State of Crypto:
Market Pulse

January 2023

Contents

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Key Takeaways

Market Pulse is a compilation of key charts and insights by Binance Research, shedding light on the state of crypto

Market Overview

Crypto market capitalization decreased by 15.9% QoQ in Q4 but there are signs of a pick-up in early 2023.

Layer 1s

Blockchain activity generally trended lower in Q4. Solana saw the highest quarterly decline when compared to Ethereum, BNB Chain, and Avalanche.

DeFi

Q4 marked another quarter of further decline as DeFi TVL fell -27% QoQ, ending the quarter at US$39.1B.
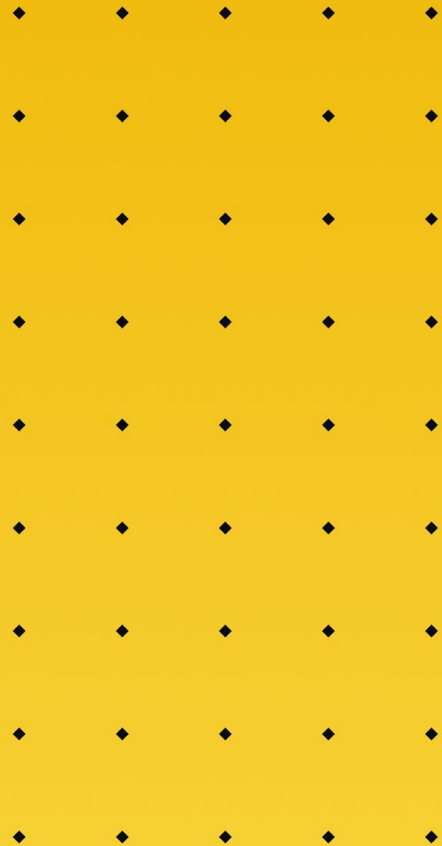
NFTs

NFTs fell -10% QoQ in Q4 but on a full-year basis, NFT sales in 2022 increased by >10% vs. 2021 as a result of strong sales in the first half of 2022.

GameFi

The gaming landscape is led by BNB Chain, Ethereum, and Polygon, with more than 80% market share (by number of games).

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Market Overview

Crypto Market Overview
Market capitalization decreased slightly in Q4

Global Crypto Market Capitalization

-15.9% QoQ

- Since Q3, crypto market capitalization has decreased by 15.9% in Q4.

- At the time of writing in January 2023, crypto market capitalization has picked up slightly. It remains to be seen if this is temporary or represents the start of a sustained turnaround.

Source: Coinmarketcap, Binance Research. Data as of 10 Jan 2023.

Crypto Fear and Greed Index
Index notched higher but still indicates "fear"

Fear and Greed Index

Source: Coinglass, Binance Research. Data as of 8 Jan 2023.

+6 points in Q4

- Sentiments have generally been in the "fear" zone throughout the whole of this year.

- The Fear and Greed Index indicated a slight improvement in sentiments over Q4 (End-Dec = 26 vs. End-Sep = 20).

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Crypto Unicorn Index
Number of coins with >US$1B market cap fell in Q4

Number of Coins with Market Cap above US$1B

-27.4% QoQ

- The number of coins with a market cap more than US$1B fell from 51 to 37 in Q4.

- November experienced a significant drop with a 24% decrease as the FTX collapse caused ripple effects in the market.

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Performance of Largest Coins by Market Cap
Top 3 coins held their spot in 2021, 2022 and YTD

Top 10 Coin Performance (2017 to YTD)

Decreasing Market Cap ↓

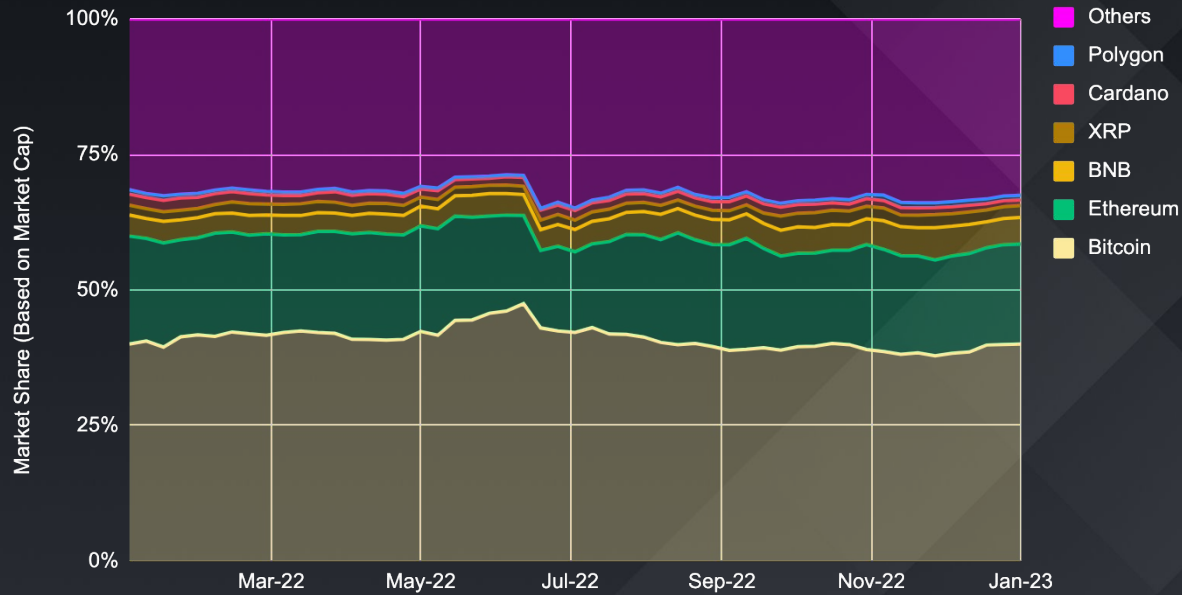| 2017	2018	2019	2020	2021	2022	YTD
Bitcoin 1317.08%	Bitcoin -72.39%	Bitcoin 92.48%	Bitcoin 308.91%	Bitcoin 59.70%	Bitcoin -64.42%	Bitcoin 19.70%
XRP 34096.50%	XRP -84.11%	Ethereum -2.99%	Ethereum 478.27%	Ethereum 397.84%	Ethereum -68.17%	Ethereum 21.28%
Ethereum 8762.26%	Ethereum -81.94%	XRP -45.46%	XRP 24.75%	BNB 1258.62%	BNB -54.25%	BNB 20.48%
Bitcoin Cash 451.97%	Bitcoin Cash -93.21%	Bitcoin Cash 26.19%	Litecoin 217.78%	Solana 10682.40%	XRP -59.68%	XRP 13.78%
Cardano 3400%	EOS -66.60%	Litecoin 37.44%	Polkadot 188.93%	Cardano 620.39%	Dogecoin -56.45%	Cardano 38.67%
Litecoin 5019.14%	Stellar -73.92%	EOS 1.34%	Bitcoin Cash 73.63%	XRP 251.18%	Cardano -81.21%	Dogecoin 18.03%
IOTA 867.48%	Litecoin -86.39%	BNB 130.73%	Cardano 452.21%	Terra Classic 13310.47%	Polygon -68.92%	Polygon 22.87%
NEM 29070.31%	Bitcoin SV 5.84%	Bitcoin SV 9.60%	BNB 180.23%	Avalanche 3408.97%	Polkadot -84.90%	Solana 85.17%
Dash 9377.84%	Tron -57.00%	Tezos 194.10%	Chainlink 542.13%	Polkadot 197.82%	Tron -29.53%	Polkadot 23.80%
Stellar 17666.95%	Cardano -94.15%	Stellar -60.09%	Bitcoin SV 72.34%	Dogecoin 3389.64%	Litecoin -54.24%	Litecoin 23.51%

-62.2% average performance in 2022

- BTC, ETH, and BNB remain the top 3 coins by market capitalization in 2022, excluding stablecoins.

- TRX, LTC, and BNB witnessed the lowest drawdowns in 2022 among the top 10 coins.

