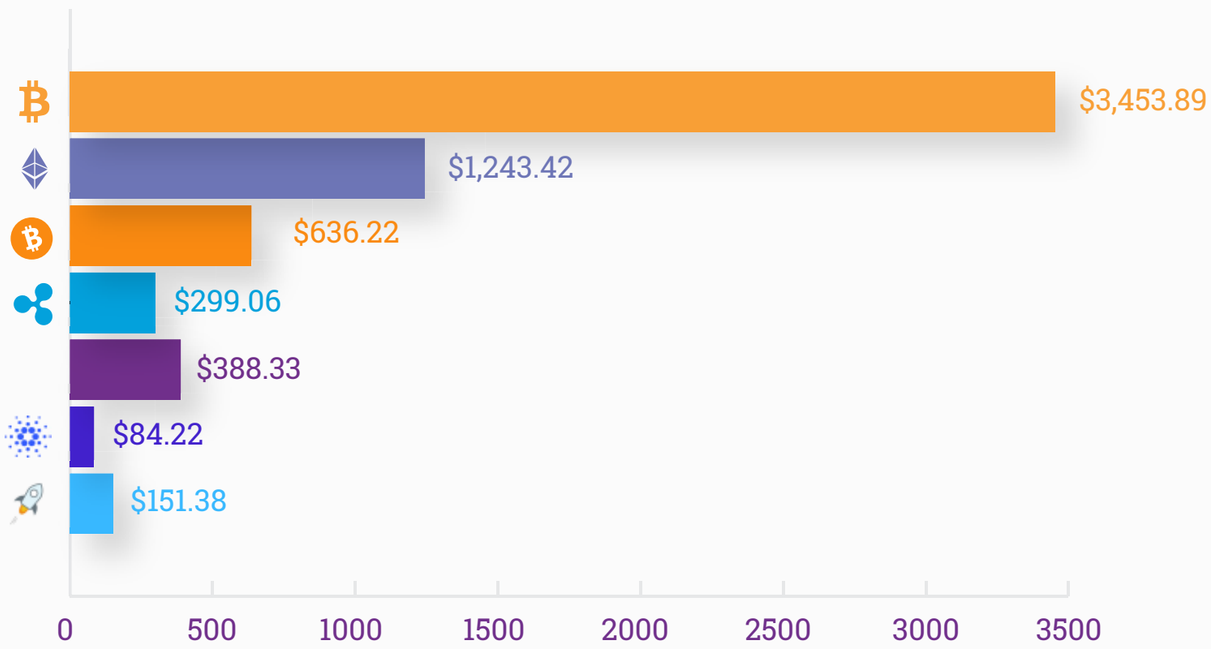
The following graphs highlight the most widely owned, traded and used cryptocurrencies in the United States as of March 2018.

They also impart the estimate monetary value spent on the corresponding currencies.

Percentage of Americans Who Purchased Cryptocurrency



Average USD Spent on Cryptocurrency



USD Exchange Trade Volume

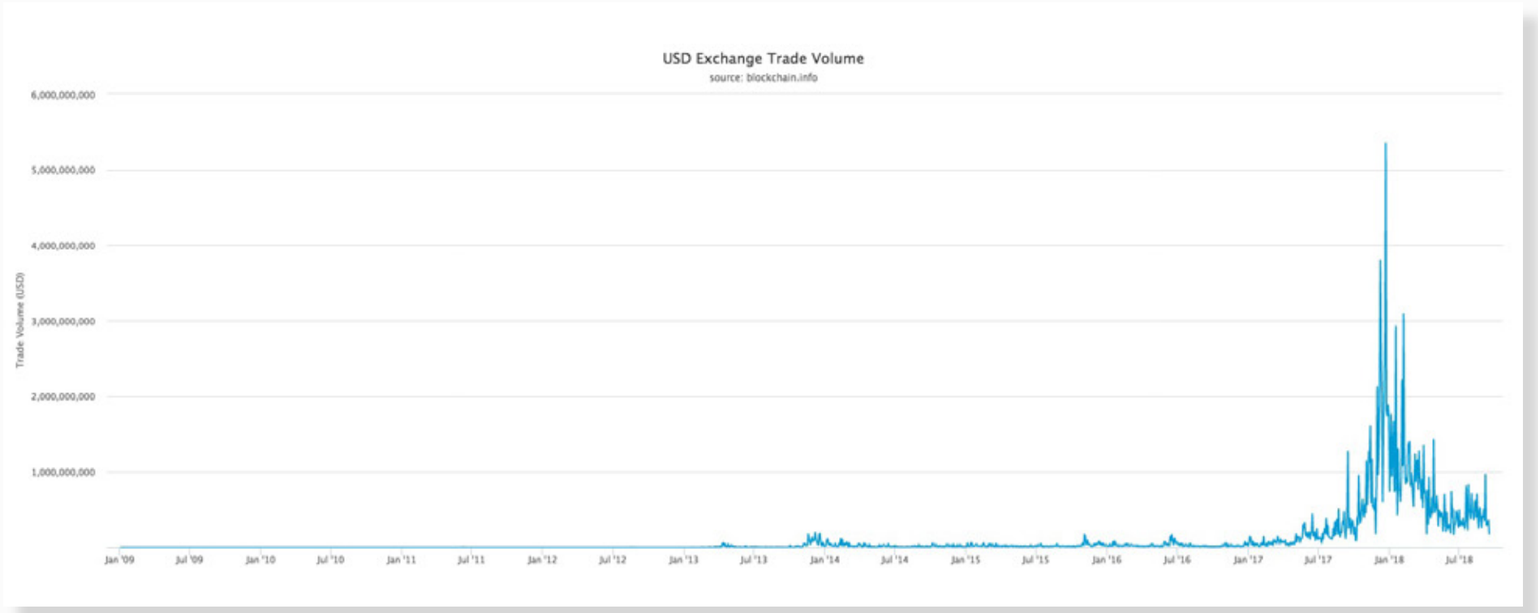
A key currency in trading, the USD is one of the most-used fiat currencies in all crypto exchanges. It accounts for 25% of the market share, once having ascended to the number one spot, surpassing the Chinese Yuan in 2012.

It has since been overtaken by both China and japan, but currently holds second place to Japan. The trading volume of the U.S. dollar in crypto exchanges has seen the most activity and fluctuation in accordance with 2017's crypto explosion.

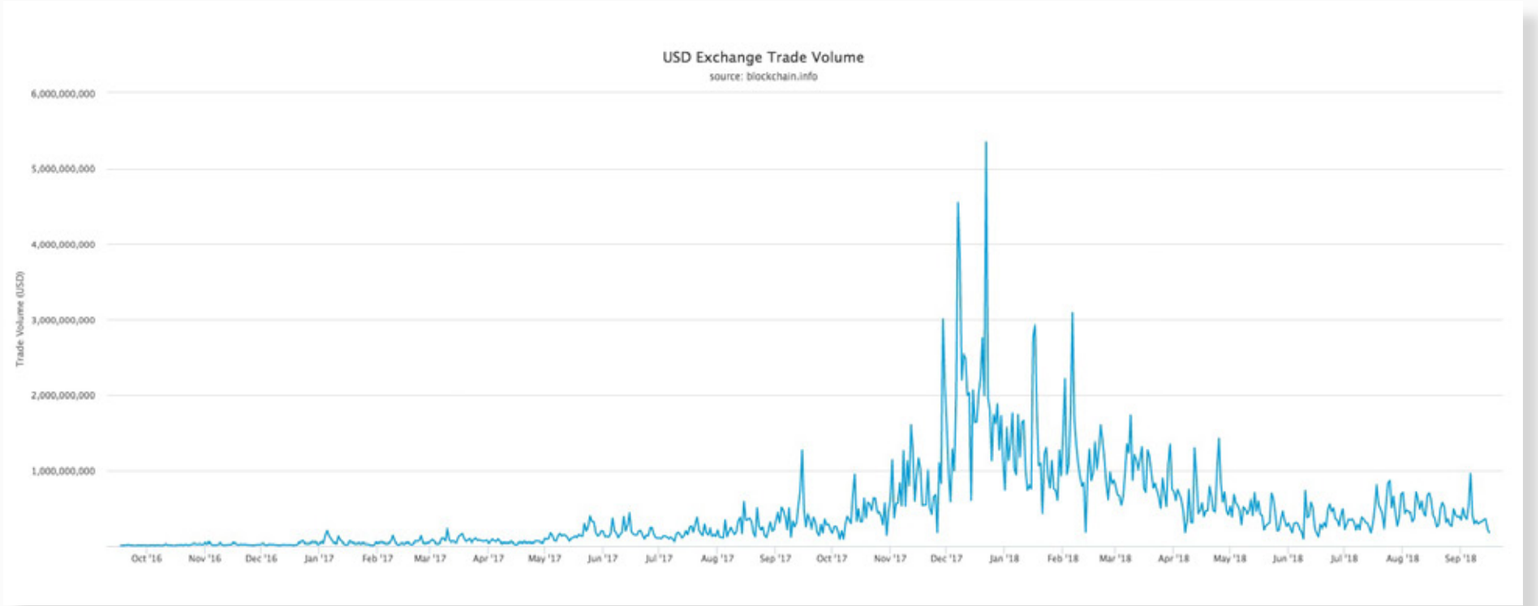
From then until its steady, recent growth, the USD has shown an accelerated trade volume. The first eight years tracking the USD trade volumes show consistently low numbers, corresponding with the generally low crypto activity in the early years following its inception.

The following graphs show the USD trade volumes within a variety of time frames.

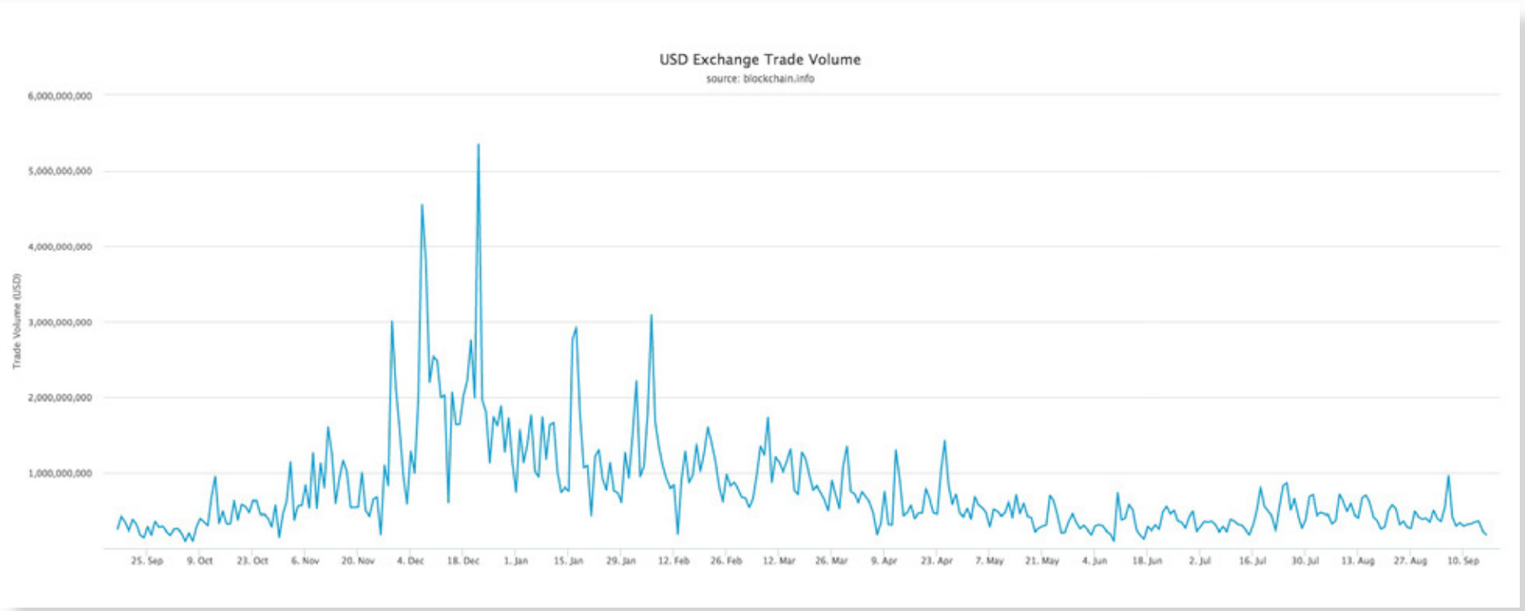
U.S. Dollar Trade Volumes- Historical/ All Time



U.S. Dollar Trade Volumes- November 2016- September 2018



U.S. Dollar Trade Volumes- September 2017- September 2018



U.S. Dollar Trade Volumes- August 2018 - September 2018

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Why do Few Americans Own Cryptocurrency?

Fewer Americans own cryptocurrency than their Asian and European counterparts based on statistical data (see above section on knowledge).

There is a scope of misgivings Americans face in regards to cryptocurrency.

The tables below reflect the reasons why many Americans aren't investing or buying cryptocurrency, broken down via gender and generation.

Men vs Women

Reason Behind Crypto Misgivings	American Men	American Women
Difficulty in understanding crypto	23.63%	29.99%
Difficulty of use	10.99%	11.75%
Believe it's a scam	23.98%	12.77%
Too many fees associated with crypto	6.2%	5.37%
Lack of need or interest	35.23%	44.07%
It's a financial bubble	23.27%	9.93%
High Risk	39.77%	30.9%

Millennials vs Gen X vs Baby Boomers

Reason Behind Crypto Misgivings	Millennial	Gen X	Baby Boomer
Lack of need or interest	37.36%	35.05%	45.62%
High Risk	33.71%	32.47%	37.87%
Difficulty in understanding crypto	31.18%	25.61%	26.43%
Believe it's a scam	17.7%	16.17%	19.7%
It's a financial bubble	16.29%	17.74%	14.61%
Difficulty of use	14.89%	9.01%	11.94%
Too many fees associated with crypto	7.58%	5.58%	5.08%

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How Americans Choose Their Cryptocoins

Of the roughly 8% of Americans that own cryptocurrency, there are several group formations; such groupings formed in terms of how Americans decided on a cryptocurrency to buy or invest. Independent research, a coin's social media presence, and general hearsay have prompted Americans to select a particular altcoin to buy.

54%

54% of American crypto owners chose their cryptocurrency based on their own research, in which their coin was ranked highest.

2x

These crypto owners are 2X as likely to have conducted research aside from a coin's social media presence (27.04%).

40%

40%, of crypto holders have relied on a coin's social presence along with news reports to come to their decision.

41.5%

41.5% of crypto holders bought their coin due to a peer who had profited from it

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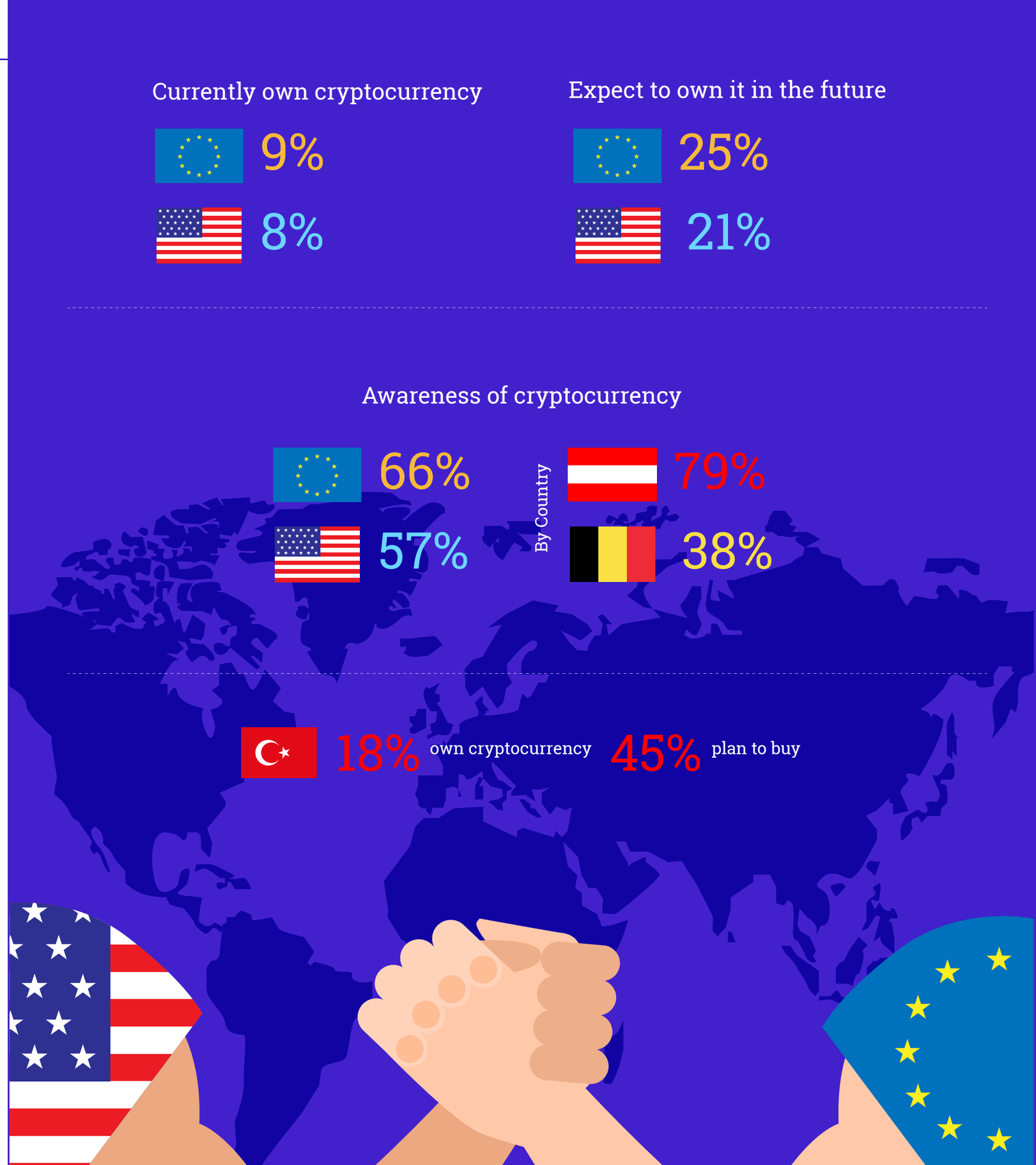
The United States Vs Europe on Cryptocurrency

Despite setbacks in the 2018 worldwide crypto market, a study by ING Bank revealed that the ownership of cryptocurrency will more than double in both Europe and the United States.

The state in which crypto is currently faring in terms of ownership in the U.S. and Europe is at percentages with little disparity. The percentage of the awareness of cryptocurrency in Europe and the United States also has a relative consistency, with rates contrasting by roughly 10%.



Cryptocurrency in Canada

Canada's highly-developed economy, low energy costs, high-speed internet and initially low government regulations have given rise to its flourishing cryptocurrency market.

It is particularly dominant in the blockchain industry, with a prolific portfolio of blockchain projects, government support on blockchain technology, and most notably as the homeplace of Vitalik Buterin, the founder and inventor of Ethereum.

Ethereum is a blockchain which consolidated the Bitcoin blockchain by adding the function of smart contracts or scripting. It has developed its own cryptocurrency, the ether (ETH) and has gained worldwide implementation.

In January 2018, the National Research Council Canada publicized its implementation of blockchain technology via the use of Ethereum for the running of government contracts, the first live-trial of its kind. During the same month, Canada partnered with the World Economic Forum in production of the Known Traveller Digital Identity, an ID system that incorporates blockchain technology.

The premise of this project is to allow governments, industry leaders and passengers to administer pre-vetting risk assessment and security procedures as part of cross-border flow management. Canada is also home to the Blockchain Research Institute (BRI), a Toronto-based research center that studies the impact of blockchain on the government, business and society at large.

The BRI has forged robust partnerships with key players in Canada's blockchain space, including the Enterprise Ethereum Alliance (EEA), which

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compromises over 450 worldwide members with work production deployments of over 30,000 developers.

It is also in partnership with the Information and Communications Technology Council (ICTC) of Canada to construct a national blockchain, along with a national cryptocurrency with the Bank of Canada.

The physical environment of Canada is conducive to cryptocurrency mining, with a profusion of energy of 100 Terawatt hours for 10 years, coupled with low electricity costs, according to the public utility company Hydro-Québec. The almost year-round cold weather keeps the hardware from overheating.

As a mining hub, Canada has given way to an influx of miners to the region, including those from China.

China's Bitmain Technologies recently set-up shop for mining in Quebec in January 2018. Canada provides an energy-rich and more regulatory-friendly setting, as opposed to China, which shut down mines in late 2017 and has clamped down greatly on cryptocurrency.

Canada is also home to the mining company Bitfarms, which is the largest cryptocurrency operation in North America.

