



STATE OF CRYPTO AND BLOCKCHAIN



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INTRODUCTION

2020 was one of the most uncertain periods of modern history, and in parallel with the seemingly unstoppable path of a deadly pandemic, innovators in lockdown were also creating, building and accelerating digital asset ecosystems. The emergence of cryptocurrencies was to a great extent a reaction to the control over money creation exercised by central banks and the commercial banking sector during the most recent market crash in 2008.

2020 also saw significant developments as digital currency markets have climbed significantly, DeFi has exploded and Blockchain has taken centre stage in COVID supply chains and secure data sharing. The crypto economy is thriving.

In this report, the Novum Insights Team highlight some of the most significant blockchain developments for 2020 and offer some predictions for 2021.

Despite gaining institutional investors and more than doubling the previous 2017 high price the entire market is still seemingly 'sentiment-driven'. The slightest rumour of a bitcoin double-spend had sent crypto into a tailspin (dropping more than 15% in 12 hours) at the time of writing before a rally for Ethereum to an all time high. For a writer of a report the realisation is that much of what we write will be out of date virtually the moment it is consigned to a locked form in a PDF. Yet that is also part of the fun of commenting on this fast-paced industry.

2020 started with a long stable calm period, then massive selling with the COVID outbreak followed by a launch of many Defi products which started slowly and then exploded as fiscal easing and governments printing and handing out record amounts of their own traditional fiat currencies drove investment.

The 'open-source' nature of Defi creation of exchanges, borrowing, lending and 'staking' (incentive-driven lock-up) meant that copying the entire code base of say 'Uniswap' and launching your own version was relatively easy for a skilled developer. This in fact happened many times, mostly to experiment with variants but in the case of 'Sushiswap' to launch a spectacular, gorgeous website with outrageous claims of millions of % of annual interest. The numbers got too big and the 'chef' decided to exit. Somewhat surprisingly, the platform lives on, maintained by eager and competent enthusiasts.

Ethereum launched 'ETH2.0' and easily passed its required 'staking' amount for the launch although (as with all Ethereum plans and timelines) the plan for the rollout morphed and changed unsettling some who might be a little queasy about the 'seamless integration with ETH1.0'.

All prices started to rise through the year as a succession of mainstream funds and investors announced that they would be taking positions in Crypto as part of their portfolios and 'crypto-custody' now being a legitimate, authorised banking activity. Many projects (including Polkadot) took the opportunity to quickly and easily launch their





2020 HIGHLIGHTS

- Crypto market capitalization topped \$1trillion at the beginning of 2021.
- Institutional Investors got serious with Bitcoin and there was an upswing in cryptocurrency interest from mainstream finance.
- Bitcoin halving in May 2020, further constraining supply.
- DeFi explodes to more than \$26 Billion total value 'locked'.
- U.S. Office of the Comptroller of the Currency approves national banks [custody crypto assets](#) as a 'normal activity'
- The EU Commission published a proposal for the regulation of crypto assets, called 'Markets in Crypto-Assets Regulation' (MiCA). Once adopted and in force, the MiCA will regulate directly applicable law in all EU Member States.
- Central Bank Digital Currencies continue to be actively pursued by multiple jurisdictions with China leading the charge.
- Facebook's Libra Coin and other 'private currencies' are threatening the global monetary system and China's digital yuan threatens to challenge USD as global reserve currency.
- Jesse Walden, Founder at Variant Fund, [coins new term](#) - [the Ownership Economy](#), an economy where platforms are "not only built, operated, and funded by users—but owned by users too."



LOOKING AHEAD TO 2021

- 2020 was the beginning of a 24-month bull market cycle in digital assets and we anticipate a 40% market crash at some point, probably by the third quarter of 2021.
- However, while there will be some crypto market panic during this the rise of stable coins, decentralised exchanges, automated market making (AMM), and greater sophistication across the crypto world should mean the asset class will emerge stronger from such a shake out. Any market crash will likely see a six to 12 month rebound rather than a 24 month one, because the general pace of innovation is much more profound.
- 2021 could be a 'breakout year' for crypto hedge funds with many new entrants.
- Blockchain could also be key in storing and the sharing of data as ESG becomes part of core business strategy and will play a greater role in rewarding people and businesses for changing their behaviour in an effort to reduce global carbon emissions.
- Institutional adoption of digital assets will continue to rise with [Reuters](#) reporting the S&P Dow Jones would be launching a crypto index in response to institutional demand for this asset class.
- Whether Facebook's stable coin [Diem \(formerly Libra\)/Novi \(formerly Calibra\)](#), or another from Apple, Google or Microsoft, the likelihood of a platform cryptocurrency securing traction in 2021 is very likely.
- Expect More Regulation! Regulators will intensify their search for stricter and tighter regulation and could act on either 'stable' coins or token launches on Defi Exchanges.
- The global enterprise blockchain market size is expected to expand from USD 3.0 billion in 2020 to USD 39.7 billion by 2025, at an effective Compound Annual Growth Rate (CAGR) of 67.3% during 2020–2025. Novum backs this viewpoint, though we will need to see more meaningful enterprise blockchain solutions receiving widespread usage.
- Defi total value locked could exceed \$100bn in 2021 as users realise that returns can be 'amplified' with varying degrees of risk and return as they 'put their crypto to work'.
- The security token market could begin to make waves with meaningful issues that are actively traded by institutions after having been disappointing in the period between 2017 and end of 2020 and eclipsed by other events in 2020.