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Market Share of Coins

BTC and ETH increased, while others were mostly stagnant

Market Share of Coins

Legend:
- Others
- Polygon
- Cardano
- XRP
- BNB
- Ethereum
- Bitcoin

Y-axis: Market Share (Based on Market Cap) — 0%, 25%, 50%, 75%, 100%
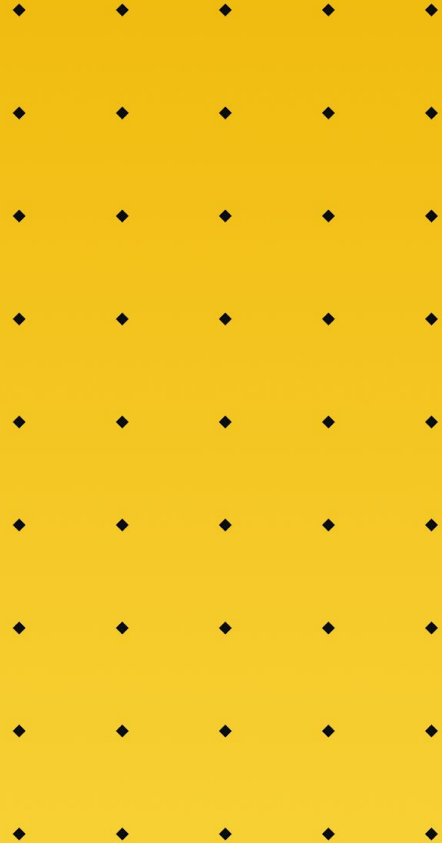
X-axis: Mar-22, May-22, Jul-22, Sep-22, Nov-22, Jan-23

+1% share for BTC and ETH in Q4

- BTC regained slight dominance after falling in Q3

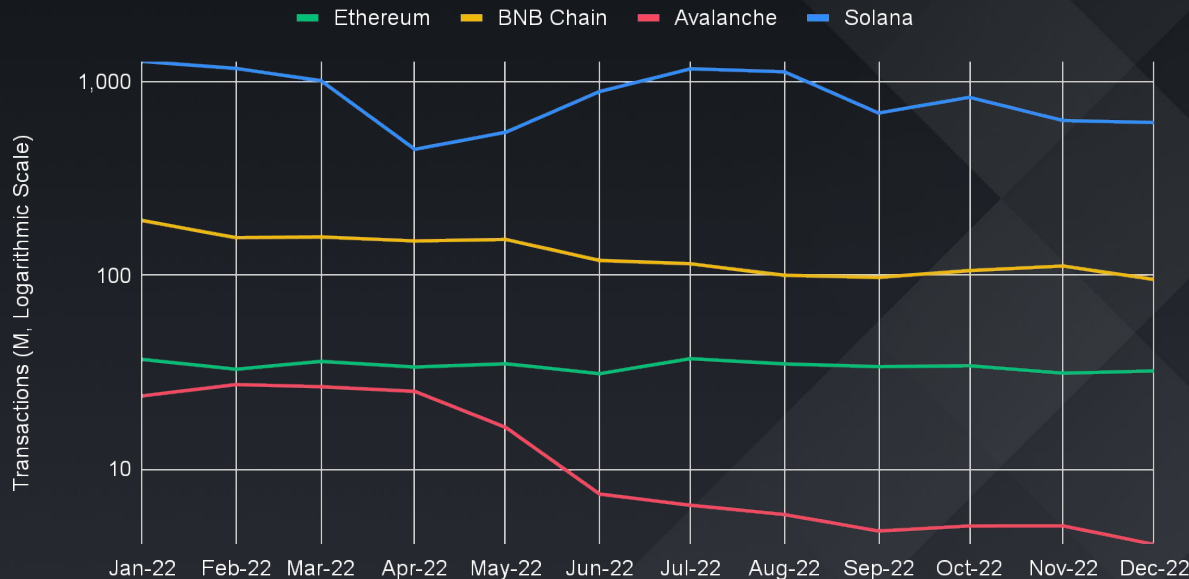- BNB, XRP, ADA, and MATIC were relatively stable while other tokens saw a slight decrease (-1%) in market share.

Source: Coinmarketcap, Binance Research. Data as of 8 Jan 2023.

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Layer 1s

Monthly Transactions by Chain
Declines across the board - Solana fell the most in Q4

Number of Transactions (Monthly)

Legend: Ethereum — BNB Chain — Avalanche — Solana

Y-axis: Transactions (M, Logarithmic Scale)
X-axis: Jan-22, Feb-22, Mar-22, Apr-22, May-22, Jun-22, Jul-22, Aug-22, Sep-22, Oct-22, Nov-22, Dec-22

QoQ Change:
ETH (-6%); BNB (-10%);
AVAX (-20%); SOL (-26%)

- Activity tracked lower across the sample set, with an avg. ~15% decline across all 4 L1s in Q4.

- Across 2022, Avalanche monthly transaction activity saw the highest decline (-83%), relative to Ethereum (-13%), BNB Chain (-50%) and Solana (-52%).

Source: Etherscan, Bscscan, Snowtrace, Solscan, Binance Research. Data as of 31 Dec 2022.

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Average Daily Active Addresses by Chain

Daily active addresses were mixed across the sample set

Average Daily Active Addresses

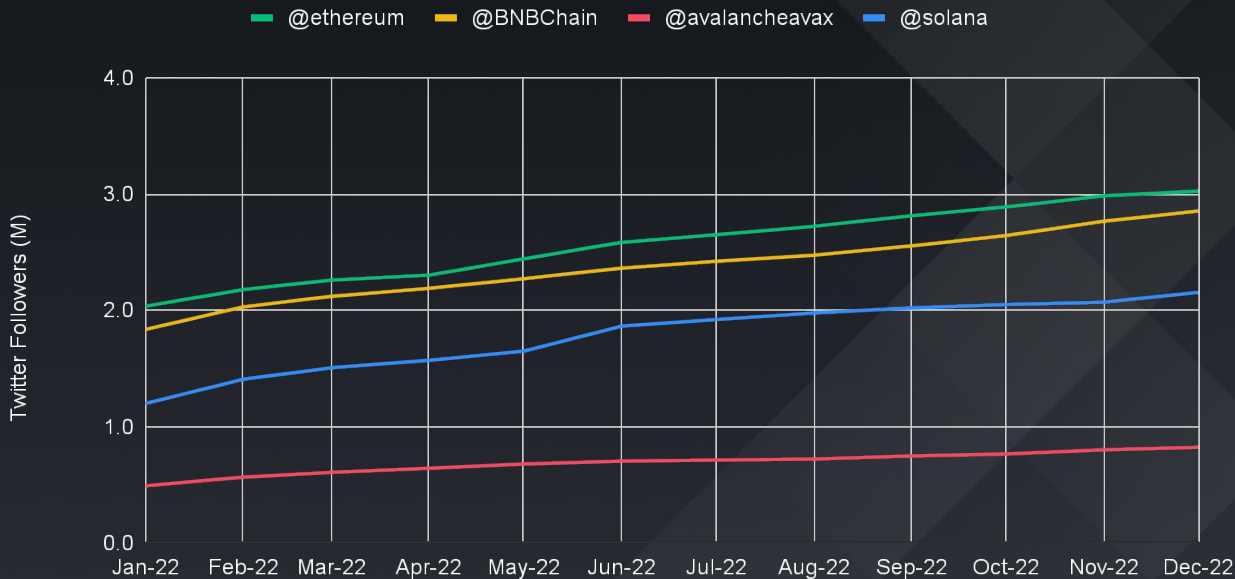Ethereum — BNB Chain — Avalanche — Solana
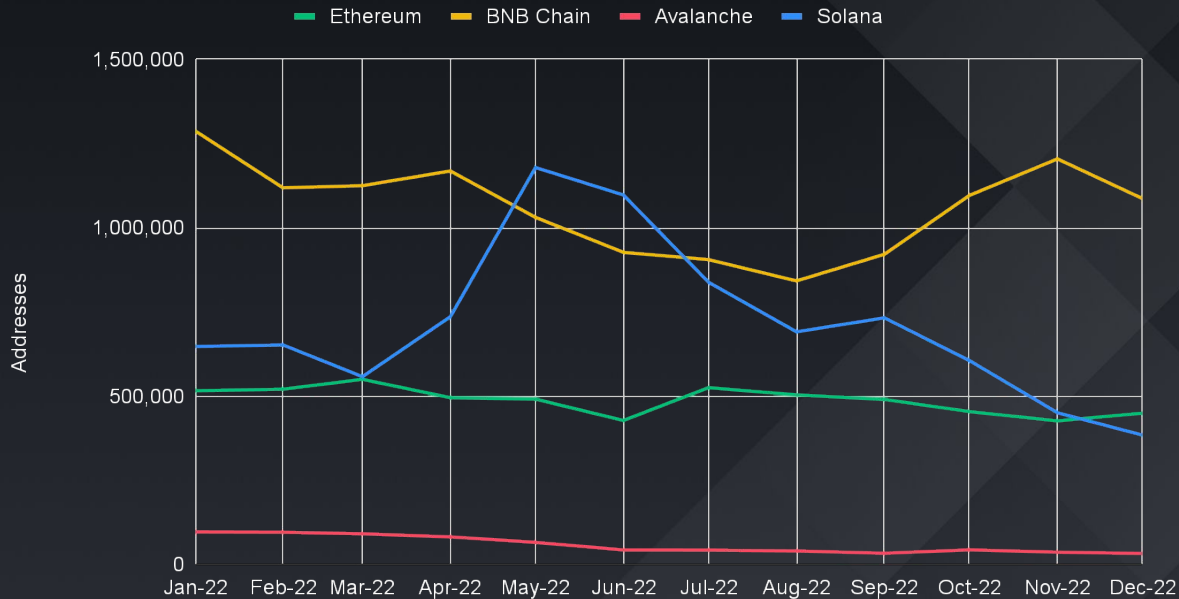
Ethereum and BNB Chain stabilized

