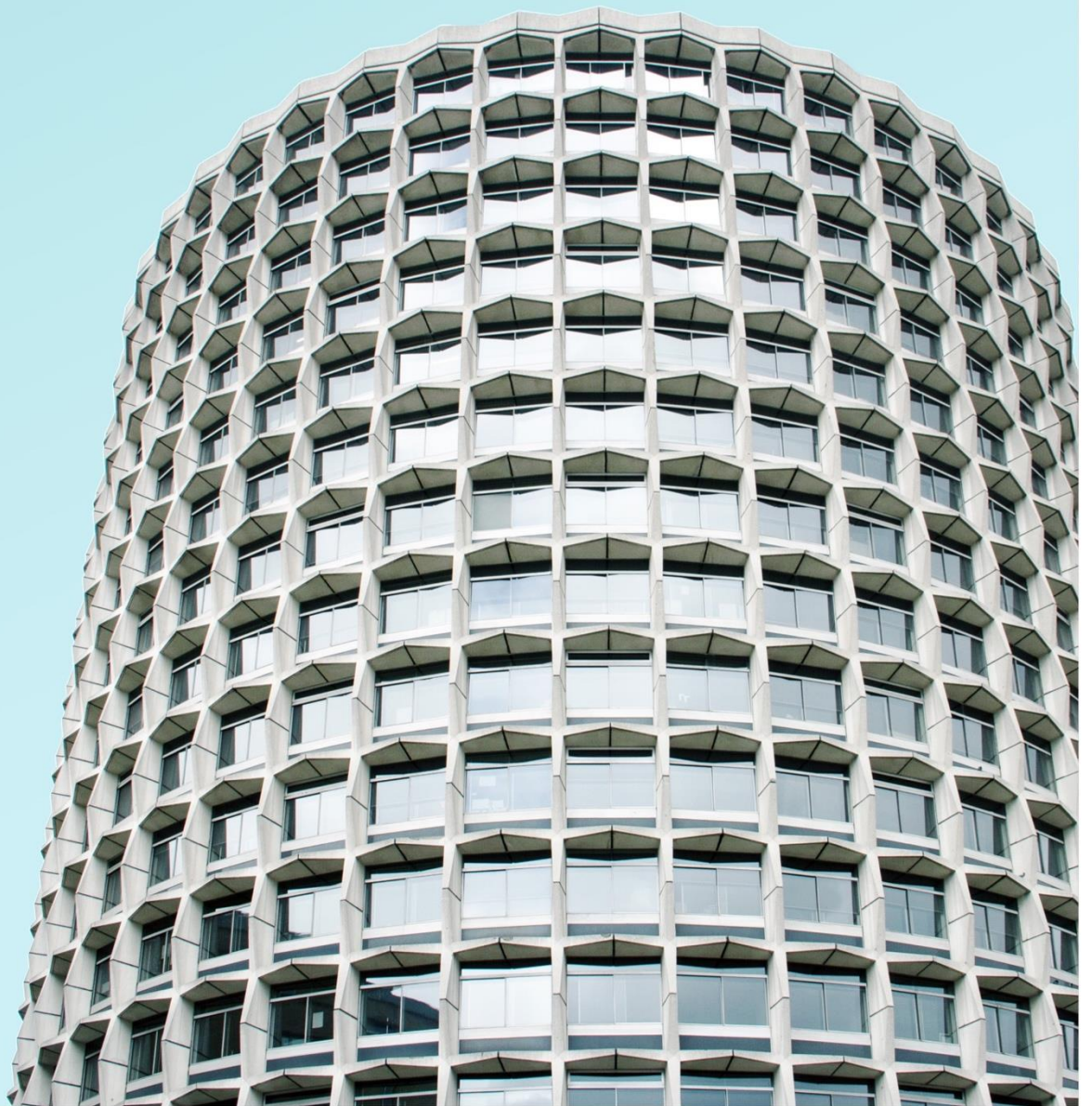


The Institutionalisation of Bitcoin



February 2019

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The Institutionalisation of Bitcoin

10 years ago, Satoshi Nakamoto published a paper about a peer-to-peer electronic cash system on an obscure email list for cryptographers. A system that would make trusted third parties superfluous and remove the need for banks and financial institutions to facilitate economic transactions. Few could have predicted the magnitude that followed.

Hype, bubble, price collapse and soon to be dead, was the conclusion by many during the crash in 2018. Still, as exemplified by the projects summarised in this report, bitcoin is anything but dead. Despite collapsing prices there has never been more people, bigger institutions or more money betting on bitcoin and cryptocurrencies than right now.

Financial institutions, tech giants and regulators have joined the bitcoin ecosystem alongside the cypher punks, libertarians and start-ups. Like the lion and the impala, the different players might have a different vision. Still, they all have their role to play in this ever evolving and growing ecosystem.



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The incumbents are waking up

Several of the largest players, across different industries, are not only keeping an eye on this new ecosystem. They are investing, heavily.

ICE (Intercontinental Exchange), the owner of New York Stock Exchanges, is launching a global platform for digital assets. Together with Microsoft, BCG, Starbucks, and others, they will let consumers and institutions buy, sell and store digital assets, by bringing physically settled bitcoin futures to the market.

The platform, called Bakkt, completed a funding round of over \$180 million from 12 partners at the end of 2018, and is ready to launch once the regulators give the green light.

Nasdaq, the second-largest stock exchange in the world, has invested in a similar platform named ErisX. ErisX is projected to launch in Q2 2019. On the list of backers behind the new cryptocurrency exchange you find other large players like Fidelity Invest, TD Ameritrade and CBOE.

Microsoft is using public blockchains, such as Bitcoin,

Ethereum and Litecoin, to build a decentralized identity system. The company wants to develop two products.

These are related to identity information and will let the users store information and manage all permission to it.

The multinational electronics company, **Samsung**, is likely implementing a cryptocurrency wallet in its new smartphone, enabling a secure and trusted service for millions of people across the world.

HTC has taken it a step further and released Exodus at the end of 2018. Exodus is a dedicated blockchain-phone, with an integrated hardware wallet, only to be paid in cryptocurrency.



Source: norwegian.no

Leading low-cost airline, **Norwegian Air Shuttle**, is soon accepting

cryptocurrency as ticket payments. The owner wants to create a new blockchain based infrastructure for the airline industry and is also launching a cryptocurrency exchange soon.

Even the most prestigious universities are following. **Harvard, Yale, MIT** and **Stanford**, are all investing in at least one cryptocurrency fund in 2018, in addition to offering classes on the topic. There is certainly something brewing in this new ecosystem, and the incumbents are waking up.

Stock exchanges are embracing cryptocurrencies

Among established exchanges, ICE and Nasdaq are not the only one who see the need to be a part of crypto ecosystem.



Source: boerse-stuttgart.de

Stuttgart Stock Exchange, the second-largest stock exchange in Germany, has recently launched an exchange for cryptocurrency. Operated through an app called Bison, the exchange is focused on making cryptocurrencies accessible, with no more than a few minutes to register and fulfil KYC requirements.

The CEO of **SIX**, owner of the Swiss Stock Exchange, claims that we are currently facing a new era for capital markets infrastructure. He's putting his money where his mouth is. In mid-2019, a fully integrated trading, settlement and custody infrastructure for digital assets will be launched. This cryptocurrency exchange will according to SIX be a safe environment for issuing and trading digital assets.

By enabling tokenization of existing securities and non-bankable assets, it can make previously untradeable assets tradeable.

Furthermore, SIX is already live with the world's first Crypto Exchange Traded Product (ETP).

Cryptocurrency exchanges are also finding its way to traditional financial markets. They are now introducing

financial products, such as stocks, on the blockchain. Tokenized stocks have already been floated on two exchanges in Europe.

DX Exchange makes it possible to trade 10 digital tokens that are based on companies listed on Nasdaq. Apple, Amazon, Tesla and Facebook, among others. The tokens are available for trading 24/7 all around the world and can be bought in fractions of whole shares.

This example shows how open and public blockchains as infrastructure opens completely new possibilities for trading of traditional stocks.

Traditional banks and investment firms feel the demand

With large exchanges come institutional investors. Traditional banks and investment firms feel the demand from its customers. They're getting into this new asset class, and **Fidelity Investment** is leading the way.

A full-service, enterprise-grade platform for securing, trading and servicing investments in digital assets is being prepared for launch. Fidelity

Digital Assets has a goal to make digitally-native assets, such as bitcoin, more accessible to investors.

Fidelity now shows the financial industry the way forward, as one of the largest financial services providers in the world, with more than \$7.2 trillion worth of client assets and 13,000 institutional clients.



Source: shutterstock.com

Goldman Sachs is also moving into the cryptocurrency market. The leading global investment bank is building up a trading desk, after increasing client demand. A small group of customers have already been onboarded to start trading bitcoin derivatives. However, Goldman is going even further.

After investing in the largest cryptocurrency custodian BitGo in 2018, the investment bank is interested in launching an

institutional-grade custodian solution for Bitcoin.

Furthermore, Goldman invested in cryptocurrency firm Circle, which has a crypto OTC trading desk with a notional volume of \$24 billion last year.

On top of this, Goldman was the lead investor of Veem's funding round in 2018. This start-up enables fast, secure and inexpensive transactions for businesses through bitcoin and other payment rails.

It is fair to say that Goldman Sachs doesn't see the crypto space disappearing any time soon.

Other well-known names are following

Morgan Stanley is talking about complex derivatives and a trading desk for crypto, in the same way as Goldman Sachs.

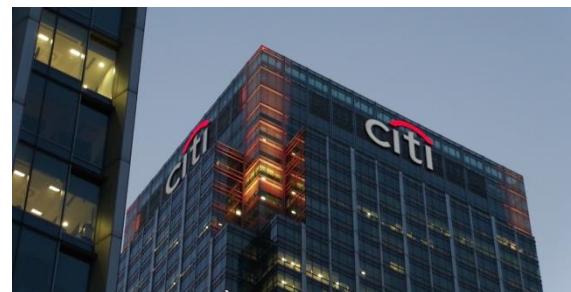
Barclays, the second-largest bank in the UK, has talked about a trading desk for cryptocurrencies.

BlackRock, the largest asset management firm in the world, is in talks with leading cryptocurrency

exchange Coinbase. They investigate the possibility of launching a Crypto Exchange Traded Fund (ETF), based on a range of cryptocurrencies.