On the government and regulatory front, Canada originally had a welcoming environment for cryptocurrency adoption. Previously, Canada relied on light regulation of cryptocurrencies and ICOs, but changed its stance after global scrutiny on crypto, especially on fraudulent acts.

In past years, the Canadian government offered federal and provincial incentives for startup companies in the tech space to launch. The Ontario Securities Commission (OSC) bestowed an exemption to its first regulated ICO in securities laws.

Additionally, the British Columbia Securities Commission approved the country's first investment fund,

acknowledging cryptocurrency as an investment method. Several pension, investment and venture capital funds thus were able to invest in cryptocoins.

After years of nonexisting regulation on cryptocurrency, in March 2018, the Canadian government put forth amendments to the 2014 Proceeds of Crime (Money Laundering) Financing Act (PCMLTF). These modifications require all businesses that deal in cryptocurrency to register with the Federal Financial Intelligence Unit (FINTRAC).

Under this ruling, companies that have not registered with FINTRAC will be prohibited from baking services. The businesses must follow all anti-money laundering regimes. These amendments are currently under review by the Committee on Finance (FINA) and are to date unenforced.

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Cryptocurrency Dealings in Banks and Financial Institutions in Canada

Banks in Canada have created something of a hindrance for the cryptocurrency industry, chiefly for its customers' cryptocurrency transactions. In February 2018, three of Canada's largest banks: the Bank of Montreal, Scotiabank and Toronto Dominion Bank banned cryptocurrency purchases through credit and debit cards.

The move was followed by a similar surge in the United States that month, in which major banks like J.P. Morgan Chase, Citigroup and Bank of America banned cryptocurrency sales via credit card. Other top banks around the world, including Lloyds Banking Group in the UK and Virgin Money in Australia followed suit shortly thereafter, which may have incited Canada to do the same.

Unlike its banking counterparts, the Royal Bank of Canada announced in the same month that it would continue to allow customers to buy cryptocurrency with their debit and credit cards, though concluded with a warning about debt incurment.

The Royal Bank of Canada applied for a patent on a blockchain-based platform that devises credit score calculations. Canada's second-largest bank Toronto-Dominion Bank, also filed a patent for a blockchain-based platform, but with the U.S. The patent entails a point-of-sale system that digitally tracks asset transfers.

While it seems that many banks have been opposed to cryptocurrency, not all financial institutions have enacted laws in this manner. TMX Group, the parent company of the world's 9th largest stock exchange, revealed in April 2018 its plans to start a cryptocurrency brokerage platform, to be called the Shorcan Digital Currency Network. This network would chiefly focus on Bitcoin and Ethereum pairings. The project also includes a partnership with Paycase, a Toronto-based decentralized financial services provider to consolidate as a platform that aids institutional investors entering the cryptocurrency market.

The Status & Taxation of Cryptocurrency in Canada

Canada permits the use of cryptocurrency, but much like the vast majority of crypto-active countries, cryptocurrency in Canada is not legal tender. In August 2017, Stephen Poloz, the governor of the Bank of Canada declared that cryptocurrency is a security and likened crypto trading to gambling. Blockchain received a warmer appraisal, as Poloz called it "a true piece of genius and it will be applied to many areas in the economy." According to the Canada Revenue Agency, cryptocurrency is classified and treated as a commodity.

Throughout Canada, cryptocurrency can be used to buy goods and services that accept payments in crypto, as well as in online purchases. But only the Canadian Dollar holds the status as the legal currency. Cryptocurrency is subject to the Income Tax Act, which states that sellers of goods bought with crypto must report their crypto earnings on their income tax.

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The rules for barter transactions are in place whenever goods/ services are bought with crypto, meaning all goods/services must be accounted for in the value of the Canadian Dollar on the seller's income tax.

Sales tax applies to cryptocurrency transactions, as with most products and services, under the Goods and Services Tax/ harmonized sales tax. The tax is applied on the fair market value of the goods/ services purchased with crypto.

Given that cryptocurrency is marked as a commodity under Canadian law, the Financial Consumer Agency declares that all gains and losses pertaining to buying and selling cryptocurrency must be reported.

These gains and losses are either taxable income or capital for the taxpayer.

New Cryptocurrency Regulations in Canada

In June 2018, the Canadian government published a draft on the newest regulations on crypto exchanges and payment processors, making Canada one of the first nations to declare how crypto ought to be regulated.

The draft was composed by the Financial Action Task Force (FATF), positing the need to rectify the deficiencies that pertain to Canada's Anti-Money Laundering and Anti-Terrorist Financing Regime (AML/ ATF).

The new regulations include the regulatory approach to exchanges and payment processors; they will be characterized as money service businesses (MSB) and as such, they will be required to report transactions over $10,000 CAD. Another regulation is that of a KYC threshold for transactions of $10,000.

These new regulations are not legally binding and were formulated largely in part to improve Canada's global reputation. They were created in such a way as to not hinder innovation.

The FATF is an intergovernmental organization that develops policies to combat money laundering. These policies are not legally binding, but according to the draft, Canada believes that implementing these regulations will have a positive impact on the country's international reputation.

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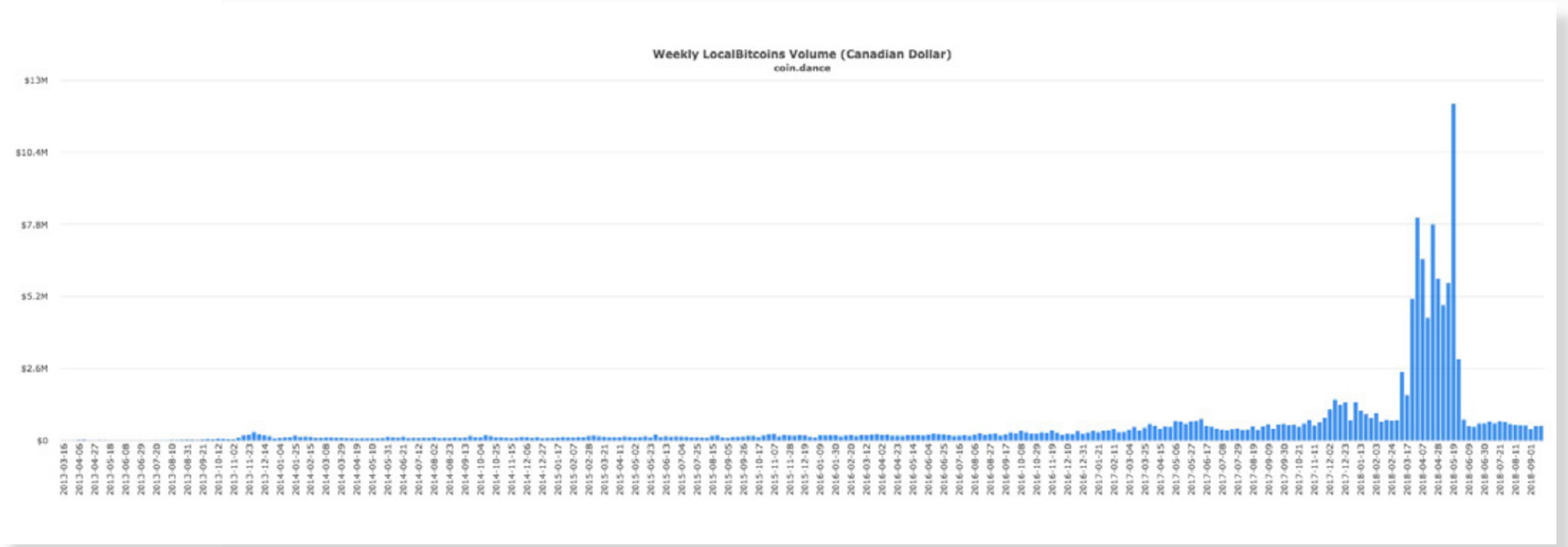
Crypto Trading Volumes in Canada

Canada is one of the world's most financially stable nations, with chartered banks, MSBs and tight regulations. This has allowed users the liberty to experiment with alternative forms of payments. The cryptocurrency space in Canada has seen tremendous growth with the invention of Ethereum. Crypto was also able to take-off in Canada due to the wide array of exchanges available in the country, including CoinField, the newest exchange launched in February 2018.

In late July of 2018, the exchange announced it was extending its services worldwide, with commision-free trading, as part of a partnership with the moonGO app.

Highest Estimated Trading Volume: $12 Mil Dollars



While the cryptocurrency market in Canada has been thriving, its trading volumes have not always reflected this, with most of the years seeing trading volumes under $1,000,000 CAD until late 2017.

The following graph provides data on the trading volumes of cryptocurrency across Canada in Canadian Dollar (CAD) values. The timeline of trading falls between 2013 to the present (2018).

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Breaking Down the Four Sub-sectors of the Cryptocurrency Industry

2017 put cryptocurrency on the map, with the total value of cryptocurrencies having grown by 3,300% to $613 billion, with BTC having gained more than 1300% over 12 months.

What Comprises the Cryptocurrency Space

What had begun as an email about a peer-to-peer electronic cash system has developed into an advancement in money and how it is controlled.

Previous attempts at digital cash (in the 1990s) were foiled. A common attribute among those pre-Bitcoin currencies was their trust-based property, meaning that they relied on a centralized system to validate and oversee transactions.

Bitcoin changed all of that with the establishment of a decentralized peer-to-peer network in which everyone can view the transactions and no one controls the transaction. Bitcoin paved the way for the current 1500+ cryptocurrencies.

The cryptocurrency industry, however, is not limited to the currencies themselves. The crypto sphere has become a thriving industry with four sub-sectors that make up its framework. These sectors have diversified the industry to include a variety of uses, businesses and innovations. This market report has identified these four sub-sectors as the following: exchanges, mining, wallets and payments.

The following segments provide a thorough breakdown of the four subsectores and global data on each one.

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The Four Main Sub-Sectors of Cryptocurrency

The four sub-sectors of cryptocurrency serve as the focal points in this report. With each driving a vast amount of activity in the cryptocurrency space, these key aspects provide a basis through which the crypto industry operates. Below is a brief explication of each sector and its respected key statistics.

1. **Exchanges:** The largest sector of the cryptocurrency sphere, an exchange is a website that operates as a digital means for trading between different cryptocurrencies. Trading in exchanges are performed via the use of cryptocurrencies as well as fiat money. Essentially, exchanges are digital outposts of cryptocurrency exchanges.

- A Flourishing Market: In just one week in January 2018 alone, Bitcoin exchanges reached a total of $64.25 billion.

- There were at least 190 exchanges as of April 2018.

2. **Mining:** Also referred to as crypto-mining, mining is the action of updating the blockchain (the digital ledger used in crypto sphere) when cryptocurrency transactions occur. Mining works via a process of verifying transactions and adding them to the blockchain as new blocks. Cryptominers are responsible for mining and are often in competition amongst each other, solving mathematical problems in exchange for cryptocoins.

- High Powered: The electricity needed to power cryptocurrency mining is massive: Bitcoin mining specifically requires 81% more electricity than the world's electricity consumption.

- Miners earn approximately 1,800 BTC on a daily basis, a block reward amount expected to halve by 2021.

3. **Wallets:** Wallets are a type of software that store users' public and private keys. In consolidation with the blockchain, wallets allow transactions to be made between users. Users can send money to each other through their wallet addresses. Wallets come in several forms, all of which have different degrees of security.

- A Rising Stockpile: There are almost 25,000,000 crypto wallet users in the first quarter of 2018.

- There are roughly 18.5 million Blockchain.info wallets as of the end of 2017.

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4. **Payments:** The raison d'etre for the existence of cryptocurrency, payments have evolved the method of financial transactions between parties. Self-explanatory modes of monetary exchange, cryptocurrency payments enable an alternative to centralized fiat money (as well as centralized digital payments via bank accounts). Payments are sent through wallets, which then require signing with a private key to authorize the transaction.

- A Rise in Everyday Use: Cryptocurrency payments for merchant purchases have grown steadily, with an average monthly expenditure of $190.2 million in 2017.

- Payments come with transaction fees; Bitcoin had an average transaction fee of $90 in February 2018.

Exchanges

Exchanges function as marketplaces in which owners of cryptocurrency can trade different cryptocurrencies and also trade crypto coins for fiat money.

There are four major types of crypto exchanges and they each can be used to serve different needs. Some are suitable when a trader is ready to cash out, while others are better for those in areas in which crypto trading is limited.

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Types of Exchanges

1. **Traditional Exchanges:** These exchanges allow traders to buy and sell based on the market prices of cryptocurrencies.

   The exchange acts as the mediator and thereby charges the traders a fee for each transaction.

   These exchanges enable crypto to crypto trading, as well as fiat to crypto and the reverse.

   Traditional crypto exchanges encompass platforms with middlemen, i.e., third-party exchanges, as well as those with no middlemen, i.e., decentralized exchanges and peer-to-peer exchanges.

   Examples of traditional exchanges are: GDAX by Coinbase, Binance and Kraken.

2. **Cryptocurrency Brokers:** These exchanges provide buying and selling platforms in which the prices are determined by the broker.

   These costs are made up of the cryptocurrency market price and a small fee from the broker. Users can trade cryptocurrencies for a somewhat higher price than on an exchange.

   Examples of crypto brokers are: Coinbase and Shapeshift.

3. **Direct Trading Platforms:** These platforms do not rely on standard exchange platform, instead, they feature peer-to-peer trading, in which buyers and sellers trade directly with each other and do not refer to market prices.

   Sellers choose their own prices on exchange rates while buyers make an OTC (over the counter) purchase.

   Buyers can also opt to be matched to sellers who sell at rates they prefer.

   This type of exchange is usually used in areas that limit crypto trading. It's also known as a peer-to-peer, or direct exchange. An example of a P2P platform is LocalBitcoins.

4. **Cryptocurrency Funds:** These are reserves of cryptocurrency assets that are managed professionally and allow the public to buy and hold crypto assets via the fund.

   Funds charge users a management fee of about 1.5-2.5 % per year. They are generally used for investments, the kind of which don't require direct purchases or storage. These types of exchanges allow users to link their debit and credit cards. Examples of crypto funds are GBTC and XBTC.

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The State of Exchanges

- The exchanges sector has the highest amount of entities and has more employees than any other sub-sector of the crypto industry.
- Exchanges and trading are predicted to soar, despite market volatility, as the popular exchange and online wallet Coinbase doubled its staff and capacities in 2018.
- The majority of exchanges are centralized.
- Exchanges will have to contend with demands for improving their scalability and processes if quick growth persists.

Exchange by the Numbers

- Asian-based exchanges account for more than half of the cryptocurrency trading, according to Aelf, the smart contract platform.
- There are 210 major exchanges as of June 11, 2018, according to CoinMarketCap.
- Half a dozen exchanges have failed since 2014.
- 2% of small exchanges have a government license, while only 35% of large exchanges do.
- 13% of exchange employees are part of the security sub-sector.
- 17% of the budget in exchanges is spent on security.
- The top ten exchanges constitute 50% of the trading volume.
- Exchanges gain more than 100,000 users per day.

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Leading Exchanges

With the exchanges sector constituting the majority of the cryptosphere, and over 200 operating major exchanges alone, it is no wonder that this sector is referred to as exchanges, instead of the trading sector (despite fitting the broader category).

Exchanges are an expanding pool of online markets, with the major ones raking in multi- millions of dollars worth of trading revenue on a daily basis.

Each exchange has different capabilities and fees that are not necessarily suitable for one type of trading party.

This list identifies ten exchanges based on popularity and high trading revenue, reporting their salient features.
While trading revenue can differ from day-to-day, month-to-month and so on, the following list analyzes ten crypto exchanges that have a steadily large revenue stream and a wide use.

Binance:

Date formed: June 2017

Daily Trading Revenue: $3.48 million

An international, multilingual crypto-to-crypto trading platform, Binance has become the fastest-growing crypto exchange. Binance gained $7.5 million in just 3 months after launching. In five months, it earned the 10th spot among the highest volume cryptocurrency exchanges. It also accumulated 7 million users in its first 100 days and as of June 2018 it has a user base of 7.9+, a populace greater than the population of its native Hong Kong.

Although founded in Hong Kong, it relocated to Japan, although now it is relocating to Malta due to Malta's more progressive stance on crypto and fintech. It is known for its efficiency in embracing Bitcoin forks.

It is also known for its quick transaction processing of 1.4 million transactions per second and a low trading fee of 0.1%. Users get a 50% discount on this fee, making it 0.05% if they use Bianace's proprietary coin, the BNB. Binance supports approximately 360 cryptocurrencies. It offers liquidity for a variety of coin pairings including NEO/BTC, GAS/BTC, ETH/BTC, and BNB/BTC.

Market capitalization:

* The revenue has soared from $7.5 million to $200 million in one quarter (Q2 2017).

* It had a peak user growth in one hour in January 2018, with an accrual of 240,000 new users.

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GDAX:

Date formed: June 2012

Daily Trading Revenue: $390.43 K

A part of the Coinbase company, GDAX (Global Digital Asset Exchange) is an exchange geared towards professional and institutional investors as opposed to beginners in crypto trading. It is based and regulated in the U.S. and is backed and insured by some of the most prominent investors in finance, including the New York Stock Exchange, Andreessen Horowitz and Union Square Ventures.

It is a fiat-to-crypto exchange that serves 32 countries for exchanges, while serving 190 countries for Bitcoin transactions and storage. Users can deposit fiat money via bank transfers or wires. GDAX insures customer funds up to $250,000 with FDIC protection. It also places 98% of its users' funds in cold storage, away from the Internet.

There are no fees charged on maker trades, while the taker fees begin at 0.25%. There are volume-based discounts that can reduce these fees to as low a rate as 0 .1%.

GDAX offers 4 types of trading methods: market buys, limit buys, stops and margin trading.

Market capitalization:

* As of June 20, 2018, GDAX has been transitioning to Coinbase Pro, after a 3-year run. Coinbase Pro was built on top of the existing technology in GDAX. GDAX.com officially transitioned on June 29, 2018 and will no longer exist as a domain. The funds in GDAX users' wallets will remain in tact on the new platform. The APIs on GDAX will not be phased out until the end of 2018.

Bitstamp

Date formed: August 2011

Daily Trading Revenue: $389.09

Formed in Slovenia and moved to Luxembourg, Bitstamp is one of the major exchanges in Europe and one of the earliest crypto exchanges. Bitstamp became the world's first nationally licensed Bitcoin exchange, applying to all 28 EU countries.

It provides fiat-to-crypto in which users can deposit and withdraw funds using the USD or EUR. Especially convenient for European traders, Bitstamp does not charge for fiat deposits when they're done through SEPA (Single European Payment Area).

It bases its trading fees on the amounts being traded. A few examples of their trading fees are: 0.25% on exchanges under $20,000, 0.24% on exchanges under $100,000 and 0.2% on exchanges under $400,000.

These rates go up to $20,000,000, so the exchange is ideal for high volume traders. The credit card fees range between 5-9%. The site is not ideal for beginners due to the pricing and the advanced interface. Bitstamp receives annual audits by one of the Big Four audit firms and uses a 2FA (2 Factor Authentication) for account protection, making it a safe exchange.

Market capitalization:

* In Q2 of 2018, a South Korean gaming company called Nexon was in talks to buy Bitstamp, the world's oldest exchange.

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Huobi

Date formed: September 2013

Daily Trading Revenue: $2,29M

Founded in China with offices across Asia and the United States, Huobi has grown into a leading, international, multi-language exchange. It services over 130 countries worldwide. It acquired the Bitcoin wallet service Quick Wallet in 2014.

The Huobi brand carries the following exchanges: Huobi Pro, a blockchain asset only trading platform for professional traders which serves as Huobi's main platform; HADAX (Huobi Autonomous Digital Asset Exchange), the world's first token listing exchange in which users vote on the tokens they'd like to list and trade and other blockchain assets.

Huobi Pro is a crypto-to-crypto exchange that supports the trading of up to 250 altcoins and 190 pairs. On Huobi Pro, trading fees are divided into maker and taker fees, listed based on crypto pairings. The vast majority of pairings have a fee of 0.2% for bot the maker and taker, while some pairs have a 0% fee. These include the following: XRP/HT, LTC/HT, IOST/HT ETC/HT and DASH/HT. There are no deposit fees.

Huobi offers security in the form of a multi-signature cold wallet that stores digital assets. Its customer support team is reachable by phone, email, ticket or social networks.

Market capitalization:

* In the hopes of netting the EU exchange market, Huobi opened a London office in Q2 2018.

Kraken

Date formed: July 2011

Daily Trading Revenue: $275.99K

Based in the US with headquarters in Canada, Japan and the EU, Kraken is renowned for being central to liquidity and for its high volume of Bitcoin exchanges in Euros. Kraken accepts both crypto-to-crypto and fiat-to-crypto trading. The platform supports various fiat currencies, including the USD, the CAD, the Euro, the Japanese Yen and other currencies, making it a suitable option for international users.

