



# **ANNUAL REPORT: CRYPTOCURRENCY MARKET IN 2021**

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# PREFACE

The year 2021 was a year of significant milestones in cryptocurrencies. We have achieved many new records in several indicators such as the price of Bitcoin, its market capitalization or the capitalization of the crypto market as such. Furthermore, a number of achievements and significant events have also been recorded within the decentralized finance sector.

In addition to these nominal factors, we have also witnessed historical events such as the launch of the first bitcoin ETF in the US or the introduction of Bitcoin as legal tender in the first country - El Salvador. However, we have also seen less flattering events, such as the mining ban in China, which has caused a significant drop in the Bitcoin network's computing power and the associated price drop. On the positive side, Bitcoin recovered quickly. After half a year, the network has reached new highs and is now more decentralized than ever before.

However, many interesting events took place outside of Bitcoin. The decentralized finance ecosystem has attracted nearly \$200 billion in capital, and decentralized exchanges have begun to reach trading volumes similar to the centralized ones. Hundreds of new projects have emerged, attracting billions of dollars from venture capital funds.

Ethereum has enhanced its dominant role in smart contract platforms, and protocol revenues (in the form of transaction fees) have risen by as much as 1,777% year-over-year to more than \$4.3 billion. Almost 90% of the amount was burned in the last six months after Ethereum introduced an upgrade called EIP-1559. Simultaneously, this meant a reduction in Ethereum's inflation from 1.13% to 0.46%, but also an increase in transaction fees. The average transaction fee has risen from \$4 to \$27.

The increase in fees on Ethereum has been used by several competing platforms to cut out the market pie. Polkadot, Cardano, Binance Smart Chain, Terra, Avalanche and Solana did the most. Several of them successfully launched the network and developed the DeFi ecosystem, which attracted billions of dollars of capital. In the same spirit, there was progress in the area of so-called L2 platforms or second-tier technologies. These were dominated by platforms such as Polygon, Arbitrum and Optimism.

Last but not least, the world has been dominated by a phenomenon called the NFT. Sales of these unique tokens representing the most common digital art and gaming items have grown year over year from more than \$ 70 million to nearly \$ 36 billion, or more than 50,000%!

The world of cryptocurrencies was rich in interesting stories this past year. Our report brings you an overview of the most important events and trends in cryptocurrencies for 2021.

**David Stancel**  
Chief Investment Officer

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# YEAR 2021 IN NUMBERS - GLOBAL MARKET

## Total market cap



Source: Coinmarketcap

At the beginning of 2021, the value of the entire cryptocurrency market cap was \$776 billion. Over the course of twelve months, it rose by 186% to a year-end level of \$2.25 trillion. The highest market capitalization this year was reached on November 9, 2021, at \$2.94 trillion.

## Market dominance

### Bitcoin and other cryptocurrencies



Source: Coinmarketcap

In 2021, Bitcoin lost more than half of its market dominance. Within a year, its market dominance fell from 71.3% to 40.5%. At the expense of Bitcoin, several altcoins have strengthened their market position, including Ethereum, Solana, Binance Coin and Cardano.

## Bitcoin in 2021

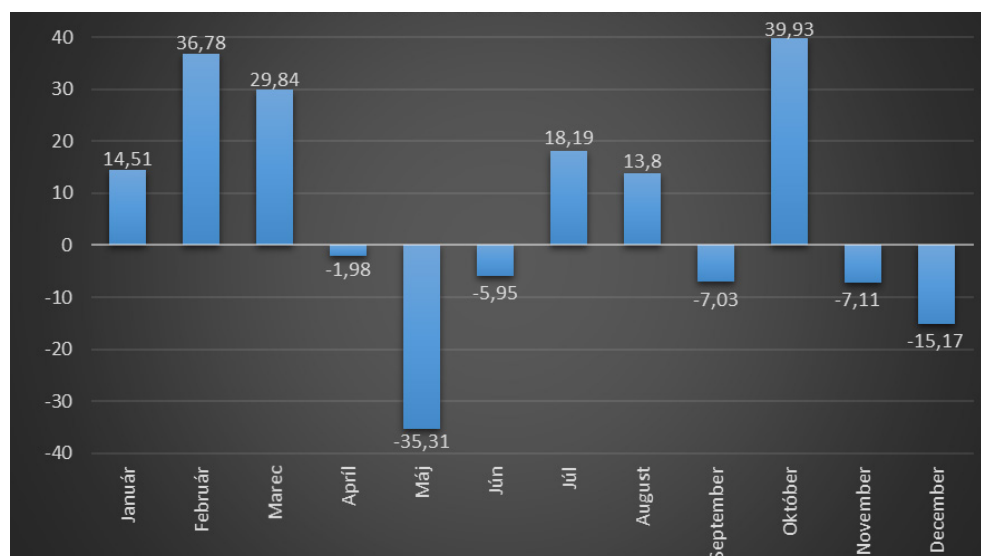
### Bitcoin: YTD Price for 2021



Source: Glassnode

Bitcoin started 2021 at \$29,001 and closed it at \$48,500. The value of bitcoin increased by 67.2% compared to January 1, 2021, while at the same time, the price of bitcoin on December 31 decreased by 29.3% compared to the highest achieved value (ATH) on November 10, 2021. The lowest price of bitcoin this year was recorded in August at \$28,993.

### Monthly returns of bitcoin in 2021



Source: Fumbi research

In 2021, bitcoin recorded six months with a positive return and six months with a negative return. The highest return was achieved in October, at 39.93%. In contrast, Bitcoin had the worst performance in May, when it recorded a loss of up to 35.31% in one month.

## Market capitalization in 2021



Source: Coinmarketcap

Bitcoin started 2021 with a market capitalization of \$554 billion and closed it with a market capitalization of \$914 billion. Bitcoin capitalization increased by 64.9% compared to January 1, 2021, while at the same time, market capitalization decreased by 28% compared to the highest achieved market capitalization on November 10. The lowest market capitalization this year was recorded on January 1, 2021.

## Ethereum in 2021

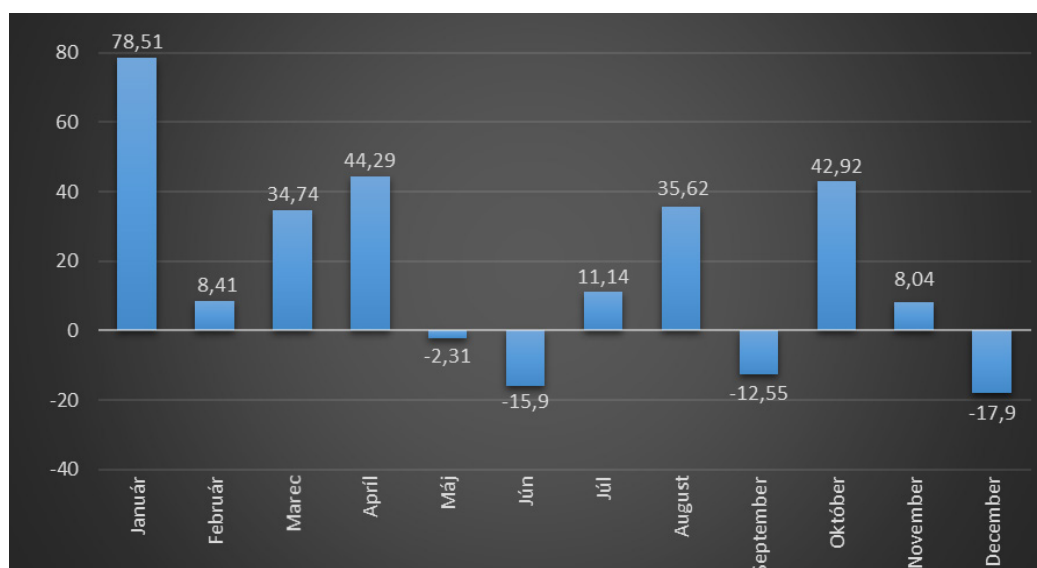
### Ethereum: YTD Price for 2021



Source: Glassnode

Ethereum started 2021 at \$737.80 and closed it at \$3800. The value of Ethereum increased by 415% compared to January 1, 2021. However, by December 31, 2021, Ethereum dropped by 24.1% from the highest value achieved (ATH) on November 10. Ethereum's lowest price this year was its opening price on January 1, 2021, at \$737.8.

## Ethereum monthly returns in 2021



Source: Fumbi research

In 2021, Ethereum recorded eight months with a positive return and four months with a negative return. Ethereum achieved the highest return in January at 78.51% and performed the worst in December, recording a loss of up to 17.9%.

## Market capitalization in 2021



Source: Coinmarketcap

Ethereum started 2021 with a market capitalization of \$83 billion and closed it with a market capitalization of \$451 billion. Ethereum's capitalization increased by 443% compared to January 1, 2021, while at the same time, market capitalization decreased by 22% compared to the highest achieved market capitalization on November 10. The lowest market capitalization this year was recorded on January 1, 2021.