BlackRock is in a favourable position to launch a crypto ETF, as the world's leading provider of traditional ETFs.

The U.S. investment firm **VanEck** is partnering with Nasdaq to launch bitcoin futures this year. VanEck introduced the first gold equity mutual fund in 1968 and is also in the process of being the first to list a physically backed Bitcoin ETF together with CBOE.



Source: Wikimedia.org

Investment bank **Citigroup** wants to introduce a product that will enable customers to invest in cryptocurrencies without actually owning and storing them. This is called Digital Asset Receipts and function the same way as Citigroup's American Depositary Receipt services. This is a familiar product for investors,

providing trust and security to potential crypto investors.

The future of payments

Undoubtedly, there is growing institutional demand. Moving on to the FinTech scene, particularly mobile payments, it is clear what the retail investors want and prefer.

We use our smartphones all day, and mobile payments have become essential for most people. New companies are not only challenging the largest traditional players, but actually leading the way in this space.

Cash App is the most popular finance app today, and with an impressive 2018, the mobile payment service overtook Paypal and Venmo. The app started supporting bitcoin in January 2018 and surpassed 33.5 million downloads halfway through the year. The company behind the app, Square Inc, have a visionary CEO who also co-founded Twitter. Stating that they see Bitcoin as a long-term path towards greater financial access for all, there is no doubt in which direction the publicly-listed company wants to move.

The FinTech start-up **Revolut** is now

valued at astonishingly \$1.7 billion, after launching a digital banking app in 2015. Its offering includes a currency exchange, a cryptocurrency exchange and a peer-to-peer payment system. Users can get instant access to cryptocurrencies and transfer directly to other users. The start-up got a banking license at the end of 2018 and is here to stay. Almost 10,000 new account openings happen every day, and the app generates a transaction volume of \$4 billion each day.

Even higher valued is the trading app **Robinhood**. At \$5.6 billion, this retail-focused company allows commission-free trading in cryptocurrencies. Starting with stocks in 2015, the app saw a significant upturn in the beginning of 2018. After the announcement of cryptocurrency trading in January last year, the app registered over 1 million new customers within the first few days. Robinhood is also planning an IPO, and just received the exclusive “BitLicense” in New York.

The ecosystem is not only filling up with several clever solutions on cryptocurrency investments. FinTech start-ups have been entering traditional mobile payments for a long

time. However, one big difference is on the rise. It's now based on blockchain technology.

Abra launched in 2016 and is today used by customers in more than 100 countries. The app makes it easy to transfer money anywhere in the world through a smartphone, and customers can buy, sell and hold different currencies. This includes 50 fiat currencies, 30 cryptocurrencies and a crypto index based on the 10 largest cryptocurrencies.

Abra app is a unique service. Blockchain technology store and encrypt deposits on the user's mobile device. There is no need for a third party to clear transactions, and it is thereby completely peer-to-peer. Abra has no control or access to users' funds; it's secured on the blockchain and only accessible by the user. It leverages Bitcoin and Litecoin smart contracts when users trade alternative cryptocurrencies. Basically, the user owns synthetic currencies, but are engaged in either Bitcoin or Litecoin all the time.

Backed by Goldman Sachs and crypto-mining giant Bitmain, **Circle Pay** has built up a blockchain-based payment app. Letting user transact

instant, free and international, the popularity of this app has grown rapidly. Circle Pay started as a bitcoin-only payment service in 2013, and Circle was the first company to receive a "BitLicense" in New York. The company has now moved its crypto-services away from the payment app, but the app still uses Bitcoin's blockchain as a payment rail.

Circle has now partnered with Coinbase, and they are aiming for a hairy goal; connecting the world's leading mobile payment apps, like Circle Pay, Venmo, Alipay and the Norwegian Vipps, and make the different apps interoperable.

This will enable fast and secure transactions across the globe, all thanks to the new revolution; blockchain technology.

Security and custody solutions

To make a complete ecosystem, trusted and secure solutions are needed, in addition to the self-hosted ones. Several large players express their concerns and are working on new solutions. Bakkt will be holding assets for its customers. Insurance for bitcoin in cold storage is in place, and the

process of securing insurance for the hot wallet within the Bakkt Warehouse is ongoing.

Fidelity Digital Assets has institutional-grade crypto-custody as one of its three main services in the pipeline. The world leading insurance marketplace, Lloyd's of London, is providing insurance coverage against theft of cryptocurrencies. Samsung, HTC and Opera are integrating cryptocurrency wallets into their existing products.

Goldman Sachs is considering a custody solution, with heavy investments in the cryptocurrency custodian BitGo.

There has been a need for trusted institutional-grade custody solutions, and in 2019 we will start to see this need being fulfilled.

Regulation is coming

With a new asset class and ecosystem, regulations naturally follow. Although countries globally have different approaches, they are all actively working on cryptocurrency. They are establishing working groups, publishing guidelines and setting new regulations. Cryptocurrency is no longer being overlooked and is taken

seriously all around the world.

Anti-Money Laundering regulations have already been in focus for several years. Cryptocurrency exchanges have been subject to Anti-Money Laundering (AML) laws since 2014 in the US.

Canada was the first country in the world to introduce a national law on digital currencies in 2014, when entities dealing in cryptocurrencies were brought under the Proceeds of Crime (Money Laundering) and Terrorist Financing Act.

The European Union agreed on the text for the Fifth Anti-Money Laundering Directive in April 2018, which will bring crypto-fiat exchanges under EU's anti-money laundering legislation in 2020.

Important decisions on Bitcoin ETFs and Futures, and a proposed bill to define cryptocurrency as "digital tokens", are coming up this year in the US.

The European Commission has an ongoing Action Plan, where participants from national authorities and EU-level, will seek to raise the "regulatory and supervisory capacity

and knowledge” around new technologies, including blockchain.

This month, the FCA in the UK published a consultation paper titled “Guidance on Cryptoassets” and a policy statement with final guidance is set to be released this year.

Malta is one of the global leaders in cryptocurrency regulation and approved three bills establishing the first regulatory framework for blockchain and cryptocurrency in 2018.

Switzerland has a similar approach to cryptocurrency and see it as legal tender. With regulations in place for ICOs, the country is a popular hub for launching new projects, with 4 of the 10 biggest ICOs in 2017 done in Switzerland.

Few countries have strictly banned cryptocurrency. Although China has banned most activities related to cryptocurrency, the country is serious about blockchain technology. PBOC has been studying cryptocurrency for over three years, has their own Institute of Digital Money, and will develop a central bank digital currency.

Cryptocurrency is clearly here to stay. There was hype and a euphoric bubble in 2017. It was impossible not to make money investing in cryptocurrencies and blockchain, and way too many projects got too much funding. The mantra was: “To the moon”.

In 2018 reality hit hard when the bubble popped, and bitcoin entered one of its longest and deepest bear markets – the crypto winter of 2018.

Having been brought down to earth, the projects are still alive and emerging. The projects now have a stronger foundation than most of what was launched in 2017, and 2019 is shaping up to become a new spring for crypto.

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Incumbents Betting on Crypto

Bakkt

What: Digital Asset Platform

Who: Intercontinental Exchange (ICE), Microsoft, Starbucks, BCG ++

When: Early 2019

Why is this important: First “physically” settled futures contracts with daily delivery of Bitcoin. Not cash-settled futures as seen on CBOE and CME.

In August 2018, ICE (Intercontinental Exchange) released a statement regarding a new digital asset platform called Bakkt. ICE is the founder of the New York Stock Exchange, the world's largest exchange. This new platform, Bakkt, will launch early this year. ICE is working with leading companies including Microsoft, Starbucks and Boston Consulting Group, on the project.

Bakkt will use Microsoft's cloud solutions to make an open and regulated, global platform for digital assets. The platform will enable consumers and institutions to buy, sell and hold digital assets. The ICE CEO Jeffrey Sprecher states that:

“In bringing regulated, connected infrastructure together with institutional and consumer applications for digital assets, we aim to build confidence in the asset class on a global scale, consistent with our track record of bringing transparency and trust to previously unregulated markets”.

The opening offering will be through ICE's U.S.-based futures exchange and clearing house, and will include regulated, “physical” Bitcoin futures contracts and “physical” warehousing.

There is still some uncertainty regarding the launch, due to a pending approval by the U.S. Commodity Futures Trading Commission (CFTC). The approval was estimated to November 2018, but Bakkt stated in late November 2018 that the new target date was Jan. 24, 2019. The newest information regarding the launch came on Dec. 31, 2018, where ICE announced that the firm “expect to provide an updated launch timeline in early 2019”.

Bakkt completed their first round of funding of \$182.5 million from 12 partners, on Dec. 31, 2018. The partners include Boston Consulting Group, CMT Digital, Eagle Seven, Galaxy Digital, Goldfinch Partners, Alan Howard, Horizons Ventures, Intercontinental Exchange, Microsoft's venture capital arm, M12, Pantera Capital, PayU, the fintech arm of Naspers, and Protocol Ventures.

Fidelity Digital Assets

What: A full-service, enterprise-grade platform for securing, trading and servicing investments in digital assets

Who: Fidelity Investments

When: Q1 2019

Why is it important: Making investments in digital assets more accessible for institutional investors

Fidelity Investment announced in October 2018 the launch of Fidelity Digital Assets. The new company will be a full-service, enterprise-grade platform for securing, trading, and servicing investments in digital assets. The goal is to “*make digitally-native assets, such as bitcoin, more accessible to investors*”, according to Abigail P. Johnson, the CEO and Chairman of Fidelity Investments.

Their new platform will provide three main services:

- Institutional-Grade Custody of Digital Assets
- Trade Execution
- Dedicated Client Service

The platform will provide custody for bitcoin and ether. The Head of Fidelity Digital Assets, Tom Jessop, also stated that there is enough client interest in altcoins for the company to look at extending their upcoming service to some of the major cryptocurrencies.

Fidelity Investment is one of the largest financial services providers in the world, with more than \$7.2 trillion worth of client assets and 13,000 institutional clients.

The company has over 4 years of development and experience on blockchain technology and digital assets. They started with their initial research in February 2014 and launched a blockchain incubator in 2015. Since then, they have experimented with mining, started accepting bitcoin and ether for charitable donations, and enabled access to customers so they can see their digital asset balances at Coinbase on Fidelity.com.