Chapter 1

CRYPTO MARKETS

This chapter looks at the crypto markets and institutional adoption of crypto.

Bitcoin (BTC) and Ethereum (ETH)

Crypto market capitalization topped \$1 Trillion in January 2021. Figure 1 below shows that Bitcoin accounts for about 70% of the market capitalization, Ethereum following suit accounts for 13%.

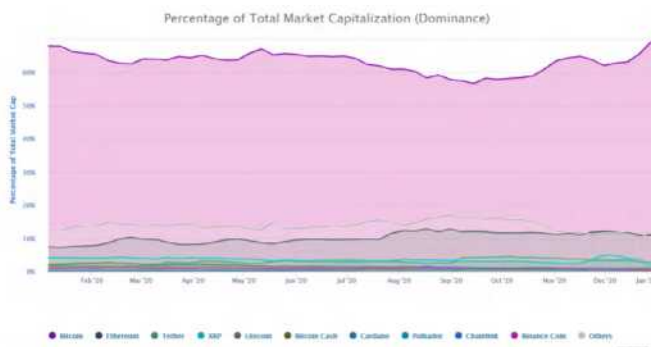


Figure 1 - Cryptocurrency market capitalization by coins

Figure 2 demonstrates the Bitcoin price movement in 2020. It surged above \$40,000 on the 8th of January 2021 breaking new all time highs. Bitcoin has shown a parabolic growth of 314% in terms of price over the course of the past year, a 3x return in one year. Ethereum performed even better, giving investors a 4.7x return in the same period of time.

Figure 3 below charts the major events in cryptocurrency, blockchain, DeFi (Decentralized Finance), institutional adoption and global macro economy.



Figure 2 - BTC and ETH price movements in 2020

2020 has seen a growing institutional enthusiasm for Bitcoin and this has likely contributed to the astonishing BTC price rally. Digital assets have shown highly attractive yields and there is growing demand from institutional counterparties and borrowers such as hedge funds, over-the-counter desks, market makers and liquidity providers. Among the 'whales' are billionaire hedge fund manager [Paul Tudor Jones](#) entering into bitcoin trading hedging against the inflation caused by money printing, global asset manager [ARK Invest](#) specialising in disruptive tech, quant hedge fund [Renaissance Technologies](#), and business intelligence software company [MicroStrategy](#) which has purchased over 70,000 BTC to date as a part of its treasury management strategy. Also building industry credibility is that major financial services companies including [PayPal](#), [Visa](#) and [JPMorgan](#) have adopted cryptocurrency as a payment method in 2020.