Kraken uses a two-level verification method to provide high security and adhere to strict verification. There are several ways users can secure their accounts, including through 2-Factor Authentication. Kraken is most favorable for serious traders, as opposed to those new to crypto trading. It offers low fees charged on a per-trade basis. These fees are determined via a volume-based method in which higher volume trading yields lower fees, though there are other fee considerations.

Most of the fees are under 0.36%. The taker's fees are generally higher than the maker's fees. Kraken offers leveraged margin trading as well as a dark pool, which is an exchange of private securities in which large financial institutions and high net worth individuals take part in anonymous trades.

Market capitalization:

* In June 2018, Kraken raised over $3 million for Coincenter, a nonprofit advocacy group for cryptocurrency.
* Kraken received $900,000 in USD contracts in June 2018 for the development of the evaluation of SeaVision sensors and AI control software for autonomous underwater vehicles.

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Bittrex

Date formed: 2013

Daily Trading Revenue: $2.20M

Empowering traders to set their own buying and selling prices, Bittrex has created a robust platform for crypto enthusiasts. It supports an extensive bulk of cryptocurrencies - over 200 of them. Bittrex also functions as an online wallet provider, though it uses a multi-stage wallet strategy that holds 80-90% of user funds offline.

It is widely known for its high security standards, due to which, verification of an account is a long process. Use of the exchange is based on three account types that vary in the level of verification a user has obtained. These accounts are the Unverified, Basic and Advanced; the higher the verification level an account has, the more funds users are able to withdraw daily.

Bittrex offers strong security with 2-factor authentication and Google authenticator integration. Although originally a crypto-to-crypto exchange, Bittrex introduced fiat-to-crypto trading in May 2018, in support of pairings with the USD. Although Bittrex is available globally, there are certain states that restrict the services of Bittrex due to regulation. There is a 0.25% commision on all Bittrex trades and there are no fees on deposits. As for withdrawals, the platform doesn't profit from withdrawal fees, but each coin has a built-in network transfer fee that charges users.

Market capitalization:

* Bittrex began granting traders the option of trading crypto for USD in Q2 2018, at which time it has forged banking agreements with New York Signature Bank and other financial institutions.

LocalBitcoins

Date formed: June 2012

Daily Trading Revenue: $9.000.000

Providing a hub for casual trading, Localbitcoins establishes an OTC, person-to-person trading platform for Bitcoin-to-fiat (or fiat to Bitcoin) trading. The fiat money traded is the local currency of the users, since it operates on a global scale and supports 100 fiat currencies. The website uses an escrow system and releases the bitcoins to the buyer after a seller receives funds in their account.

The platform is favorable for international Bitcoin-based money transfers, as transfer fees are low and transfers can be completed within an hour. The trading method of the website begins with users posting advertisements that feature their exchange rates for buying and selling bitcoins. Other users in turn can respond to these advertisements by either paying via online banking, or agreeing to meet the other users in person to buy the bitcoin in cash.

The exchange rates vary, as they are set solely by users. There is no fee to transfer Bitcoins if users do so via the platform's LocalBitcoins Wallet, and transfering to a third-party wallet will incur a minute amount ranging between 0.0001 and 0.0010 XBT. It is free to buy and sell bitcoins without an ad; those who put up an advertisement are charged a 1% fee. There are no deposit or withdrawal fees.

Market capitalization:

* Though not in one of the highest positions of trading volumes, LocalBitcoins is the largest P2P exchange in the world.
*LocalBitcoins experienced all-time high levels of trading in June 2018, primarily within several South American countries and Canada.

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Gemini

Date formed: June 2014

Daily Trading Revenue: $164.65K

It is the world's first bitcoin and ethereum-licensed exchange. Founded in New York, Gemini is an exchange regulated by the New York State Department of Financial Services (NYSDFS). One of Gemini's distinct features is its provision of an online meeting time between users, so that they can trade at the same price despite differences in time zones.

Gemini offers 2 high-volume auctions per day: auction-only markets (AO) and auction-only limits (AL), as well as four types of continuous trading: market orders, limits, immediate or cancel (IOC) and maker or cancel (MOC).

There are no fees for crypto deposits, while withdrawal fees can be up to 0.002 BTC & 0.001 ETH. The fees on trading are determined on the maker, taker, auction type and namely, users' 30-day trade volumes, as listed on the Gemini fee schedule. Light traders pay approximately more in trading fees, while those who trade higher pay less fees. (Ex: 0.5% vs 0.1%).

Gemini provides security via governance from the Bank Secrecy Act (BSA); traders can opt for insurance coverage from the Federal Deposit Insurance Corporation (FDIC).

Market capitalization:

* Gemini was the first Bit-licensed exchange to allow the trading of the anonymous cryptocurrency Zcash in June 2018.
* Gemini released an updated API in June 2018, with 3 new protocols to connect to its exchange. The new features include read-only access to private orders and trades.

Bithumb

Date formed: 2013

Daily Trading Revenue: $1.83M

Operating out of South Korea, Bithumb is one of 10 highest-ranking exchanges in terms of trading volume. It is also known as one of Bitcoin's largest and highest-volume exchanges; 70-80% of all Bitcoin trading in Korea alone is done through this platform.

The exchange facilitates the buying and selling of 37 cryptocurrencies, all for a flat rate trading (commision/maker/taker) fee of 0.15%. It is foremost a crypto-to-crypto exchange, as the only fiat-to-crypto currency option is the KRW (Korean Won). Users from other countries therefore can only fund their accounts with cryptocurrencies.

A unique service that Bithumb offers are Bitcoin gift vouchers, which are monetarily equivalent to the Korean won. The site buys these vouchers from users as well, and sells them for their worth in bitcoin. Although the website is targeted towards Koreans and is only available in Korean (save for the homepage), there is 24/7 multilingual customer service. Most deposits are free while withdrawal fees vary depending on the type of currency in use. Due to its 24-hour trading service and popularity, Bithumb offes high liquidity.

Market capitalization:

*Bithumb promised to reimburse the users who were affected by its high-profile hacking in June 2018, in which 35 billion won, or $30 million was stolen from the exchange.

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Coinbase

Date formed: June 2012

Daily Trading Revenue: $1.82M

The leading U.S. marketplace for trading cryptocurrency. It has 20 million users and services 32 countries for exchanges and 190 countries for its wallet service.

It currently enables the trading of four major cryptocoins: Bitcoin, Bitcoin Cash, Ethereum and Litecoin. It also offers merchant services in the form of an API that allows developers to build applications. Coinbase is renowned for its simplicity and ease of use, making it the gateway exchange for beginners. Users deposit their fiat money and buy the quantity they wish. With its streamlined process for beginners, Coinbase charges fees that are higher than most exchanges: there is a 3.99% on credit and debit card purchases. There is a 1.49% fee on crypto purchases. Funding the account is free and can be done via a bank transfer. Users can send bitcoin to each other for free, granted the transaction is above 0.001 BTC. Coinbase cooperates with KYC (know your customer) practices along with governments and regulatory bodies, thus users are not anonymous.

However, it also uses the latest technology to provide security to users and is backed by venture capital via investment banks and the like. It also offers customers with insurance coverage from the FDIC for up to $250,000.

Market capitalization:

* Coinbase has transformed into the first crypto unicorn startup in August 2017, with its value surpassing 1 billion, at $1.6 billion.
* Coinbase had an 1000% increase in transaction activity in Q3 2017 and has predicted the same course for 2018.

Cryptocurrency Exchanges Around the World

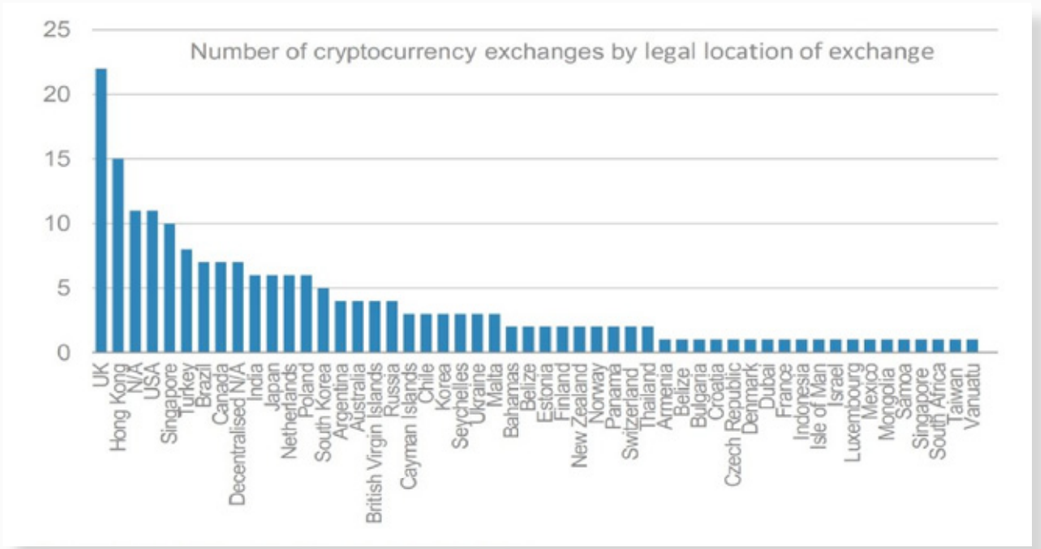
The following graphs present the nations in the world in which crypto trading is most prevalent, based on 2018 research conducted by Morgan Stanley. Each graph exhibits different data collected on exchanges: the first graph sets the crypto trading volume by the location of an exchange; the second graph conveys the amount of exchanges located in various countries. The countries featured in these graphs have robust crypto activity. When considered in combination, these graphs posit the places in which trading is most common by the amount of exchanges and the amount of trading activity.

Key Findings from the Data:

1. The country in which trading is most heavily concentrated is Malta.
2. The high trading volume of Malta can be attributed to the popular exchange Binance relocating there.
3. The top five countries with the heaviest crypto trading volumes are: Malta, Belize, Seychelles, the USA and South Korea
4. The countries with the highest count of exchanges are: the UK, Hong Kong, the USA, Singapore and Turkey.
5. The United Kingdom has the highest count of legally registered exchanges.
6. The trading volume from UK-based exchanges is 1% of the global volume

Trading Volume by Country of Exchange

Amount of Exchanges in Each Country



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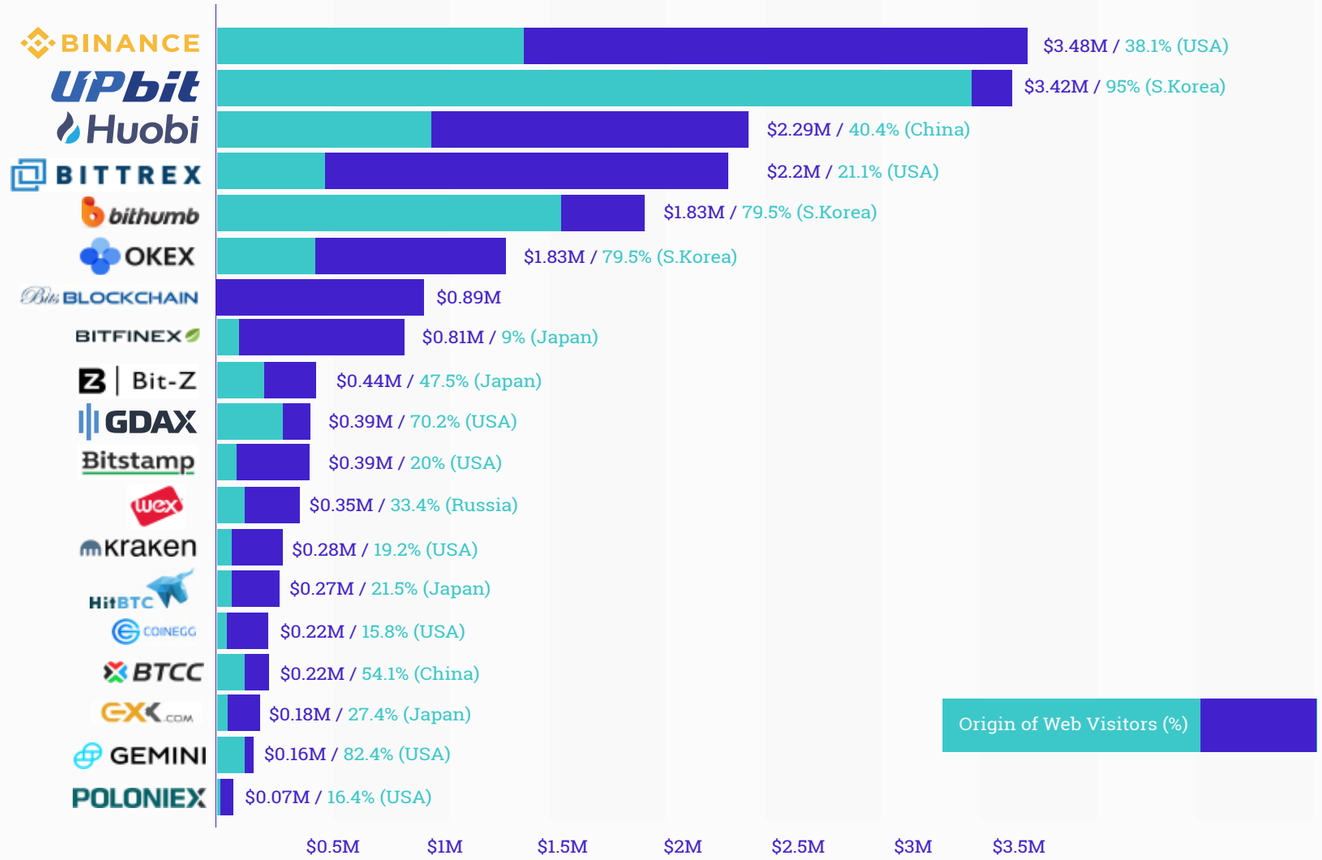
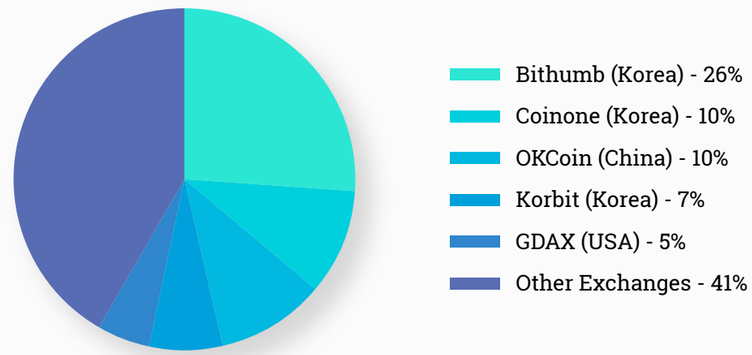
Asian Exchanges & Dominance

Due to Asia's position as a geographic hub for the crypto sphere, (see above section Cryptocurrency Boom in Asia) it is naturally home to some of the world's biggest exchanges. Asian-based exchanges dominate the global crypto trading market by way of holding the highest trading revenues. Tokyo-based Binance still dominates despite its move to Malta.

Crypto Exchanges' Trading Revenue Per Day



The World's Top 5 Exchanges



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Mining

Cryptocurrency is blockchain-based digital money, one that is constantly being reconciled by a process called mining, which serves an integral part of the verification of crypto transactions, as well as that of the creation of new coins. It is therefore the lifeblood of the blockchain, updating it with the formation of new blocks (units of transactions), and serving as the main undertaking that determines coin supply.

Cryptocurrency mining precisely refers to the operation of solving complex math problems to verify crypto transactions, which can then be recorded in the distributed digital ledger called the blockchain. Mining consumes a great deal of energy and requires using specialized hardware, such as a graphics card, an ASIC miner, a motherboard and power supply.

The Technicalities of Mining:

Miners compete with each other to solve a complicated math problem involving a cryptographic hash algorithm, which starts with hash functions. A hash function takes in an input value and produces an output value based on the input value. It is used to create a fixed size set of data from any size of data by completing an operation on it. In the blockchain, hash functions are part of the block hashing algorithm, a Proof of Work (PoW) computational problem which miners must solve.

The input for the function consists of the most recent, unverified transactions. This is used in the PoW algorithm used in mining to solve a block. When new transactions are added to the transaction/ memory pool, they stand by until they can be put in a new block to be validated. Miners must consolidate the inputs with arbitrary input data so that the resultant hash has 18 digits of zeroes. This requires a robust amount of computation.

Mining Reward

The Proof of Work is the evidence that a miner had spent a great quantity of time and resources to solve the computational problem. The miner who solves the math problem is rewarded with either of the following two types of rewards: new crypto coins or a transaction fee. As of July 2018, the reward for the mining of bitcoins is 12.5 BTC.

This Bitcoin mining reward is halved every four years. In the following (previous) years the reward was:

50 BTC in 2009, 12.5 in 2016 and 6.5 in 2020.

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The Specifics of Mining & Hash Rates:

Bitcoin thus has a total supply of 21 million coins and is set to issue no more around the year 2140. Mining becomes more difficult and energy-consuming as miners approach the total supply of bitcoin. Thus, mining is a form of bringing the coins into being, as no additional coins could be created without mining.

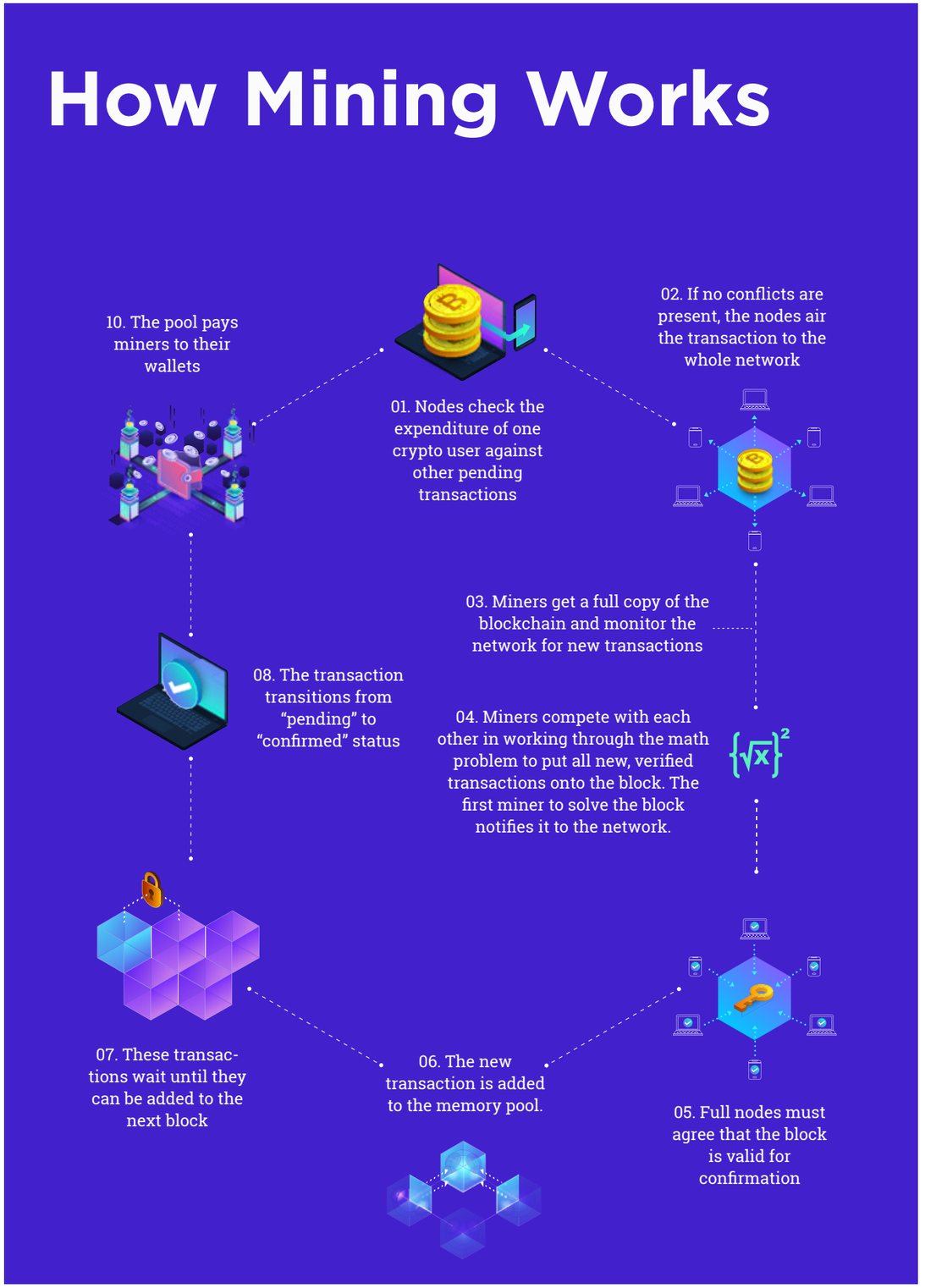
Most miners deal in mining pools. A mining pool denotes a group of miners working as one unit that share block rewards among each miner in the group. The miners are known as nodes, or validators of a network.