Their Bitcoin Custody Service will launch in March 2019.

Nasdaq to launch Bitcoin futures

What: Bitcoin Futures

Who: Nasdaq & VanEck

When: First half of 2019

Why is this important: Increases confidence in the role cryptocurrency will have in the future of global finance, and contributes to visibility, liquidity and transparency of the digital asset space

Nasdaq has confirmed the launch of Bitcoin futures in 2019. The world's second-largest stock exchange is partnering with the U.S. investment firm VanEck. According to Gabor Gurbacs, Director of Digital Assets Strategy in VanEck, they have been discussing futures with Nasdaq since 2017. Gurbacs also pointed out that the futures will be more transparent and resilient than those trading at CBOE and CME.

According to the Vice President of Nasdaq's media team, the futures will be listed in the first half of 2019, awaiting approval from the CFTC.

Nasdaq's CEO, Adena Friedman, also said the following in April 2018:

"Certainly Nasdaq would consider becoming a crypto exchange over time".

However, regulation and maturity of the market is important for that to potentially happen.

Digital Assets Receipts

What: Digital Assets Receipt (DAR)

Who: Citigroup

When: Unknown

Why is this important: Providing a product that institutional investors are familiar with, using already existing and regulated infrastructure. This will add an extra layer of trust and security to trading of crypto

The U.S. investment bank Citigroup is reportedly in the process of creating a product that will enable customers to invest in cryptocurrencies without actually owning and storing them. This is called Digital Asset Receipts (DARs). This investment tool will function in the same way as Citigroup's American Depositary Receipt (ADR) services. ADRs are used to allow investors to trade foreign stock that's not tradeable on the local exchanges.

Citigroup will issue the receipt, while a custodian will be responsible for holding the cryptocurrency. Moreover, it will be invested through the Depository Trust & Clearing Corporation, which is a company that provides clearing and settlement services and will work as a middleman to settle the fund.

The news about the DARs have still not been confirmed by Citigroup, and the company hasn't made any official announcement. Therefore, it is unclear if the project will launch or when it will be ready.

Insurance coverage for cryptocurrency

What: Insurance coverage for cryptocurrency theft

Who: Lloyd's of London & Kingdom Trust

When: August 2018

Why is this important: Positive to see industry leaders getting interested in digital assets

The world leading insurance marketplace, Lloyd's of London, is reportedly providing insurance coverage against theft of cryptocurrencies. The U.S. based custodial firm Kingdom Trust released a statement in August 2018, saying that they managed to secure underwriters from the Lloyd's market who will insure their crypto custody platform. CEO Matt Jennings of Kingdom Trust said that this was due to their new technology and security protocols.

Kingdom Trust is a regulated financial institution and offers qualified custody for over 30 digital assets. The company was almost bought by blockchain security startup BitGo in the beginning of 2018.

Lloyd's corporation would not comment on whether any of their agents provide coverage for cryptocurrency theft.

Morgan Stanley to offer Bitcoin Swaps

What: Bitcoin Swaps

Who: Morgan Stanley

When: Unknown

Why is this important: Making cryptocurrency more accessible for institutional investors

In September 2018, a source familiar with the matter claimed that Morgan Stanley planned to offer complex derivatives on Bitcoin. These price return swaps give the investor synthetic exposure to Bitcoin and it will be possible to go both long and short, where Morgan Stanley charge a spread on each transaction.

Although Morgan Stanley refused to comment on the matter, the source claim that the company is technically prepared to launch the Bitcoin swaps. However, due to uncertainty regarding institutional client demand and an internal approval process, the launch holds.

Moreover, CEO James Gorman stated earlier in 2018 that Morgan Stanley wouldn't offer cryptocurrencies trading for their customers directly through the company, but *"build a trading desk to support various derivatives tied to digital assets"*.

Goldman Sachs moving into Bitcoin

What: Bitcoin derivatives & custody solution

Who: Goldman Sachs

When: No timeline

Why is this important: New services with a credible backing from a large institution would open up the possibilities for investors and crypto fund

Several reports in 2018 suggested that the investment bank Goldman Sachs is moving into the cryptocurrency market. Their CFO Martin Chavez confirmed the ongoing plans of building up a trading desk, after increasing client demand.

Goldman is working on a bitcoin derivative, more specifically non-deliverable forward contracts which is settled in U.S. dollars and traded over the counter. Supposedly, a small group of customers have already been onboarded to start trading the product.

The CFO also stated that the company would like to see a reliable custody solution before they enter trading of physical Bitcoin:

"Physical bitcoin is something tremendously interesting, and tremendously challenging. From the perspective of custody, we don't yet see an institutional-grade custodial solution for Bitcoin, we're interested in having that exist and it's a long road."

However, according to a source with knowledge of the matter, Goldman is considering a custody solution themselves, offering to hold cryptocurrencies for funds and clients.

Goldman together with a venture formed by a former partner, Mike Novogratz, invested in the cryptocurrency custodian BitGo in October 2018. The two firms contributed with about \$15 million, in a total funding round of \$57.5 million.

The investment bank also invested in cryptocurrency startup Circle in 2015. Circle's over-the-counter (OTC) trading desk had a notional volume of \$24 billion in 2018. Circle also acquired Poloniex, one of the largest cryptocurrency exchanges in the U.S.

Goldman Sachs has not given any timeline for a launch of any crypto services.

Bitcoin ETF on CBOE

What: Bitcoin ETF

Who: VanEck & SolidX

When: Unknown

Why is this important: Increase liquidity and bring in new institutional investors

Investment firm VanEck and blockchain company SolidX want to list a physically backed Bitcoin exchange-traded fund (ETF) on the Chicago Board Options Exchange (CBOE). SEC postponed the decision and set the new deadline for February 27, 2019. The two companies filed with the SEC to list a Bitcoin-ETF on June 6, 2018.

However, due to the Government shutdown in the US, VanEck decided to withdraw their ETF filing. VanEck will re-file and re-engage discussions with the SEC when the shutdown is over.

VanEck is a New York based investment management firm and has \$38 billion under management. VanEck introduced the first gold equity mutual fund in 1968, and *“has a history of building international stock and gold investing, in the U.S. and abroad,”*

according to Gabor Gurbacs, Director of Digital Assets Strategy in VanEck.

The ETF will have a share price around \$200,000, targeting institutional investors.

The two companies have a solid custody solution with a syndicate of A-rated insurers that will cover the fund.

The SEC has rejected several ETFs in 2018, identifying the largely unregulated nature of Bitcoin markets as the principal reason.

Stuttgart Stock Exchange to launch crypto exchange app

What: Crypto Exchange App & ICO Platform

Who: Boerse Stuttgart

When: First half of 2019

Why is this important: Making investments in digital assets more intuitive and accessible for investors

Boerse Stuttgart, the second largest stock exchange in Germany, will launch an exchange for cryptocurrencies. The exchange will operate through an app, which is called Bison App. The beta testing of the app will start in the end of January 2019.

The exchange is partnering with solarisBank as their provider of banking services. The release of the app was planned to September 2018, however, it got postponed to the first half of 2019.

The exchange will support established cryptocurrencies like Bitcoin and Ethereum, with more cryptocurrencies getting add in the future. Furthermore, the exchange is focusing on making cryptocurrencies accessible, according to the and the app developer Ulli Spankowski:

“...the registration process and KYC requirements would take no more than a few minutes”

The app will include a “cryptoradar”, which gathers information from over 25,000 tweets from crypto traders. This will be used as a tool to let the users of the app see how the market is moving.

Boerse Stuttgart is in the process of developing an ICO platform as well, where the tokens issued there will be available for trading on the crypto exchange.

Cryptocurrency ETF

What: Cryptocurrency ETF

Who: Coinbase & BlackRock

When: Unknown

Why is this important: Bringing in new institutional capital and make digital assets more accessible

In September 2018, reports suggested that Coinbase was talking with BlackRock about a new crypto exchange traded fund (ETF). Different from other rejected ETFs, this will include a range of cryptocurrencies, not just Bitcoin.

BlackRock is an investment management firm, with \$6 trillion in asset under management. The company is also the world's leading provider of ETFs, putting the company in a favorable position to launch a crypto ETF.

Sources report that Coinbase contacted BlackRock's blockchain group for guidance on the launch of an ETF. However, this is unconfirmed and the CEO of BlackRock, Larry Flink, said in July 2018 that the company doesn't see "*huge demand for cryptocurrencies*".

BlackRock is a top competitor to Fidelity Investments in the fund management space, which will launch their own digital asset platform in 2019.

Barclays' digital assets project

What: Crypto trading desk

Who: Barclays

When: Unknown

Why is this important: Large institutional bank show interest in digital asset class

In April 2018, reports suggested that Barclays would open a crypto trading desk. The bank is the second-largest in the U.K. by assets. However, the project was put “on ice” in September 2018, and the man in charge of the “digital asset project”, Chris Tyrer, allegedly left the company.

Tyrer's LinkedIn profile showed Barclays plans, stating the following:

“Hired to produce a business plan for integrating a digital assets trading desk into Barclays' marketing business.”

However, Barclay denied the fact that the bank was opening a trading desk, and the information on LinkedIn was later removed.

Notably, Barclays applied for several patents related to blockchain, starting in 2016. The bank wants to provide a service where banks and other financial intermediaries can make and issue digital currency units backed by fiat, which will be custodied in their vaults.

Decentralized Identity System

What: Decentralized Identity System

Who: Microsoft

When: No timeline

Why is this important: Building on public blockchains

Microsoft announced their plan to build decentralized identity systems in February 2018. The company will use public blockchains, such as Bitcoin, Ethereum and Litecoin to support blockchain-based decentralized IDs (DIDs). This will initially be through the Microsoft Authenticator app.

Microsoft turned to public blockchains because of the ability to enable privacy, self-ownership and permission-less access. They will collaborate on decentralized Layer 2 protocols to overcome technical barriers related to increase on-chain capacity.

According to a whitepaper released in November 2018 on decentralized identity, Microsoft wants to develop two main products.

One product is related to an encrypted personal data store, also called “identity hub”. This will serve the purpose of a combination of user’s personal devices and cloud storage. This will make it possible to store identity information in the hub and permission must be given for others to use the information.