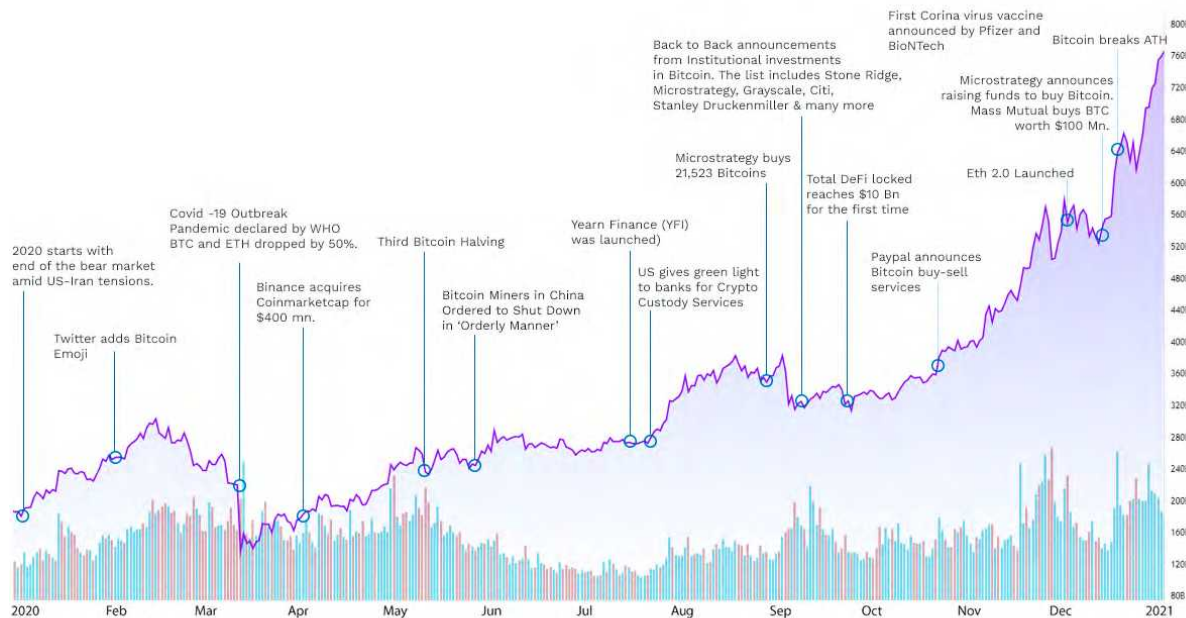


Figure 3 - Major events in crypto, blockchain, DeFi and

One of the major events for 2020 was the Bitcoin 'halving' in May 2020. Bitcoin halving is when the reward for mining blocks gets cut in half, reducing the number of new bitcoins in circulation. Bitcoin has a fixed maximum supply of 21 million, so the designed scarcity appealed to investors as an inflation hedge in the aftermath of unprecedented money printing by the central bank.

Piggy backing on major cryptocurrencies BTC and ETH, altcoins joined the crypto bull run in 2020. The price of [Litecoin](#) grew by more than 230% and that of [Polkadot](#) almost doubled. However, the third most valuable cryptocurrency [XRP](#) has seen a sharp drop in the month of December 2020. There has been a sell-off after the finalization of the Spark token airdrop to XRP holders, and most importantly, the SEC filed charges against Ripple Inc. and the two executives for having failed to meet federal securities laws that require registration of offerings. Since the news release on the 22nd of December, almost half of its market capitalization was wiped away in one week. The SEC action against Ripple is likely to stifle innovation in America and see the US's leadership decline in the Digital Asset sector.

Figure 3 above charts the major events in cryptocurrency, blockchain, DeFi (Decentralized Finance), institutional adoption and global macro economy.



Figure 4 - Price movements of Top 5 cryptocurrencies

Figure 4 above charts the price movements of Top 5 Cryptocurrencies clearly depicting Ethereum appeared as the clear winner with its planned upgrade and the growth of DeFi ecosystem.



Crypto Funds on the Rise

Crypto investing services company established by Digital Currency Group, [Grayscale Investments](#), had a record-breaking year. The asset manager's Assets Under Management (AUM) grew from \$2.02 billion in the beginning of 2020 to \$20.2 billion. Among its funds, Grayscale Bitcoin Trust has grown the most, from \$1.8 billion AUM to \$17.5 billion AUM. 86% of the investment to Grayscale's funds came from institutional investors. Grayscale's institutional investors include ARK Investment Management, Kinetics Portfolios Trust, Addison Capital, Rothschild Investment and more. Novum Insights mapped out crypto hedge funds in the Figure below. Tim Draper's Venture Studio doubled down on funding blockchain projects with a \$25M fund. Invictus Capital introduced Invictus Bitcoin Alpha Fund offering investors downside protection and return enhancement for long-term BTC holders and Fidelity's president filed for a new bitcoin fund proposal in August.



Figure 5 - Crypto Funds

Crypto Funds on the Rise

The US Treasury's Office of the Comptroller of the Currency (OCC) approved national bank's custody of crypto assets in July. Previously, custody was the domain of crypto firms, such as Coinbase and BitGo. Novum Insights maps out the crypto custody ecosystem below.



Figure 6 - Crypto Custody Ecosystem

Major Banks and Crypto

The use cases for Blockchains can be categorised into three broad applications;

1. The storage of digital records (identities, assets, voting rights, etc)
2. The exchange of digital assets (via direct peer-to-peer transactions which remove the need for middlemen)
3. The recording and execution of smart contracts

Banks have been cutting their teeth on Blockchains in creating efficiencies in cross-border payments and have been experimenting with the blockchain and undertaking proofs of concepts and publishing their results. Leading investment banks and investment divisions of these financial institutions are coming together by participating or investing in grouped initiatives, consortiums, and trade-finance projects.

MAJOR BANKS AND THEIR BLOCKCHAIN ASSOCIATIONS



Figure 7 - Major banks and their blockchain

Blockchain's intervention is ripening the ecosystem by bringing automated and transparent services which include timely clearing and settlement of cross-border payments and remittances, fraud and error reduction, lower administrative costs, trade finance, identity, the removal of paper trails, and syndicated loans. Although the speed of adoption has been slow, the experimental deployment of blockchain via a shared ledger between participating banks aims to establish if such a system can speed up banking operations with automations and ensure added layers of data security.

The graphic below looks at the different major blockchain associations banks are members of, and while it is only a small indicator, and other areas such as engagement with Ripple and R3 Corda, the two most used private blockchains used by banks, are also important, things are going to get very interesting as many of the banks in this list also wade further in-depth into crypto. Also it should be noted that Goldman Sachs, for instance, is a big adopter of blockchain through its investment in major blockchain company Circle, so the graphic gives an indication of how active groups are in cross-industry bodies like WeTrade and Marco Polo Trade Finance. It will also be interesting to see which banks have their own proprietary custodial solutions for digital assets and which will have to leverage vendors and more established specialised players such as Bitgo, Gemini, and others.