Miners in the pool share their hashrate with other members. The block reward for each participant is determined by the miner's contributed hash power.

Also called the hash rate, the hash power is the unit of measurement which calculates how much power the crypto network (i.e., Bitcoin) is using in order to operate. Hash power is measured at the rate of 10 minutes, or how much power is used to find blocks in a ten-minute period.

Higher hash rates are more convenient for mining, increasing the chances of finding a block to receive the reward.

Pools centralize the process of mining, as power is bestowed upon the pool's owner. Those who mine outside of a pool are responsible for finding their own mining block; this process is called solo mining.



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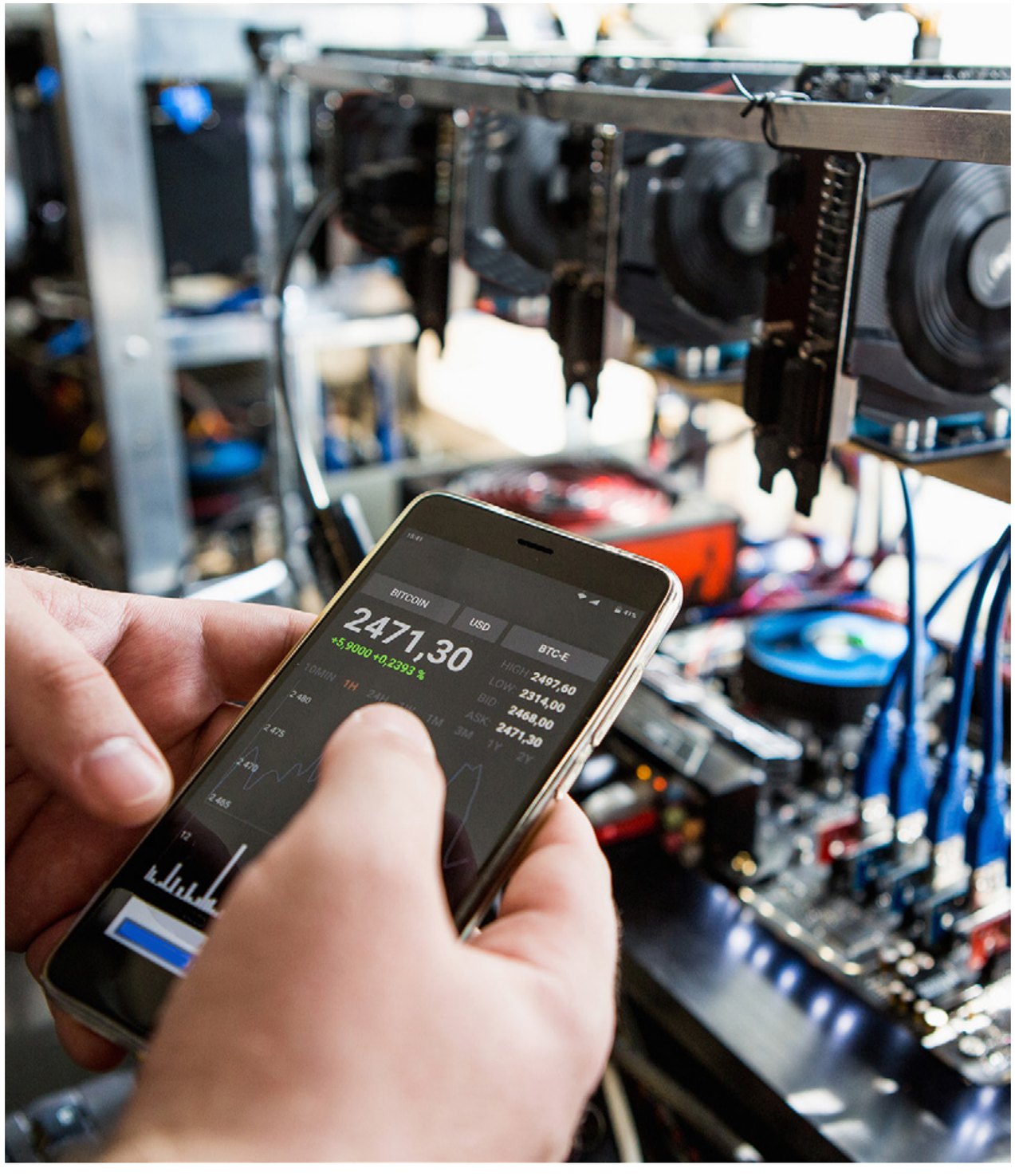
The State of Mining

- Crypto mining rose by 8,500% in 2017.
- The global crypto mining market was worth $610.91 million in 2016, it is expected to reach $38.38 billion by 2025.
- A block is mined every 10 minutes.
- Bitmain, the world's largest mining company surpassed $1 billion in Q1 2018.
- Plattsburgh, New York was the first American city to ban crypto mining.
- China, Georgia, Sweden, and the United States account for 80% of mined Bitcoin.



Mining by the Numbers

- Bitcoin consumes 215 kilowatts of energy per transaction.
- It costs about $200 in electricity to mine a single bitcoin.
- Electricity makes up 70% of the cost of mining.
- Bitcoin vs Ethereum Block Time: 10 minutes vs 10-19 seconds, respectively.
- In the first years of Bitcoin, the mining difficulty level shot up from 1 to 50 billion.

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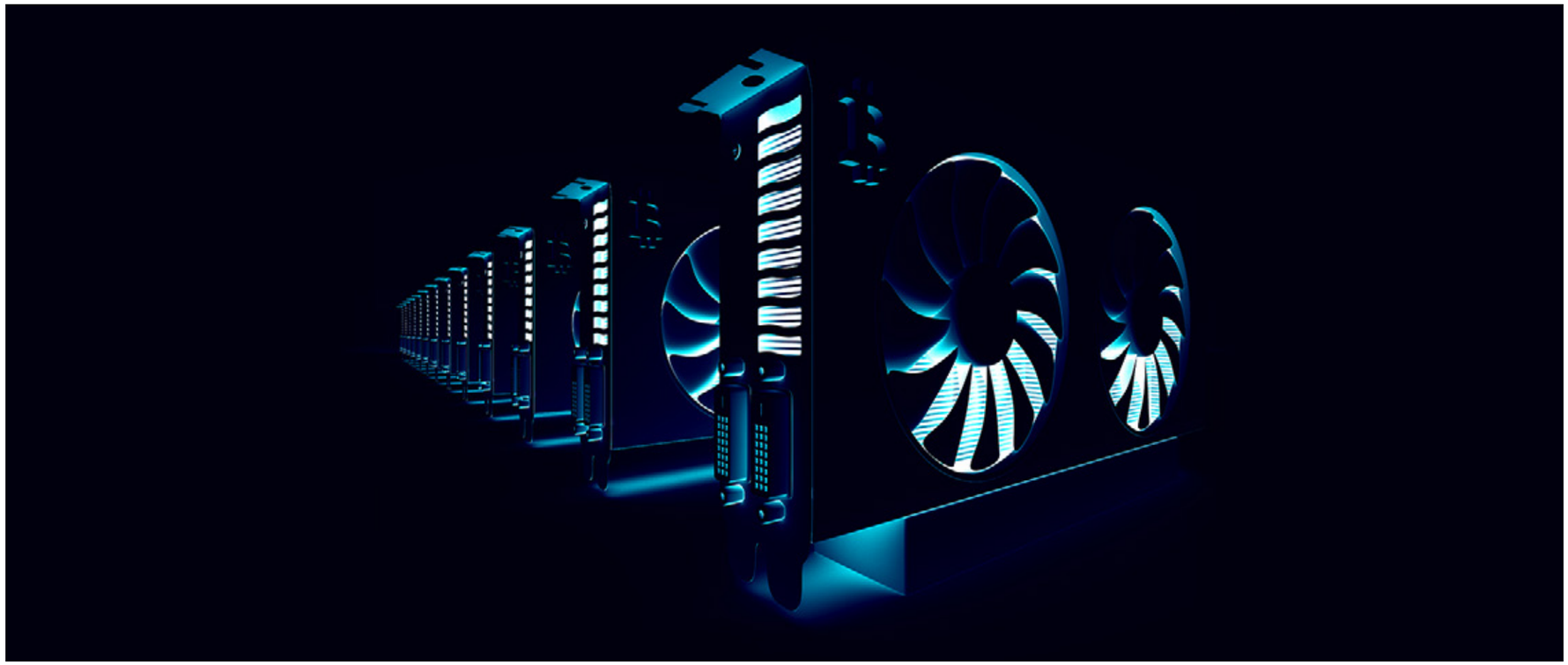
The Mining industry



Despite adverse inclinations towards cryptocurrency in China, China remains the largest market for mining pools, with the highest stakes in the mining sphere. Chinese mining pools use about 90% of the total global hashpower, as China has vast mining farms. These farms, or pools, are throngs of supercomputers used to mine coins. Mines are often set up in rural areas, especially alongside power plants. There are other resources made available that have shaped China to be a mining haven.

Firstly, the relatively cheap prices for electricity in the country are conducive to crypto mining. It is important to take into account the country's slack energy policies, which allow people to burn coal as energy for mining. With cities like Sichuan, featuring a profusion of hydroelectric plants, China's landscape has allowed it to become a top player in crypto mining. China also produces most of the world's mining equipment. The country's large mining pools attract miners, as larger pools create more predictability and stability for miners, whereas small pool mining presents miners with greater odds for earning crypto, despite the chance at a higher reward.

Despite being a world leader in the mining sector, China is augmenting its efforts to clamp down on the mining industry. The People's Bank of China has been considering ways in which to shorten power supply to companies dealing in crypto.

In January 2018, the Leading Group of Internet Financial Risks Remediation released a notice to local Chinese governments requesting them to steer mining companies out of the mining business.

The document mentioned concerns over energy use and how they've affected power prices. Thus, some major Chinese mining pools have moved their operations abroad.

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Largest Mining Pools

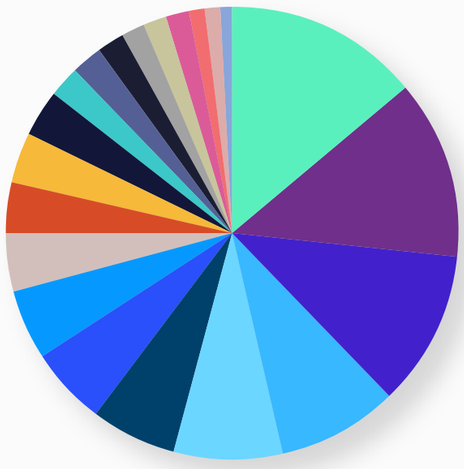
Largest Mining Pools Worldwide (All-Time)

The pie chart gauges worldwide pool distribution of the biggest mining pools from all time, beginning with the first launch of a mining pool in 2010, to the present.

These pools demonstrate a correlation between their hashrate shares and blocks mined, with higher numbers present in both categories.

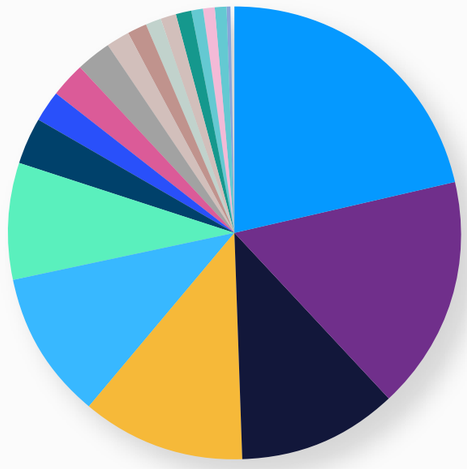
Despite accounting for the largest pool distribution through all the years of the existence of mining, some of these pools have since closed, such as BTC Guild, which shut down in 2015 and GHash.IO, which closed in 2016. The Czech Republic's SlushPool is the 6th largest mining pool of all time, and has dominated as a top-five pool in the past year.

Largest Mining Pools Worldwide (All-Time)



F2Pool: 13.1%
Antpool: 11.9%
BTC Guild: 10.2%
SlushPool: 8.1%
GHash.IO: 7.1%
BTCC: 5.6%
BitFury: 5.2%
BTC.com: 4.6%
BWPool: 3.9%
Eligius: 3.5%
ViaBTC: 3.3%
BTC.TOP: 3.1%
BitMinter: 2.0%
50BTC: 2.0%
KnCMiner: 1.9%
Bixin: 1.6%
OzCoin: 1.5%
BitClub: 1.4%
EclipseMC: 1.1%
ASICMiner: 1.0%
KanoPool: 07%

Largest Mining Pools Worldwide (August 2017-August 2018)



BTC.com: 21.3%
AntPool: 16/3%
BTC.TOP: 11.4%
ViaBTC: 11.3%
SlushPool: 10/6%
F2Pool: 8.0%
BTCC: 3.3%
BitFury: 2.4%
BitClub: 2.4%
Bixin: 2.4%
BwPool: 1.6%
DPOOL: 1.5%
58COIN: 1.1%
Poolin: 1.0%
BTPOOL: 1.0%
Bitcoin.com: 1.0%
GBMiners: 0.9%
CanoePool: 0.7%
KanoPool: 0.4%

Largest Mining Pools Worldwide (August 2017-August 2018)

The above pie chart displays the worldwide pool distribution of the largest mining pools over the past year of 2018. BTC.com has made a lucrative rise in distribution, remaining the largest mining pool during the year. The Chinese mining pools are still in dominance, with AntPool holding the second largest slot at almost 20%, followed by Chinese outfits BTC.Top and ViaBTC.

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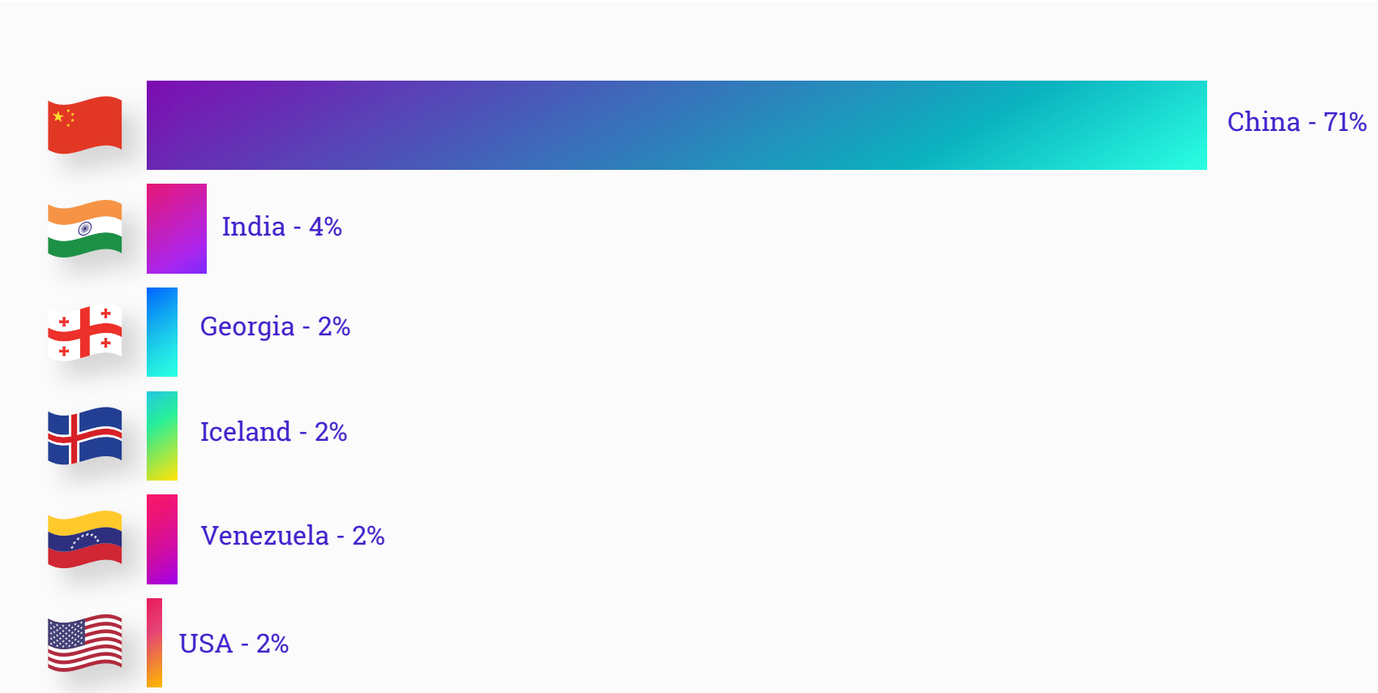
Countries with the Largest Mining Hashpower Around the Globe

Hashpower is most prone to change in the mining sphere, with the top 5 mining pools using 75% of the total hashpower. China is the dominant entity, consuming most of the world's mining hash power with a lofty double digit percentage. Contrary to China, the U.S. holds the last place at roughly 1 %.

As the largest miner of all nations, China also represents the largest exporter of cryptocurrency, particularly that of Bitcoin. The nations displayed immediately below China are miniscule in hash power, due to single-digit percentages.

The graphic displays estimates at world mining hash power. Note* 15% of total global hashrate is inconclusive, though China is speculated to hold more share.



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The Largest Mining Pools Worldwide

As the first pie chart, which contains worldwide pool distribution relays, China dominates. It owns the top 4 of the 5 leading mining pools worldwide. The prominence of the Chinese pools are largely responsible for the country's large hash power percentage. The fifth largest pool on an all-time basis is Ghash.io, which is no longer operating. The Czech Republic, Georgia and the U.S. are also leading countries for crypto mining.

Below is a list of some of the world's leading mining pools by pool distribution, users and number of mined blocks.

AntPool

The leading global mining pool - this Chinese-based operation is produced by Bitmain, the manufacturer of ASIC miners. Bitmain launched this pool in 2016. AntPool works via both stratum and the P2P mining protocol. Its current hashrate measures in at 675 Petahash per second (PH/s). It supports the mining of Bitcoin, Ethereum and Litecoin. Pool nodes are deployed around the world, including the Chinese cities of Beijing, Shenzhen, Qingdao, Germany, the U.S. and Hong Kong. AntPool provides miners with group statistics and management.

* In 2017, the Chinese Bitcoin mining giant Bitmain earned between $3-4 billion.

F2Pool

F2Pool is also known as DiscusFish opened in May 2013. Falling behind AntPool by only 2 percentage points at the time of this writing, F2Pool is the second largest mining pool by all-time pool distribution and one of the biggest mining pools in China.

F2Pool has mined about 18.5% of all blocks over the past twelve months. During July 2018, it controlled about 380 PH/s. This pools offers a larger variety of altcoins to mine, with Bitcoin, Ethereum, Litecoin, DASH, Monero, Zcash, Siacoin, Decred and more. The service offers a Chinese and English interface.

BTC.com

BTC.com has several enterprises in the cryptocurrency space, as the website operates as a mining pool, a wallet, a bitcoin API and a blockchain explorer. The BTC mining pool came to be in September 2016 and much like AntPool, is currently owned by Bitmain.

It was founded by the Bitcoin wallet Blocktrail, which had been acquired by Bitmain in 2016. In July 2018, BTC.com finished a project that allows users to merge-mine Bitcoin smart contracts with RSK, an open-source smart contract platform that rewards Bitcoin miners through merge-mining, and smart contract participation. BTC.com controls 348.300 PH/s and enables the mining of Bitcoin, Bitcoin Cash, Super Bitcoin (SBTC) and Namecoin.

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SlushPool

The world's first mining pool, SlushPool opened its operation in November 2010 in the Czech Republic. It has established itself as one of the major mining pools per pool distribution and hashrate share. Originally known as Bitcoin.cz Mining, SlushPool is managed by the Czech Satoshi Labs, a tech company that developed the mining stratum protocol which is presently used by mining pools. Satoshi Labs also devised the world's first offline Bitcoin wallet: Trezor Bitcoin Safe.

Since its first blockchain in 2012, Slush Pool has mined over 15,000 blocks and over 1,000,000 bitcoins. It supports Bitcoin and Zcash mining. Most of SlushPool's users come from the U.S., with significant user bases in Germany, China, the UK and Canada. It has the fourth largest pool distribution as of the writing of this report.

BitFury

Based out of Georgia, BitFury is the 6th largest mining pool per pool distribution over the past year, accounting for 2.8% of worldwide mining. It currently mines 15% of bitcoin. BitFury is the manufacturer of mining chips and hardware. Besides serving the sector of mining, BitFury is also a full-service blockchain technology company that includes the production blockchain infrastructure and data centers. One of the highest-funded mining pools in the sector, the company raised $20 million in July 2015. In July 2017, it was reported that Bitfury earns roughly $100 million annually. It currently controls 534.45 PH/s at the time this report was written.