# BITCOIN RETROSPECTIVE THE MOST IMPORTANT EVENTS

## Tesla and Elon Musk

This year, Elon Musk and Tesla had a significant impact on the emergence of the cryptocurrency market and helped kick-start adoption for new retail and institutional investors.

Earlier this year, on February 8, 2021, Tesla announced the purchase of \$1.5 billion worth of Bitcoin, which helped attract new capital to the market and skyrocketed the price of Bitcoin to new heights. This event was followed by another positive statement, where Elon publicly announced the possibility of buying Tesla electric vehicles with BTC. It resulted in a wave of positive responses in the media regarding Bitcoin and cryptocurrencies, the price of which continued to rise. However, a dramatic change in the attitude of Elon Musk came in May, when he informed the public that Tesla had suspended BTC as a payment method for electric vehicles due to its negative effects on the environment. This, in turn, caused a great wave of panic and doubts, which was reflected in a sharp price correction of the entire cryptocurrency market.

However, Elon Musk's and Tesla's relationship with the cryptocurrencies remains positive, as evidenced by the fact that Tesla has not yet sold any Bitcoin. However, Elon Musk revealed that they are looking for more energy-efficient alternatives to Bitcoin.

## China restrictions

For a long time, China has presented itself as an opponent of cryptocurrencies through the regulations enforced in the country. Despite its negative attitude towards cryptocurrencies, it has adopted blockchain technology in a more centralized form by launching its digital yuan project.

Until recently, China, which boasted dominance in the mining industry, banned Bitcoin mining earlier this year, triggering a large migration of miners away from China. On the positive side, thanks to this large migration of miners to various countries around the world, Bitcoin has become more decentralized than ever before.

In September, the People's Bank of China reiterated to the public that crypto assets and crypto-related services are banned in the country. A new decree outlawed crypto transactions, which can be seen as a response to concerns about a possible outflow of capital from the country, in connection with the recent Evergrande crisis. Despite the regulations, the Chinese are violating these regulations and continue to trade cryptocurrencies by using the services of foreign crypto exchanges.

As a result of unfavorable regulations, several well-known crypto platforms and exchanges have left China this year, thus will no longer provide their services in the country.

## El Salvador adopts bitcoin as legal tender

A positive impulse to the world of cryptocurrencies came in September in the form of the declaration of Bitcoin as legal tender by the South American state of El Salvador. Accepting Bitcoin is now mandatory for all vendors and businesses in the country.

It should be noted that Bitcoin there is not without opponents. While many companies have welcomed the experiment, almost 70% of citizens do not trust Bitcoin due to its high volatility or unpredictability and prefer to accept BTC on a voluntary basis.

El Salvador's President Nayib Bukele claims that the main motivation for introducing the BTC as legal tender

was to attract foreign investment and favor the sending of remittances to the citizens of this state using BTC. In late November, the president announced his plan to create Bitcoin City. It is a \$1 billion BTC bond project. The president says the residents of Bitcoin City will not have to pay any taxes on income, capital gains or even wages. The city's residents will only have to pay value-added tax, which will be used to repay the bonds and to develop the city's public infrastructure and maintenance.

For the Bitcoin experiment in El Salvador to succeed, there must be people's trust in the infrastructure created by the government and in Bitcoin itself; that its value will be stable and predictable in the future.

## Cryptocurrencies and the traditional world of finance

### PayPal

PayPal stated in August that it would allow UK customers to buy, hold and sell digital currencies. This was the service's first international expansion which had its U.S. debut in October last year. Essentially, it is similar to the service from the British fintech company Revolut, which also does not allow its users to transfer their cryptocurrencies outside the application.

### Mastercard

In November, Mastercard launched its first payment cards in the Asia-Pacific region, allowing holders to convert their cryptocurrencies to a traditional fiat currency that can be spent anywhere Mastercard is accepted.

Mastercard has also approved an interesting acquisition of the CipherTrace startup for an undisclosed amount, which deals with blockchain analysis and helps businesses and law enforcement track illegal crypto transactions.

### Visa

This year, Visa launched new consulting and advisory services to help its clients navigate the world of cryptocurrencies. The company also revealed that it is developing products focused on stablecoins. Visa recently announced that consumers have already spent more than \$1 billion in cryptocurrencies using its crypto payment cards. Like their rival, Mastercard, the credit card giant sees cryptocurrencies as a key growth opportunity and plans further expansion.

### American banks

In 2021, we witnessed for the first time events where large traditional banks, such as Mellon Bank and JP Morgan, began offering crypto-related services to their customers. BNY Mellon, the world's largest depository bank with approximately \$41 trillion in assets in custody, responded to demands from its clients and entered the cryptocurrency world by launching a new digital assets unit. It aims to help the clients with the trading and storage of cryptocurrencies.

This year, JP Morgan became another major US bank that allows its clients access to Bitcoin and other cryptocurrency funds. JPMorgan's asset management advisors can now accept orders to buy and sell five crypto products, including Grayscale's Bitcoin Trust, Bitcoin Cash Trust, Ethereum Trust, Ethereum Classic and Bitcoin Trust from Osprey Funds.

## Bitcoin ETF

The cryptocurrency world has reached another significant milestone this year in the form of the first Bitcoin ETF, which monitors Bitcoin futures contracts on the New York Stock Exchange.

The ProShares Bitcoin Strategy ETF, known under the ticker "BITO", started trading at \$40 per share and closed the day with a 5% growth. Thanks to its successful start, it met expectations and won the title of the second-largest ETF debut in history. News of the new ETF also had a positive effect on the price of Bitcoin itself, which then reached a new high of \$66,930.

At the end of the year, the Fidelity Investments launched spot Bitcoin ETF in Canada. Fidelity Investments manages more than \$4.2 trillion in assets. The product, called the Fidelity Advantage Bitcoin ETF (FBTC), will directly purchase Bitcoin as an underlying asset instead of exposing the product to derivative futures.

## Twitter & BTC

Twitter began working this year to bring functionality that would allow its users to add Bitcoin and Ethereum addresses to their profiles. Its new crypto team is currently working to integrate the Bitcoin Lightning Network into a Tip Jar service introduced in May. The service will be available soon and will allow users to reward their favorite Twitter content creators through cryptocurrencies.

Jack Dorsey himself, a well-known Bitcoin maximalist and now former Twitter CEO, announced during the year that implementing Bitcoin on Twitter is on his agenda and called the new crypto team the center of coherence for everything related to blockchain and Web 3.0. With this, Twitter officially launched a phase of exploring ways to apply decentralized technologies to corporate products and infrastructure.

## Taproot upgrade











Although Bitcoin has lagged behind the rest of the market since the last Segwit upgrade and the launch of the lightning network in 2017, it underwent a major network upgrade called Taproot at the end of the year. This greatly increases the security, flexibility, and efficiency of bitcoin transactions, as well as the privacy of users.

Gregory Maxwell came up with the idea of an upgrade to increase transaction privacy while maintaining the necessary level of decentralization and network security back in 2018. As a soft fork, the Taproot upgrade is backwards compatible with older versions of Bitcoin and does not create a separate, parallel blockchain. Developers believe that Taproot will also facilitate future Bitcoin upgrades due to the reform of its scripting language.

Now that Bitcoin has become more programmable, it is likely to adopt elements of the technological foundations of other cryptocurrencies that bring innovative solutions and interesting use cases.

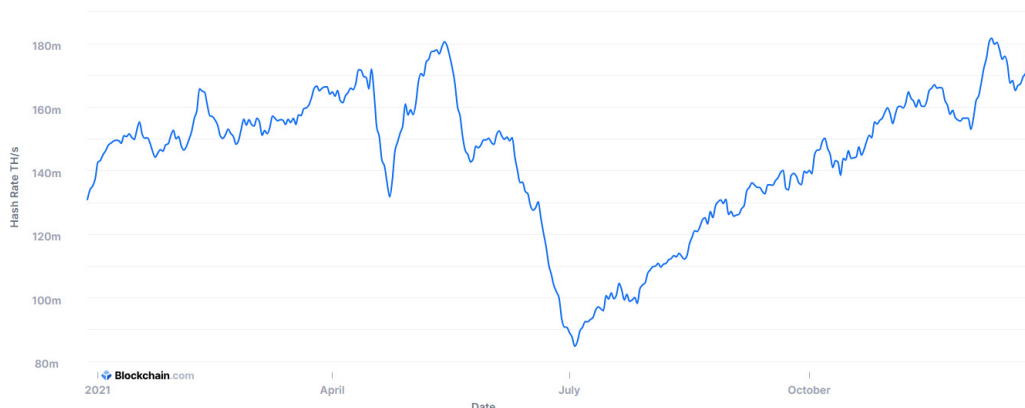
## Bitcoin amongst top 10 most valuable assets

At the beginning of 2021, Bitcoin reached another historical milestone when it managed to rank in the top ten most valuable assets by market capitalization. If Bitcoin continues to grow, it can soon beat giants like Facebook and Tesla. Some outflow of capital from gold to Bitcoin is also possible as more investors are beginning to trust Bitcoin. It is a more attractive store of value option than gold which ranks first with approximately \$11.5 trillion market capitalization.