It is widely believed many of the major investment banks have been preparing to hold their high net worth and institutional clients' crypto assets, like they custody much of their other investments. World's leading custody solutions including BNY Mellon, Northern Trust, and State Street have already taken their steps into the cryptocurrency space. A number of Blockchain specialist startups are partnering with these leading institutions providing global financial services to migrate these services on a distributed ledger.

Broadridge has partnered with Santander Bank and Northern Trust to facilitate investor voting via proxies and manage their blockchain-based private equity solutions respectively. [Synaps](#) ran a Proof of Concept (PoC) for eight months. [Credit Suisse was the primary client](#), but it also involved BBVA, Danske Bank, Royal Bank of Scotland, Scotiabank, Société Générale, State Street, U.S. Bank, and Wells Fargo.

JP Morgan's Interbank Information Network (IIN®) has expanded dramatically over the last 12 months, [as more than 330 banks](#). CLS announced that BNP Paribas, Citibank and JP Morgan have joined its foreign exchange payment netting system CLSNet, which leverages distributed ledger technology. There are now 70 institutions which are now together called as 'Settlement Community' along with their first customers, Goldman Sachs and Morgan Stanley.

The Utility Settlement Coin (USC) project is one of the most ambitious crypto-based initiatives in mainstream finance. The project has created a new company and rebranded itself with a new company called [Fnality International](#) raising £50M in its Series A round. The initiative was launched by financial giants UBS, BNY Mellon, NEX, Santander and Deutsche Bank, along with blockchain startup Clearmatics. Fnality now boasts 15 major institutions as shareholders: Banco Santander, BNY Mellon, Barclays, CIBC, [Commerzbank](#), [Credit Suisse](#), and others.

Crypto Exchanges

As many bored millennials turned to investing during coronavirus lockdowns, trading apps flew high. Novum Insights mapped out the world's biggest crypto exchanges in the figure below. The y-axis shows the number of customers and the sizes of the circles show 24h trading volume. The trading volume data is from [Coin Gecko](#). At the time of writing, Binance is leading the market in terms of trading volume of \$15 billion and Coinbase has the most users (35 million).



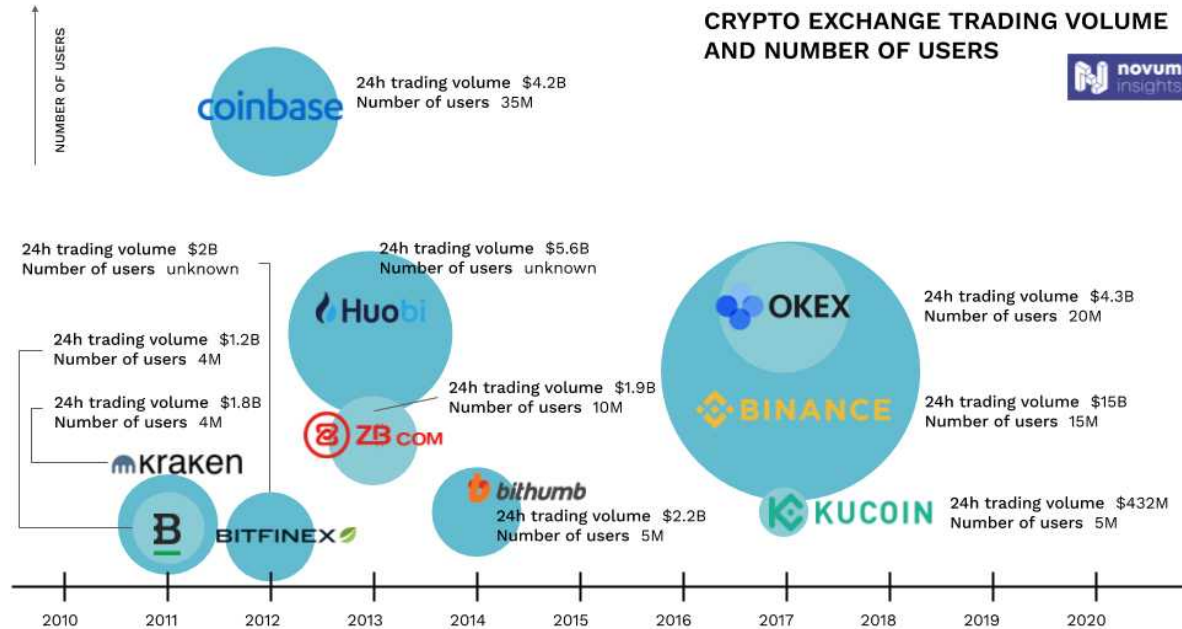


Figure 8 - Centralized crypto exchange trading volume (median) and

Stablecoins

Bridging the fiat and cryptocurrency, stablecoins have witnessed hypergrowth in 2020, especially fuelled by the DeFi boom. From \$5 billion in January 2020, the overall market capitalization of stablecoins has skyrocketed beyond \$34 billion according to Coingecko at the time of writing. On January 4th 2021, the OCC published an interpretive letter saying that national banks can use Public Blockchains for payments. This regulatory step ahead lays out a bright future for the stablecoin markets as they are the banks that will not pick volatile cryptocurrencies for transactions.