- Average daily active addresses for Ethereum and BNB Chain fell ~1% across QoQ compared to -25% for Avalanche and -37% for Solana.

- This is in line with the general slowdown in activity across Q4, as shown in the previous slide.

Source: Etherscan, Bscscan, Snowtrace, Solscan, Binance Research. Data as of 31 Dec 2022.

Twitter Followers
Followers continue to increase across the board

Cumulative Twitter Followers by Official Blockchain Accounts

— @ethereum — @BNBChain — @avalancheavax — @solana

Twitter Followers (M)

4.0, 3.0, 2.0, 1.0, 0.0

Jan-22, Feb-22, Mar-22, Apr-22, May-22, Jun-22, Jul-22, Aug-22, Sep-22, Oct-22, Nov-22, Dec-22

Source: SocialBlade. Data as of 31 Dec 2022.

@ethereum leads, @BNBChain a close 2nd

- @BNBChain and @avalancheavax saw the strongest Q4 growth (+8% QoQ).

- @ethereum continues to lead with over 3M followers, with @BNBChain quickly catching up.

- It is encouraging to see social media growth across the sample set. Note that data only includes official blockchain accounts and not dApps - which would push figures even higher.

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BTC: Grayscale Bitcoin Trust ("GBTC") Premium

GBTC discount continues to widen

Grayscale BTC Premium Rate (%)

Discount to NAV at end of 2022: -45.2%

- Shares of GBTC hit their all-time highest discount of 48.8% vs. Net Asset Value ("NAV") in Dec-22.

- Recent news events related to DCG has led to some trader repositioning and a slight bounce.

Source: Coinglass, Binance Research. Data as of 6 Jan 2023.

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BTC: Bitcoin Balance on Exchanges vs. Price
Balance and Price both declined in Q4

BTC Balances on Exchanges vs BTC Price

BTC price — Balance (BTC)

Source: Coinglass, Binance Research. Data as of 31 Dec 2022.
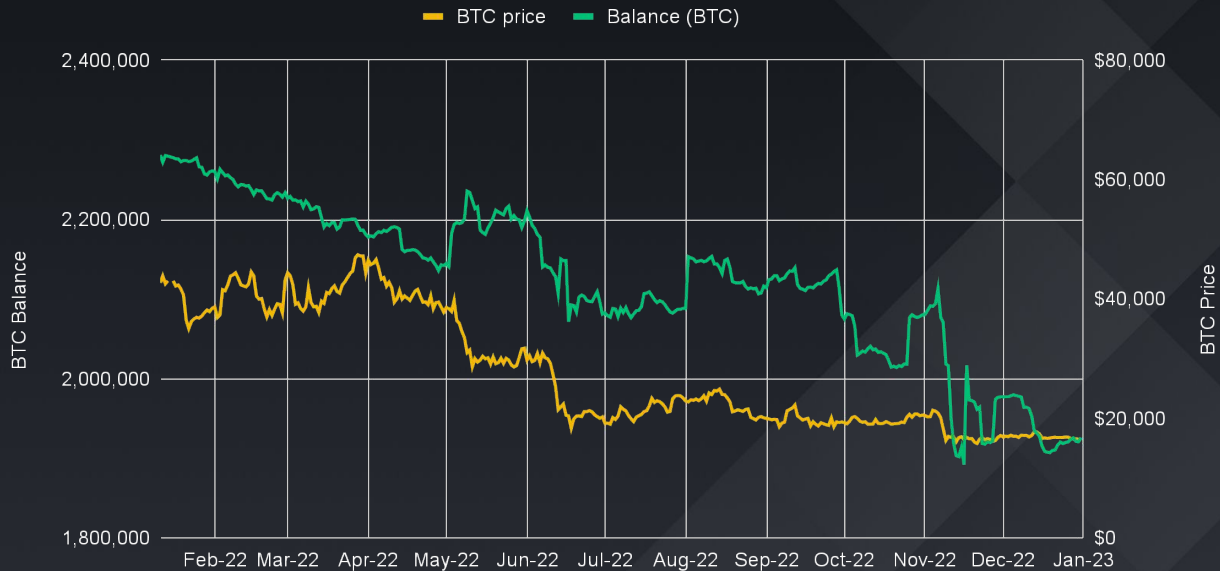
A sobering end to 2022 for the largest crypto

- The Bitcoin price failed to find a catalyst across Q4 and fell further. This was partially impacted by the sell pressure from Bitcoin miners; many of whom fell into / came close to bankruptcy across Q4.

- Bitcoin balance on exchanges also continue to fall (down 7% in Q4 and 16% in 2022). With the recent uptick in interest self-custody, this number may continue to fall further.

ETH: Ethereum Transaction Fees
Average Ethereum fees stayed stagnant through Q4

Ethereum Transactions Fees

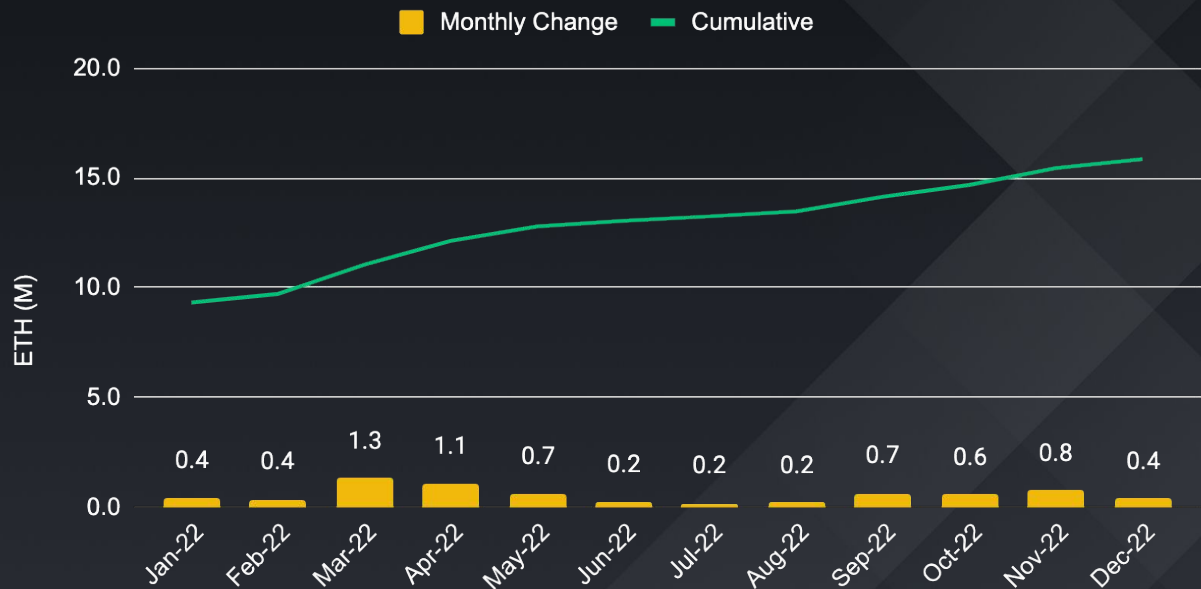*Source: Etherscan, Binance Research. Data as of 11 Jan 2023.*
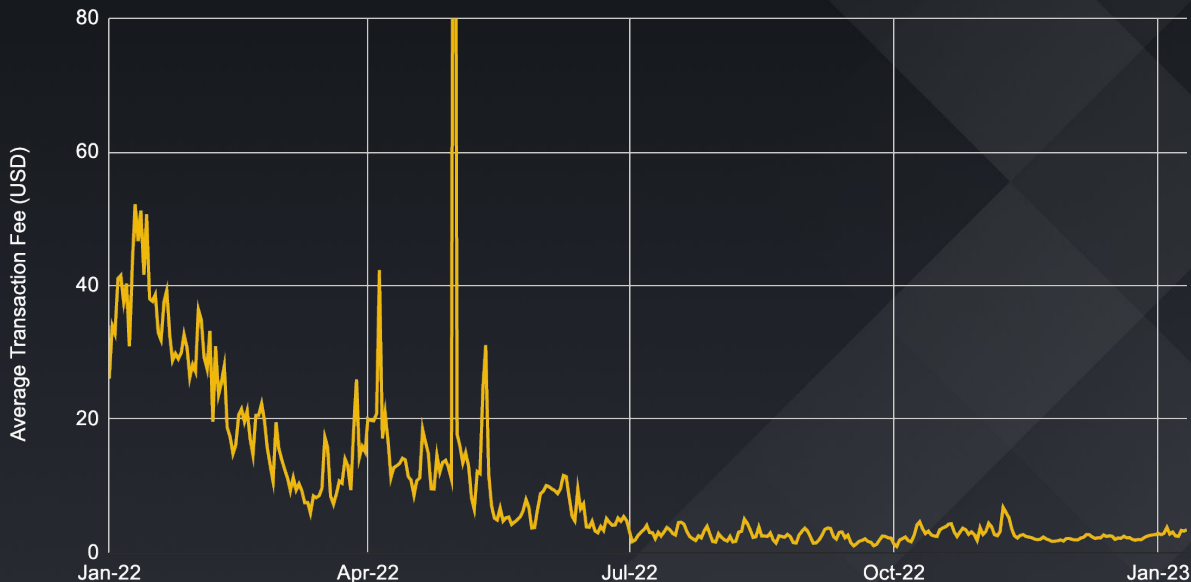
+3.7% QoQ