Rank		Name	Market Cap	Price
1		Gold	\$11.576 T	\$1,822
2		Apple	\$2.826 T	\$173.07
3		Microsoft	\$2.328 T	\$310.2
4		Saudi Aramco	\$1.952 T	\$9.77
5		Alphabet (Google)	\$1.853 T	\$2,795
6		Amazon	\$1.644 T	\$3,242
7		Silver	\$1.301 T	\$23.12
8		Tesla	\$1.054 T	\$1,049
9		Meta (Facebook)	\$923.26 B	\$331.9
10		Bitcoin	\$810.23 B	\$42,797

## ON-CHAIN DATA (BTC)

### BTC - Hashrate evolution



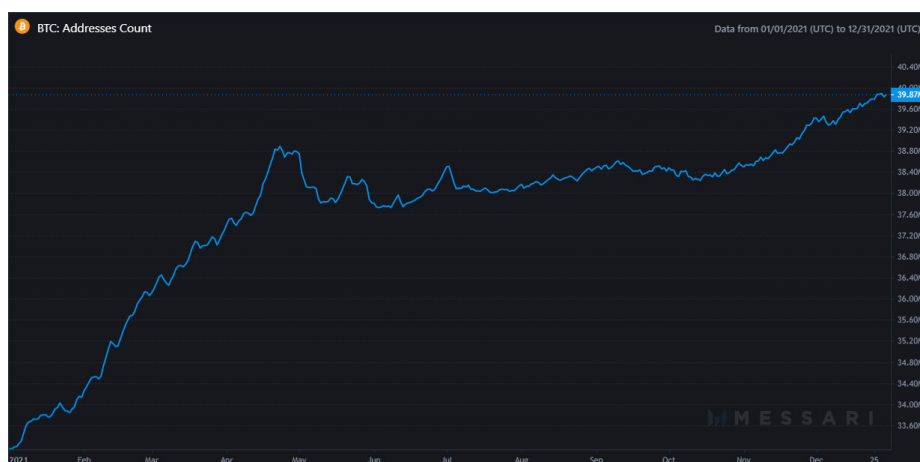
Source: [blockchain.com](https://blockchain.com)

Network computing power called a hashrate is a measure of computing power usage per second in the mining process. Hashrate is one of the most important security metrics because the Bitcoin network must constantly perform intensive mathematical operations, primarily for security reasons. In general, the greater the computing power of a network, the greater its security and overall resilience to attack.

The most important event of the year, which significantly contributed to the decline in computing power in the first half of the calendar year, was the May mining ban in China. During this period, the Bitcoin hashrate fell by 50% to 84.79 million TH/s within two months.

In the second half of the year, most miners migrated to other countries and gradually resumed their production. As a result, the Bitcoin network's computing power has fully recovered by the end of the year and even reached an all-time high of 181.77 million TH/s.

### BTC - Cumulative number of addresses with a non-zero balance

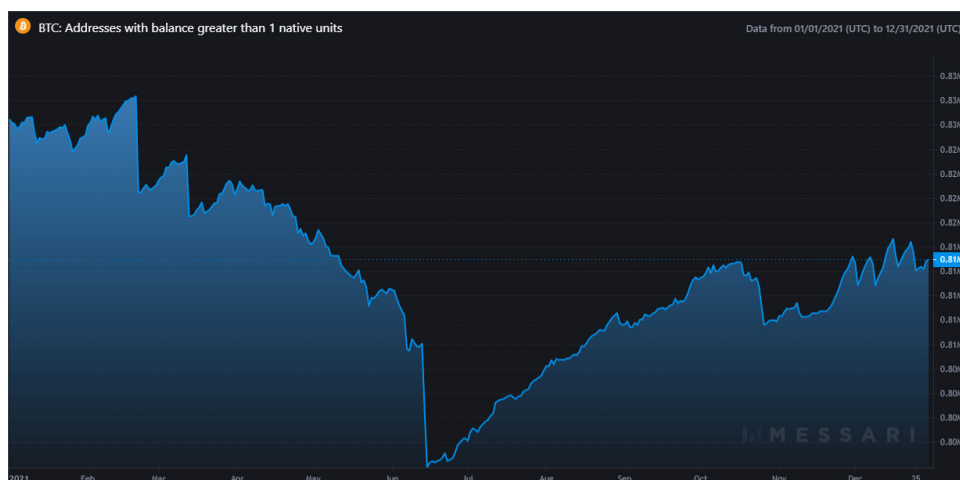


Source: [Messari](https://messari.io)

The addresses count metric represents addresses that contain any (non-zero) number of BTC. In 2021, the total number of addresses with a non-zero bitcoin balance increased by 6.85 million to 39.87 million.

With the growing mainstream adoption, a similar trend can be expected in 2022.

## BTC - Addresses with a balance of more than 1 BTC



Source: Messari

The metric of unique addresses with a balance of more than 1 BTC in 2021 can be divided into two halves. In the first half, from the beginning of 2021 until about mid-June, it is possible to observe a continuous decrease in the number of addresses with a balance greater than 1 BTC. It means that some investors gradually realized their profits at current prices and sold their Bitcoin for various reasons.

Afterwards, practically until the end of 2021, there was an accumulation period, when the number of addresses containing more than 1 BTC increased continuously only with minor fluctuations. The highest number of addresses with a balance above 1 BTC was recorded on February 20, 2021 at 830,451 addresses. As of December 31, 2021, there are almost 814,000 addresses on the Bitcoin blockchain with an active balance exceeding 1 BTC.

## BTC - Balance on exchanges



Source: Messari

The indicator showing BTC supply on exchanges is considered one of the indicators of measuring on-chain activity. In addition, this indicator often signals the direction in which the price of Bitcoin can go in the short to medium term.

There is a negative correlation between the price of Bitcoin and its amount on the exchanges. If there is a long-term high amount of BTC on exchanges or a one-off high inflow, the price usually reacts to this because a large supply on the exchanges signals a possibility of their sale. Similarly, the low number of BTC on exchanges signals that investors continue to accumulate and hold their Bitcoin in private wallets.

In 2021, whenever there was a low number of BTC on the exchanges, its price increased. In contrast, when investors traded and sold their Bitcoin between mid-May and August, the price suddenly fell, which resulted in short-term bearish dominance.

## BTC - Average transaction fee

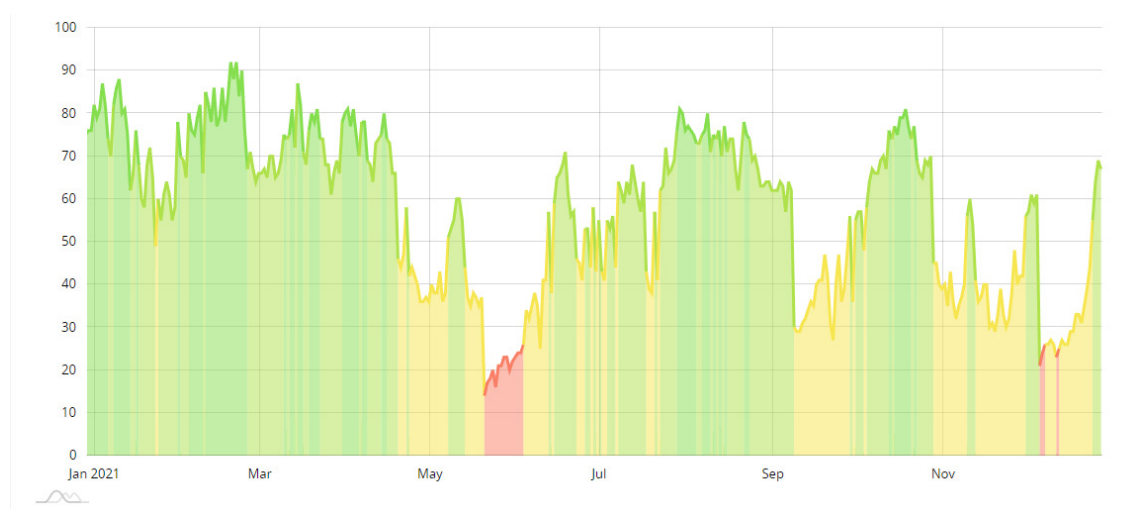


Source: Messari

The average transaction fee indicator measures the average fee for a transaction in USD that has already been processed and confirmed by miners. Average Bitcoin transaction fees tend to increase during periods of network congestion, as they did during the cryptocurrency boom, especially in the first half of 2021, when on April 20, the average Bitcoin transaction fee was as high as \$60.

However, in the second half of 2021, transaction fees gradually returned to their normal values. As of December 31, 2021, the current average transaction fee is at \$3.46, which is a significant decrease compared to the end of 2020, when they were at around \$9.8.

## BTC - Fear & Greed Index



Source: [alternative.me](https://www.alternative.me)

The Fear & Greed Index is a market indicator focused on multi-criteria market sentiment analysis. CNNMoney came up with the original idea of creating this index to analyze stock market sentiment.