BTCC

BTCC Pool Limited has the 6th largest mining pool distribution in the world (as of the writing of this report) and serves as the third largest pool in China. Founded in 2011 as BTCChina, the origin of the platform was that of an exchange. However, after China's crackdowns on ICOs and exchanges, the company was sold to a blockchain investment fund in Hong Kong in late 2017. In early 2018, the newly acquired company saw a push in its pooling efforts, buttressing its growth in the sub-sector of mining pools.

In June 2018, the company agreed to sell 49% of its stake as a bitcoin mining pool; the buyer in consideration is Value Convergence (VC) Holdings Limited, a financial services company in Hong Kong. In July 2018, BTCC announced that it was relaunching as a crypto trading platform and producing its native token, the BTCC coin. The mining pool supports the mining of Tiny Copin (TC), Bitcoin Cash, Litecoin, Super Bitcoin (SBTC), Bitcoin Diamond (BCD) and BTM, and it controls about 240 PH/s.

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Crypto Mining in the United States

Mining in the United States has been expanding over the past several years, with mining companies seeking regions that contain profusions of electrical supply and affordable rates. This has sometimes been met with resistance from locals, who say mining plants would sap the electricity in their localities and derive no trickle down of profits to residents.

Rural areas in the United States have made increasingly positive efforts towards the mining industry. In Virginia Beach, Virginia, tech firm Bcause, LLC poured $65 million in funds into a mining facility in January 2018 in the wake of the town's slashing business property taxes on data centers. The eliminated taxes have shaped the town to be a center point for data centers. The city also paid Bcause $500,000 to funnel into expansion.

The facility is aimed at granting ordinary people the chance to participate in mining, leasing machines to individuals for under $5,000 per year.

The 84,000 square foot data center is the largest such place in North America.

In April 2018, Bitmain revealed its plans to open a mining facility in Washington state. Walla Walla's relatively inexpensive electricity costs attracted the Chinese mining giant to the area.

Contrary to the growing mining hub of Walla Walla, Mason County, Washington had placed a moratorium on crypto mining operations within the same month, although it wouldn't affect mining companies that have already been approved to open facilities.

This temporary prohibition aimed to curb the rise of crypto operations in the U.S. Pacific northwest, with worries about electrical costs and safety. Chelan County followed suit, as did a city in New York.

Some states have taken legal action on mining pools that were transgressing legal boundaries. The state of North Carolina shut down Power Mining Pool in late April 2018 via a cease and desist letter.

The letter cited that Power Mining Pool was in violation of the Securities Act, as its mining pool shares were classified as securities, and these securities were unregistered. Thus, all securities dealings were permanently forbidden until the company registered its securities. PMP is a company with mining rigs that power the mining of 7 different currencies, 24 hours a day, daily.

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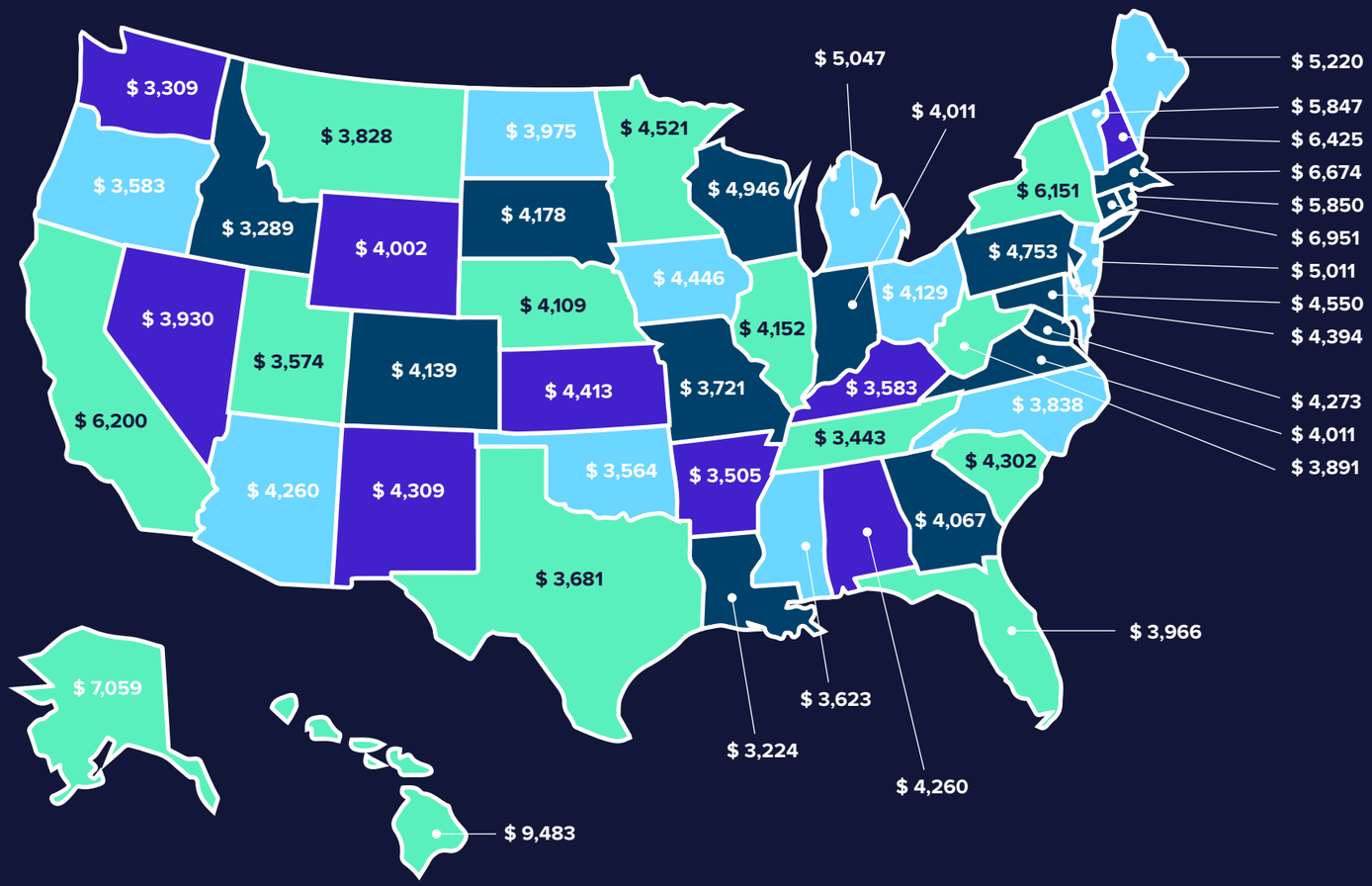
Cost of Mining Per State in the United States

Mining consumes a surplus of electricity, though the exact valuation differs from country to country, cost-wise. In the United States, there is no uniform rate of electricity, thus the cost of ming cryptocurrency varies by state. The following graph shows the average cost to mine a single bitcoin in every state. While the electricity costs vary, the charge remains in the thousands. The cheapest state for the required electricity to mine one bitcoin is Louisiana, at $3,224 per coin. Hawaii is the most expensive state to mine bitcoin, at $9,483 per coin. These diametrically opposed states, per electric costs have a price difference of 3 times that of the other.



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Largest U.S. Mining Pools

21 Inc.

Based out of California, 21 Inc. is a Bitcoin startup and one of the most financed crypto companies in history, having raised $116 million in March 2015 alone.

It launched in late 2013, at which time it had accumulated $5 million in funding. 21 Inc. has gone on to produce several mining innovations. In May 2015, 21 Inc. issued a Bitcoin mining chip for smartphones, galvanizing the beginning of mobile mining.

The chip, called 21 BitShare, will lead the way in what the company calls "embedded mining," a method in which smartphones mine cryptocurrencies while they get small distributions from a managed pool of crypto payouts. The company envisions this approach will form micro-transactions, an infinite amount of crypto and a new type of digital commerce.

The company is associated with Paypal founders Peter Thiel and Max Levchin. 21 Inc. mines about 3% of all bitcoins.

Eligius

Founded in April 2011, Eligius is a mining pool based in the U.S. and founded by Luke Dashjr.

It has a 4.83% ranking in the blockchain network. Unlike other mining pools, Eligius does not require registration. Miners must go to stratum.mining.eligius.st on port 3334 and use a valid Bitcoin address to participate. It charges no fees and utilizes the CPPSRB reward system, which has a 100% value during mining.

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Payments

Payments refers to the sub-sector of cryptocurrency, which, as the name suggests, deals with the companies that provide operations that help users of cryptocurrency send and receive payments.

The payment industry deals with the processing of payments for merchants and consumers alike, which includes both parties who send and receive payments.

The payments space is widening to include a number of actors that are not part of the fintech or financial fields. This is due to the function of crypto as a means of exchange, as opposed to merely an investment tool, since Bitcoin and altcoins primarily serve as alternative ways of buying. Thus, businesses that may not have otherwise dealt in crypto have begun to accept it as a form of payment.

The State of Payments

- In 2017, there were over 1,000 brick and mortar businesses globally that accepted crypto payments.
- Mobile payments as a share of total ecommerce is predicted to reach 48.5 % by 2020, from 23.6 percent in 2015.
- Bitcoin holders spent a monthly average of $190.2 million on merchant services in 2017, a sharp rise from $9.8 million a month in 2013.
- During times with high network traffic, transaction times can take between 30 minutes - 16 hours.
- Payment processors charge ~1% in processing fees.
- In March 2018, the partnership of CoinGate and PrestoShop opened the crypto payments market to 80,000 European merchants.
- 100,000 merchants accept Bitcoin payments worldwide.

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The Payments Industry

WIth cryptocurrency on the upswing, changes have occured within the payments industry that have both helped develop and maintain the sub-sector.

In March 2018, major companies, financial and nonfinancial alike, have revealed their move to join the crypto sphere, particularly that of the payments space. American Express, Microsoft, Paypal, Mastercard and Santander Group have vied to enter the payments sphere.

PayPal accessed the cryptocurrency payments space beginning in 2014, after partnering with Bitcoin processing companies that allowed users to receive crypto via the site's Payments Hub.

In March 2018, PayPal applied for a patent for an Expedited Virtual Currency Transaction System, a procedure the company hopes will expedite the speed of cryptocurrency payments.

The technology is premised on limiting the time it takes for payments to be transferred from customer and seller. In doing so, PayPal created secondary wallets that come with their own, separate private keys. Before the implementation of this system, users would have to wait until a transaction was included in a new block on the blockchain.

Santander Group, the global banking company entered the payments arena when it launched its crypto payment app in April 2018. Called One Pay FX, the app is blockchain-based and will act as a cross-border foreign exchange.

The app is powered by Ripple, the altcoin and blockchain startup that also operates as an exchange, a real-time gross settlement system (RTGS) and remittance network.

The app was originally aimed at small businesses, though Santander offered to expand it

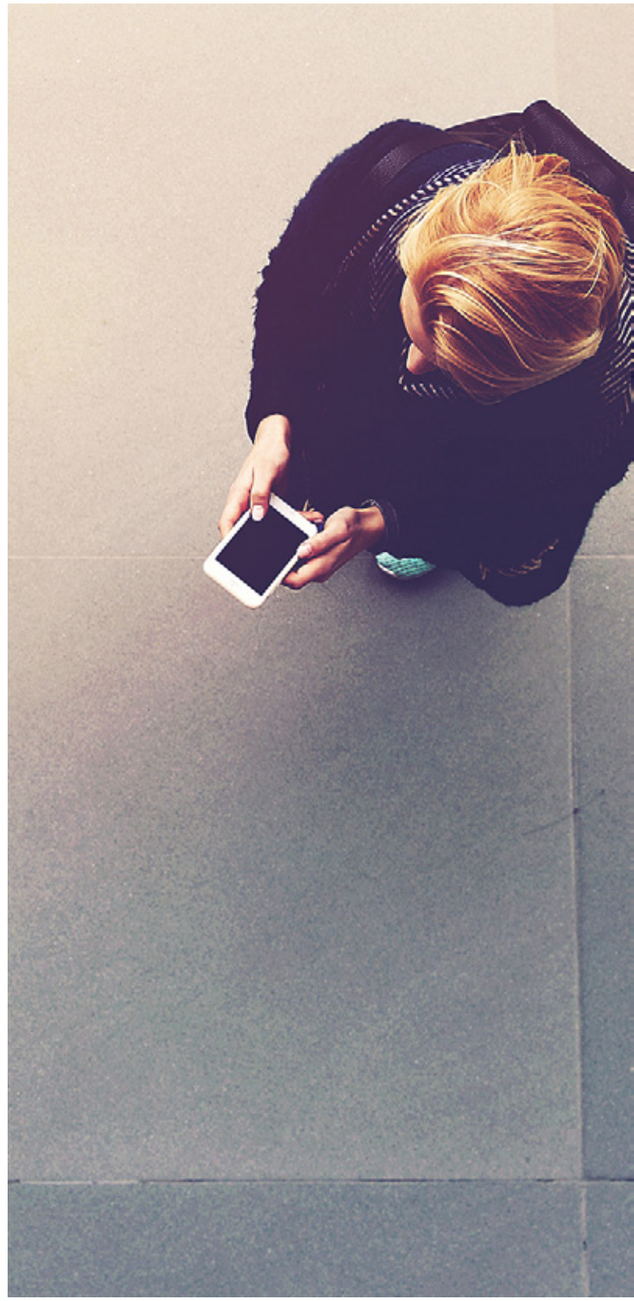
to financial institutions. The bank is one of the first to provide a blockchain-based foreign exchange payment.

American Express filed for a patent for a blockchain proof-of-payments system in July 2018. This system performs by automating proof-of-payments via an encrypted payment payload data that uses a public key on the blockchain's first node.

The data bears transaction and merchant information and is used to detect proof-of-payments and identify customers.

The data would disseminate to a second node on the blockchain after using the first. It could be retrieved by a smart device connected to the system, which would in turn decrypt the payment payload data and connect it with an identified customer.

In short, the system would enable smart devices to smart devices to find proof-of-payments and serve crypto customers.



Microsoft has experienced oscillation with its crypto payments, having had a series of back and forths in which the

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company accepted and then declined cryptocurrency as payments.

In January 2018, the tech giant revealed it will continue allowing Bitcoin payments, while in July 2018, the company didn't accept crypto, although not officially.

With no word from company stakeholders regarding the glitch, users have had their Bitcoin accounts charged without being credited to their Microsoft accounts.

As of the writing of this report, the Microsoft website included a page for adding Bitcoin to a Microsoft account, which can be used in Windows and Xbox stores.

Starbucks recently entered the cryptocurrency payments sector through its partnership with Microsoft and a financial/commodity market exchange.

In August 2018, the coffee chain declared it will partner with both Microsoft and Intercontinental Exchange to form Bakkt, a digital platform that will facilitate cryptocurrency payments.

This payments system will allow customers and businesses to store, spend, buy and sell cryptocurrency as of November 2018. Users have the option of converting their cryptocurrencies into USD.

While the platform resembles that of an exchange, it was built with the intention of expediting Starbucks purchases when cryptocurrency is the means of payment. Essentially, the platform seeks to extend payment options to customers and has had its eye on the crypto sphere due to its rising global use and popularity.

Skepticism of Cryptocurrency Payments

There has been a noticeable and sizable doubt of integrating cryptocurrency as a payment method given that some of the aforementioned companies have not always been welcoming to this concept (see Microsoft).

This reluctance is also present in most brick and mortar establishments and e-commerce shops, although this can partially be ascribed to the fact that cryptocurrency is still in its infancy. Thus, misgivings over crypto payments are largely due to the volatile nature of cryptocurrency and lack of exposure to the crypto industry.

Even as the most valuable cryptocurrency, Bitcoin, has had a drop of 50% in value in 2018, a shopkeeper would thereby be leery to accept crypto as a payment system if it can this abruptly drop in value. But surprisingly this has not deterred the payments sector.

The unstable nature of cryptocurrency has led to the rise of Stable coins, which are a type of cryptocurrency aimed at harnessing the turbulent nature of crypto.

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The Rise of StableCoins

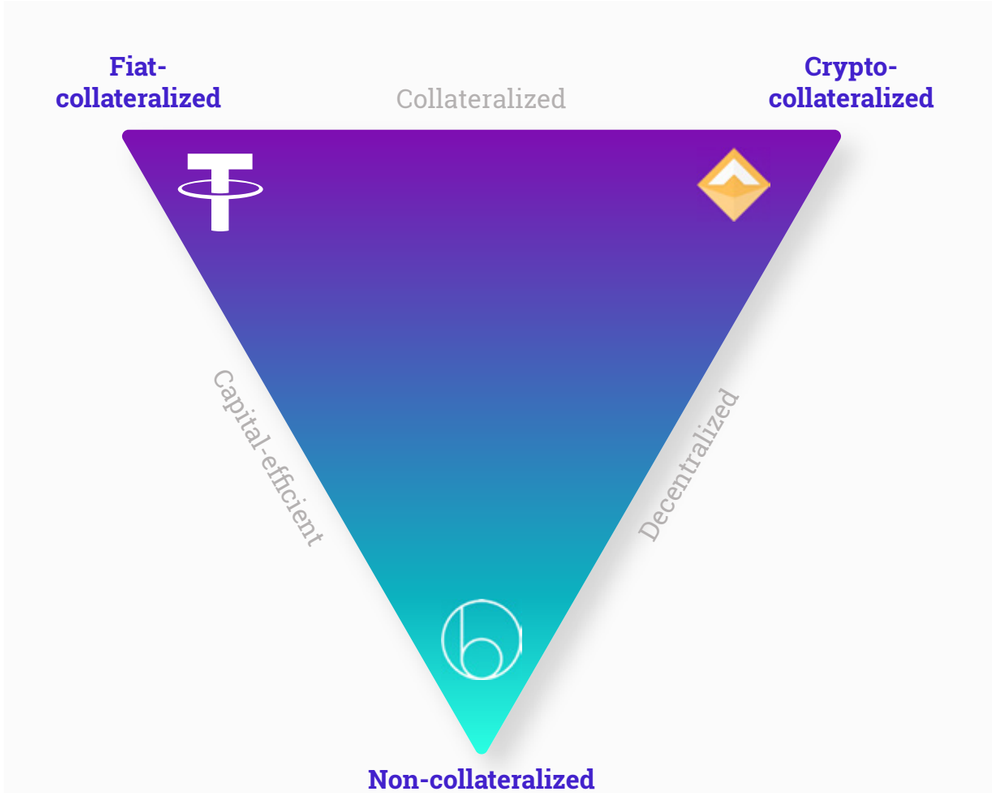
A stablecoin is a digital currency based on a blockchain, except unlike crypto coins, it provides stability by maintaining its value. Thus, it is optimal for those deterred by the volatility in most cryptocurrencies and seek to avoid depreciation.

There are three types of stablecoins. The first two are tied to a unit of value that has global acceptance. This unit is usually an asset such as a fiat currency (ex: the USD), a commodity like gold or oil, other cryptocurrencies, or a collateralized debt position (CDP). A CDP "locks up" crypto, i.e. acts as the collateral/guarantee against the value of a stablecoin which is issued.

There are also non-collateralized stablecoins, which are essentially seigniorage shares, working through the use of smart contracts, which reduce and expand the supply of stablecoins through an automated algorithm that retains the coin's value.The following graphic illustrates the three categories of stablecoins.

Stablecoins are backed by the value of their underlying asset. This may be of avail to those seeking to lessen the high volatility associated with cryptocurrencies. However, the asset-backed nature of stablecoins means that unlike other crypto, they are centralized.

This may shock those who are in favor of the decentralized aspect of crypto. The reasoning behind this is that since they are centralized, they are at the mercy of a bank or government, which can freeze or spend the assets.



Fiat-collateralized: Stablecoins backed by fiat currencies & are collateral-backed by real world assets, IOU stablecoins, the most centralized, as they are controlled by a central entity.

Crypto-collateralized: Backed by other crypto coins or several assets & collateral-backed. IOU stablecoins, the least centralized.

Non-collateralized: Use seigniorage shares a decentralized bank, stabilized by algorithmic methodology, similar to how banks control the value of money.

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Fiat Collateralized Stablecoins:

Also called USDT, Tether is a stablecoin that issues a sum of coins which are deposited into a bank account in their equivalent USD values. Holders of tether can deposit and withdraw their USD, the amount of which determines the amount of stablecoin in their account.

In other words, these actions dictate how much the token rises and falls. This token is based on the Bitcoin blockchain and uses the Omni Protocol. In late 2017, Tether was the largest stablecoin in terms of trading value. It is currently traded on 35 exchanges. It has a market capitalization of $2,435,820,134 and is worth $0.99 as of August 2018.