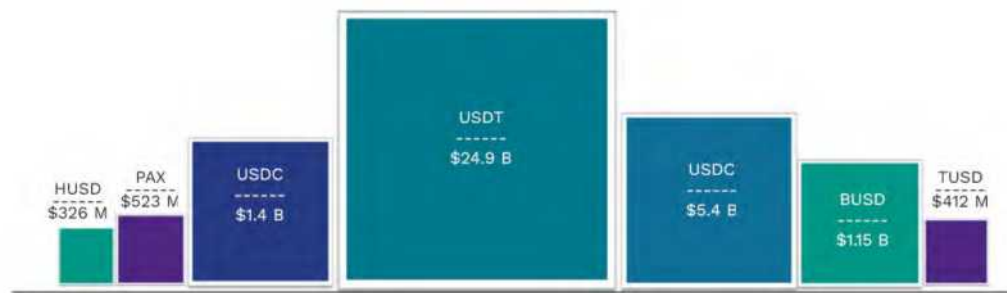


Figure 9 - Market Capitalization of Top Stablecoins (Jan 2021)

Chapter 2

DECENTRALISED FINANCE

This chapter looks at the growth of the DeFi ecosystem in 2020.

It could be fairly said that the second half of 2020 in the blockchain space was marked by the DeFi boom. The total value locked in DeFi contracts surged 40x to \$24 billion as of the end of December, from \$600 million in January. Figure 10 below illustrates the growth of market cap of top DeFi coins.

DeFi brings a new paradigm to the financial services industry and changes how individuals exchange digital value. In this report, we look at the building blocks of DeFi in trading and lending. DeFi broadly encompasses traditional financial services functions including :

1. Issuance: including stable Tokens, Debt, Securities, Insurances NFTs,
2. Trading: including Decentralised exchanges, Derivatives, SWAPs, prediction markets; and Liquidity Relays
3. Ownership: Wallets; Baskets and Fund Management; and Payment Networks.

Automation is the key as Blockchain enables the creation of 'smart contracts' that can self-execute once certain criteria have been met, eliminating the need for middlemen. Beyond carrying over existing market mechanics, DeFi enables new designs of digital asset trading executed on decentralized networks accessible to anyone that has internet access.

2020 has seen a rapid escalation of companies like Idle and Yearn Finance for optimized yield generation across different lending protocols. Top centralized crypto exchanges have been aiming at expansion into DeFi through acquisitions, investments, and new product releases. Coinbase and Huobi invested in a Uniswap-like Chinese DEX CoFix in October, Binance launched Binance Smart Chain in September to accelerate the development of various decentralized applications. Automated Market Makers like Uniswap and Balancer gained traction.

Speculation will continue to grow as crypto assets evolve with new investing categories like staking and information markets. Investors will also turn to smart contract security companies such as MythX and Quantstamp and alternative insurance providers like Nexus Mutual to manage financial and technical risk of smart contract failures.

Half way into January, at the time of writing, trade volume on major crypto exchanges including Coinbase, Binance, Kraken, exceeded December's record (\$379.3 billion), according to [The Block](#), and Ethereum-based DEX volumes exceeded September's record (\$28.5 billion) according to [Dune Analytics](#).



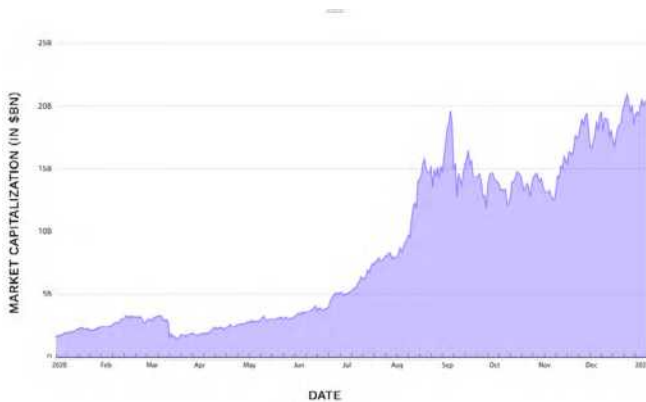


Figure 10 - Total Market Capitalization of DeFi Tokens

Decentralised Exchanges

Cryptocurrency exchanges played a pivotal role in the adoption of blockchain and crypto. Crypto exchanges have witnessed a number of hacks over the course of the years, needless to mention Mt. Gox, and in 2019 there has been a record number of hacks. Decentralized exchanges (DEXes) have thus emerged as a way to solve this problem of centralized exchanges. On DEXes, users trade directly from their wallets in a peer-to-peer manner without intermediaries that custody funds and place robust personal information checks. Listing new tokens is also easier on DEXes that don't require KYC/AML regulatory steps.