Under the influence of the bulls, the year 2021 was largely in the sentiment of greed as not only Bitcoin but also many alternative cryptocurrencies exceeded their price maxima several times during the year. However, at the end of May, following the announcement of a mining ban in China, the market temporarily moved into an area of extreme fear, as uncertainty about the Chinese ban kept investors tense for some time.



## ETHEREUM IN RETROSPECT THE MOST IMPORTANT EVENTS

The most exciting month for Ethereum of 2021 was August due to the EIP-1559 upgrade launch. It's an update that changed the way gas fees are estimated. A mechanism has been proposed in which a fraction of the fees is "burned" - this helped stabilize the transaction fees and make Ethereum deflationary.

Another improvement is the Altair upgrade - the first ETH Beacon Chain update, which took place in October and introduced two key changes needed to make the Beacon Chain safer and fairer before Ethereum fully follows the Proof-of-Stake consensus mechanism, scheduled sometime in early 2022. These changes are part of the ETH 2.0 implementation roadmap, which aims to bring many improvements such as the PoS, 99% improved energy efficiency, network speed, scalability and security. At the same time, these improvements will reduce fees.

### ETH 2.0 staking



Source: Messari

The changes that moved Ethereum closer to a blockchain with a fully functional PoS mechanism in 2021 were also positively reflected in the figures that show how much of the ETH circulating supply is currently "locked" and used for staking. We recorded an increase to more than 8.5 million ETH, which is a change from 1.5% of the total amount of ETH in January 2021 to 7.2% at the end of December 2021. In 2022 we can expect a further positive increase in % of ETH locked for staking. It is an attractive activity for portfolio diversification and investment strategy even for institutions because they can to obtain 5.4% APY on average.

## ETH bridges - TVL

Ethereum bridges TVL ranking 2021

 @lindamaa

rank	bridge	tv1 (in usd)
1	Polygon Bridges	\$6,469,269,345
2	Avalanche Bridge	\$5,472,969,542
3	Ronin Bridge	\$5,062,071,252
4	Arbitrum Bridges	\$3,204,881,774
5	Fantom Anyswap Bridge	\$1,933,340,328
6	Near Raibow	\$500,442,531
7	Optimism Bridges	\$490,103,763

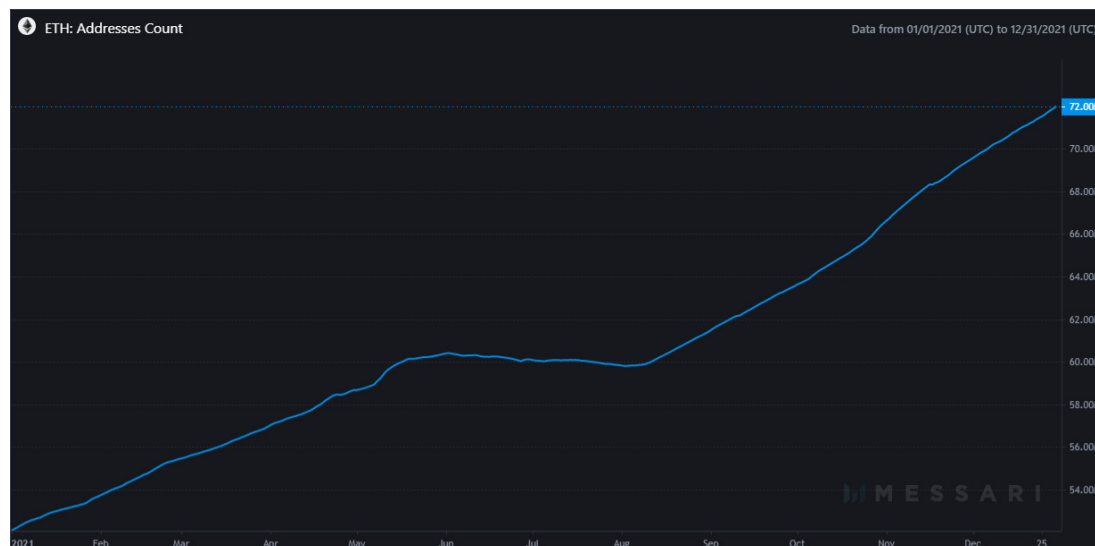
Source: *Dune Analytics*

In the NFT world, we have seen apes, penguins, crypto kitties, squid game characters, Pokémon, toilet paper jpegs and many other crazy things. Bridges in 2021 also experienced significant interest, although they had nothing to do with NTFs. Bridges offer a way to transfer assets between multiple blockchains and ensure interoperability between Ethereum and other blockchain networks (such as Solana, Binance Smart Chain, Terra, etc.). Bridges solve, among other things, one major problem: the high fees on the ETH network. By migrating tokens to other networks with significantly cheaper transaction fees, crypto enthusiasts and DApp programmers can engage in activities on other chains, paying only a few cents per transaction. To bridge tokens from Ethereum to other networks, assets can be sent using a bridge smart contract transaction on an Ethereum network that will create the same number of tokens on another network. Users can then use these tokens on other networks for swaps, various DeFi activities, application development and other transactions.

Polygon Bridge is one of the most popular bridges. Polygon is the largest sidechain network that runs in parallel with Ethereum. Over the past year, it has experienced parabolic growth because many Ethereum-native DeFi projects have expanded into the Polygon network (e.g. AAVE, Chainlink, 1inch, DAI, SushiSwap,...). Another popular bridge is connected to Avalanche blockchain and Ronin network, a network designed for blockchain games, which is backed by the company developing the most popular blockchain game Axie Infinity.

## ON-CHAIN DATA - ETHEREUM

### ETH - The cumulative number of addresses with a non-zero balance



Source: Messari

As was the case with Bitcoin, we decided to display a metric of the cumulative number of unique addresses that contain any number of native Ethereum tokens for the relevant Ethereum cryptocurrency.

With the flourishing of decentralized finance and non-fungible tokens (NFT), in which the ETH token acts as the “fuel” of its own network, the Ethereum blockchain recorded a significant increase in addresses with a non-zero balance in 2021. While at the beginning of the year, there were 52 million addresses in the Ethereum network with a non-zero balance, by the end of 2021, the number of these addresses had increased by almost 20 million to a value of up to 72 million. By comparison, the Bitcoin network has 39.87 million addresses with a non-zero balance, which is 44% less than the Ethereum network. As the DeFi and NFT ecosystems grow, we can expect the number of addresses with a non-zero balance in the Ethereum network to continually grow.

### ETH - Daily Transactions



Source: Etherscan

One of the most important metrics indicating how popular Ethereum is over time is the summary of the Ethereum blockchain's daily transactions. The advent of decentralized finance and automated smart contracts has made the number of daily transactions irrelevant to the number of active users per day. Nevertheless, this metric still provides a very comprehensive view of how many activities occur at the top of Ethereum.

Interesting is that in 2021 there was not a single day on which the number of daily transactions fell below one million. The least transactions within a single day were recorded on June 19, when 1,050,189 transactions were processed. In 2021, a new historical record was broken, namely on May 9, 2021, when up to 1,716,600 transactions were recorded in the Ethereum network in one day. In this case, it should be noted that 50 to 80% of all transactions within the Ethereum network are stablecoin transactions. On average, approximately 1,265,000 transactions were processed daily in 2021.

## ETH - Average Transaction Fee



Source: Messari

The Ethereum average transaction fees indicator shows the number of transaction fees in dollars throughout 2021. Because Ethereum cannot scale effectively in the current situation, transaction fees are enormously high when interacting with decentralized applications or NFTs. High costs often upset users, and therefore, many flee to other smart contract blockchains such as Solana and Avalanche.

In November, the average transaction fee, otherwise referred to as the "gas fee," in the Ethereum network rose to \$63. According to the Fumbi analysis team, it was only the second-highest level in history, right after the May record, when the fee reached \$70 per transaction. The graph also shows a direct correlation between the transaction fees and the price of the ETH token - when the average transaction fees go up as the ETH price increases.

## ETH - Burned Gas Fees

### Overview

Total stats since EIP-1559 launch

Burned **1 313 381** ETH  
4 962 808 429 USD USD

Rewards **1 984 958** ETH  
7 500 461 074 USD USD

Tips **246 629** ETH  
931 925 123 USD USD

Net Issuance **671 577** ETH  
2 537 652 646 USD USD

Net Reduction **66.16** %

*Source: Watchtheburn*

Since the Ethereum Improvement Proposal 1559 (EIP-1559) launch, a total of almost \$ 1,3 billion worth of ETH 1,313,381 has been burned in the Ethereum network as of December 31, 2021. The indicator of the net emission reduction of new ETH tokens is 66.16%, which means that up to 66.16% fewer ETH tokens came into circulation than would have without the implementation of EIP-1559.