TrueUSD is a stablecoin that is attached in value to USD that's placed in the bank accounts of various trust companies that have committed to escrow agreements. The bank accounts receive monthly audits. The USD are not directed to one source, which lessens the centralization aspect of this stablecoin. There are instead multiple monetary companies for the collateralized holdings, thus there is not centralization to one company. These tokens are used on the U.S. exchange Bittrex. It has a market capitalization of $58,867,946 and is worth $0.99 as of August 2018.

Crypto Collateralized Stablecoins:

MakerDAO has a relatively convoluted system to retain stability of the coin it uses. The coin on this network is Dai, a token that has the constant worth of $1. In order to maintain the price of Dai, MakerDao uses Collateralized Debt Positions (CDPs) in its protocol. The platform uses Ether for collateral, specifically PETH (pooled ether) and seeks to be attached to the USD. It uses smart contracts on Ethereum to monitor the making and value of Dai. A new CDP is required of users to create new Dai. The value of the CDP must be higher than that of the amount of Dai and the amount is made by the system. The systems manage the cost of Dai via demand, increasing the base price when the Dai price is low and decreases it when the price of Dai gets too high. Instead of a single entity, MakerDao relies on users and developers, without a single point of failure. Dai has a market capitalization of $55,878,352 and is worth $1.00 as of August 2018.

Abra is a platform that incorporates crypto-collateralization of altcoins, yet it does not offer a proprietary coin. It can collateralize 25 cryptocurrencies with smart contracts to support the trading of all the currencies in the network.

Although it is a crypto-collateralized stablecoin, it also supports 50 fiat currencies. The platform incorporates a hedging mechanism that stamps out its market exposure to the often large market shifts in cryptocurrency. The network allows Bitcoin purchases via credit and debit card with transactions in the range of $50 and $20,000, a feature introduced in July 2018. Abra has clients in over 75 countries and has millions in crypto exchanges.

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Non-Collateralized Stablecoins

Carbon is a trustless stablecoin with a value that closely parallels the value of the USD. It implements an algorithm that adjusts the coin supply with coin demand. It can be used in financial applications, as it is works well with smart contracts. Essentially, the system relies on code as opposed to a third party. The network seeks to lead global payments, as it is works as a store of value, a unit of account and an exchange medium. It can be used for decentralized applications that use time-sensitive smart contracts, such as those in insurance, betting and the lending markets. It is in the process of partnering with dApps that can use the stablecoin. The network supports trustless, decentralized credit and debt markets, options, futures and other derivative contracts. Carbon has a market capitalization of $1,089,472 and is worth $0.000071 as of August 2018.

kUSD is the stablecoin of Kowala, the world's first stabilized cryptocurrency that operates on the company's distinct protocol, that of a dual-token blockchain. The Kowala system oversees market conditions to control the supply of the kUSD. Thus, kUSD is automatically generated by the Kowala blockchain in correlation to the demand of the market. If the price is over $1, it gets mitigated via the production of more coins. In the same manner, when the price is below $1, the coins are reduced by way of a transaction fee. Its proprietary consensus protocol Konsensus, creates a decentralized group of users that agree on blockchain dealings like transactions and the reward distribution. The company has an accessible approach to mining, as it does not require mining equipment to participate. kUSD has faster transaction speeds than Bitcoin and Ethereum. kUSD has an undefined market capitalization and is worth $1.00 as of August 2018.

Payment Processors

Transacting with stablecoins is a sensible option for individuals and businesses in need of cryptocurrency that are hesitant to invest in a currency with high price volatility. However, stablecoins can be difficult to use, as they require the knowledge of buying cryptocurrency, using digital wallets and exploring exchanges. Thus, another entity has become prominent in the transactions sector - payment processors.

A payment processor is any company that manages crypto transactions through different platforms, usually designated by merchants and maneuvered during the point of sale. It handles all the aspects of cryptocurrency payments including transferring funds, confirming transactions and screening payments. The amount of payment processors, or payment gateways has escalated with the popularity of crypto.

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How Payment Processors Work

Payment processors are tasked with enabling the transfer of crypto funds between a seller and customer. Cryptocurrency holders can use their crypto at a place of commerce and buy items that have fixed fiat prices. Payment processors make this possible by acting as an exchanging entity between the altcoin and the fiat currency, except unlike a crypto exchange, a payment processor completes this action during the point of sale. In this sense, the payment processor works similar to that of an FX transaction. A payment processor utilizes a process comparable to that of a credit card.

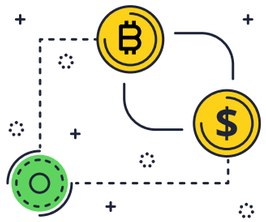
The graphic shows the steps in which a payment processor performs the transfer of funds. During this process, neither party — neither the merchant, nor the customer's banks are aware of the cryptocurrency used in the transaction.

01

The customer presents their cryptocurrency either in store, online or via mobile.

02

The processor shows the crypto exchange rate, ex.: 1 BTC= 6,258.83 USD.



03

The processor exchanges the funds from crypto to fiat.

04

The amount paid is sent to the payment processor's service provider.

05

The payment processor transmits the funds to the merchant's card associations. (Mastercard, etc.)

06

The card association notifies the merchant's bank.

07

The bank either approves or denies the funds.

08

The card association relays the bank's response to the merchant.

09

The merchant resends the response to the customer.

10

The merchant receives an authorization number in the case of approved funds.

Popular Payment Processors

As aforementioned, there are a number of payment processors, or payment gateways, available for crypto users to transmit crypto funds into fiat money and pay merchants on the spot. The following list provides the 5 largest cryptocurrency payment processors. These gateways have enough liquidity to handle larger clients.

BitPay

The largest global Bitcoin payment processor in the world, BitPay started in 2011 and offers processing for both Bitcoin and Bitcoin Cash. The payment provider works with a wide variety of popular e-commerce platforms and point of sales systems. It allows users to set their callback location, which gets routed to them after their payment. It also allows for fiat withdrawals for 240 currencies. E-commerce companies can implement some of the world's most popular open source plugins such as Magento, WHMCS, WooCommerce, WordPress Commerce and many others. There are 5 points of sale systems that can activate payments and 11 integrated solutions that don't require any development. Bitcoin provides direct bank deposits to 33 countries. It works with all payment protocol compatible wallets for Bitcoin and Bitcoin Cash.

Transaction Fees: 1% (Higher for high-risk industries)

Coinbase

Besides being the largest Bitcoin exchange in the world (see Exchanges), Coinbase is also a payment processor platform. The gateway accepts Bitcoin, Bitcoin Cash, Ether and Litecoin. It offers a variety of online and offline solutions for merchants to accept crypto. These include websites/blogs, e-commerce sites, custom integration and email invoices. The payment processor offers a plugin for Shopify, the only plugin on the platform. Thus, e-commerce systems must be integrated through an API to use the system. Although the functionality of the payment processor is basic, it offers a variety of fiat, withdrawal and deposit methods like bank accounts and credit cards. Coinbase allows for payments in the United States, Canada, Singapore, Australia and 29 European countries.

Transaction Fees: 0% flat fee on every transaction, 1% conversion fee.

Coingate

Another crypto exchange, Coingate also doubles as a crypto payment processor, offering payments service for about 50 cryptocurrencies including BItcoin and Litecoin. Altcoin payments are done via Shapeshift integration and the processor offers payouts in the USD, EUR and BTC. Coingate is feature rich, offering a variety of automation options and solutions. These include 11 plugins for e-commerce sites, a CoinGate Payment API and point of sale applications that come with payment buttons. It supports digital platforms such as web, iOS and Android. It has a 24-hour withdrawal for all crypto transactions. To use the platform, customers can be from anywhere, but the business itself cannot be located in the United States, as the country doesn't accept this processor.

Transaction Fees: 1% flat fee on all transactions

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CoinPayments

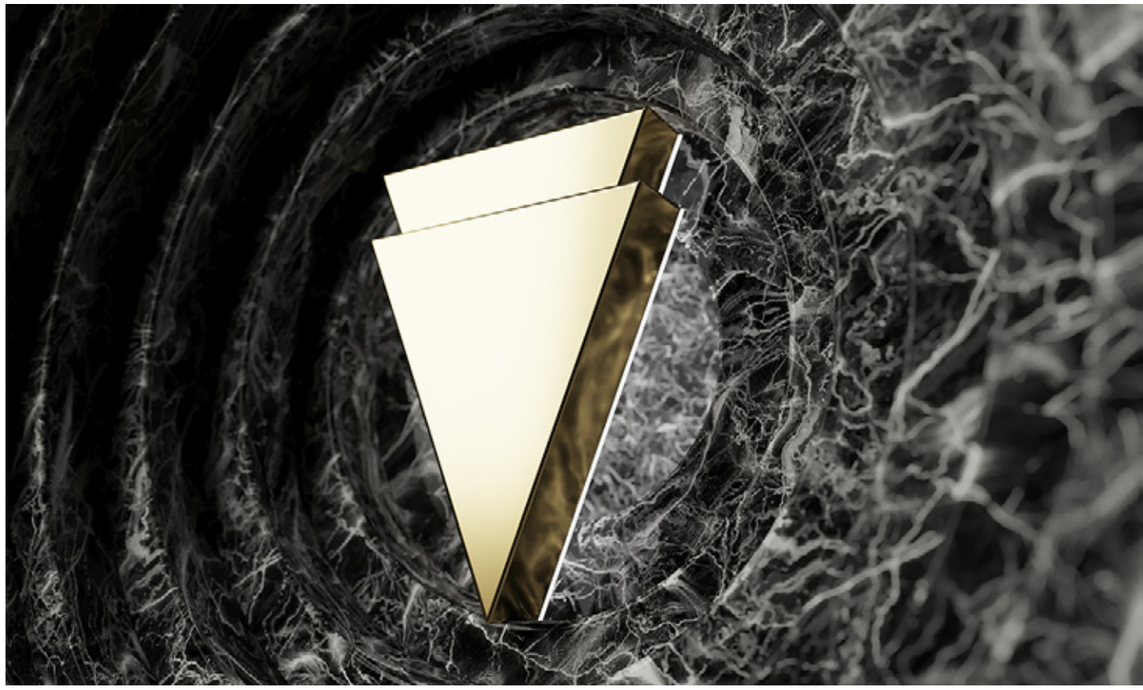
Developed in Canada, CoinPayments is a major crypto company, offering the buying, selling and trading of cryptocurrency, as well as being a payment processor. CoinPayments provides a host of digital integrations such as merchant shopping cart plugins, APIs and IPNs, mobile apps, invoice builder and point of sale systems (HTML URL, POS link and QR generators). It also enables the use of simple buttons for both shopping cart buttons and donation buttons. The payment gateway accepts payments in a rich assortment of over 445 altcoins. The platform is used in over 182 countries and has 718,000 vendors worldwide in said countries. Withdrawals are available in fiat, but only with the Coinbase/Coinmotion bridge. The platform offers the unique feature of its own ICO listing directory and a public directory of sellers that use Coinpayments. The service offers GAP600 Instant Confirmations that allow for faster payments, as well as providing a vault to store crypto coins.

Transaction Fees: 0.5% fee on all transactions

GoCoin

Launched in 2013, GoCoin has become a leading payment processor, that includes integration, customer support and other tools. Merchants have 12 shopping cart plugin options including WooCommerce, Magento and ZenCart. The platform provides two hosted libraries, 6 code libraries and a maven documentation for Java developers. The company allows merchants to create their own integration via its proprietary API. Users can deal in Bitcoin, Litecoin, Bitcoin Cash and DASH to pay their invoices while merchants have a wider pool of cryptocurrencies available for invoice payments. The company has garnered over 15,000 merchant accounts and has processed over 5 million transactions in millions of dollars.

Transaction Fees: 1% fee on all transactions



Stablecoins and payment processors are two key players in the payments sector; they have evolved and advanced the cryptocurrency sphere as a whole.

Stablecoins help ward off instability within cryptocurrency and catalyze the maintenance of crypto values, comforting those whose main concern in crypto is its value fluctuation.

Payment processors assist crypto users in making purchases without the need of navigating through an exchange in order to use their crypto assets.

They also act as intermediaries in payment management for merchants. Both stablecoins and payment processors impart crucial solutions to crypto payments that will continue to shape the cryptocurrency sphere.

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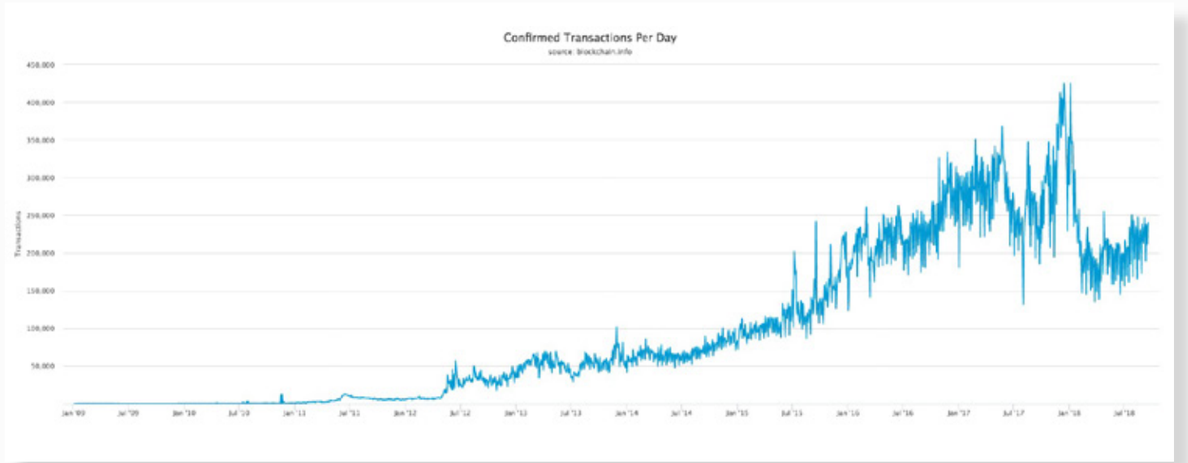
Cryptocurrency Transactions

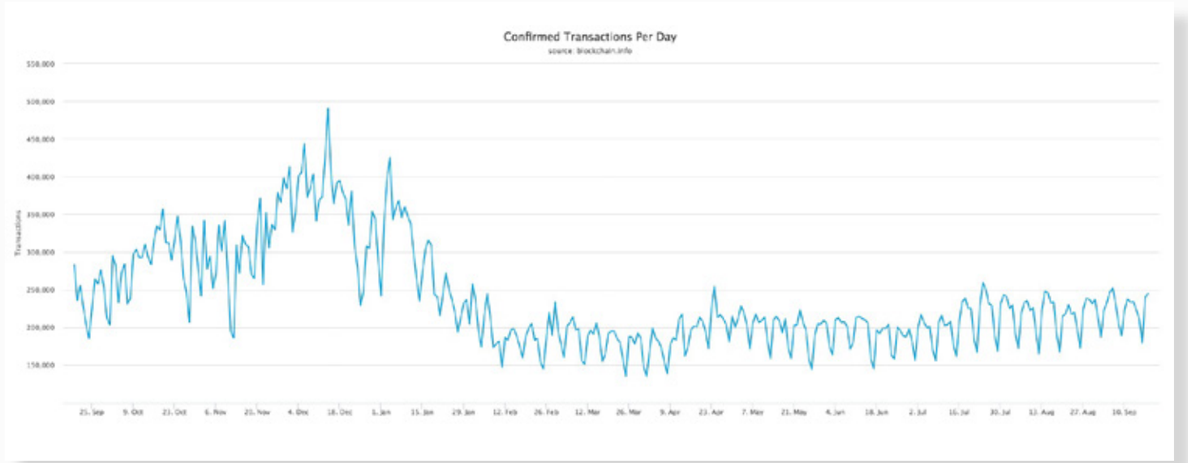
Transactions have picked up speed with the growing number of cryptocurrencies, the implementation of blockchain technology, the rise in payment processors and other developments in the all-embracing cryptocurrency space.

The graphs below present the data on crypto transactions, at both an all-time and yearly basis. The volumes are in USD.

Daily Bitcoin Transactions of All Time



Daily Bitcoin Transactions from September 2017- August 2018



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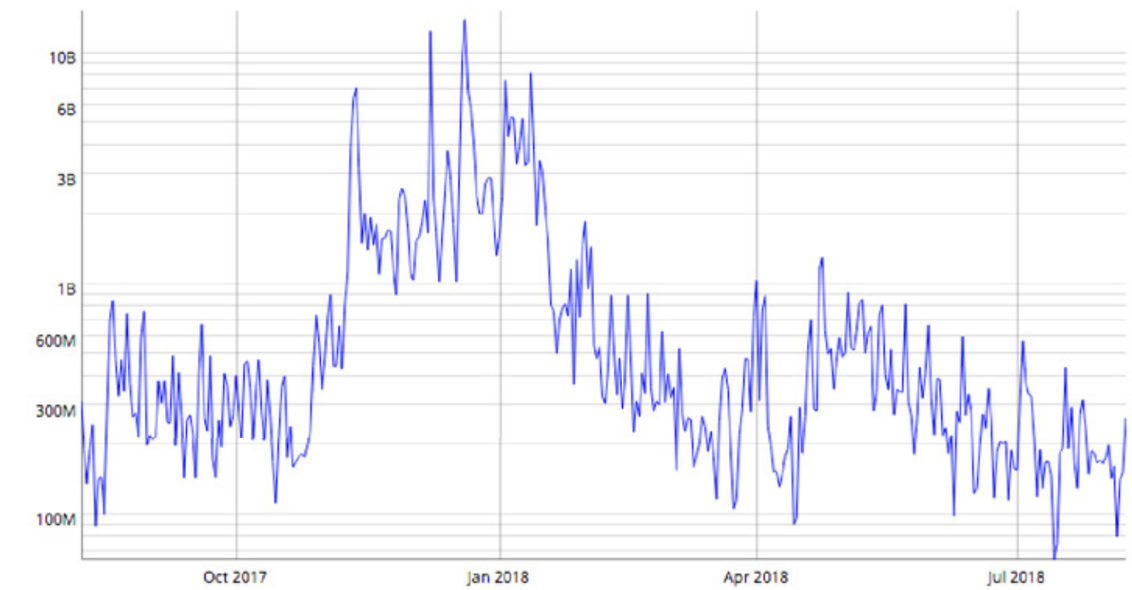
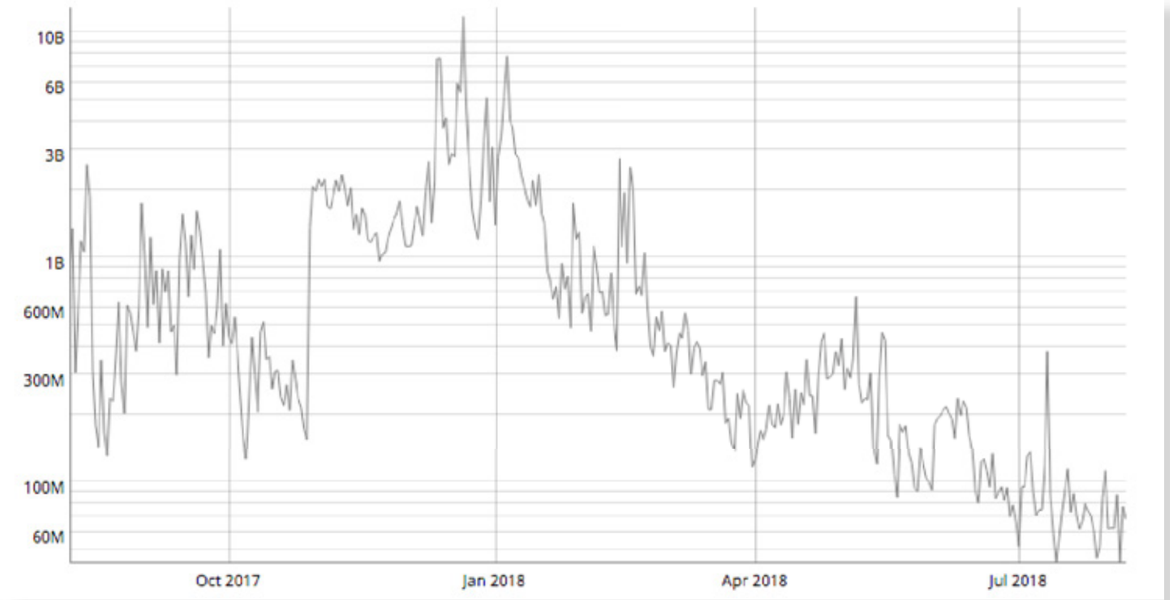
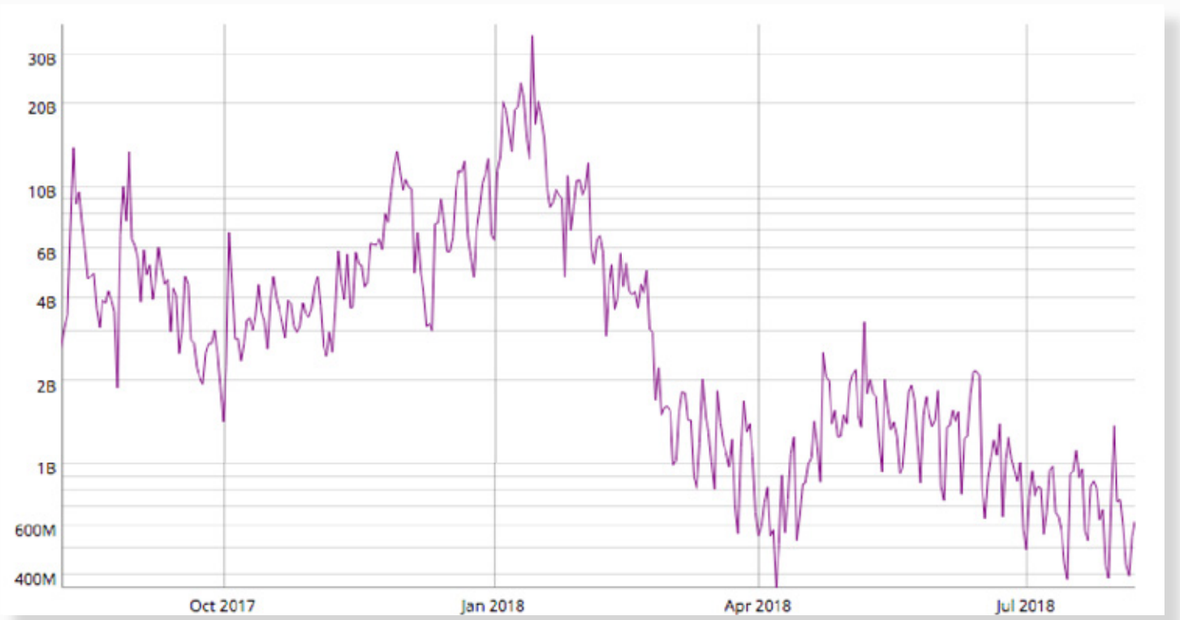
Daily Bitcoin Cash Transactions
August 2017- August 2018