However, DEXes that use the traditional order book method are not free from manipulation. Order book DEXes face the issue of front-running. The order data on DEXes are recorded on a blockchain thus miners can see all the transactions that could affect the prices of tokens and can act on the information and place their own orders and include them in the block. The order book approach is also susceptible to spoofing. An abusive trader can place large buy or sell orders to mislead the market sentiment and cancel the orders, creating high slippage for other traders. Liquidity aggregators came to rise to bring liquidity into one place and reduce slippage. Matcha and 1inch are the examples.

Automated Market Makers (AMM)

There has been a frenzy around anything unicorn and food in DeFi - from Uniswap, Sushiswap, Pickle Finance to Cream Finance. Apart from their mouthwatering names, much of the excitement has been driven by the juicy returns for providing liquidity. A liquidity pool is created and funded by liquidity providers (LPs) for both tokens of a trading pair. Take Uniswap, which is leading the Ethereum-based DEXes with 49.4% market share, uses a constant product market maker model. Here, anyone can become a LP by posting any ERC20 token and an equivalent value of ETH to a pool. Balancer, another Ethereum-based automated market maker, uses a more complex model, allowing LPs to set a customized number of assets and weights within a pool with a customized trading fee.

However, AMMs face a significant risk of impermanent loss. As the prices of the tokens held in a pool are determined by an algorithm that adjusts the ratios of the tokens in the pool, if the ratio between the two tokens changes drastically after depositing them in the pool, there will be a high slippage. Some projects have come up with solutions to impermanent loss. Bancor introduced a new model for volatile tokens, that when a token's price change does not keep up with the other one in the pool, the AMM adjusts the new price and reweight the token ratios accordingly before arbitrage opportunities can be exploited by traders. Balancer, as mentioned above, allows the creation of customizable ratios of tokens within a pool. To avoid price volatility, Liquidity Providers (LPs) can stake in stablecoin pools in Curve.

DeFi's AMM has dramatically decreased time to market. It is now possible to create an idea on the Ethereum blockchain and virtually test it overnight. This provides a 'super scaling' vector. The AMM model is still in its infancy. It is expected that there will be more innovative AMM models to come and each model will offer its unique set of advantages and disadvantages. It is important for users to assess and manage their own risk level and choose the right exchange for themselves.



Yield Farming

As the distribution of Compound governance token (COMP) boosted the popularity of yield farming, AMMs like Uniswap, Sushiswap and Kyber followed suit fuelling the interest around yield farming. A yield farmer locks his/her funds into lending protocols or supplies funds into liquidity pools to earn fees as a passive income. Besides the fees, LPs are provided with new tokens so they are further encouraged to keep funding the liquidity pools. Say a farmer stakes 1,000 DAI in Compound, the farmer gets cDAI in return, which can then be pumped into a liquidity pool that accepts cDAI and earns transaction fees. Making more crypto with crypto.

Eye-opening, jaw-dropping 200%, 300% APYs pulled investors to yield farming. It is dangerous to jump into this new wave of trading without strategies and the ability to adjust them according to market movements. Risks include liquidation risk, technical risk, price risk and more. The price of the token you put as a collateral to take out a loan could drop below the price of the loan. Smart contracts could be attacked. Lending protocol bZx was attacked three times in 2020, and yield aggregators including Pickle Finance, Harvest Finance, Value DeFi, dForce lost tens of millions of dollars due to flash loan attacks. An attacker could lend funds on a DeFi platform and borrow back, creating artificial demands and manipulating the token prices.

Chef Nomi of Sushiswap rug-pulled the project's funds worth \$14 million in September. Yield farmers could also make meaningless transactions on DeFi protocols just to interact with the protocol in order to earn token rewards (apart from fees and interests) in hope of price appreciation. However in crypto, token prices could fall drastically overnight. YAM token dropped over 90% in a few minutes. It is expected to see a fast growth of hedging strategy providers. DeFi insurance Nexus

Mutual's active cover amount sits at \$136.5M and the most demanded protocols to be covered are Curve, RenVM, and Aave V1, according to Nexus Mutual Tracker.

Nevertheless, yield farming has succeeded to draw attention and capital to DeFi. As the space continues to evolve, more fresh ideas and innovative financial products will live in the ecosystem.

Ethereum Killers

Ethereum had a wonderful year in 2020. ETH outperformed BTC in terms of returns as seen in Figure 2 in a previous chapter. Decentralized Finance, mostly grown under Ethereum, has gained a massive traction. However, as the Ethereum ecosystem expands and DeFi gains popularity, so-called 'Ethereum Killer' blockchains started to have an eye on its throne. Below we map out the DeFi ecosystem of Ethereum, Polkadot and Cosmos.