The other product will be a “wallet-like app”, which could be used to manage the permissions of their own data. Furthermore, it could also enable users to cancel the permission to their personal data when that is necessary.

Microsoft has not provided any timeline for the implementation of these new products.

Cryptocurrency wallet from Samsung

What: Cryptocurrency wallet app

Who: Samsung

When: Unknown

Why is this important: Owning and holding cryptocurrency will be more user-friendly and accessible

In December 2018, report suggested that the South Korean tech giant Samsung is developing a cryptocurrency wallet. Allegedly, there will be two part; a cold wallet and a crypto wallet. The cold wallet will be used for storing cryptocurrency, but also public and private keys. The crypto wallet will be used for transfers and viewing transactions history and information.

Samsung filed three E.U. trademarks for blockchain and cryptocurrency software on December 10, 2018, and all are reportedly linked to the development of a cryptocurrency wallet. Samsung would not comment on the news:

“Unfortunately we are unable to provide any information as the below is rumour and speculation.”

However, on December 27, 2018, Samsung filed for a new trademark with the U.K. Intellectual Property Office. The section of the application named “Classes and terms” reveals the following information:

“Computer software for use as a cryptocurrency wallet; Computer software for cryptocurrency transfer and payment using blockchain technology; Computer application software for smartphones, namely, software to allow users to transfer cryptocurrency based on blockchain technology and pay via 3rd party’s application software.”

This certainly boosts the reports about a crypto wallet from Samsung, and the plans could be included in the new Samsung S10 smartphone. In addition, several leaked photos show the possible wallet on the new smartphone. It will be on the market in February 2019.

ErisX crypto exchange

What: Cryptocurrency exchange

Who: ErisX

When: Q2 2019

Why is this important: Bring in more institutional investors and increase to liquidity in the market with physically settled Bitcoin futures

Eris Exchange launched in 2010 and is now set to create a cryptocurrency exchange. The platform will let customers trade Bitcoin, Bitcoin Cash, Ether and Litecoin. It will also launch futures contracts on cryptocurrencies, which will be delivered physically. However, this is pending regulatory approval.

The new exchange raised \$27.5 million in December 2018, from Nasdaq Ventures and Fidelity Investments, among other investors. The CEO of ErisX, Thomas Chippas, said that the investments will be used to hire staff and *“build out our infrastructure and secure the appropriate steps are taken to develop a regulated market for digital assets,”*.

The company also closed a first round of investment in October 2018. This included funding from CBOE Global Markets Inc, private equity firm Valor Equity Partners and retail brokerage TD Ameritrade Holding Corp. TD Ameritrade was one of the first brokerage to offer investors access to CBOE's and CME's bitcoin futures when they launch in December 2017.

Managing Director and Head of Product at ErisX, Ian Greves, said in an interview that they wanted to differentiate for similar platforms like Bakkt:

“Our approach is not just about providing a regulated, robust and diverse marketplace (or applying regulatory best-practices in spot) for institutional investors but also expanding the universe of participants through our intermediary partners,” ErisX expects to onboard clients for spot trading for a Q2 2019 launch.

HTC blockchain-based phone

What: Blockchain phone

Who: HTC

When: January 2019

Why is this important: Crypto wallet on phone

HTC started shipping their new blockchain-based phone, Exodus 1, in December 2018. The phone has to be bought with cryptocurrency and is not public available in the beginning. This phone is a part of HTC's new strategy to focus on new technology.

HTC's decentralized chief officer, Phil Chen, stated that they want to get feedback from the blockchain community on the device:

"The goal is to start with the blockchain community and get their assistance in making our wallet and the technology even more secure, in essence testing it out and providing feedback and suggestions [and] solutions,"

The new phone will include a secure enclave, which will be a secluded area on the phone's chip. This will be separated from the Android operating system that it runs.

Furthermore, Exodus 1 will include a cryptocurrency wallet named Zion, which will make to phone function as a hardware cryptocurrency wallet. In protecting users from losing their phone, HTC have built in a "Social Key Recover" process, which make it possible to recover access through a group of trusted contacts.

The phone will start shipping January 31, 2019 and costs 0.21 BTC.

World's first crypto index ETP

What: Crypto Index ETP

Who: Six group & Amun

When: November 2018

Why is this important: Makes investment in cryptocurrency more accessible and institutional-friendly

The owner of the Swiss stock exchange, SIX, have listed the world's first crypto Exchange Traded Product (ETP) by the Swiss fintech Amun. Trading of the new product started in November 2018 and is the first of its kind on a regulated stock exchange.

The ETP includes Bitcoin, Bitcoin Cash, Ethereum, Litecoin and XRP, where the cryptocurrencies weights are based on market cap.

The chief executive of Amun, Hany Rashwan, stated that the ETP is created in a way that complies with all the strict rules that is required for a traditional ETP.

Rashwan also emphasized that the product is a well-regulated tool which will be useful for both retail and institutional investors that have limited investment opportunities in traditional environments.

Norwegian Block Exchange

What: Cryptocurrency exchange

Who: Owner of Norwegian Air Shuttle

When: February 2019

Why is this important: Makes investment in cryptocurrency more accessible and opens up link to airline industry

The owner of the airline company Norwegian Air Shuttle will launch a cryptocurrency exchange in February 2019, called Norwegian Block Exchange (NBX). The original launch date was set to December 2018, but the company postponed this to make sure that the product was good enough.

Although the airline company itself isn't an owner today, the exchange will collaborate with Norwegian. Stig Aleksander Kjos-Mathisen, the CEO of NBX, stated that the costumers can earn Norwegian Reward points while trading on the exchange

"It will work exactly as the credit card. We see this as a competitive advantage on the other exchanges in Europe. We can offer reward points, in addition to all the same functionalities that the others offer,"

They also want to launch a payment solution, and hopefully let costumers pay for Norwegian tickets in cryptocurrency already in February 2019.

NBX has ambitious plans and wants to compete with well-known exchanges like GDAX and Kraken. Norwegian Air Shuttle is the third-largest low-cost airline in Europe, and NBX wants to create an ecosystem:

"One of the most important thing for us is to build an ecosystem around the solutions we develop. In particular, the ecosystem within the Norwegian group is important, but also ecosystems in the airline industry,

Opera built-in cryptocurrency wallet

What: Built-in cryptocurrency wallet

Who: Opera Software

When: December 2018

Why is this important: Convenient and reliable storage of cryptocurrency

The web browser Opera has launched a built-in cryptocurrency wallet in its Android app. This was announced in December 2018. The wallet will support Ethereum and other ERC20 compliant tokens. Opera already announced testing of this service back in July 2018.

The company wanted to support Ethereum since it has the largest community of developers building Dapps and has gathered a lot of momentum behind it.

Integration of the Ethereum Web3 API facilitates interactions with Dapps, and Opera calls it a:

“tool to access information, make transactions online and manage users’ online identity in a way that gives them more control.”

The wallet can be used to pay directly with cryptocurrency, where merchants support exists and it enable users to send money from wallet to wallet and interact with Dapps.

Opera plans to launch these updates to its full desktop browser on Windows, Mac and Linus in 2019, and the Android browser is already available in the Google Play store. Developers are already testing version for the other systems. However, an Apple iOS app is not in the pipeline, due to the strict and challenging environment for app providers to operate.

Prestigious universities invest in cryptocurrency

What: Investments in cryptocurrency funds

Who: Prestigious universities

When: Unknown

Why is this important: Growing acceptance of digital assets among institutional investors and it sends a signal when the largest academic players are backing digital assets

Reports suggest that several Ivy League and other prestigious universities have invested in cryptocurrency funds. This include Harvard University, Stanford University, Dartmouth College, MIT and the University of North Carolina.

Harvard's endowment was over \$39 billion in 2018, and the other universities mentioned are all among the top 25 wealthiest U.S. colleges.

Reports also suggest that the Ivy league university Yale has moved into the crypto space as well. Yale was one of several that invested in a new crypto-focused fund created by Coinbase co-founder Fred Ehrsam, former Sequoia Capital partner matt Huang, and former Pantera Capital trader, Charles Noyes. The new fund, called Paradigm, raised \$400 million in October 2018.

Tax payments in Bitcoin

What: Tax payments in cryptocurrency

Who: State of Ohio, US

When: November 2018

Why is this important: Sets a new standard for tax payments in the U.S.

In November 2018, the U.S. State Ohio decided to accept Bitcoin to be used as tax payments. Ohio will be the first state to accept cryptocurrency. Several other U.S. states, like Arizona, Georgia and Illinois have attempted to pass legislation to allow tax payment in cryptocurrency. However, these attempts have not been finalized or been rejected by state lawmakers.

Josh Mandel, who is the State of Ohio Treasurer, has been a crypto-enthusiast since 2014. He wants to let business owners handle their taxes online with a cryptocurrency payment service. He emphasizes that Ohio is taking the right steps in becoming a leader in the U.S.:

“Our biggest motive here was to give taxpayers more options in paying their taxes. Secondly, we wanted to project to the rest of the country that Ohio is embracing technology and is a place that is welcoming software developers and entrepreneurs who want to build a blockchain business here in the State of Ohio. By launching Ohiocrypto.com, we are planting the flag here in the state, and showing that we are a leader.”

The State of Ohio is now in “Phase One”, where they allow businesses to pay taxes in Bitcoin. They hope to expand to individual personal tax payment in “Phase Two” and include more options beyond Bitcoin.

Ohio has partnered with Bitpay, who processes the bitcoin payments. Bitpay was founded in 2011 and is the largest bitcoin payment processor in the world

Crypto exchange backed by Central Bank in Middle East

What: Central Bank-backed cryptocurrency exchange

Who: Bahrain in the Persian Gulf

When: Early 2019

Why is this important: New capital inflow into the crypto space from a region with few participants

The first cryptocurrency exchange licensed by a central bank in the Persian Gulf is set to launch in 2019. Rain Financial opened up for a user waiting list in October 2018. This comes after the company has been one year on the Central Bank of Bahrain's fintech sandbox.

Rain Financial wants to offer a brokerage for retail investor, but also an institutional platform similar to Coinbase Pro. The sandbox they have been included in consist of several other exchanges and aims to closely supervise companies through a regulatory program. Rain Financial was the first company to join the sandbox in September 2017 and is ready to launch in early 2019.

The co-founder Yehia Badaway said that investors:

"are waiting for the right regulations to be in place and the right partners. We are here to fill this demand, with institutional-grade infrastructure."