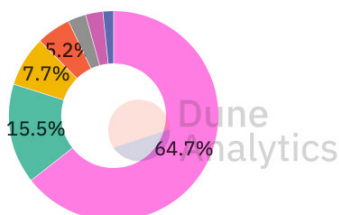
## DEFI IN RETROSPECTIVE

In 2021, the decentralized finance ecosystem grew more than 20-fold. In addition to millions of new users, many of the world's leading financial institutions have shown interest in DeFi projects, mainly due to returns that far exceed those in traditional finance.

### The most popular decentralized exchanges by traded volume in 2021

na trhu 🍰 DEX by volume 🏠

Rank	Projekt
1	Uniswap
2	Sushiswap
3	Curve
4	0x Native
5	Balancer
6	DODO
7	Bancor Network



- @lindamaa
- 0x Native
- Balancer
- Bancor Network
- Curve
- DODO
- Sushiswap
- Uniswap



Source: Dune Analytics

Decentralized exchanges (DEXs), which enable peer-to-peer trading, have become increasingly popular since their inception in 2018. Uniswap has surpassed 3 million users this year and maintained its lead in trading volume. The 3rd version of the protocol was introduced in May, which brought better infrastructure performance, scalability and better capital efficiency. SushiSwap originated as a copy of Uniswap, has gradually gained popularity mainly due to better user experience and differentiated reward system that is designed to reward those who have smaller shares in liquidity pools and not only those who have extremely large shares.

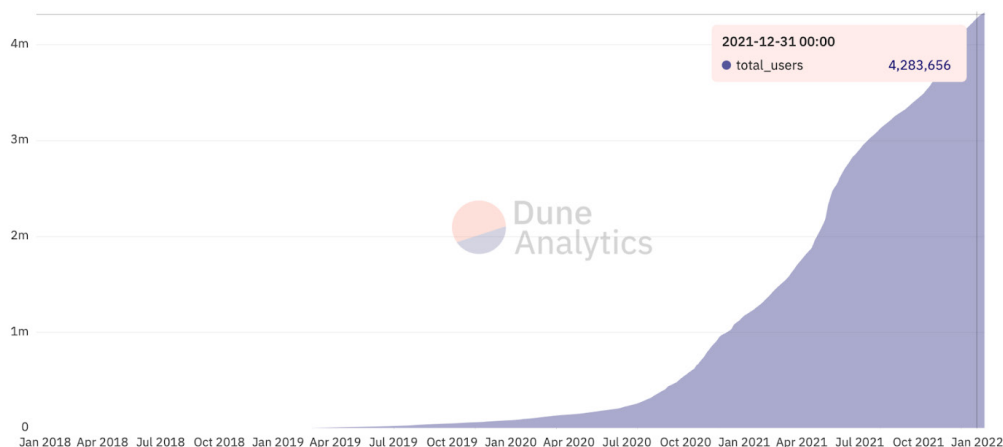
Despite the fact that decentralized exchanges have been around since 2018, we have seen a significant shift for the better last year. Many DEXs have joined the cross chain wave and expanded their operations to networks such as Polygon, Binance Smart Chain, Solana, Avalanche, Fantom and many more. Nowadays, integrations with L2 solutions are very popular, especially Arbitrium and Optimism, which significantly speed up each swap, can reduce ETH network transaction fees to 1-10% of the original fee price and still guarantee the same level of security and decentralization as Ethereum.

## DeFi adaptation: User growth

### Total DeFi users over time

Users = unique addresses. Since a user can have multiple addresses the numbers below are overestimates. Source: @richardchen39

@rchen8



Source: Dune Analytics

The vast growth in popularity and adaptation of DeFi reflects the potential of digital currencies and decentralized platforms to offer an alternative to the traditional world of finance. DeFi forms the foundation for blockchain financial services in the emerging digital economy.

The massive increase is associated with the implementation of L2 solutions on the Ethereum network, as well as the development of other chains, which create opportunities for yield farming, lending, arbitrage, staking, token exchange, insurance, decentralized application development and many other activities taken over from the traditional financial world. In addition to Uniswap and SushiSwap, the projects that have contributed the most to this growth are Balancer, MakerDAO, Compound, AAVE. Their user base exceeds 300,000.

## DeFi - Total Value Locked (TVL)



Source: Defipulse

According to data from Defi Pulse, one of the most important metrics - Total Value Locked (TVL) has increased almost 4-fold, exceeding the \$100 billion mark several times during the year. The most of locked

USD is in the MakerDAO (17 billion), Curve Finance (14.7 billion), Convex Finance (12.3 billion) and AAVE (11.2 billion) projects.

## DeFi scams

- The year 2021 was marked by the development of DeFi platforms and applications on many chains. This unprecedented development of possibilities and use cases has not gone without newly discovered vulnerabilities and hacks.
- According to a report by the London company Elliptic, the total losses caused by hacks and fraud in DeFi projects are estimated to sit at \$12 billion.
- Of that, fraud accounted for \$10.5 billion, a 700% increase over the previous year.
- However, what is positive is the progress we had the opportunity to observe in dealing with critical situations. The whole community would come together, and even thanks to the reach of social networks, often managed to stop hacker attacks. For example, because hackers' wallets and accounts were blacklisted on exchanges, it was impossible to exchange stolen tokens for fiat or even withdraw them.

## Polynetwork hack

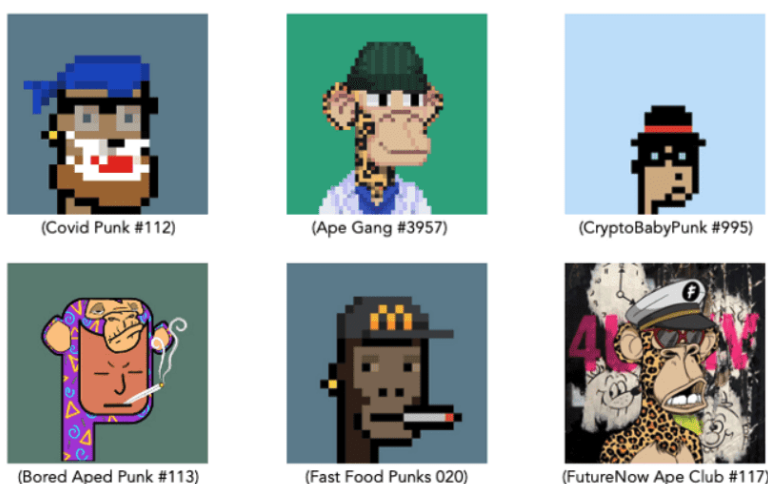
- The Polynetwork DeFi attack is one of the biggest hacks in 2021, in which more than \$600 million was stolen. According to security analysts, this attack has been long-planned and prepared, but it still ended with a return of stolen money.
- Interestingly, hackers have sent the stolen funds back, because even though it is relatively easy to steal funds when a vulnerability is discovered in the blockchain protocol, especially in an unregulated environment such as DeFi, it is extremely difficult to exchange and withdraw these funds - mainly due to blockchain transparency. Hackers simply had no choice but to return the stolen funds.
- We can see progress in how fast the hacked platform reacted to the Twitter hack and how promptly many security experts and crypto exchanges got involved in resolving the situation, blacklisting hackers' addresses and preventing them from withdrawing the stolen money. ([source](#))



# NFTS, GAMEFI AND METaverse

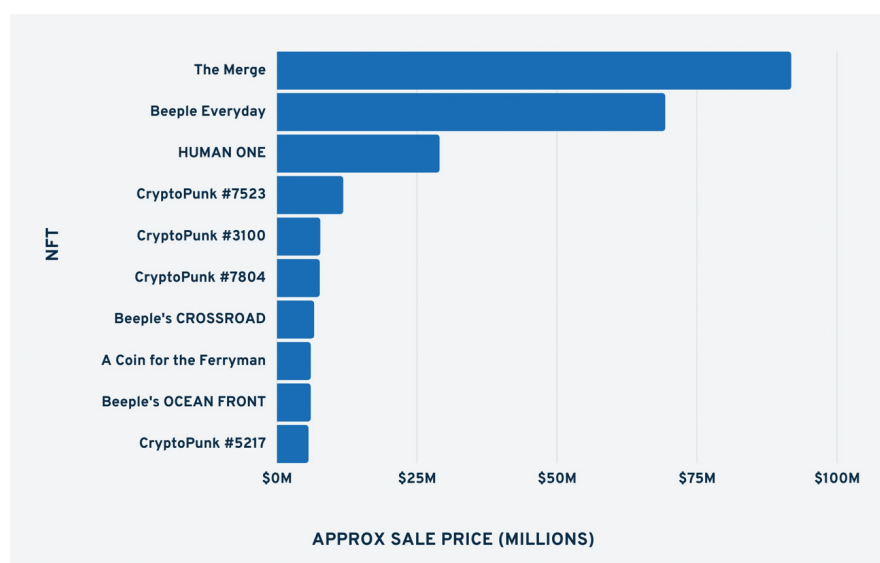
## What Is an NFT?