- Average transaction fees in Q4 was US$2.70 vs. US$2.61 in Q3, US$12.50 in Q2, and US$23.3 in Q1. Across 2022, this was a 88% decline.

- This is indicative of (i) a decline in blockspace demand as a result of reduced activity on Ethereum, (ii) Layer-2 solutions like Arbitrum and Optimism seeing an increased amount of activity.

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ETH: Staked ETH Statistics
~13.3% of all ETH in circulation has been staked

Amount of Staked ETH

Legend: 🟨 Monthly Change — 🟩 Cumulative

Y-axis: ETH (M) — 0.0, 5.0, 10.0, 15.0, 20.0

Monthly Change values:
- Jan-22: 0.4
- Feb-22: 0.4
- Mar-22: 1.3
- Apr-22: 1.1
- May-22: 0.7
- Jun-22: 0.2
- Jul-22: 0.2
- Aug-22: 0.2
- Sep-22: 0.7
- Oct-22: 0.6
- Nov-22: 0.8
- Dec-22: 0.4

Source: Dune Analytics, Binance Research. Data as of 31 Dec 2022.

15.9+M ETH staked

- The amount of staked ETH has continued to increase MoM despite withdrawals having not been enabled yet. The upcoming Shanghai Upgrade (est. in Feb / March) will enable these and it will be interesting to monitor whether this leads to a net negative or net positive impact on ETH price.

- ETH staking yield is currently around 4+%.

BNB Chain: Average Transaction Fee
Users paid an average of $0.23 transaction fees in Q4
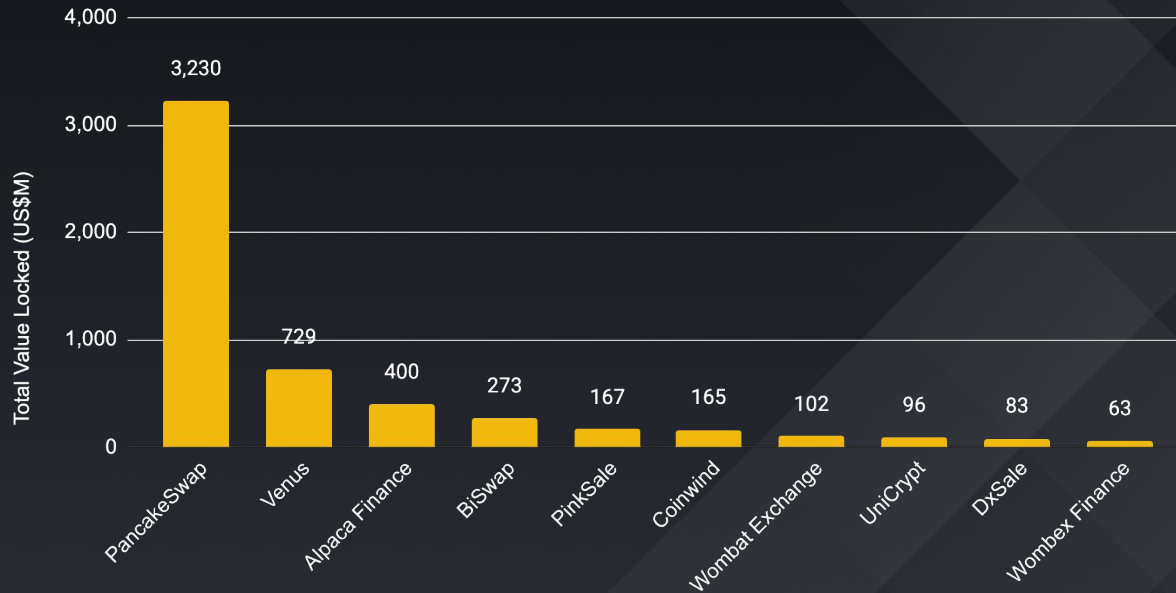
BNB Chain Transaction Fee

-8% QoQ average fees in Q4

- Average transaction fees continued to decline, Q4 average being $0.23 vs. $0.25 in Q3, and $0.30 in Q2.

- The decline corresponds to reduced network activity in Q4, as illustrated in the previous slides.

Source: BSCscan, Binance Research. Data as of 11 Jan 2023.

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BNB Chain: Top dApps by TVL
DEXes and lending remain the largest verticals

Top 10 dApps on BNB Chain (by TVL)

Total Value Locked (US$M)

- PancakeSwap: 3,230
- Venus: 729
- Alpaca Finance: 400
- BiSwap: 273
- PinkSale: 167
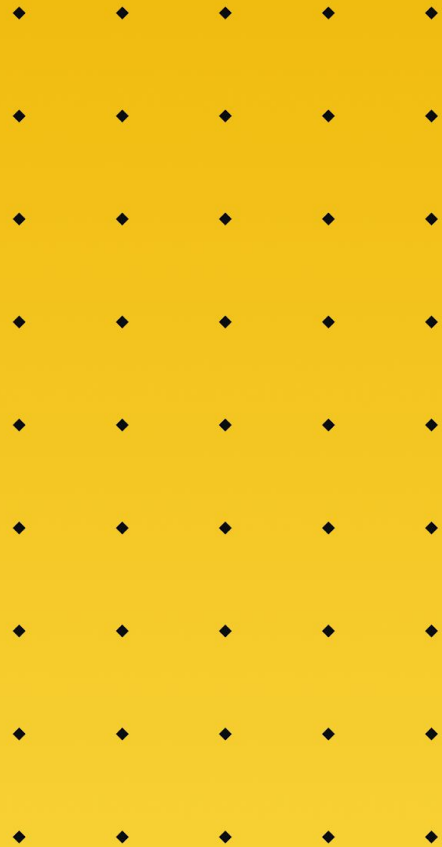- Coinwind: 165
- Wombat Exchange: 102
- UniCrypt: 96
- DxSale: 83
- Wombex Finance: 63

Top 5 dApps held their spots

- No changes in the top 5 dApps compared to Q3. PancakeSwap continues to dominate the BNB Chain dApp landscape.