Rain Financial has several investors, like Cumberland Mining founder Mike Komaransky, Bitcoin Core developer Jimmy Song and BRD crypto wallet co-founder Aaron Lasher.

The CEO of the company is Joseph Dallago, who is an alumnus of the crypto wallet startup Abra. He said that adoption of crypto is slow across the Gulf. However, Rain Capital focuses on the huge use case of remittance with a high population of foreign works in the region.

Tokenization of Nasdaq stock

What: Digital tokens based on stocks

Who: DX. Exchange

When: January 2019

Why is this important: Traditional financial markets merging with blockchain technology

A new exchange that launched in January 2019 wants to make it possible to trade stock when the markets are closed. DX Exchange offer digital tokens that is based on shares of the 10 companies from Nasdaq, including Apple, Facebook and Amazon.

The digital tokens will operate as a normal share that pays out dividends. They are also backed by regular shares, which are bought and stored by their partner MPS MarketPlace Securities Ltd. The tokens are based on the Ethereum network.

These new tokens will make it possible for investors to buy fractions of shares, and they are always available for trading. Furthermore, they open up the possibility for foreign investors to trade U.S share, which is normally harder to access since they're only sold on one specific exchange, Nasdaq. DX Exchange wants to expand with new shares from the New York Stock Exchange, Tokyo and Hong Kong.

The company has offices in Estonia and Israel, says it is licensed by the Estonian Financial Intelligence Unit with full authorization to operate in the European Union.

However, the company has seen several security issues during the first week of trading. The platform is allegedly leaking sensitive legal and financial data, including employee data. The exchange already performed several bug fixes and updates.

Mobile Payment & FinTech Companies

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Cash app

What: Mobile payment service

Who: Square Inc

When: First release 2013, bitcoin support in 2018

Why is it important: Accessibility to cryptocurrency payments

Cash app is a mobile payment service, provided by Square Inc. The app let users send money quickly and easy. In January 2018, the app started supporting Bitcoin. After finishing an IPO in November 2015, Square has become the leading payment processing company in the U.S. Square's business model has expanded to include scheduling, employee management and business analytics. After launching a peer-to-peer payment service in 2013 called Square Cash, their Cash App has been downloaded over 33.5 million times as of August 2018.

Reports from December 2018 suggest that the Cash App overtook Paypal and Venmo and is the most popular finance app on Google Play and App Store in the U.S as of January 2019.

Cash App have seen an impressive growth in 2018, large due to its support of Bitcoin. Square confirmed a 100 percent increase in cryptocurrency profits in Q2 compared to Q1. Numbers from Q3 2018 show a revenue of \$431 million, which is a 68% increase from the same quarter in 2017.

The CEO of Square, which is also the co-founder of Twitter, stated in January 2018 that.

"We support bitcoin because we see it see it as a long-term path towards greater financial access for all. This is a small step."

The Cash App is available in all U.S. States, and is one of the few crypto services allowed to operate in the state of New York after securing a "BitLicense".

Furthermore, unconfirmed reports suggest that Square will add services such as bitcoin payment processing and a cryptocurrency exchange.

Revolut

What: Digital banking app

Who: Revolut

When: Launched in 2015

Why is it important: Simplification of the process to get cryptocurrency

Revolut is a digital banking alternative that focuses on currency exchange, cryptocurrency exchange and peer-to-peer payments. The fintech startup also offer pre-paid debit cards. In April 2018, Revolut raised \$250 million in a third funding round, making a total valuation of \$1.7 billion.

The Revolut a gives users instant access to cryptocurrencies such as Bitcoin, Ether, Litecoin, Bitcoin Cash and XRP. Users can transfer cryptocurrencies directly to other users, but are not able to move them out of the app to other wallets. The app added the option to transact cryptocurrency in December 2017, after partnering with cryptocurrency exchange Bitstamp and GDAX (Coinbase Pro).

The startup obtained a banking license in Lithuania in December 2018. This will enable users in UK, France, Germany and Poland to get true current accounts and non-prepaid debit cards within a few months. The startup also wants to offer overdrafts and loans.

In December 2018, 8,000 to 10,000 users opened a Revolut account per day. Furthermore, Revolut generate around \$4 billion on transaction volume per day.

The app has over 3 million users, and over 60,000 business have applied for a Revolut business account.

Robinhood

What: Zero fee trading platform

Who: Robinhood

When: Launched in 2015, added cryptocurrency in 2018

Why is it important: Free and easy trading in cryptocurrency

Robinhood is trading platform, that offers commission free trading. Starting with stock only, the platform now offers several options such as options, exchange-traded funds and cryptocurrency. The platform focuses on retail investors.

Robinhood launched its trading app in 2015, and now it offers desktop trading as well. Since the trading is without fees, Robinhood makes its money through margin trading services, interest from customers' cash and stocks, and rebates from market makers.

In February 2018, Robinhood added trading in cryptocurrency, which was commission free as well. The platform allows trading in BTC, BCH, BSV, DOGE, ETH, ETC and LTC. Customers cannot transfer their crypto into other external wallets. They plan to support several new cryptocurrencies and offer real-time market data for 10 cryptocurrencies that is not available for trading today.

Robinhood is only for U.S. citizens, and they only offer crypto trading in 32 states today.

Reports from September 2018 suggest that Robinhood is planning to launch an initial public offering (IPO). Jason Warnick joined the startup after 20 years in Amazon in November 2018. He will be the Chief Financial Officer and help Robinhood toward an IPO in the "medium-to-long-term", according to the company.

Robinhood raised \$363 million in a series D funding round in May 2018, and the fintech startup is now valued at \$5.6 billion.

Abra

What: Cryptocurrency wallet and exchange app

Who: Abra

When: Launched in 2016

Why is it important: Decentralized trading and wallet where user have all control

Abra allows customers to buy, sell and hold 50 fiat currencies, 30 cryptocurrencies and a BIT10 crypto index. Everything is done in the Abra app, that launched in 2016. With users in more than 100 countries, Abra makes it simple to transfer money anywhere in the world using a smart phone.

Abra uses blockchain technology to store and encrypt deposits on the user's mobile device. There is no need for a third party to clear transactions and it is thereby completely peer-to-peer.

The wallet is a so called non-custodial wallet. This means that Abra doesn't control or have access to the users' funds. These are secured on the blockchain and accessible only by the user.

Abra is a decentralized trading platform and uses Bitcoin and Litecoin to make synthetic assets. This is different from other wallets and exchanges, since it leverages Bitcoin and Litecoin smart contracts when users trade alternative cryptocurrencies. Basically, the user owns synthetic currencies, but are engaged in either Bitcoin or Litecoin all the time.

The BIT10 crypto index is develop by Bitwise Asset Management and tracks to top 10 cryptocurrencies with rebalancing monthly. The token is built solely on Bitcoin, as the CEO of Abra Bill Barhydt explains:

"The Abra BIT10 token uses the same synthetic asset model as all of the other Abra tokens available in our app. The tokens are held in fully collateralized bitcoin multi sig wallets with the user holding their own keys. As such the BIT10 token is not a security."

After closing \$16 million in series B funding in October 2017, the total funding for the company now exceeds \$35 million. Foxconn Technology Group, which is the manufacturer of Apple's iPhone, led the funding round. American Express is also one of the investors.

Circle Pay

What: Peer-to-peer payment app

Who: Circle Internet Financial

When: Launched in 2013

Why is it important: Accessibility to cryptocurrency investments

Circle Pay is a mobile payment app, that allow users to send, receive and hold traditional fiat currencies. The app was launched by the global crypto finance company Circle, and allows instant and free transfers, including international transactions. Circle Pay uses blockchain technology to enable this.

The peer-to-peer payment app originally operated in bitcoin only and Circle was the first company to receive a “BitLicense” by the New York Department of Financial Services. However, in December 2016 Circle Pay ended its support of buying and selling bitcoin. Costumers who hold bitcoin could continue to receive and send bitcoin, but once they converted their fund to another currency, they were not able to transfer back to bitcoin. Circle Pay continued to use the Bitcoin blockchain for its back-end rails, however some reports also suggest that the transactions are done using Ethereum’s blockchain.

Today, Circle offers four different products:

- **Circle Pay**
Mobile Payment App for fiat currency
- **Circle Invest**
Buy and sell cryptocurrency, selection of 12 cryptocurrencies
- **Circle Trade**
Institutional trading desk, facilitated a volume of nearly \$24 billion in 2018
- **Poloniex**
Crypto Exchange acquired in 2018

Furthermore, Circle and Coinbase launched a project called CENTRE, which serves the purpose of connecting the world’s digital wallets and let the apps transfer funds between them. This is for services like Circle Pay, Venmo, Alipay and the Norwegian Vipps. The development is supposedly happening on the Ethereum network.

In May 2018, Circle announced a stablecoin, USD Coin, which is pegged to the U.S. dollar. They also finish a funding round of \$110 million, led by crypto-mining company Bitmain. This brings Circle’s value near \$3 billion, backed by investors like Goldman Sachs and Baidu.

Veem

What: Global blockchain payments for small business

Who: Veem

When: Founded in 2014

Why is it important: Enable fast, secure and inexpensive transactions for businesses through cryptocurrency

Veem is a blockchain startup, who works with global payments of small businesses. The company uses a multi-rail payment platform, to ensure speed, security and low fees.

They use an algorithm that automatically routes transactions along the most efficient payment rails. The algorithm chooses between three different methods of sending money: Treasury, SWIFT and blockchain. Treasury are based on bank accounts that are controlled by Veem, and SWIFT is the decades-old system that banks use to transfer money internationally.

Over half of all transaction are done through Bitcoin, and Veem uses the cryptocurrency to directly connect its clients' bank accounts with customers and suppliers. The company converts the sender's fund into bitcoin and sell the cryptocurrency on an exchange to match the desired fiat currency for the recipient.

Veem raised \$25 million in a funding round in September 2018, led by the investment bank Goldman Sachs. Other notable investors are GV (formerly Google Ventures), Pantera Capital and National Australia Bank Ventures. Furthermore, Goldman Sachs official Rana Yared will be a part of the board, as a non-voting observer.

While payments through bitcoin accounted for 62% of all transactions in Q4 2017, this payment method only handled 10% of the total volume in the same quarter.