An NFT (non-fungible token) is a digital object stored on a blockchain that uses cryptography to link a file to its owner - it can be used to express unique ownership of a JPEG, GIF, MP3 file or any other asset. The owner of the NFT will receive a certificate of authenticity, making it easy to find out which files are original and which are copies somewhere on the Internet. Non-fungible (unique) is a term that you could also use to describe things, such as your apartment, your own song or your laptop. These things are not interchangeable with other items because they have unique characteristics and a clearly defined owner. When you own an NFT, the information is stored in a blockchain, so everyone knows that only you own the original, even though there may be copies. The NFT allows us to tokenize things like art (paintings, graphics), collectibles (cards, badges), tickets, game items, or real estate. Each NFT can have only one official owner registered on the blockchain, and no one can edit the ownership record. ([source](#))



Source: OpenSea

## Ranking of NFT's sold at the highest prices in 2021



Source: explodingtopics.com

NFTs have quickly become collectibles, with some people willing to spend hundreds of thousands, if not millions, of dollars to buy one NFT. There was a lot of interest in NFTs in 2021, as evidenced by the numbers. The top 3 most expensive NFT sales in 2021 were Pak's The Merge, Beeple's First 5000 Days and Beeple's HUMAN ONE.

## What Is GameFi?

GameFi is the idea of gamifying the financial system to make a profit from playing games - the ability to use blockchain for this purpose is considered a revolution in the video game industry. Various decentralized GameFi projects on blockchain allow players to own NFT collectibles. Unlike traditional gaming, where users play to win, GameFi projects adopt a game model for financial gain. The first examples of the GameFi concept are Minecraft servers integrated with BTC, Gambit.com or peer-to-peer games. ([source](#))

## What Is Metaverse?

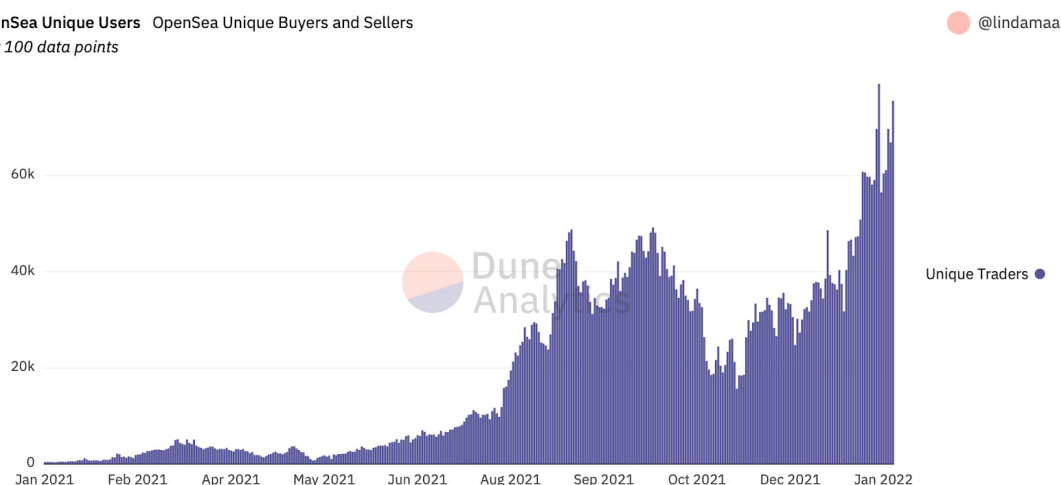
Metaverse is a virtual world with a virtual economy that allows users to work and play in a virtual world using blockchain. Metaverse brings online virtual reality where you can work, play, shop, practice and socialize. Every metaverse user can create their avatars based on face recognition, start their own businesses, buy real estate, create content, own assets, attend concerts and many other things possible in the real world - all in one virtual environment. It is an immersive experience that uses blockchain and gamified DeFi mechanism to ensure a functional and digital internal economy.

## Important Numbers:

- In December 2021, a digital artist known as Pak sold 266,445 shares of the NFT's "Merge" fundraiser for \$98.1 million on Nifty Gateway.
- In 2021, an NFT titled "Everydays: The First 5,000 Days," was auctioned off by artist Beeple for approximately \$69 million.
- The CryptoPunk NFTs series was created by Larvalabs on ETH. These NFTs have become incredibly valuable. So far, the most expensive CryptoPunk # 6965 has been sold for \$1.54 million.
- About 53% of NFTs on OpenSea were purchased for less than \$200.

## TOP platforms for NFT have seen a huge increase in users

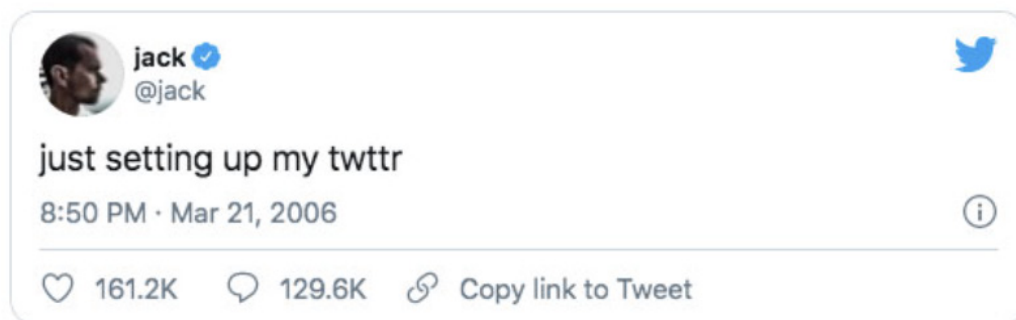
OpenSea Unique Users OpenSea Unique Buyers and Sellers  
Last 100 data points




Source: Dune Analytics

The most popular NFT marketplace is OpenSea - this platform currently has around 75,000 users. OpenSea has a market share of more than 60% in NFT sales, representing a turnover of \$14 billion. Trading volume on this popular platform increased almost 650 times compared to 2020. The second most active platform was the Rarible platform, which had a turnover of \$260 million. Other popular marketplaces for NFT artwork are SuperRare, Zora, Nifty Gateway, MakersPlace and LooksRare.

## The founder of Twitter sold the first tweet via NFT Marketplace for \$2.9 million



Owned  by [@sinaEstavi](#)

Source: Twitter

Jack Dorsey sold his first tweet 15 years after its creation for more than \$2.9 million. Profit from this sale was donated to GiveDirectly to help Africa fight COVID-19.

## The most expensive NFT meme in 2021

DOGE became the most famous meme coin in 2021 after Elon Musk publicly started liking this coin and regularly tweeting about it. The NFT, which shows this Japanese dog breed, was sold for \$4 million.



**rin (.eth)**  
@RinsArt



Very much deserved and a big congratulations to [@kabosumama](#) , [@knowyourmeme](#), and [@ourZORA](#) for the original Doge NFT auction which sold for 1,696.9 ETH (~\$ 4 Million) to [@PleasrDAO](#) 🥳

おめでとうございますかぼすちゃん! 🐾 🍓



8:30 PM · Jun 11, 2021



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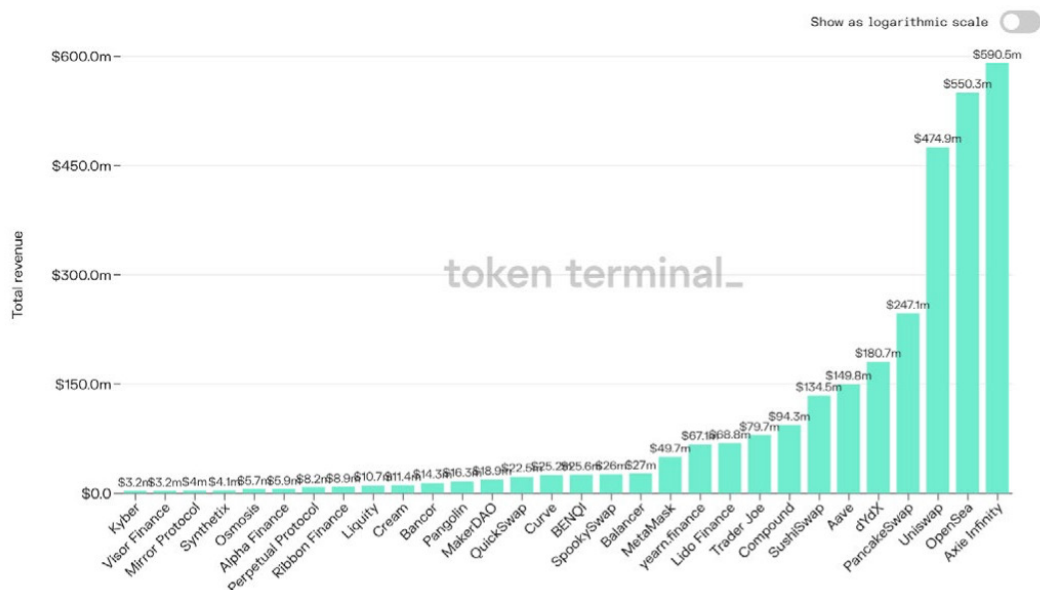

Reply


Share this Tweet

Source: Twitter

## Axie Infinity and the future of GameFi

One of the top 3 most profitable apps built on the Ethereum blockchain was Axie Infinity. In just the last three months, Axie has generated a profit of more than \$500 million. The introduced play-to-earn model has attracted many users and allowed Axie to reach a ten billion market cap in less than a year. The success of this game inspired other projects, and in 2022 we can look forward to many news from the field of GameFi. VC a16z invested \$150 million in the Mythical Games project. Enjin launched a 100-million-dollar gaming fund, and FTX invested \$21 million in Faraway Games - all in one day. In the future, the goal is to ensure better integration of Web3 with common gaming platforms such as the Epic Games Store and many top gaming studios.