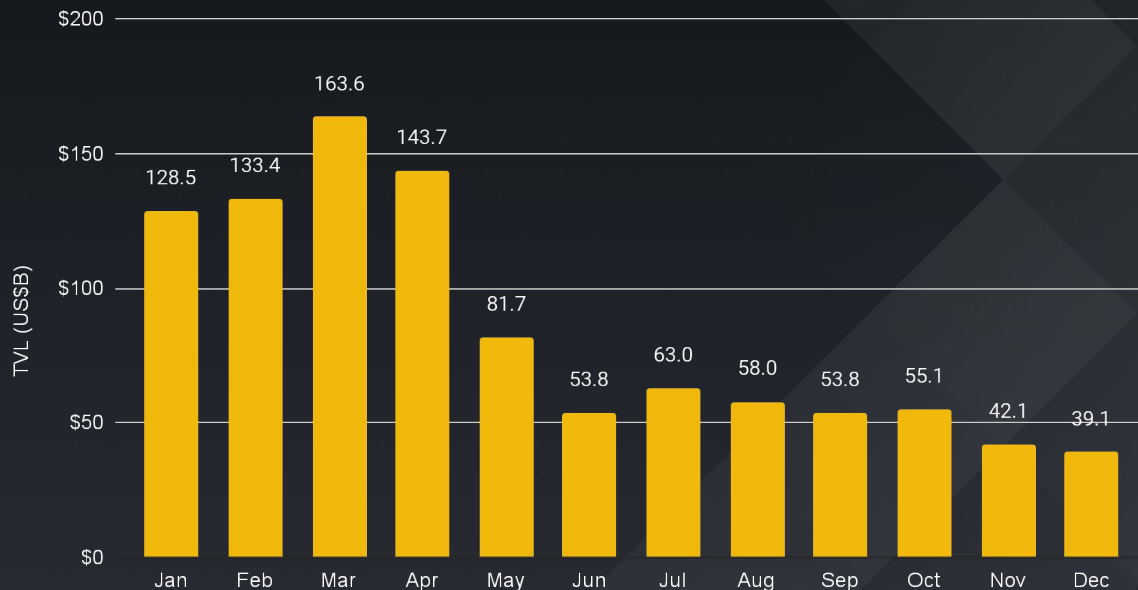- New entrants to the Top 10 dApps (compared to Q3) are DxSale and Wombex Finance.

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DeFi

DeFi Total Value Locked
Q4 marked a further decline in TVL across DeFi

Defi TVL

Chart: Defi TVL (US$B) by month

- Jan: 128.5
- Feb: 133.4
- Mar: 163.6
- Apr: 143.7
- May: 81.7
- Jun: 53.8
- Jul: 63.0
- Aug: 58.0
- Sep: 53.8
- Oct: 55.1
- Nov: 42.1
- Dec: 39.1

Y-axis: TVL (US$B) — $0, $50, $100, $150, $200

*Source: Defi Llama, Binance Research. Data as of 31 Dec 2022.*

Following a range-bound Q3, DeFi TVL in Q4 continued a downward trend

- Q4 saw a -27% fall in DeFi TVL, ending the quarter at US$39.1B.

- A challenging market environment continues to weigh on overall sentiment.

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Market Share by TVL
Ethereum gained whilst Avalanche and L1s with low TVL fell
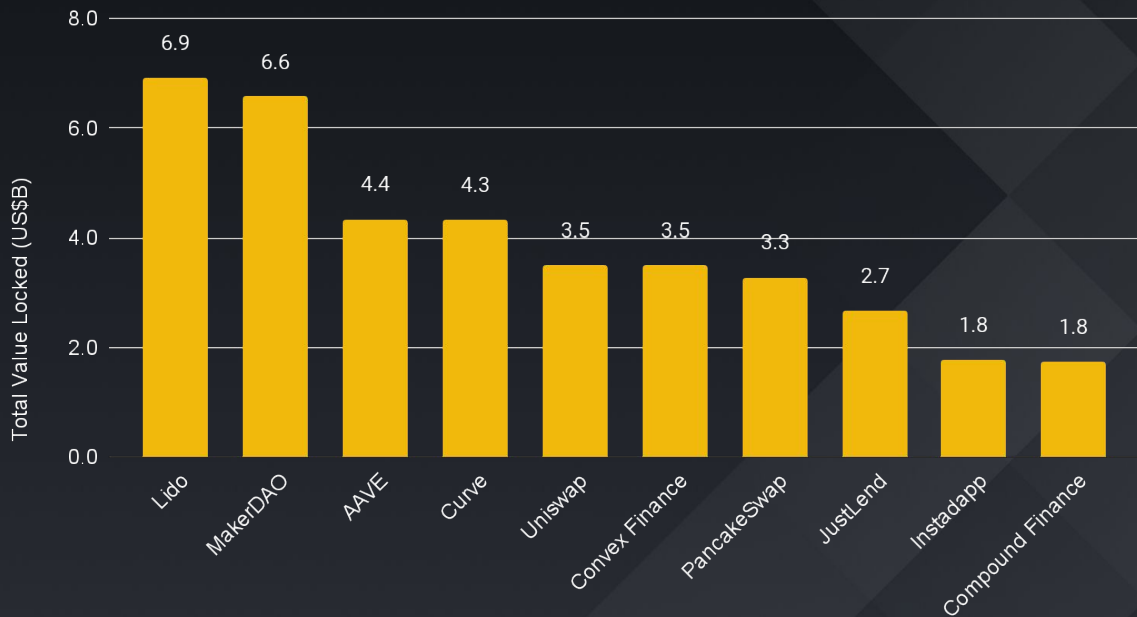
Defi TVL Market Share by Chain
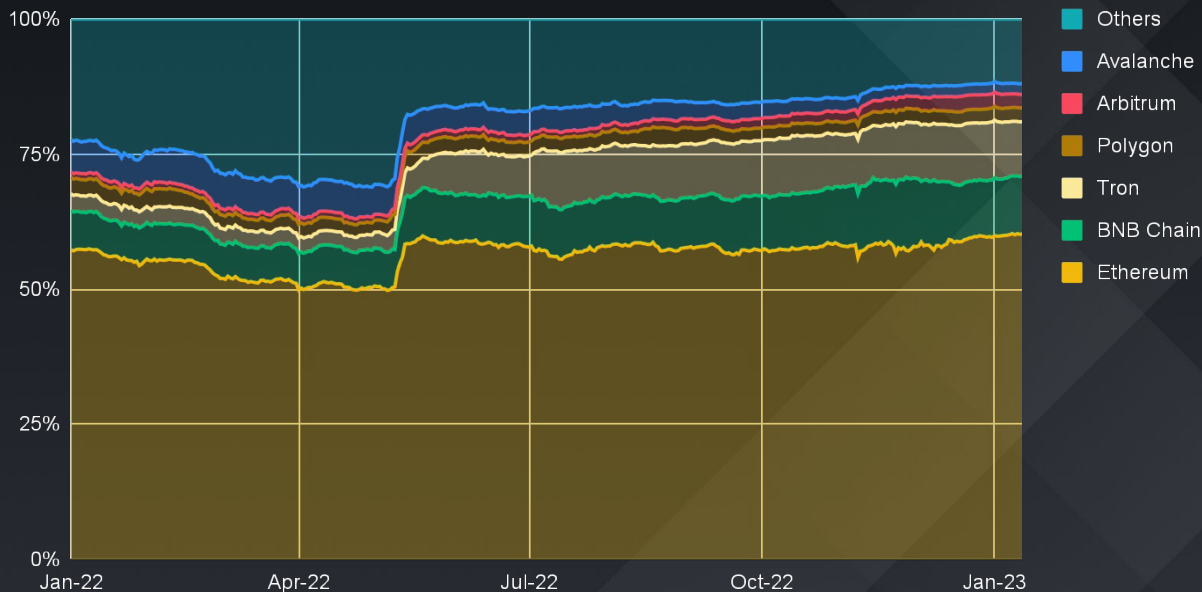
Flight to Quality in Q4

- Ethereum ended Q4 with ~60% market share, an increase of +2.4% from Q3.

- BNB Chain / Tron also gained +0.5% market share in Q4, with each chain having around 10% of market share.

- Avalanche and L1s with low TVL ("Others") lost market share in Q4, falling -1% and -3.5%, respectively.

Source: Defi Llama, Binance Research. Data as of 12 Jan 2023.