Veem serves over 80,000 business in over 95 countries, according to numbers from September 2018.

Crypto companies

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Cryptocurrency exchanges

Binance

What: Cryptocurrency exchange

Who: Binance

When: Launched in July 2017

Why is it important: Reliable and innovative exchange

Binance became the top cryptocurrency exchange in the world by trading volume in the beginning of 2018, with profits over \$200 million in Q1 2018. That was less than a year after its launch in July 2017 in Hong Kong. The exchange moved its headquarter to Malta in March 2018. Binance has a good reputation, low fees and due to its high user base and volume, it offers smaller spreads and better liquidity than many other exchanges.

The growth of the exchange started with a successful ICO on its Binance Coin (BNB). The token is built on Ethereum and offers discount in trading fees for the users. Binance is well known for adding new coins, which are paired with their own utility token BNB and BTC. The exchange can add coins at a quicker rate than other exchanges, since it's avoiding fiat pairs and strict KYC/AML regulations.

Binance showed several times in 2018 that they wanted to get crypto out in the world. They launched a fiat-to-crypto exchange in Uganda in October 2018, showing their innovative decisions. The CEO Changpeng Zhao stated that:

"We think that crypto has a very strong use case in less developed countries... there's more money to be made in a more developed country, but we want to distribute crypto to the rest of the world."

The exchange also launches an education platform and introduced a social responsibility arm, Binance Charity. The exchange started donating all listing fees and partnered with the UN Development Programme with a donation of \$1 million.

Binance will launch its own blockchain in the first half of 2019, which will support the forthcoming decentralized exchange, Binance DEX. The new blockchain will also host its native cryptocurrency Binance Coin and move the coin off the Ethereum network.

Coinbase

What: Cryptocurrency exchange and wallet

Who: Coinbase

When: Founded June 2012

Why is it important: A trusted and compliant U.S. based cryptocurrency exchange

Coinbase was founded in June 2012 and is headquartered in San Francisco. The digital currency wallet and exchange offers some of the largest cryptocurrencies. Coinbase exchanges cryptocurrency with fiat currency in 33 countries, and offers bitcoin transactions and storage in over 190 countries. The exchange is one of few that accepts both bank transfers and credit cards.

In 2014, Coinbase made several partnerships. This allowed companies like Overstock, Dell and Expedia to accept bitcoin payments, in addition to bitcoin payment processing capabilities for traditional payment companies like Paypal and Stripe.

The company completed a fundraising of \$75 million in 2015, backed by investors like New York Stock Exchange, and reports suggest that Coinbase just passed a valuation of \$8 billion after their latest funding of \$300 million in October 2018.

Today, Coinbase offers two products. A retail-friendly exchange, and Coinbase Pro (formerly GDAX) which is an exchange for professionals.

Furthermore, the exchange has an institutional focus with its own Coinbase Custody. The program requires a setup fee of \$100,000 and a minimum holding of \$10 million.

The exchange launched a stablecoin on its trading platform in October 2018, in collaboration with Circle. USD Coin is an ERC20-token, using the public Ethereum blockchain, and is 100% collateralized by USD.

Coinbase makes several efforts to educate and improve the crypto space. In 2018, Coinbase Ventures was launched, that focuses on investments in blockchain and cryptocurrency related companies. Coinbase launched a new service called Coinbase Learn in the end of 2018, which will reward users with cryptocurrency while learning about digital assets and their technology.

Gemini

What: Cryptocurrency exchange and custodian

Who: Gemini Trust Company

When: Launched 2015

Why is it important: Focus on regulation and security

Gemini is a digital currency exchange and custodian, with a clear focus on regulation and security. The company was founded in 2014 by Camron and Tyler Winklevoss. The twins allegedly became the first public bitcoin millionaires in 2013, said to have invested \$11 million in bitcoin back in 2011. This was after winning a lawsuit against Facebook and Mark Zuckerberg.

Gemini is regulated by the New York State Department of Financial Services (NYDFS), and offers trading in bitcoin, bitcoin cash, ether, litecoin and zcash. All listings are approved by NYDFS, and Gemini is the first licensed exchange in the world to offer zcash trading and custody services.

Today, Gemini has a record of adding legitimacy to cryptocurrency.

In September 2018, Gemini got regulatory approval to list its own stablecoin called GUSD, which is built on the Ethereum network and maintain a 1:1 peg with the U.S. dollar. This was promoted as more transparent and auditable than other stablecoins on the market.

Later in 2018, Gemini announced an insurance deal with Aon, covering tokens and coins held on the exchange. According to Yusuf Hussain, Gemini's Head of Risk, costumers are looking for the same level of insured protection they're used to from traditional financial institutions.

Gemini also launched the Virtual Commodity Association, which is an industry group led but Gemini, and it plans to "*promote fairness, transparency, risk management, and liquidity*" in the crypto market.

The newest movement from Gemini was a huge marketing campaign, titled "Revolutions need rules", which could be seen on billboards all over Wall Street and on a full-page in New York Times.

Bitmain

What: Cryptocurrency Mining

Who: Bitmain Technologies

When: Founded in 2013

Why is it important: Operates the largest mining pools for bitcoin

Bitmain is a Chinese company and was founded in 2013. The company primarily makes application-specific integrated circuit (ASIC) chips for mining of bitcoin. Bitmain produces several lines of cryptocurrency mining hardware, with Antminer T9 being the flagship bitcoin mining device.

The company has a strong position in the mining market. They operate BTC.com and Antpool, which historically is the two largest mining pools for bitcoin. In addition, the company have several mining farms in China, and reportedly built a blockchain data center and mining facility in Texas, USA for \$500 million in 2018. The company has a lot of critics, stating that Bitmain mining result in centralization, which can create many inherent risks.

Although Bitmain reported \$2.5 billion in revenue in 2017 and \$1.1 billion in net profit in Q1 2018 alone, the company struggles today. The company filed for an IPO with the Hong Kong Stock Exchange in August, but reports suggest that Bitmain failed to convince regulators to approve the IPO application.

Due to the falling bitcoin price, Bitmain had a challenging second half of 2018.

Reports suggest that Bitmain laid off 50% of its workforce from September to December 2018. Now, Bitmain has suspended its operations in Texas, and rumors suggest that the company lost over \$700 million in Q4 2018.

Both offices in Israel and Amsterdam are allegedly shut down as a part of the downsizing. A spokesman from Bitmain stated:

"As we build a long-term, sustainable and scalable business, we are making adjustments to our staff and operations."

A plan is also reportedly underway to replace the co-CEO's, Jihan Wu and Micree Chan.

BitPay

What: Bitcoin payment processor

Who: BitPay

When: Founded in 2011

Why is it important: Making it easy for business to accept bitcoin payment

Bitpay was founded in 2011, and the world's leading bitcoin payment processor. The company is serving business all over the world. BitPay enables users to accept bitcoin and have the fund transferred directly to their bank accounts. The company operates and processes bank deposits in 33 countries, pricing in 150 currencies and support payouts in the largest currencies, like U.S. dollars, Euros and 6 others.

BitPay launched a Visa Prepaid Debit Card in May 2016. This was the first available for bitcoin users in all U.S. States. The card gave the user the ability to load bitcoin, pay at Visa point-of-sale systems and also withdraw cash at Visa ATMs.

The company also launched the BitPay app the same year, which is a cryptocurrency wallet. The app let the users purchase, store and spend bitcoin. The app was made to make the use of bitcoin more appealing and offer security at the same time.

Bitpay raised \$30 million in 2014, which included the billionaire Sir Richard Branson. In 2017, they raised another \$30 million in a strategic Series B funding round, led by fintech venture capital firm Aquiline Technology Growth.

In 2018, the company became the first virtual currency wholesale payments processor to be approved by the New York Department of Financial Services.

Several large players have signed up with the company to accept bitcoin payments, including Microsoft, the State of Ohio and Virgin Galactic. BitPay also partnered with mining company Bitmain in a "multi-billion dollar development agreement", to create advanced open source software.

In the beginning of 2019, BitPay announced that merchants now can receive settlements in bitcoin, bitcoin cash, and the three stablecoins PAX, USDC and GUSD.

BitGo

What: Blockchain security company

Who: BitGo

When: Founded 2013

Why is it important: Onboarding of institutional investors with trusted and regulated solutions

BitGo was founded in 2013 and focuses on blockchain security. The company is the market leader in institutional cryptocurrency financial services and the world's largest processor of on-chain Bitcoin transactions. BitGo processes impressively 15% of overall global Bitcoin transactions, and over \$15 billion across all cryptocurrencies per month. The company has over \$2 billion in assets in wallet and support over 100 cryptocurrencies.

In 2013, they announced the first multi-signature hot wallet in the industry. Today, their service "BitGo Business Wallet" is the only *"institutional-grade, multi-signature, multi-coin transactional wallet"*. Their three-key management require more than one party to sign off on transactions, without taking custody, to ensure security and remove the risk of failure. BitGo offers an API, which developers can use to integrate multi-signature wallet functionality in their own projects.

The company also offers a self-managed storage option, for users that want a secure offline vault solution which enable them to hold their own keys and use their own technical terms. Furthermore, BitGo develops private blockchains, to enable institutional investors trading in digital assets, since public blockchains don't always meet the legislative requirement

In 2018, they announced BitGo Custody and launched BitGo Trust Company. By doing this, they became the first qualified custodian purpose-built for storing of cryptocurrency. This is 100% cold storage technology with a bank-grade Class III vaults, support over 100 coins and tokens.

BitGo finished a Series B funding round of \$57.5 million in October 2018, backed by Goldman Sachs and Mike Novogratz's Galaxy Digital Ventures. Backing from Wall Street companies like this, may help BitGo in attracting more institutional investors. Rumors suggest that Goldman Sachs is planning to offer custody for crypto funds.

Regulation of cryptocurrency

USA

The regulation of cryptocurrency in the U.S vary by state and is not consistent. Laws on cryptocurrency exchanges vary by state, and federal authorities differ in their definition of the term “cryptocurrency” and on their overall approach on cryptocurrency.

The Financial Crimes Enforcement Network (FinCEN) doesn't see cryptocurrency as legal tender. Since 2013, FinCEN has defined exchanges as money transmitters, based on the basis that tokens are "other value that substitutes for currency".