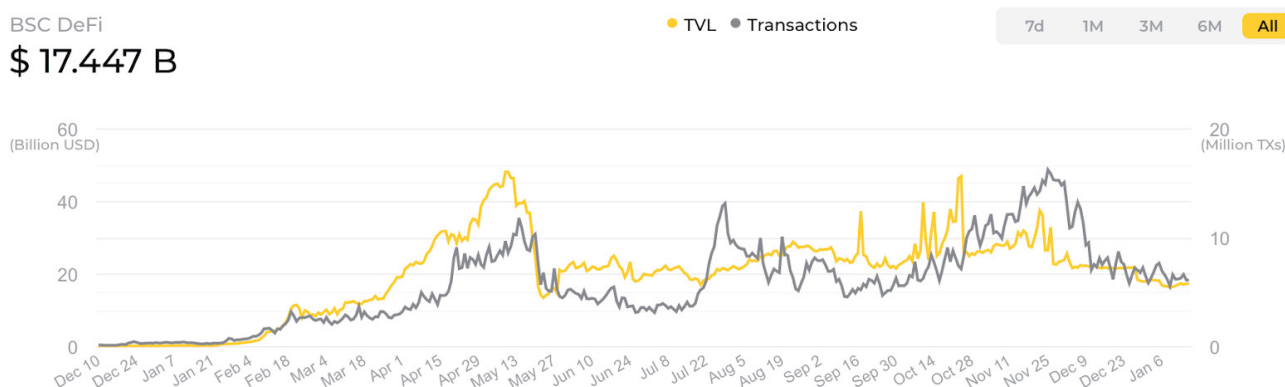
Source: Messari

## OTHER SMART CONTRACT PLATFORMS - ECOSYSTEM DEVELOPMENT

2021 was a year in which smart contracts, DeFi and NFTs got beyond the borders of the Ethereum network. As the popularity of decentralized applications grows, the traction and value of the platforms on which these applications can operate have increased. Competition in the field of so-called L1 protocols, the first tier networks that are trying to compete with Ethereum, is really huge. Among Ethereum's most significant challengers belong protocols such as Polkadot, Cosmos, Near, Algorand or Fantom. For a more detailed analysis, we selected the three platforms that in 2021 recorded the greatest progress and growth not only in value but also in capital inflows - Binance Smart Chain, Terra and Avalanche. However, despite the strong competition, Ethereum has an unshakable market position, and alternative platforms take advantage of its (temporary) weaknesses in its ability to scale to the required level. This is reflected in particular in the high transaction fees, where any alternative platform can now compete relatively easily. In the long run, however, we can assume that some of them will gradually disappear even though we expect more dominant players in this market.

### Binance Smart Chain (BSC)

#### Total Value Locked and transaction value on Binance Smart Chain



Source: DefiPulse

Binance Smart Chain, which competes with Ethereum mainly with its speed and low fees, has become a favorite of many decentralized application developers. It is thanks to good documentation, testnet, analytics tools and interoperability with Ethereum Virtual Machine (EVM) as well as other blockchain networks. As a result, people liked many new projects on this network, such as Venus (AAVE), PancakeSwap (Uniswap), SXP and countless others. We have also seen the migration or extension of traditional applications from the Ethereum network to the Binance Smart Chain. BSC has registered 126 million new addresses in 1,150 projects, including DeFi, GameFi, NFT and metaverse. The TVL metric reached its peak in April 2021 - \$48 billion. At the end of the year, we see a decline in this metric and a stabilization at around \$17.5 billion. This might mean increased competition and pressure from other alternative chains such as Solana, Terra and others. However, the fact that Binance Smart Chain has become a pioneer in the development of decentralized applications, games, and crosschain digital asset management cannot be denied.

## Solana



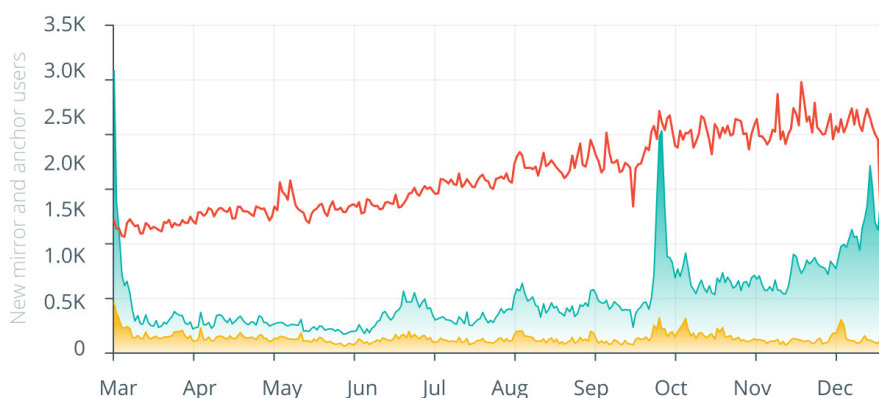
Source: *Defillama*

Solana is the technology by Samuel Bankman-Fried, the founder of the popular FTX exchange known as SBF. The sharp rise in awareness of FTX and Solana as a technology was reflected in the increase in TVL metric to \$10 billion. Solana is an exceptional combination of a proof-of-stake consensus mechanism and a new mechanism called proof-of-history, thanks to which it achieves a high transaction speed (50,000 TPS). Users and developers prefer applications running on Solana mainly because of the speed, low fees, and low network congestion compared to the Ethereum network. At the same time, it is considered a more decentralized solution compared to Binance Smart Chain. The most popular projects operating on the Solana blockchain include the decentralized Raydium exchange, the Marinade Finance liquid staking protocol and the DeFi ecosystem Serum.

## Terra

The LUNA token, which works on the Terra blockchain, has gained a profit of almost 13,000%. Much of this growth is due to the development of decentralized applications in the Terra ecosystem. At the beginning of the year, there were only two working applications on this blockchain, Mirror Protocol and Chai. Today, there are hundreds. The Anchor Protocol was only launched in March 2021 but quickly became a popular yield farming protocol. It is designed to generate revenue from the TerraUSD stablecoin (UST) by locking the LUNA or ETH token.

### Terra transactions and new mirror and anchor use



Source: Cointelegraph

Terra differs mainly in the concept of decentralized money, which it can achieve with its algorithmic stablecoins, which are pegged to currencies such as USD or EUR. The price stability of these stablecoins is maintained algorithmically, which offers users opportunities for arbitrage. The algorithm retains the UST dollar fixation - thanks to this design, Terra stablecoins are more decentralized, which can allay regulatory concerns that plague other stablecoins.

In July, Terraform Labs, the company behind the Terra blockchain, raised \$150 million from several investors, including Arrington Capital, Lightspeed Venture Partners and Pantera Capital. Funds were used to incubate projects on Terra, which spurred further development. Many games, metaverse projects, DeFi projects and bridges have also been created that allow assets to be moved from the Terra blockchain to other networks. For example, Wormhole v2 facilitates asset transfers through Terra, Solana, Ethereum, BSC, Polygon, Avalanche and Oasis.

## Avalanche update

Avalanche is a new protocol and is considered one of the fastest blockchains. Avalanche Mainnet was launched in September 2020 to create the fastest smart contract platform. The Avalanche ecosystem community has grown to half a million within a year. In 2021 alone, more than 300 projects were created on Avalanche. Fast and cheap transactions have attracted many decentralized application developers, regular users, and several investment groups. The Avalanche Bridge (AB) was launched in August, introducing a new cross-chain bridging generation with an emphasis on safety, simplicity, and low usage fees. The Avalanche Foundation has announced a \$230 million investment in the ecosystem to support and accelerate platform growth led by Polychaincap and Three Arrows Capital. This accelerated growth enables the creation of new blockchain solutions as alternatives to Ethereum solutions in various areas such as DeFi and infrastructure building. Under the protocol, the most popular place to trade NFTs is the ToppsNFTs marketplace.