Top DeFi dApps by TVL

Lido overtakes MakerDAO as the top DeFi dApp by TVL

Top 10 DeFi dApps

Total Value Locked (US$B)

dApp	TVL
Lido	6.9
MakerDAO	6.6
AAVE	4.4
Curve	4.3
Uniswap	3.5
Convex Finance	3.5
PancakeSwap	3.3
JustLend	2.7
Instadapp	1.8
Compound Finance	1.8

Source: Defi Llama, Binance Research. Data as of 12 Jan 2023.

After a successful Merge in Q3, Lido has overtaken MakerDAO as the dApp with the most TVL
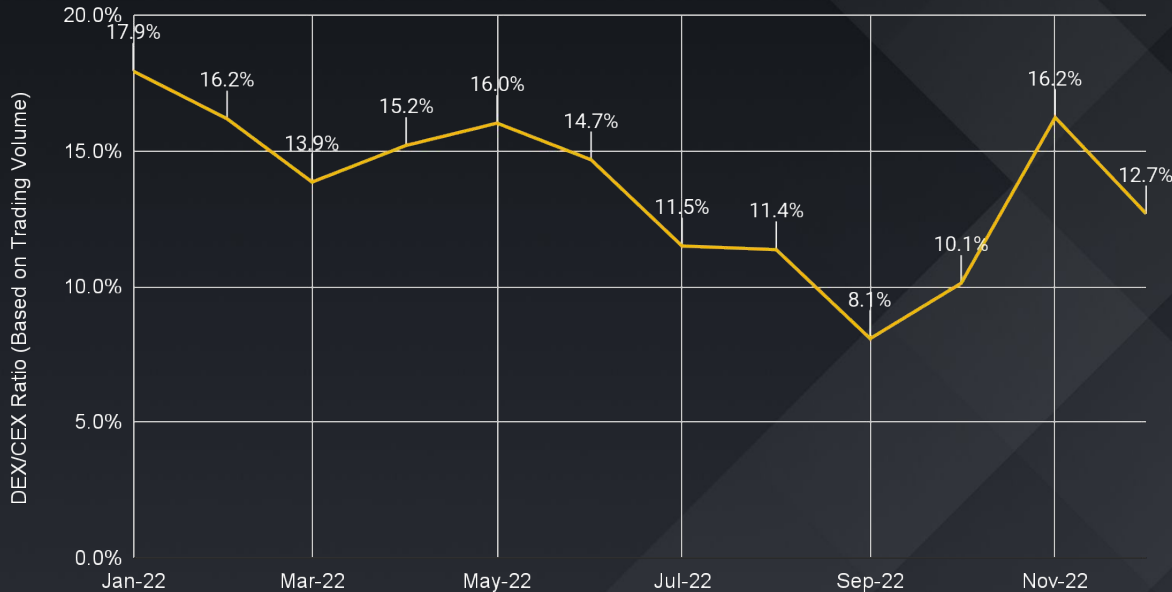
Other notable changes in the dApp TVL rankings, include:

- Curve's TVL fell below that of Lido and AAVE.

- PancakeSwap grew in TVL QoQ to surpass JustLend.

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DEX/CEX Trading Volume
After the CEX fallout, DEX/CEX ratio was higher in Q4
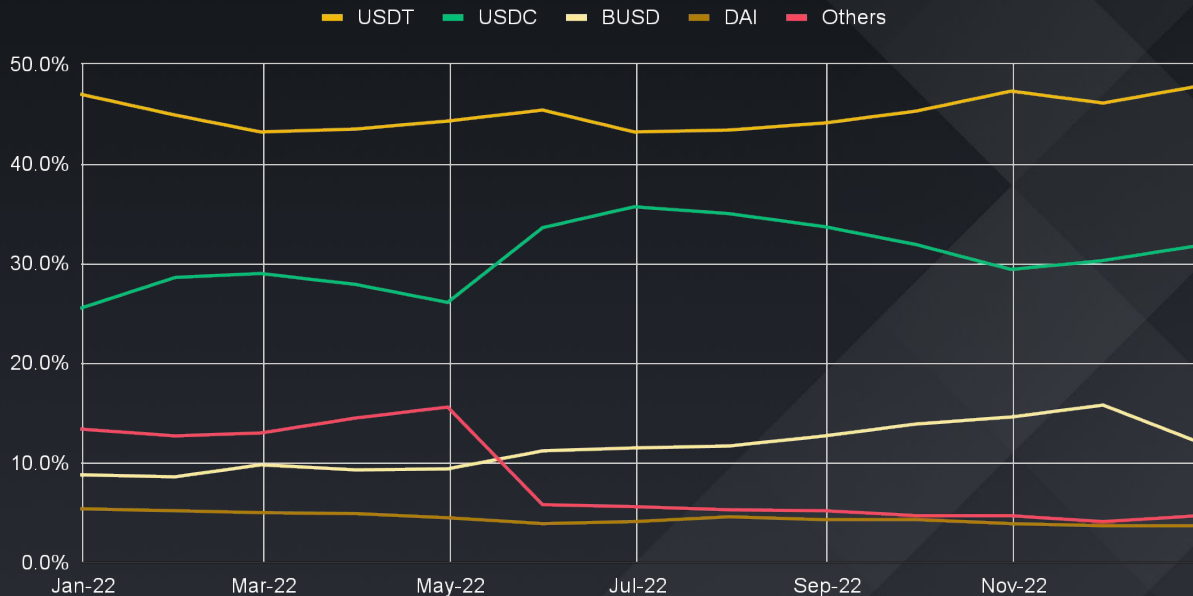
DEX to CEX Ratio (%)

DEX/CEX ratio up ~4.6% (absolute) in Q4

- This has largely coincided with the CEX fallout in November.

- Concerns of a centralized contagion likely contributed to a shift towards DEX alternatives in Q4.

Source: The Block, Binance Research. Data as of 31 Dec 2022.

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Stablecoin Market Share
USDT continues to lead the stablecoin market

Stablecoin Market Share (By Market Cap)

Legend: USDT, USDC, BUSD, DAI, Others

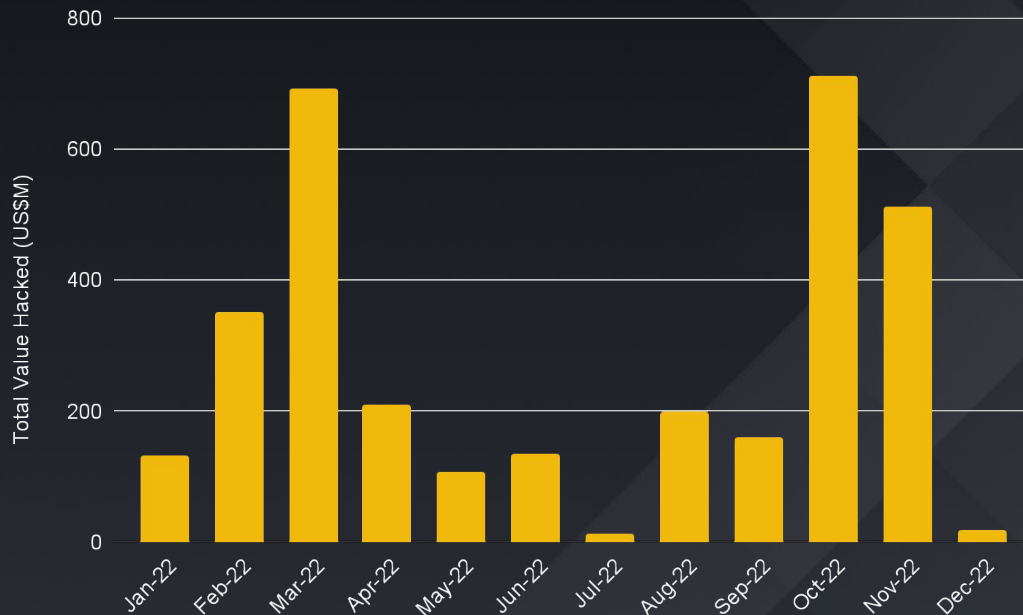Source: DeFi Llama, Binance Research. Data as of 31 Dec 2022.

2022 saw a consolidation of market share among the top stablecoins

- USDT gained +2.5% QoQ in Q4, whereas market share for the rest of the coins declined slightly/remained stagnant QoQ.

- On a full-year basis, USDT, USDC, and BUSD gained market share in 2022. Combined market share of these three coins increased from 81.3% at the end of 2021 to 91.7% at the end of 2022.