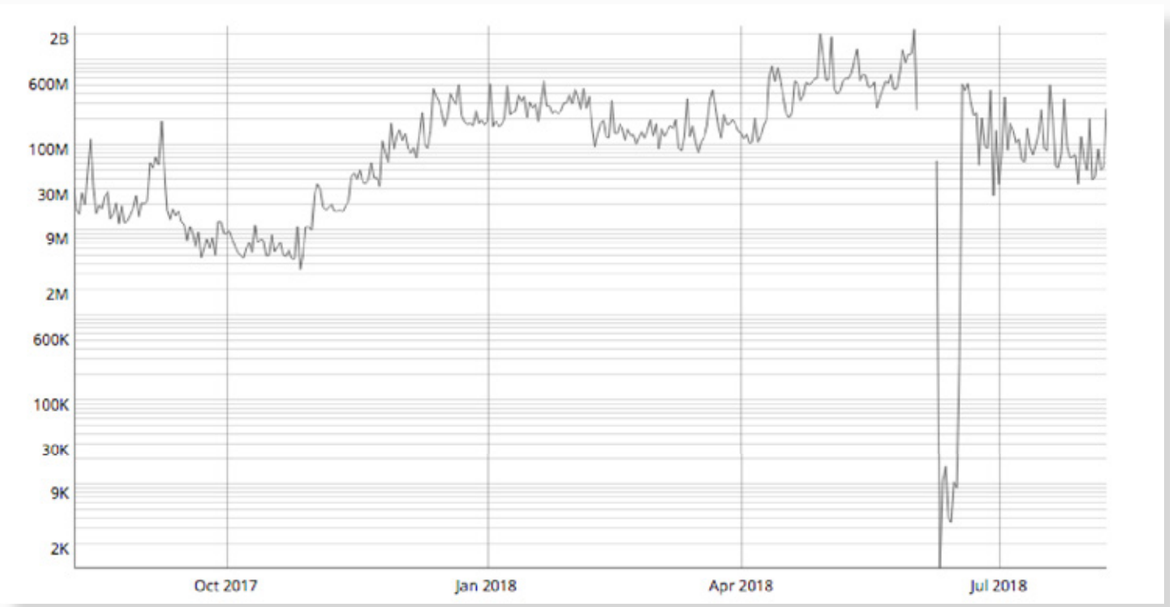
Daily Litecoin Transactions
August 2017- August 2018



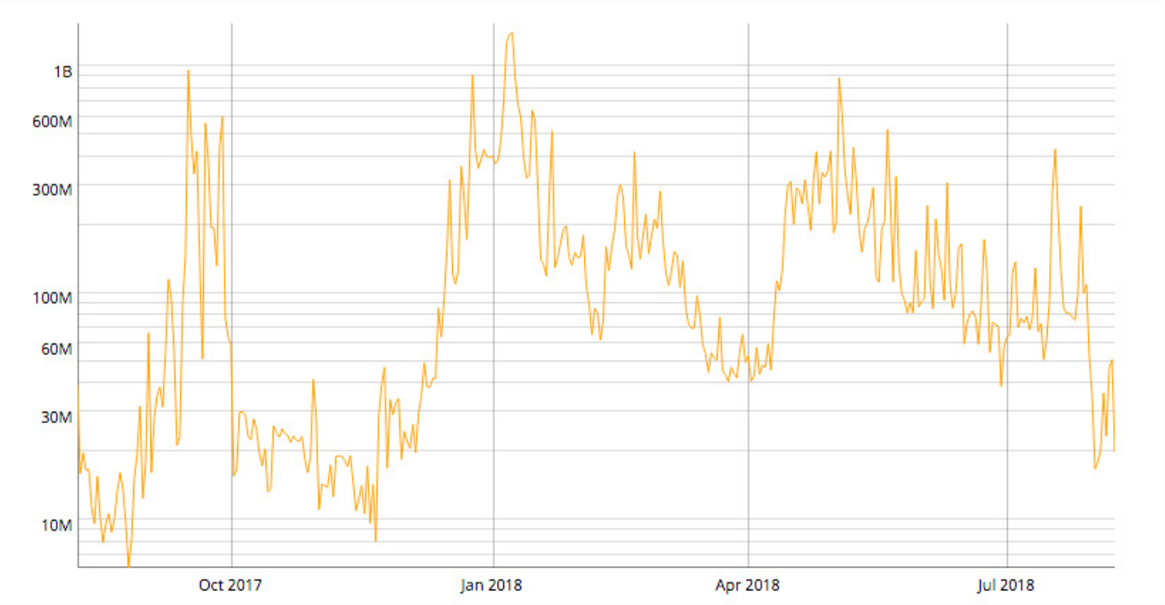
Daily Ethereum Transactions
August 2017- August 2018



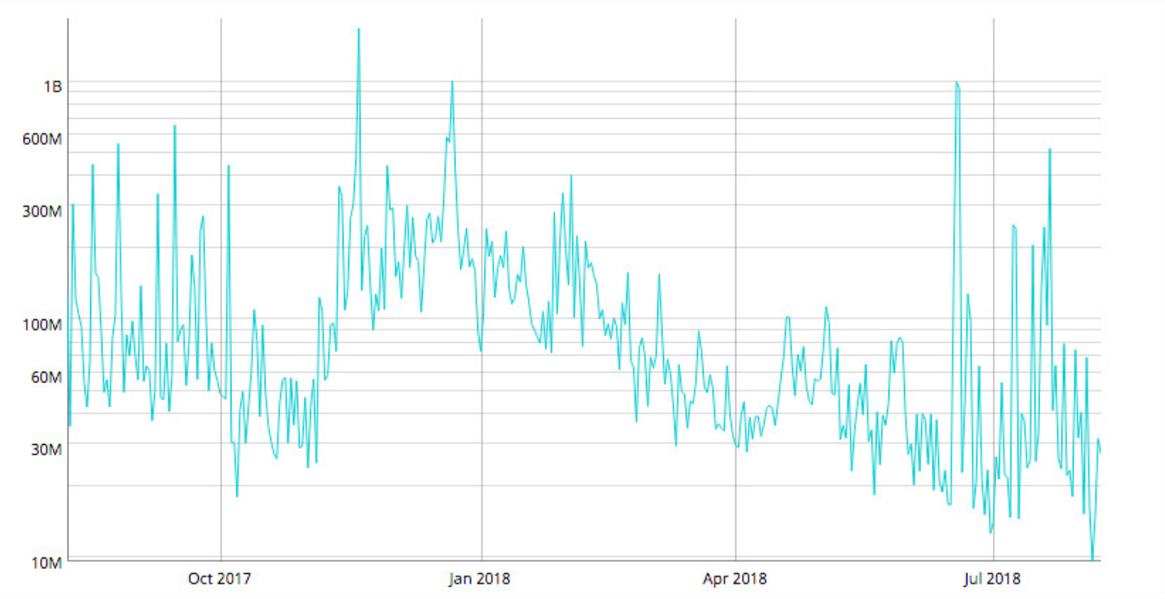
Daily EOS Transactions
August 2017- August 2018



Daily Ethereum Transactions
August 2017- August 2018



Daily Dash Transactions
August 2017- August 2018



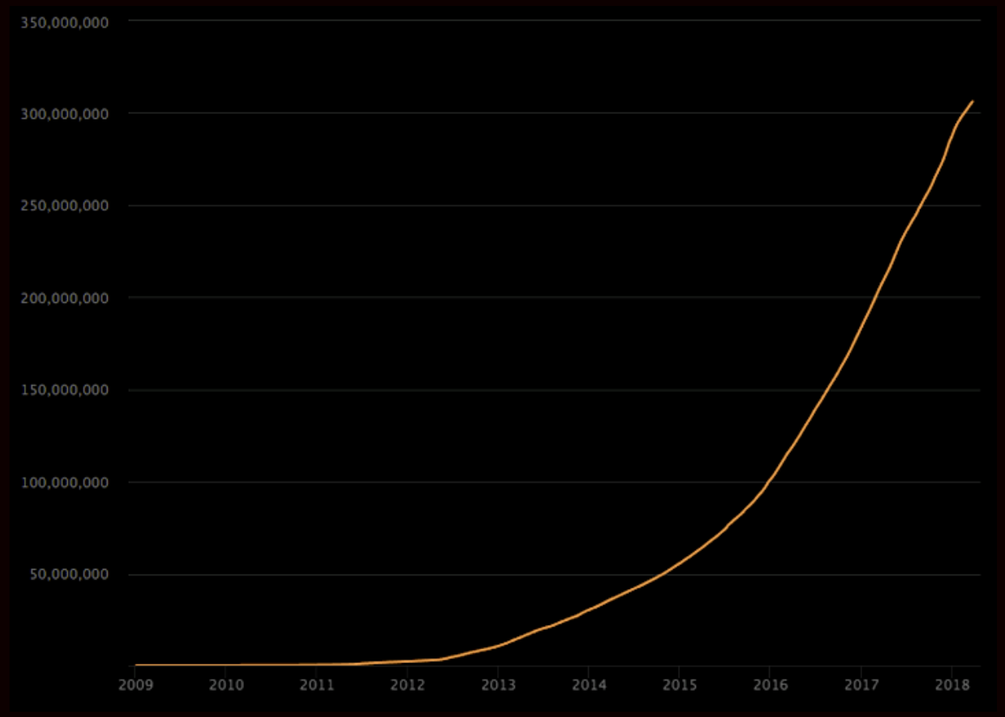
Blockchain Transactions

Cryptocurrency relies on the blockchain to record all transactions that anyone on the crypto network can view. With the amount of altcoins having risen since the inception of Bitcoin, blockchain transactions have correlated with such an upsurge. As a wide array of industries become more data-centric, the need for a distributed digital ledger has grown.

It has added trust and integrity within businesses and government administrations that rely on transacting data. This is a direct result of the rise of Blockchain transactions. The following graph displays the amount of all-time blockchain transactions.

The first steep rise occurred between 2012 and 2013, which was followed by an ongoing upward progression.

Total number of blockchain transactions



Major Brands that Accept Cryptocurrency Payments

The expansion of the cryptocurrency market has led to more holders of this alternative currency, ultimately prompting major retailers to come to accept crypto payments.

Smaller businesses followed suit, with 60% of small businesses that were surveyed by Square conveying that they would be open to accepting crypto coins such as Bitcoin.

The list details several major brands that now accept cryptocurrency payments.

These brands are in a wide array of industries, with no concentration on technology companies as of yet.

CheapAir

Brand Category: Online travel agency, flights

Date of Acceptance: November 2013, altcoins in May 2018

Cryptocurrencies Accepted

Dish Network

Brand Category: Internet & satellite TV provider

Date of Acceptance: May 2014

Cryptocurrencies Accepted

Gyft

Brand Category: Digital gift card buying/selling platform

Date of Acceptance: 2013

Cryptocurrencies Accepted:

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Microsoft

Brand Category: Technology company providing software & electronics

Date of Acceptance: December 2014

Cryptocurrencies Accepted

Overstock

Brand Category: Internet retailer of home goods

Date of Acceptance: January 2014

Cryptocurrencies Accepted

Paypal

Brand Category: Online payments system for money transfers

Date of Acceptance: September 2014, January 2018 merchant acceptance

Cryptocurrencies Accepted:

PizzaForCoins

Brand Category: Online pizza ordering system

Date of Acceptance: February 2013

Cryptocurrencies Accepted

Shopify

Brand Category: E-commerce platform for online shops and POS systems

Date of Acceptance: November 2013

Cryptocurrencies Accepted

Paypal

Brand Category: Fast food restaurant franchise

Date of Acceptance: November 2013

Cryptocurrencies Accepted:

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Wallets

Wallets are the home of cryptocurrencies. A wallet in the crypto industry denotes a digital wallet, or a software program that holds crypto users' public and private keys. Wallets are used for a variety of transactions within a crypto network which include sending, receiving and storing crypto coins. Wallets interact with blockchains to track their user account's activity. Most cryptocurrencies have their own wallets, or direct users to unaffiliated wallet sites. Essentially, crypto owners cannot use their cryptocurrency without a wallet.

Cryptocurrency wallets disrupt the notion of storage, as they don't store cryptocurrency in actuality. They cannot store crypto physically, as crypto has no physical location. Therefore, crypto wallets facilitate a different kind of storage. These kinds of wallets act as addresses for the transfers of crypto funds between users. To send or receive cryptocurrency, the private and public keys in a wallet must match to complete the transfer or transaction. If they do, the transaction will act accordingly upon the user's wallet by either increasing or decreasing the balance. The transaction in turn gets recorded onto the blockchain.

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The Three Types of Wallets

Wallets come in three distinct forms that operate differently. These include three categories and two subcategories. Software wallets are comprised of three subcategories of wallets: desktop, mobile and online wallets, as these three wallet types are software/platform based.

Software Wallets

- Desktop: Downloadable wallets that exist on a single computer (the one in which the download occured). They can't be accessed from other computers, as they are linked to their installation. They have a high level of security, unless the computer in which they occupy gets hacked.
- Mobile: Wallets that exist in an app on a user's phone. They provide mobility in that they can be taken and used anywhere, including places of commerce. These apps are smaller in size and functionality than their desktop counterparts since phone storage is limited.
- Online: Cloud-based wallets that have accessibility from any computer or internet-connected smart device. They run on a third-party provided network and are therefore at risk if the network gets hacked.

Hardware Wallets

These wallets are not stored online; instead they exist in hardware devices, in an offline environment. However, like other wallets, users transact with them online, thus they can integrate into a variety of web interfaces and cryptocurrencies. Hardware wallets work with other hardware like tablets and computers to enter the network when they're plugged in. Once the wallet is plugged into a device, the user enters a PIN, sends the altcoins and confirms the transaction. Hardware wallets are most ideal for those uncertain about keeping their wallets and thereby, private keys online. Two popular hardware wallets are Trezor and Ledger.

Paper Wallets

Wallets that exist in a physical copy, i.e., a card or a printout of users' public and private keys that contain a QR code. This category also refers to a kind of software that creates a printed copy with all the necessary data to create keys. Paper wallets are owned by users and are not controlled by a third party. With these wallets, users are safe from network hacks, i.e.,from a wallet provider like Coinbase, etc. However, paper wallets are subject to tearing and water damage. Users must transfer funds from their software wallet to the public address on their paper wallet to transfer funds. This is known as sweeping and similarly applies to spending crypto funds. To withdraw crypto funds, users must transfer the crypto from their paper wallet to their software wallet. Two popular software wallets are Electrum and Exodus.

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Wallet Examples

Cold Storage Wallets:

Hardware:

Launched in 2014, Trezor was the first crypto hardware wallet. Trezor is a USB device that allows users to interact with the device itself, as it features an on-screen interface which users can interact with. The screen allows users to send and confirm cryptocurrency via a PIN code. Physical buttons on the wallet are used for transacting, therefore a hacker can never send a user's crypto, with no access to the buttons. The device can store Bitcoin, Zcash, Litecoin, Dash, NEM and 500 other cryptocurrencies. It is compatible with several software wallets, including: Electrum, MultiBit HD, and GreenAddress, GreenBits, Mycelium and myTREZOR.com. The wallet is optimal for crypto holders with large amounts of crypto funds, as it retails for 89 EUR (about $101.73)

Software:

Desktop: Electrum is one of the very earliest Bitcoin wallets to hit the market, with an inception date of November 2011. It is available as both a desktop and mobile wallet, and can only be used to store Bitcoin. With Electrum, private keys are permanently secured onto a user's computer. The wallet can be recovered with a secret phrase. It is compatible with hardware wallets such as Ledger and Trezor. The wallet is known for its speed, due to its use of servers that index the Bitcoin blockchain. Funds can be split onto multiple wallets by way of multisignature permission authorization. The wallet can be used on Windows, Mac and Linux. Its mobile wallet is available for Android. 10% of all Bitcoin transactions are done with the Electrum wallet.

Mobile: Jaxx is one of the most well-known software wallets due to its free service. It can be downloaded for free, but as required in all crypto transactions, there is a transaction fee that goes to the coin's network (I.e., BTC, ETH, with none of the fees going to the wallet). Founded in Canada in 2016 by the blockchain company Decentral Inc., the wallet supports iOS and Android devices, and offers a desktop wallet capability as well. It supports over 50 cryptocurrencies, including Bitcoin, Ethereum, Ethereum Classic, Augur (REP) and Litecoin, among others. With its adoption of multiple altcoins, it enables crypto-to-crypto buying and selling, in addition to in-wallet conversions. In this way, it acts as a mobile exchange. The platform uses a 12-word masterseed to handle the private key; it does not have access to users' crypto funds as they can only be accessed by the user on their coins' blockchain.

Online: GreenAddress is an online wallet founded and headquartered in Malta in 2013 and acquired by Blockstream in 2016. It is designed to store Bitcoin alone and is available for iOS, Android and desktop use. Transaction validation is done via a 20f2 account method, meaning that in order to authorize a transaction, there are 2 signatures that must be employed: one from the user and the other from GreenAddress. GreenAddress has a restriction on what it signs, in that it will only sign transactions that fall in line with the limits the user has set. This helps prevent hacks, as a hacker would need to access both the wallet and the 2-factor authentication as well. GreenAddress implements a watch-only mode for logins, adding a layer of security, while allowing users to track their balances and transaction history. The wallet uses a PIN login when accessed through a device.

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Paper: Bitcoin Paper Wallet is a website that allows users to create an analogue version of crypto wallets. Users can formulate public and private Bitcoin keys and create a printout that contains them.

The printout includes the QR code with the private key. To generate the keys, the site uses BitAddress.org, an open-source engine that uses the JavaScript engine found on users' browsers.

The addresses and crypto codes are not sent through the internet. The site supports wallets for Bitcoin and Bitcoin Cash. The site also offers cards in 12 languages and sells hologram stickers for water resistance.