Ethereum is the number one contributor to the rapid growth of DeFi, with no doubt. However, Ethereum has drawbacks. The biggest pain points of Ethereum are scaling and increasing gas fees. Ethereum cannot keep up with the transaction volume and it is too expensive to interact with smart contracts to stake assets to receive rewards. Ethereum 2.0 kicked off on December 1st, aiming to tackle the energy intensive set-up of Proof of Work (PoW) consensus mechanism and the scalability issue. Ethereum 2.0 will introduce shard chains that will separate a blockchain into 64 chains, enabling transactions to be run on parallel chains. Cosmos has launched a new SDK called Stargate that includes the IBC(Inter Blockchain Communication) protocol which will facilitate interoperability.



However, projects do not have time to wait until the full deployment of Ethereum 2.0. Blockchains such as Polkadot and Cosmos garnered attention with new technologies and features with greater customization, scalability and interoperability. Polkadot blockchain architecture uses 'parachain' (parallel blockchains) that can run faster transactions and each parachain is customizable. Polkadot's Substrate framework allows developers to build a new blockchain quickly. Polkadot raised \$43.7 million in 2020 (see Figure 12 in the next chapter). Polkadot's Substrate Framework offers more versatility and makes it very simple to launch a new blockchain. Cosmos has launched a new SDK called Stargate that includes the IBC(Inter Blockchain

	ethereum	Polkadot	COSMOS
AUTOMATED MARKET MAKING	Bancor, UNISWAP, kyber network, Balancer	Polkaswap, Polkastarter, mangata	THORCHAIN, zilswap
DEXes	DDEX, GNOSIS, LOOPRING, IDEX	IDEX	BINANCE DEX, OKExChain, CoinEx Chain, SWI7CHEO
LENDING	Compound, AAVE, MAKER	AKROPOLIS, MANTRA DAO	Kava, ANCHOR, CENTAUR, HARD PROTOCOL
DERIVATIVES	SYNTHETIX, $\delta Y/\delta X$, opyn	Laminar	Mirror, VEGA, INJECTIVE PROTOCOL
DEX AGGREGATOR	0x, Matcha	Reef, Zenlink	
CROSS-CHAIN PROTOCOL	Ren VM	Zenlink, HYDRA, mangata	KIRA Network

Figure 11 - DeFi ecosystem of Ethereum, Polkadot and Cosmos



Chapter 3

OTHER BLOCKCHAIN USECASES

This chapter looks at the applications and usecases of blockchain outside crypto and DeFi.

2020 has seen the stabilising and maturing of the Blockchain ecosystem, becoming more about what the technology enables in multiple industries as projects are implemented.

Research by the [Blockchain Research Institute](#) shows with hundreds of projects underway across multiple industries. We are seeing a trend towards cross-industry collaboration. Market incumbents are increasingly aware of start-ups and their respective value propositions and regulators need a detailed understanding of the technology and blockchains begin to connect industries efficiently. Take healthcare for example; [blockchains can enable secure sharing of electronic health records](#) and create efficient health payment and insurance systems. The pandemic has taught digital healthcare providers that they are part of an increasingly connected ecosystem.

Beyond crypto and DeFi, COVID-19 has rapidly caused blockchain companies to pivot to convert their technology into applications that address pandemic problems. We have seen a rapid acceleration of innovation that might otherwise have taken years. Institutional resistance has reduced, allowing new innovations to rapidly develop. There are a wide range of blockchain solutions emerging in [identity](#), [big data](#), [telehealth](#), [supply chain](#), and [research](#).

Information-sharing across institutions and cross-borders remains critically important, particularly as most nations need to respond to the pandemic collectively to make any substantive impact. Against this backdrop, the World Health Organisation (WHO), IBM, Oracle, China National Health Commission, Johns Hopkins University and others created the 'MiPasa' platform. This 'COVID-19 information highway' is an enterprise consortium-based platform with analytical tools, built on [Hyperledger Fabric](#).

Provenance, the tracking of assets across a supply chain, has emerged as an important application for blockchain in the pandemic. This works to make the supply and transaction flows of medical supplies or finance immune to data manipulation and allows transparency throughout the process. An instructive example is the global shortage of personal protective equipment (PPE). This has been one of the biggest challenges globally to date, particularly for frontline healthcare workers. Similar issues also arise with respect to ventilators and other medical supplies. Alipay [launched a blockchain-based platform](#) for provenance and tracking of medical supplies - including PPE. The platform uses Blockchain smart contracts to ensure that items reach intended recipients through tracking where there are at any point in the supply chain and the successful delivery.



Another use case is to identify at-risk persons via data 'look-backs' and big data analytics. For example, patients reporting certain symptoms that are only later identified as being COVID related, can be contacted for further testing. Importantly, blockchain can enable this to occur without breaching privacy restrictions. Enterprise blockchain networks have been big movers. R3, Ripple, Hyperledger, NEM, Hedera are speeding the adoption of blockchain in industry and attracting real customers and real money.