Several large exchanges have been registered as Money Service Business with the FinCEN. Coinbase have been subject to AML laws since 2013, and Bitstamp, Bittrex, Poloniex, Gemini, Kraken and OKEx, among others, have joined later on. The exchanges are serious about getting accepted and to comply with regulations.

The New York State Department issues a virtual currency license and money transmission license called “BitLicense”, which is a requirement under New York State law in order to engage in any “Virtual Currency Business Activity”. Only 14 is given since 2015, including companies like Circle, Gemini, Coinbase, Ripple, BitPay and Square Inc.

According to The Internal Revenue Service (IRS), cryptocurrencies are regarded as property and IRS issued guidance on the tax treatment of cryptocurrency transactions in 2014.

The Security and Exchange Commission (SEC) considers cryptocurrency as securities and stated in March 2018 that it was looking at applying securities laws for digital wallets and exchanges. Throughout 2018, the SEC has been active in pursuing Initial Coin Offerings (ICOs), who have conducted unregistered securities offering. However, bitcoin and ether were cleared as commodities and not securities earlier in 2018. The number of digital token-related actions from the SEC increased from 5 in 2017, to 18 in 2018.

Investors are also patiently waiting for SEC's decision on cryptocurrency ETFs. With several attempts being rejected in 2018, the first physically backed Bitcoin ETF can be accepted in the end of February 2019.

A friendlier approach from the Commodities Futures Trading Commission (CFTC) describes cryptocurrency as commodities and allow derivatives to be traded. The public is waiting on CFTC's approval of physical settled bitcoin futures, which should be decided in the end of January 2019. Several initiatives are ongoing to improve the regulatory scene in the U.S.

The Justice Department is working with the SEC and CFTC on streamlining future regulations. The U.S. Treasury sees an urgent need for regulations, and a Financial Stability Oversight Council (FSOC) working group to explore cryptocurrency was announced in

January 2018. Furthermore, the Annual Economic Report from the U.S. Congress included a chapter on cryptocurrency for the first time in 2018. Clear recommendations stated that policymakers need to get to know the space, and that regulators had to coordinate and make frameworks, definitions and jurisdictions.

A proposed bill, called the Token Taxonomy Act, will be reintroduced in 2019 and wants to define cryptocurrency as “digital tokens”. This will release cryptocurrencies from the laws of securities, and a clear definition of a new asset class will be made.

Canada

Cryptocurrency is not seen as legal tender in Canada. However, it is taxed by Canada Revenue Agency since 2013 and characterized as commodities and not currencies. Canada was the first country in the world to introduce a national law on digital currencies in 2014, when entities dealing in cryptocurrencies were brought under the Proceeds of Crime (Money Laundering) and Terrorist Financing Act.

Exchanges are seen as legal in Canada, but regulations varies by province and are not consistent.

At a federal level, the authorities treat cryptocurrency as securities. In August 2017, the Canadian Securities Administrators (CSA) issued a notice on the applicability of existing securities laws to cryptocurrencies, ICOs and exchanges.

The British Columbia Securities Commission, which is an independent government agency responsible for regulation of securities trading, accepted Canada's first cryptocurrency-only investment fund in 2017.

In January 2018, the head of Canada's Central Bank characterized cryptocurrencies "technically" as securities. Later the same year, Canadian authorities issued draft amendments to the Proceeds of Crime (Money Laundering) and Terrorist Financing Act. This will include new regulations on cryptocurrency exchanges, making them obligated to reporting in the same way as Money Services Business.

China

China has a global reputation for harsh cryptocurrency regulations. The People's Bank of China (PBOC), which is China's central bank, banned financial institutions from handling bitcoin transactions in 2013. Later in 2014, the PBOC required all banks and payment companies to close accounts opened by operators of websites that traded in cryptocurrency.

In 2017, China banned ICO's and all domestic cryptocurrency exchanges. The PBOC together with the Ministry of Industry and Information Technology, followed up with plans to expand regulations to include foreign exchanges and ICO websites in February 2018. Reports from August 2018 state that Chinese regulators were seeking to block over 100 foreign cryptocurrency exchanges.

Cryptocurrency mining is still allowed in China. However, leaks from the PBOC report that this as well could be banned soon.

Although China has banned most activities related to cryptocurrency, the country is serious about blockchain technology. PBOC has been conducting a study of digital currency for over three years and set up the Institute of Digital Money within the PBOC. Reports from August 2018 suggest that the PBOC was recruiting heavily as it continues the development of a central bank digital currency.

The European Union

There is no specific legislation regarding cryptocurrencies passed from the EU Parliament, but cryptocurrencies are broadly considered legal in the European Union. Regulations on cryptocurrency exchanges vary depending on the country, and they are not regulated at a union level. Members of the European Union are not allowed to introduce their own cryptocurrency, and Estonia was banned from doing that in 2017.

Most of the EU member have introduced capital gains tax on cryptocurrency. In 2015, the Court of Justice of the European Union ruled that exchange of traditional currency to cryptocurrency should be exempt from value-added tax (VAT).

Cryptocurrency exchanges have to registered with their respective national regulators., such as Germany's Financial Supervisory Authority (BaFin), France's Autorité des Marchés Financiers (AMF) and Italy's Ministry of Finance. A significant difference from the model we see between the states in the U.S., is that the European Union have a "passport" program. This allow exchanges that are legally established in one of the EU countries to operate in all the others. Bitstamp was granted a license in Luxembourg in 2016 and became the first nationally licensed Bitcoin exchange in the world. Bitstamp was then allowed to operate in all 28 European Union countries.

The European Union is looking into several possible regulatory improvements on cryptocurrencies.

The European Securities and Markets Authority (ESMA) has already changed its requirements for cryptocurrency derivatives in March 2018, by limiting the leverage offered from 5:1 down to 2:1.

The European Commission announced an Action Plan in March 2018, where participants from national authorities and EU-level will seek to raise the *"regulatory and supervisory capacity and knowledge"* around new technologies, including blockchain.

Furthermore, EU agreed on the text for the Fifth Anti-Money Laundering Directive in April 2018. This will bring crypto-fiat exchanges under EU's anti-money laundering legislation and will require KYC/CDD and full reporting. This will come in effect in 2020.

Mario Draghi, the President of the European Central Bank, said in 2018 that work is under way to get a specific supervisory approach on digital currencies. Other EU leaders have voiced their concerns, and several warnings of the risks related to cryptocurrencies have been raised from the three European Supervisory Authorities; ESMA, EBA and EIOPA.

United Kingdom

Cryptocurrency is not seen as legal tender in the UK, and cryptocurrency exchanges have certain registration requirements with the Financial Conduct Authority (FCA). No specific cryptocurrency laws have been implemented in the UK.

HM Revenue and Custom, which is responsible for the collection of taxes in the UK, issued a brief on tax treatment of cryptocurrency. This stated that cryptocurrency can't be compared with conventional investments or payments, and that capital gains tax should be applied.

Entities involved in cryptocurrency in the UK fall under existing financial regulations for derivatives, which today require authorization.

Bank of England (BoE) Governor, Mark Carney, indicated that regulations on cryptocurrency were on the horizon in 2018. BoE formed a cryptocurrency task force in March 2018, which published a report in October 2018. The task force indicated further consultation with the FCA in 2019 on cryptocurrency, which will include regulation, sale of derivatives, innovation and reporting systems. The FCA is also working with BoE and the UK Treasury to develop a strategy related to AML/CFT.

After being criticized for “feeble” warnings and no actions, by the Treasury Select Committee, CFA stepped up its inquiries into cryptocurrency firms in the end of 2018.

Furthermore, Coinbase, eToro, Houbi, and other crypto related companies, formed the CryptoUK Trade Association in 2018. This UK based regulatory body aims to lay down *“the blueprint for what a future regulatory framework will look like”*. This will also include norms on Anti-Money Laundering.

Malta

Malta is the global leader in cryptocurrency regulation and has a progressive approach to this new space. The government see cryptocurrency as “*a medium of exchange, a unit of account, or a store of value*”, but does not see it as legal tender. The country has no specific tax legislation or any VAT applicable.

Cryptocurrency exchanges are legal on Malta, and the country has attracted some large players in the crypto space, including the largest exchange by volume, Binance.

In July 2018, the Maltese Parliament approved three bills establishing the first regulatory framework for blockchain and cryptocurrency:

- **Malta Digital Innovation Authority Act** Focuses on internal governance and outlines the duties and responsibilities for the Digital Innovation Authority to certify distributed ledger technology platforms. Setting the standards and collaborate with other nations and organizations.
- **Innovate Technology Arrangement and Services Act** Registration of exchanges and other companies operating in the cryptocurrency market.
- **Virtual Financial Assets Act** Regulatory regime applicable to cryptocurrency exchanges, ICOs, brokers, wallet providers, advisers, asset managers, etc.

Cryptocurrency development is encouraged by the government, with a clear framework and regulations in place. Malta is often called the “Blockchain Island”, and the Prime Minister, Joseph Muscat, said the following in July 2018: *“I think that blockchain technology, DLT and cryptocurrency is where innovation is happening right now, and we are very glad that Malta can offer the first jurisdiction in the world to regulate this sector. We are excited about what this will lead to in the future,”*

Switzerland

Switzerland is one of few countries that see cryptocurrency as legal tender. It is accepted as payment in some contexts. Exchanges are also legal and regulated by the Swiss Federal Tax Administration (SFTA). Furthermore, exchanges must obtain a license from the Swiss Financial Market Supervisory Authority (FINMA) to operate in the country.

SFTA considered cryptocurrencies as assets. They are subject to the Swiss Wealth Tax and must be declared on annual tax returns.

Switzerland has regulations in place for ICOs, and the country is a popular hub for launching new projects. A report from November 2017 showed that 4 of the 10 biggest ICOs were done in Switzerland. FINMA published a set of guidelines in February 2018, which applied existing financial legislation to offerings across a range of areas.