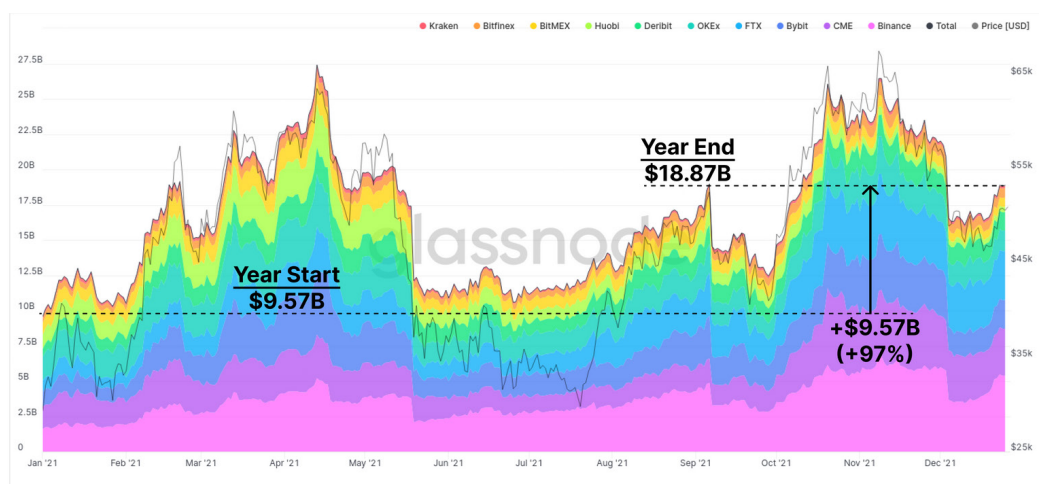
Source: Defilama

Total value locked (TVL) at the end of 2021 was nearly \$ 12 billion, increasing by several thousand percent.



# FUTURES MARKET

## BTC Futures - Open Interest



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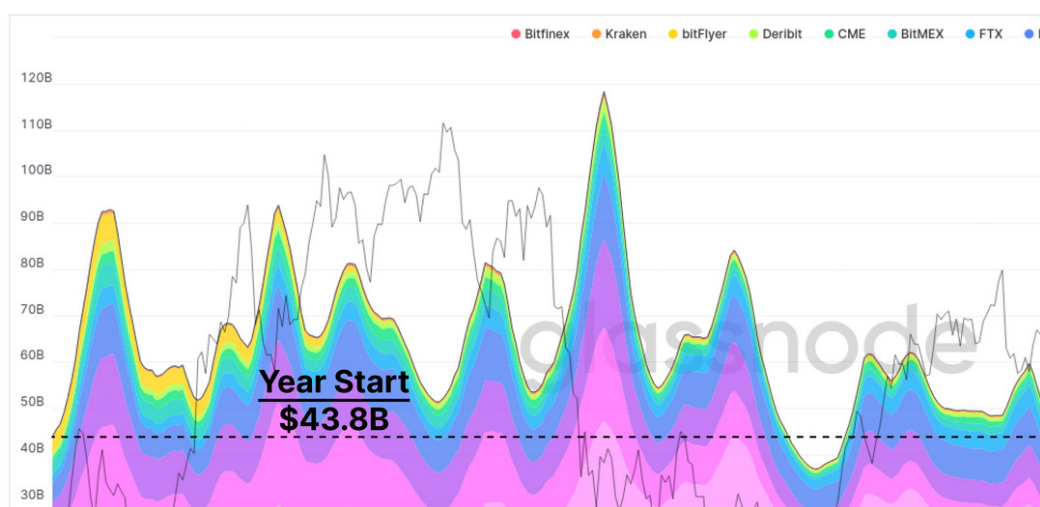
Source: Glassnode

Total interest in bitcoin futures trading has almost doubled this year, rising \$9.57 billion (+ 97%) to total OI (open interest) of \$18.87 billion. Over the past week, there has been a \$2.5 billion increase in open interest, driven primarily by Binance traders.

While open interest in futures is still relatively far from its all-time high, a rapid increase in leverage may indicate a grouping of stop-losses and liquidation levels close to the current price.

## BTC Futures - trading volume

### Bitcoin: Futures Volume (7d Moving Average)

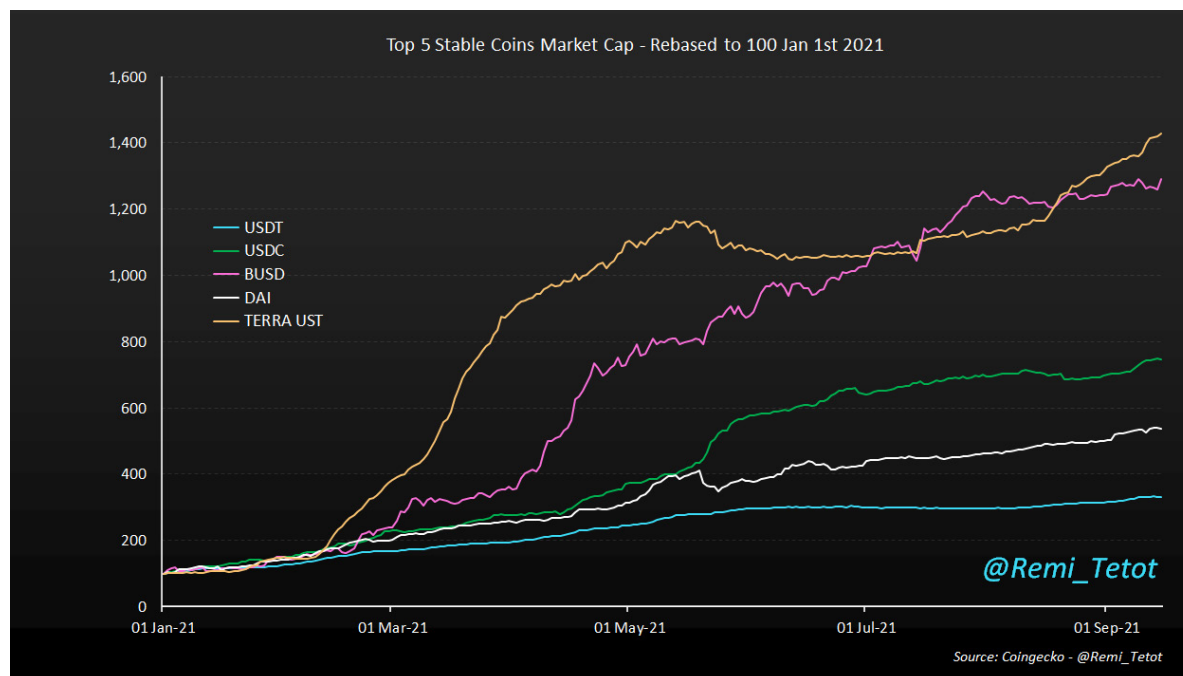


Source: Glassnode

Despite a slight increase in the total value of open positions on the Bitcoin futures market in the last days of 2021, trading volumes are still relatively low given that it is the end of the year which is usually characterized by lower trading activity. On a 7-day moving average, futures volumes have fallen by 16% since the beginning of the year. Smaller volume and growing open interest is a combination that may be conducive to at least partial leverage squeeze in the coming weeks.

## DEVELOPMENT OF MARKET CAPITALIZATION OF STABLECOINS

One of the fastest-growing segments of crypto space this year was the stablecoin market. Stablecoins have gained popularity over the last year and have thus become an increasingly used tool in the crypto market. This is evidenced by the exponential growth of their market capitalization.



Source: Coingecko - @Remi\_Tetot

**Tether (USDT)** is the most popular of stablecoins backed by fiat currency in a 1:1 ratio. It still represents the most common choice of stablecoin for operations in the cryptocurrency market, which is also reflected in its dominant market capitalization - almost \$80 billion. However, for many years, Tether has been considered a controversial stablecoin because it regularly faces accusations that it does not have sufficient reserves to allow its stablecoins to be backed by real US dollars. Due to this uncertainty, many investors switched to other stablecoins such as USDC, TerraUSD or DAI.

**USD Coin (USDC)**, the second most used stablecoin after Tether, now has a market capitalization of more than \$45 billion, an almost 10-fold increase since the beginning of 2021. USDC is often referred to as a safer stablecoin than USDT because Circle and Coinbase, which created it, are making great efforts to comply with audits and are transparent about their reserves.

**TerraUSD (UST)** stablecoin, introduced in September 2020 as part of the Terra network, belongs to algorithmic stablecoins. It is not backed by any asset or collateral but uses a supply control algorithm that mitigates stablecoin price volatility. To create one UST stablecoin, it is necessary to burn a Terra LUNA token worth 1 US dollar. TerraUSD, which is constantly gaining in popularity, outperformed the stablecoin DAI this year, making it the largest algorithmic decentralized stablecoin with a market capitalization of more than \$10 billion US dollars.

**Dai (DAI)** is a native stablecoin for the Maker Protocol and differs significantly from common stablecoins such as USDT and USDC. Dai is decentralized and covered with cryptocurrencies. The new DAI stablecoins are created by "collateralized debt positions" (CDP). These CDPs consist of a mixture of ETH and BAT cryptocurrencies stored in Maker Protocol safes, with each 1 Dai covered by approximately 150% collateral, depending on the associated token. This stablecoin has long held the lead among decentralized stablecoins, but with the growing popularity of TerraUSD, its growth to \$9 billion is beginning to slow.

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