Funding flows from government, donors, charities and philanthropists to SMEs, groups and individuals impacted by the 2020 COVID -19 pandemic are an urgent imperative. The use of blockchain technology to facilitate contributions or funds for social inclusion offers a viable alternative to traditional means, with decentralised and direct transactions that may help organisations receive donations and raise funds more efficiently. Blockchain addresses two critical issues associated with payment transfers, ensuring aid reaches the right people and that projects achieve milestones before receiving additional funding. As global remittance fees can span anywhere between 7.1% and 9.4%, major efforts at reducing poverty include reducing the costs of financial transfers. Blockchain [is already being used for social cash transfers](#) to enable mobile money transfers and voucher schemes for the most vulnerable.

Top Funding Rounds 2020

Among sectors that opened investors' deep pockets the most in the blockchain and crypto space were, financial services providers (trading, lending, earning yields, brokerage, market-marking), blockchain powered payment networks and blockchain ecosystem. Crypto exchange Bakkt raised \$300 million in March. Bakkt has recently announced that it is going public with a merger with a SPAC (Special Purpose Acquisition Company) Victory Park Capital, valuing the firm at \$2.1 billion.

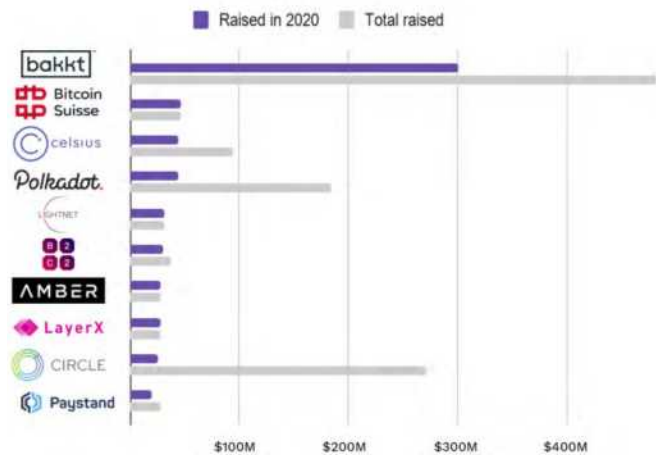


Figure 12 - Top Funding Rounds in 2020

The Global Digital Currency Showdown

With the potential for resolving long-standing challenges such as financial inclusion, payments efficiency, payment system operations and cyber resilience, over [400 banks](#) and [over 40 Central Banks](#) are experimenting with Blockchains to varying degrees of depth, interest and progress. In early 2020, The [World Economic Forum](#) announced the Global Consortium for Digital Currency Governance, which is focused on designing a framework for the governance of digital currencies - including stablecoins. The initiative brings together companies, financial institutions, government representatives, technical experts, academics, international organisations, NGOs, and members of the Forum's communities on a global level to focus on solutions for a fragmented regulatory system.

Central Banks don't have the luxury of time. In Europe, Ukraine has [announced](#) intentions to develop its digital asset market and explore issuing its own CBDC. [Turkey](#) made an announcement of their CBDC pilot. China is the CBDC to watch. [China's digital yuan](#) has already been used in [over 4 million transactions by November 2020](#), totaling more than 2 billion yuan (\$299 million) in value. The Shenzhen government plans to give 100,000 lottery winners 200 digital yuan and which they can spend 10,000 supported merchants. Lottery winners have to download and install an app and open a personal digital wallet to use it. The People's Bank of China (PBOC) is [testing out a DCEP digital yuan 'hardware wallet'](#) that does not require the internet or a smartphone. The DCEP 'hardware wallet' card being tested involves digital money via DCEP, which will enable widespread adoption among the [700 million Chinese](#) who do not own a mobile phone.

Regulations

We can expect to see vigorous activity from regulators, with key regulatory movements in 2020 being the U.S. Office of the Comptroller of the Currency (OCC) approving national banks to [custody crypto assets](#) and the EU Commission published a proposal for the regulation of crypto assets, called 'Markets in Crypto-Assets Regulation' (MiCA). Once adopted and in force, the MiCA will regulate directly applicable law in all EU Member States.

Regulators continue to struggle without a globally accepted taxonomy for Blockchain more broadly and it tends to be treated as a financial instrument and regulated as such. Whereas Blockchain as a database technology includes non financial instruments, for example: Physical items such as gold, agricultural products and real estate; and Native token assets that are native to the block chain and used for payments and governance as part of the blockchain ecosystem. Then of course there are stocks and bonds and derivatives.

Regulators are also nervous about the proliferation of global stablecoins, and if they are established, and the general public starts using them on a day-to-day basis for all payments, there is a risk that substantial control of monetary policy could shift from central banks to private companies. As always regulators remain concerned about financial crime, money laundering and tax evasion.



CONCLUSION

2020 has been a 'one-of-a-kind' in many many ways with economists and historians reaching for comparisons. For the world of Cryptocurrency it was another year like no other. A bright future seems to await the blockchain world in 2021 and Novum Insights will be commenting on all the major trends, as we launch a series of products targeting the decentralised finance sector and much more.