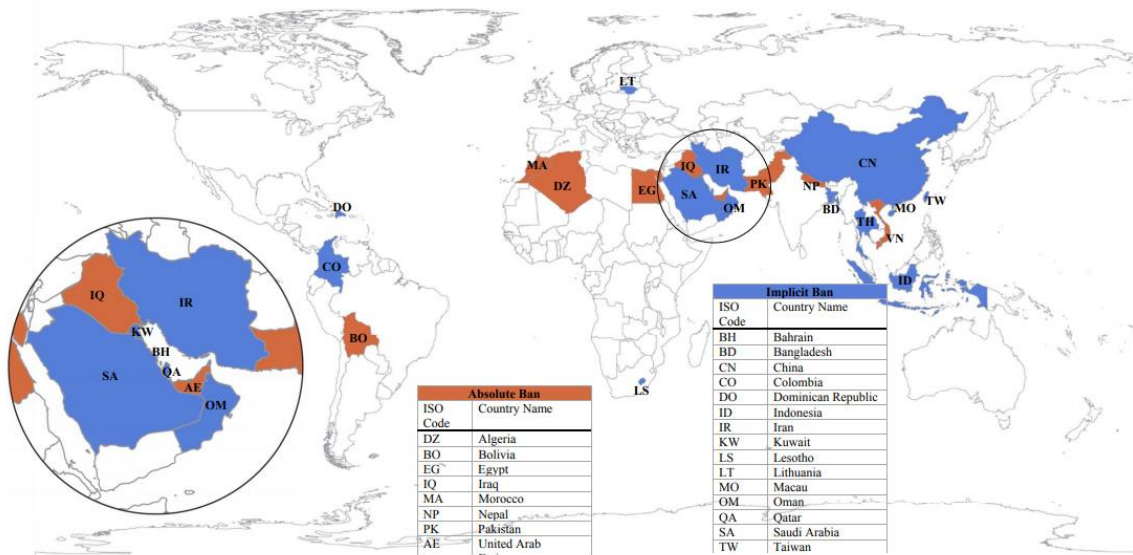
The government in Switzerland is working towards a friendly cryptocurrency environment. The Swiss Economics Minister, Johann Schneider Ammann, wants to make Switzerland “*the crypto-nation*”.

The city of Zug is called the “crypto valley” and has become the central place for crypto companies in Switzerland. The city accepts city fees to be paid in bitcoin and ether. That include administrative costs and municipal services, such as resident registration. The Federal Ministry of Justice and FINMA have gathered a working group on blockchain and ICOs, and will invite interested business to work together with them. The goal of the working group is to “*increase legal certainty, maintain the integrity of the financial center and ensure technology-neutral regulation*”

SIX, the owner of the swiss stock exchange, will introduce a crypto platform. This will be a fully integrated trading, settlement and custody infrastructure for digital assets. The first services will be rolled out in mid-2019.

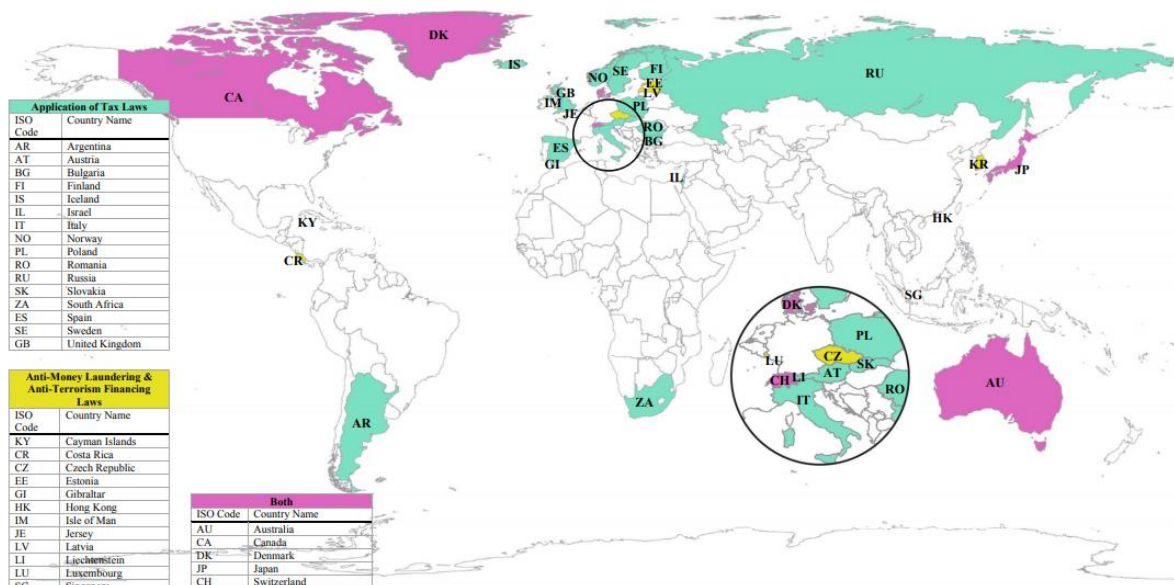
Illustrations – World maps

Regulation of cryptocurrency around the world



Legal Status of Cryptocurrencies

Source: Created by the Law Library of Congress based on information provided in this report.

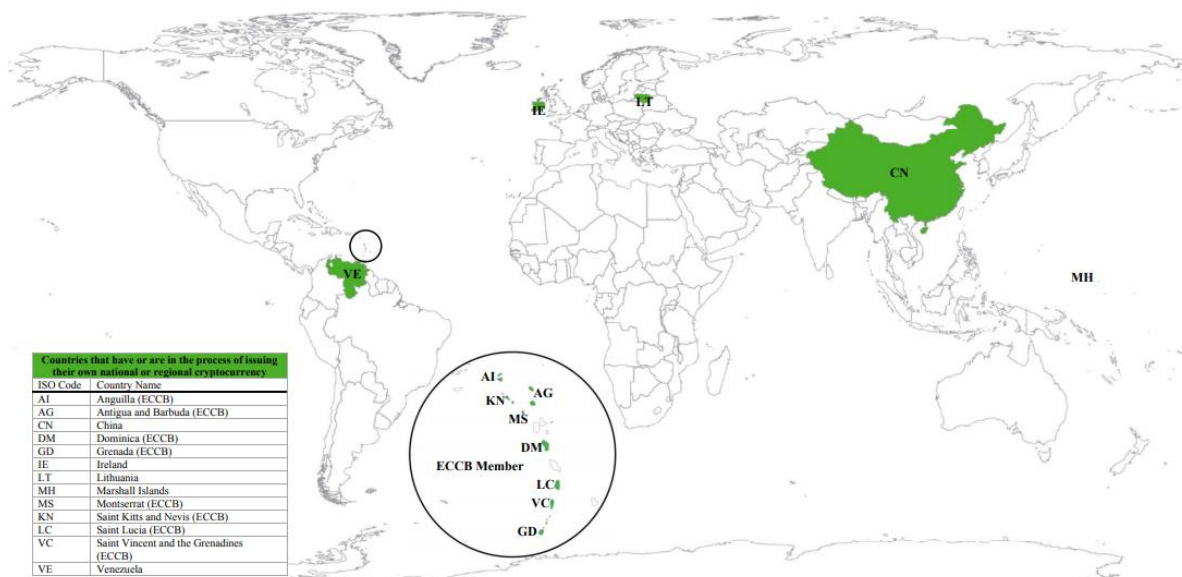


Regulatory Framework for Cryptocurrencies:

Application of Tax Laws, Anti-Money Laundering/Anti-Terrorism Financing Laws, or Both

Source: Created by the Law Library of Congress based on information provided in this report.





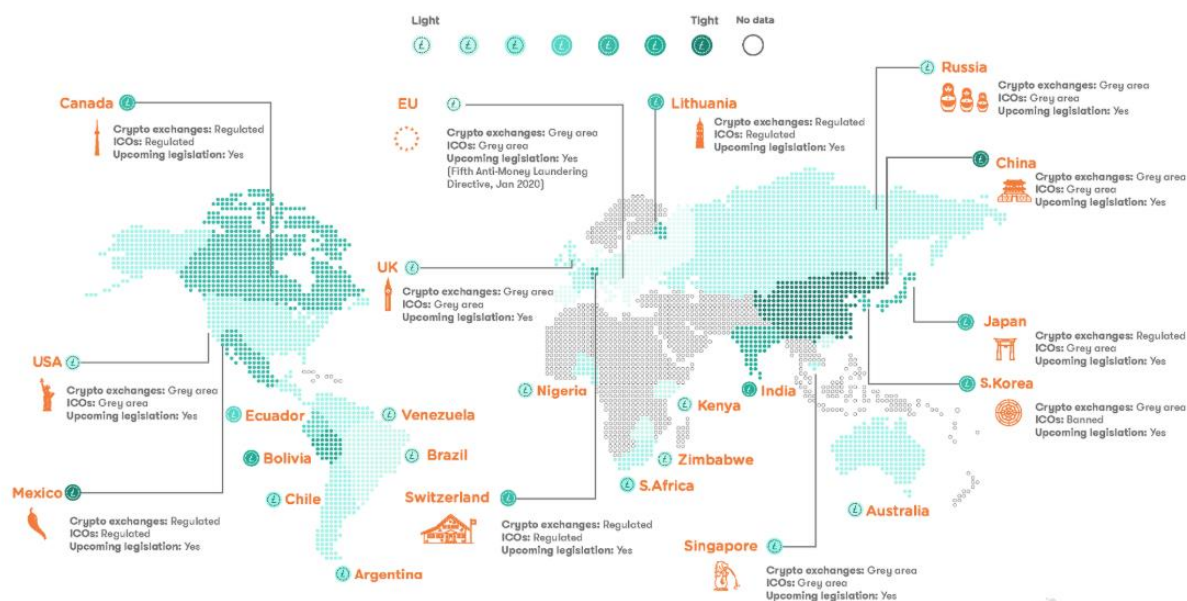
Countries that Have or Are Issuing National or Regional Cryptocurrencies

Source & Note: Created by the Law Library of Congress based on information provided in this report. As discussed in the report, the Eastern Caribbean Central Bank (ECCB), which is the monetary authority for eight island economies in the Eastern Caribbean Currency Union, has entered into an agreement for the development of a digital currency for member states.



Crypto Regulations by Country

How do different countries around the world approach crypto-regulations?



The light-to-tight regulation scale is based on the following criteria: are Cryptocurrency Exchanges and ICOs banned, regulated or operating in a grey area? Ban = 5 points, regulated = 2 points, grey area = 1 point. Legal Tender? Yes = 1 point, No = 0 points. Is there any planned legislation to increase crypto regulation? Yes = 1 point, No = 0 points. Data collected by ComplyAdvantage should be used as a guide and never taken as legal advice.

ComplyAdvantage

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