Total Funds Lost Due to Hacks

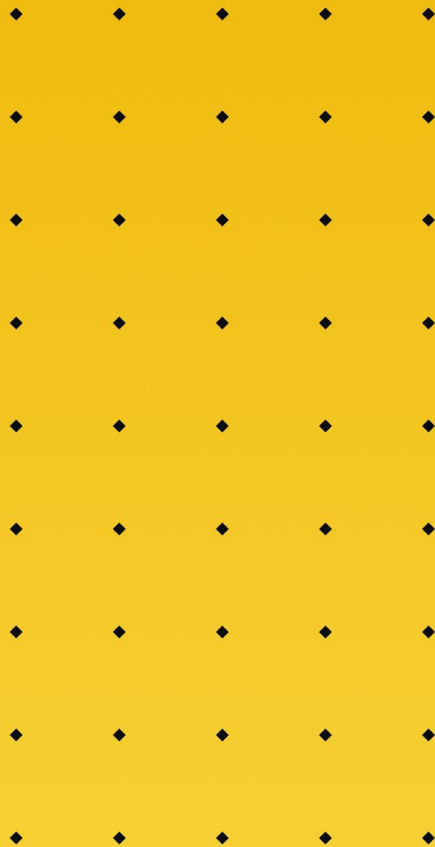## Q4 marked the quarter with the greatest losses of 2022

Total Funds Lost Due to Hacks Across DeFi

Chart: Total Value Hacked (US$M) by month

- Jan-22: ~130
- Feb-22: ~350
- Mar-22: ~695
- Apr-22: ~210
- May-22: ~105
- Jun-22: ~135
- Jul-22: ~10
- Aug-22: ~200
- Sep-22: ~160
- Oct-22: ~710
- Nov-22: ~510
- Dec-22: ~20

Source: DefiLlama, Binance Research. Data as of 31 Dec 2022.

Losses resulting from DeFi hacks totalled ~US$1.2B in Q4

- October was the month with the greatest magnitude of lost funds during 2022.

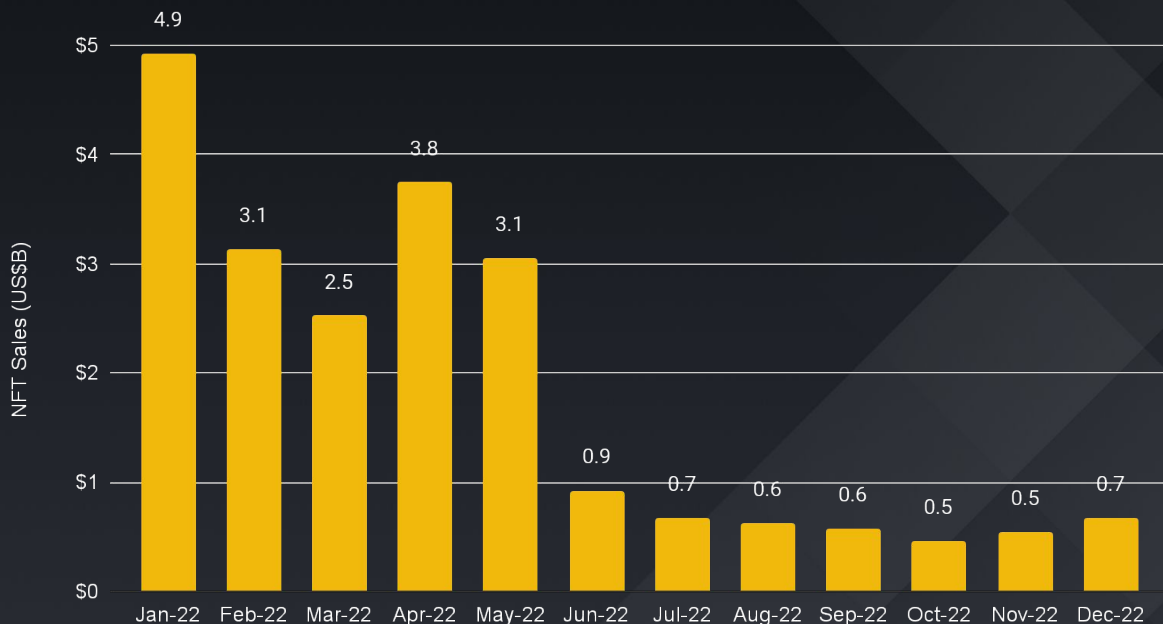- October included multiple notable events such as the Mango Market and the Moola Market exploits.

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NFTs

Total NFT Sales
Sales fell in Q4 but showed signs of stabilization

NFT Sales by Month

NFT Sales (US$B)

Month	Value
Jan-22	4.9
Feb-22	3.1
Mar-22	2.5
Apr-22	3.8
May-22	3.1
Jun-22	0.9
Jul-22	0.7
Aug-22	0.6
Sep-22	0.6
Oct-22	0.5
Nov-22	0.5
Dec-22	0.7

*Source: CryptoSlam, Binance Research. Data as of 31 Dec 2022.*

Q4 sales +17% QoQ

- NFT sales picked up moderately from Oct to Dec and ended the quarter with a ~17% QoQ growth.

- On a full year basis, NFT sales in 2022 increased by >10% vs. 2021, contributed by strong sales in the first half of 2022.

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Number of Unique Buyers
Traders continue to exit the market


Number of Unique Buyers
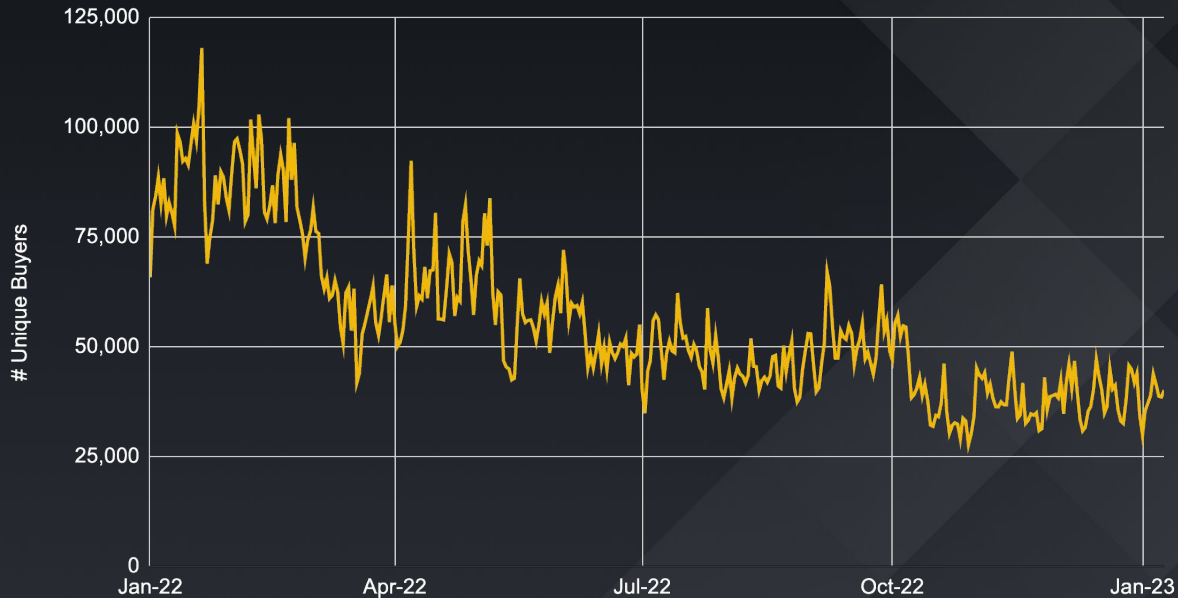
Q4 average number of daily buyers -19% QoQ

- Unique buyers metric has more than halved compared to its high early in the year.

- The overall decline is unsurprising considering market conditions. Traders and investors are less likely to deploy capital further down the risk curve.

Source: CryptoSlam, Binance Research. Data as of 9 Jan 2023.