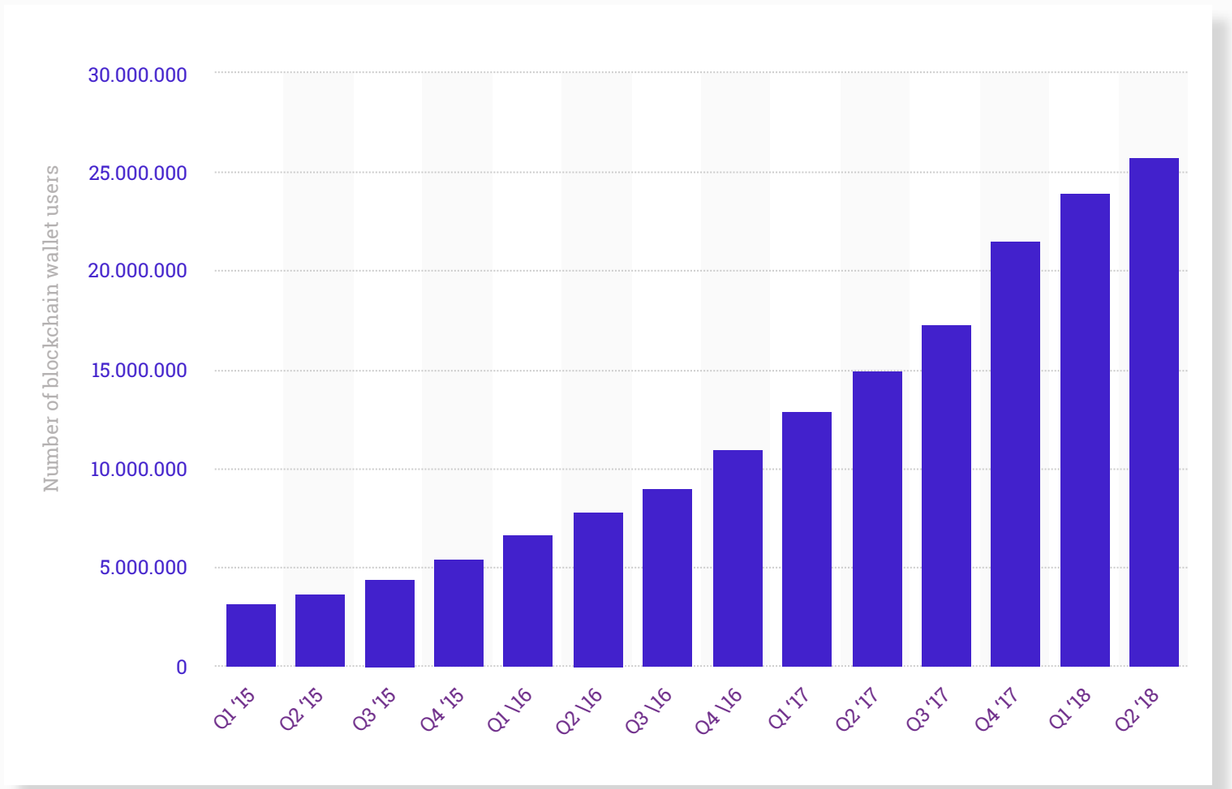
Users can transfer coins from an online wallet source like Trezor, Mycelium, etc., to the paper wallet by sending the crypto to the public key found on the paper wallet. To withdraw funds from the paper wallet, users must import or "sweep" the funds to either an online wallet or an exchange. As a Bitcoin wallet provider, Bitcoin Paper Wallet records all transactions on Blockchain info.

The State of Wallets

- 42% of all wallet providers come from European providers in the worldwide crypto market.
- There are approximately 22 million Bitcoin wallets set up globally.
- Most Bitcoin owners have several bitcoin wallets and multiple wallet addresses to secure financial privacy.
- Ethereum surpassed Bitcoin in wallet addresses in May 2018, with 35 million unique wallet addresses.
- The number of active wallets has grown by 4 times over the past 5 years.

The Wallets Industry

Wallet Users Worldwide: Q1 2015- Q2 2018

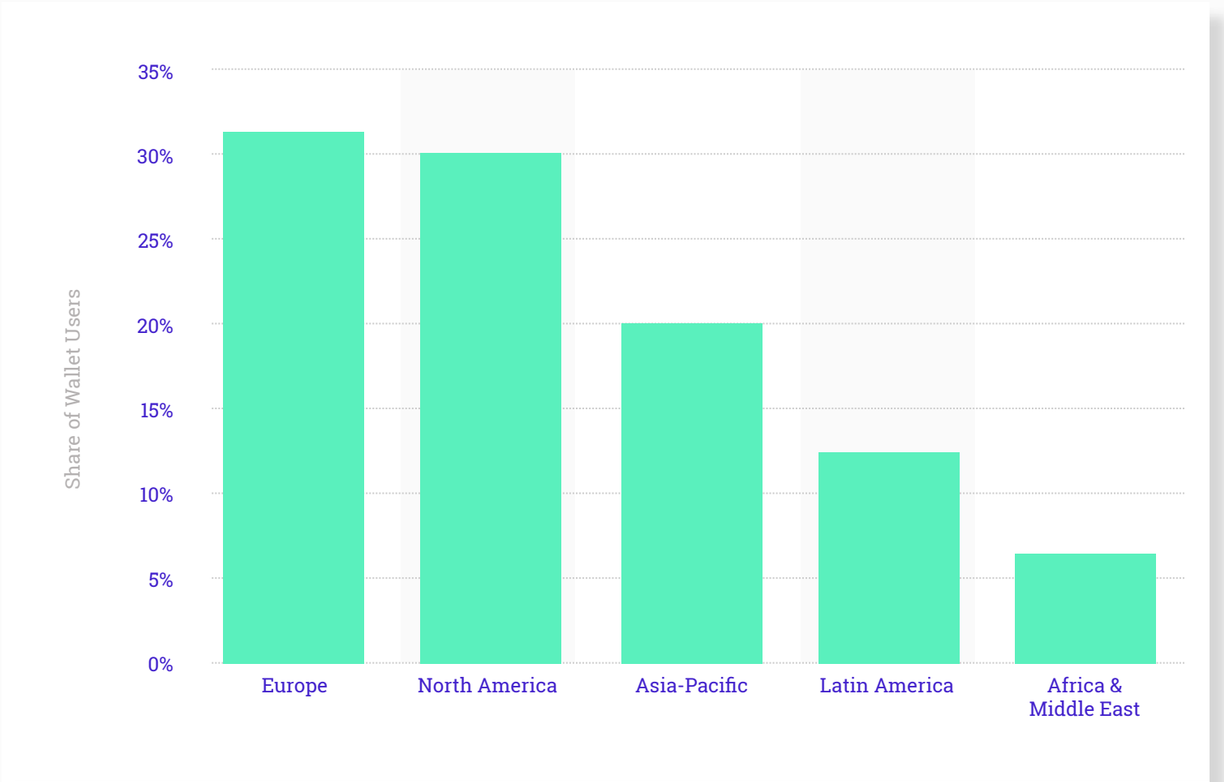


Distribution of Cryptocurrency Wallet Users Globally

Wallets are used across the globe for storage, security, expenditure and overall participation within the cryptocurrency industry.

Although a worldwide presence, crypto wallets are not evenly distributed among the globe, with wallet owners manifesting a greater concentration in some parts of the globe.

Europe and North America are in the lead with 31% and 30%, respectively, while Africa comes up last, with 6%.

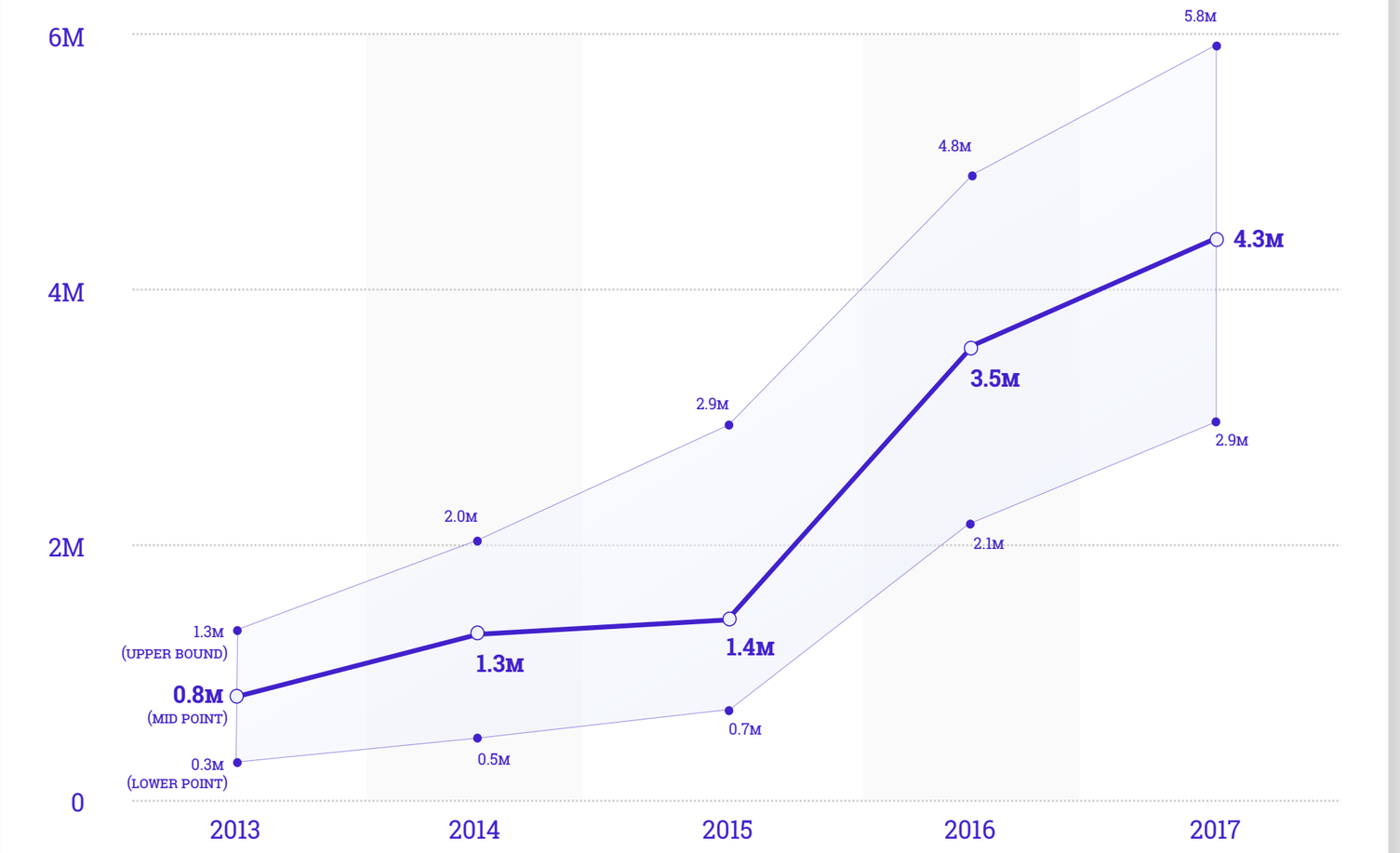


The Growth of Crypto Wallets

Holders of cryptocurrency wallets have been on the rise, as the crypto industry at large continues to grow. On a worldwide basis, the amount of crypto wallets has seen sharp increases, particularly between the year 2013- 2017.

While it is not feasible to gauge the amount of active crypto wallet holders, studies have shown a considerable growth.

The following graph depicts the amount of active crypto wallet holders between 2013 and 2017.



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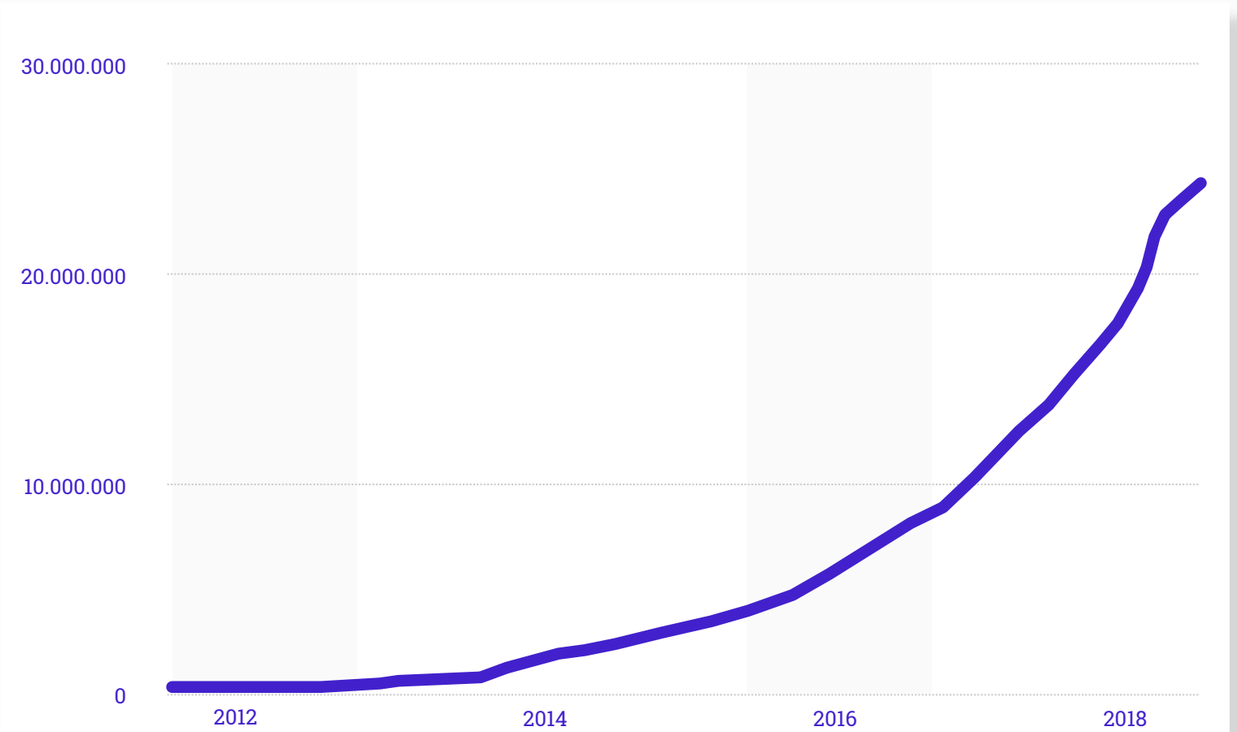
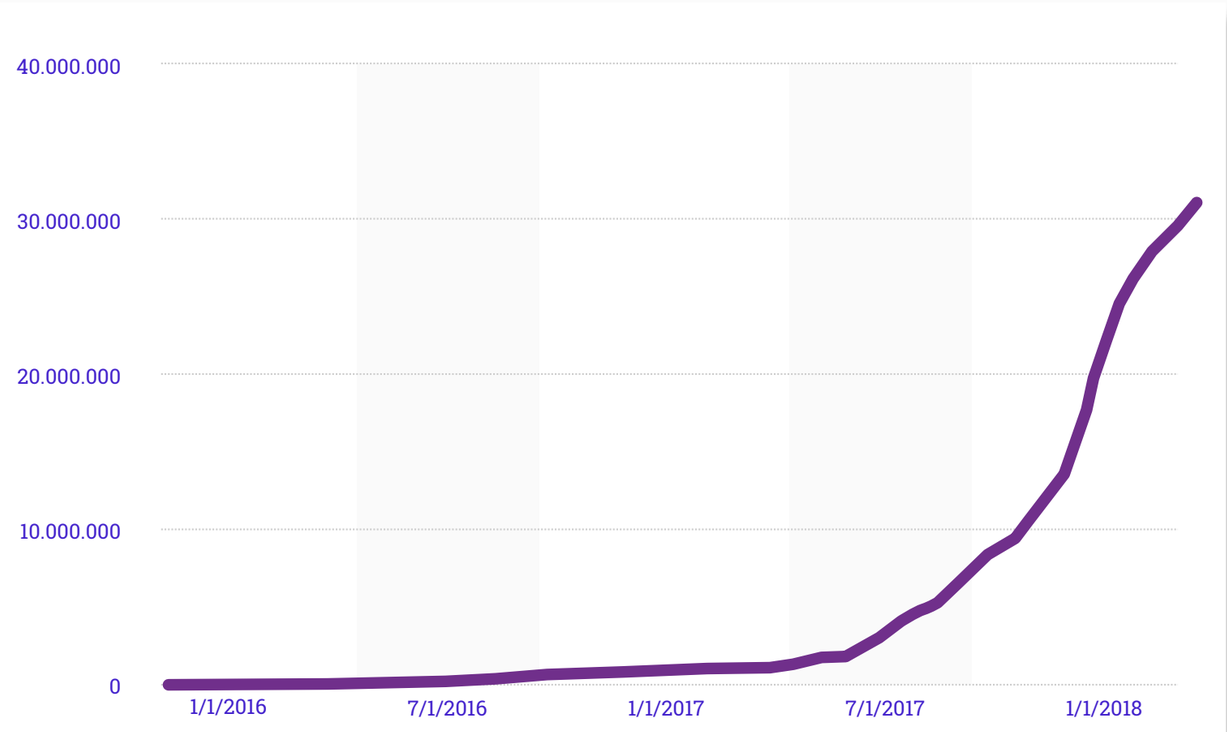
The Growth of Bitcoin Address Wallets

As the most commonly used cryptocurrency and the one with the highest valuation, Bitcoin wallet addresses have surged in the last few years. The following graph depicts the upward progression of Bitcoin wallet ownership by way of addresses.

Bitcoin Wallet Address Growth



Ethereum Wallet Address Growth



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The Wallets Industry: Fundraising and Innovations

Wallets as a sub-sector of the cryptosphere have seen tremendous growth and innovation. In the United States and abroad, new developments to enhance the use of wallets have been taking place. Fundraising for wallet companies has been a lucrative pursuit for startups and big names in the wallets sector.

The wallets industry propel cryptocurrency towards the mainstream, as they provide every day user-friendly storage and security for crypto assets.

BitGo, a Palo Alto-based online wallet announced in December 2017 that it raised $42.5 million in venture capital fundraising. The wallet uses multi-signature authorization and supports multiple cryptocurrencies like Bitcoin, altcoins and ERC20 tokens. BitGo services trusts, exchanges, hedge funds and broker-dealers in the U.S. and the U.K. The company declared that it makes approximately $8 million for crypto transactions per month, and that its wallets hold 18% of all Bitcoin activity.

Ilmatic, a San Francisco-based startup in April 2018, devised the invention of the world's first wearable cryptocurrency wallet. The wallet is shaped and worn like a wristband, existing as an alternative type of hardware wallet to the common USB wallet.

It provides storage and security and has the capability of a spending wallet. CEO of ilmatic Danny Tamez intends the

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wallet to be a means of making cryptocurrency more tangible and thereby easier to understand.

The wearable wallet is powered by an NFC chip for wireless transactions and an element microcontroller to secure the private key. It is priced at $20 and supports BItcoin, Bitcoin Cash and Ripple.

Ledger, a popular hardware wallet provider based out of Paris has announced it will launch a B2B crypto wallet. The company raised $75 million in Series B fundraising in January 2018.

The Ledger Nano S wallet, targeted to crytp users, sold over a million units in 2017 in 165 countries, with sales that surpassed €45 million ($52.9 million). TheLedger Vault is aimed at B2B financial institutions and actors, such as asset managers and custodians.

In May 2018, Ledger partnered with Nomura, the financial Japanese giant in forming a full-custodianship business called Komainu. It allows financial institutions to place their crypto funds in a vault system that Ledger generated. In the writing of this report, Ledger is valued at $300 million.

In May 2018, the China-based wallet provider imToken raised $10 million in full from Series A fundraising.

The funds came entirely from IDG Capital, a venture capital company. imToken is a major Chinese wallet, that has initially offered support for Ethereum but has grown to incorporate 30,000 altcoins for its wallet service.

The wallet company has stated that the procured funds will be used towards staffing for product development as the firm had only 40 employees during that time.

It will also use the funds for businesses abroad, primarily in Asian countries and Nigeria. The free software wallet app has garnered 4 million users with a combined storage of $35 billion in crypto assets.

Working Towards a Universal Wallet

In April 2018, Blockstack, the decentralized application company, partnered with Shapeshift, a P2P exchange, in its offering of a $50,000 bounty to developers who can build a universal wallet app.

The service should be able to host any wallet, even custom wallets which have not been created yet, in a move to make cryptocurrency more accessible and to hasten innovations in the sphere.

The requirements include being an open source wallet that incorporates Shapeshift's API and blockchain encryption. The winner of the competition was revealed in July 2018 as Dappy, a software development and product management company.

In August 2018, exchanges giant Coinbase announced its Coinbase Wallet, which had originally been Toshi, a mobile wallet solution, which has the greater aim of creating decentralized web products.

With the incorporation of Toshi, users can store their private keys in their mobile phones and devices, instead of on a server, which is centralized product.

Their private key is secured through biometric authentication. The wallet acts as a gateway to decentralized apps (DApps), including those that allow users to take out a loan or to complete tasks.

Additionally, as part of its goal to explore the decentralized web and its capabilities, Coinbase Wallet includes buying/storing crypto collectibles, which are unique, non-fungible tokens for trading and games. It also supports ETH and ERC-20 tokens, airdrops and ICO tokens, decentralized exchanges and DApp adoptions.

The wallet will soon host Bitcoin, Bitcoin Cash and Litecoin.

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