NFT Sales Volume by Blockchain

Ethereum regains market share at the expense of Solana

NFT Sales by Chain

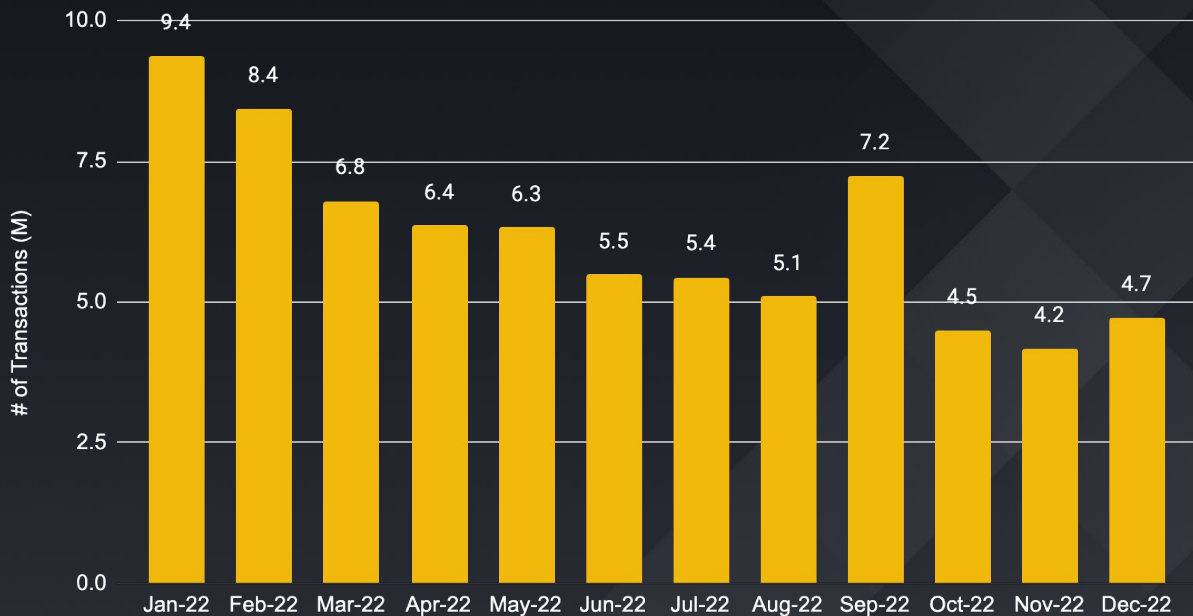Source: CryptoSlam, Binance Research. Data as of 31 Dec 2022.
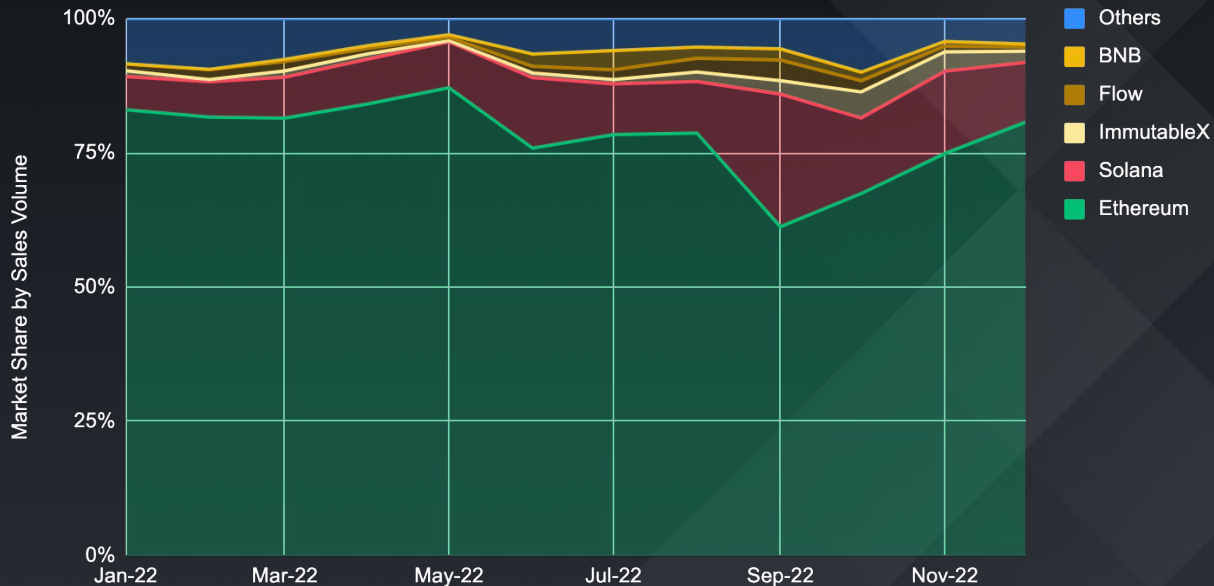
Ethereum +20% market share in Q4

- Ethereum remains the strongest blockchain in terms of NFT sales, with a 81% market share at the end of Q4.

- Following a strong Q3, NFT sales for Solana declined by 14% in Q4, likely contributed by challenges facing the Solana ecosystem.

Total NFT Transactions
Transaction activity remains muted

NFT Number of Transactions by Month

# of Transactions (M)

Month	Value
Jan-22	9.4
Feb-22	8.4
Mar-22	6.8
Apr-22	6.4
May-22	6.3
Jun-22	5.5
Jul-22	5.4
Aug-22	5.1
Sep-22	7.2
Oct-22	4.5
Nov-22	4.2
Dec-22	4.7

Source: CryptoSlam, Binance Research. Data as of 31 Dec 2022.

Q4 Transactions declined -25% QoQ

- Some relief in December as the number of NFT transactions increased by 13% MoM. It remains to be seen if this is the start of a trend reversal.

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NFT-500 Price Index
A relatively subdued Q4 for NFT performance

NFT-500 Price Index

-4% QoQ drop in the NFT-500 index in Q4

- On a full year basis, NFTs fell ~23% in 2022 vs. 2021 in ETH-denominated terms.

- Since its lows in December, the NFT-500 price index has gained ~11% on a year-to-date basis at the time of writing.

Source: Nansen, Binance Research. Data as of 10 Jan 2023.
Note: The Nansen NFT-500 is a broad market index tracking the market activity of NFTs issued on the Ethereum blockchain. Index points can be represented as what US$1000 invested on January 1 would now be worth. This broadly reflect combined market cap (in ETH).

Price Performance by Sectors
Games and Art NFTs did relatively better than other sectors

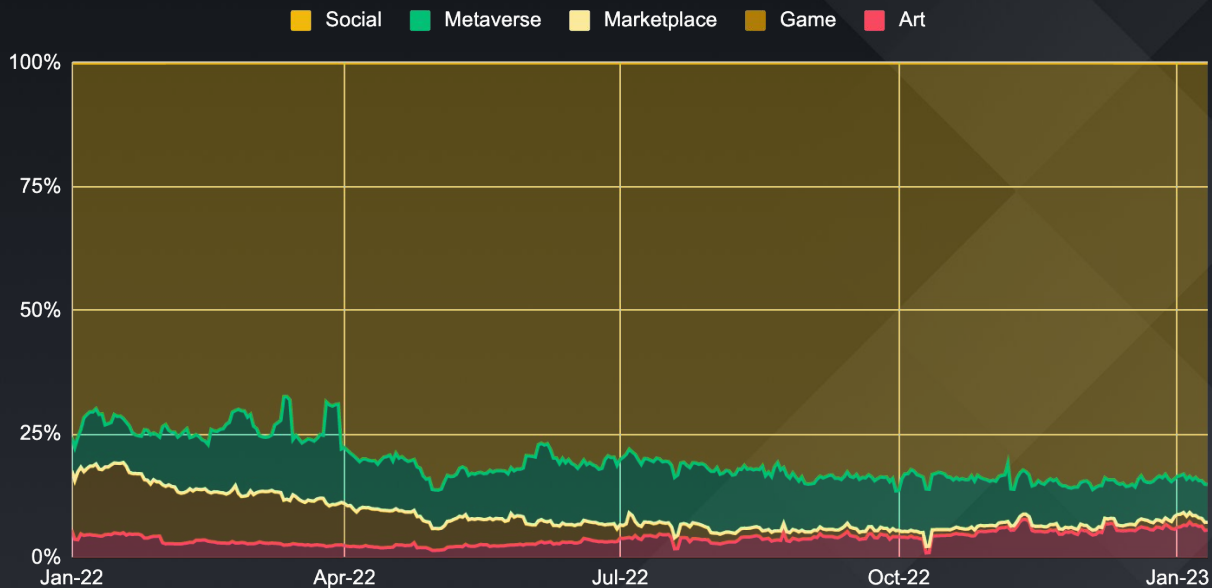### NFT Index QoQ Performance (Q4 2022)
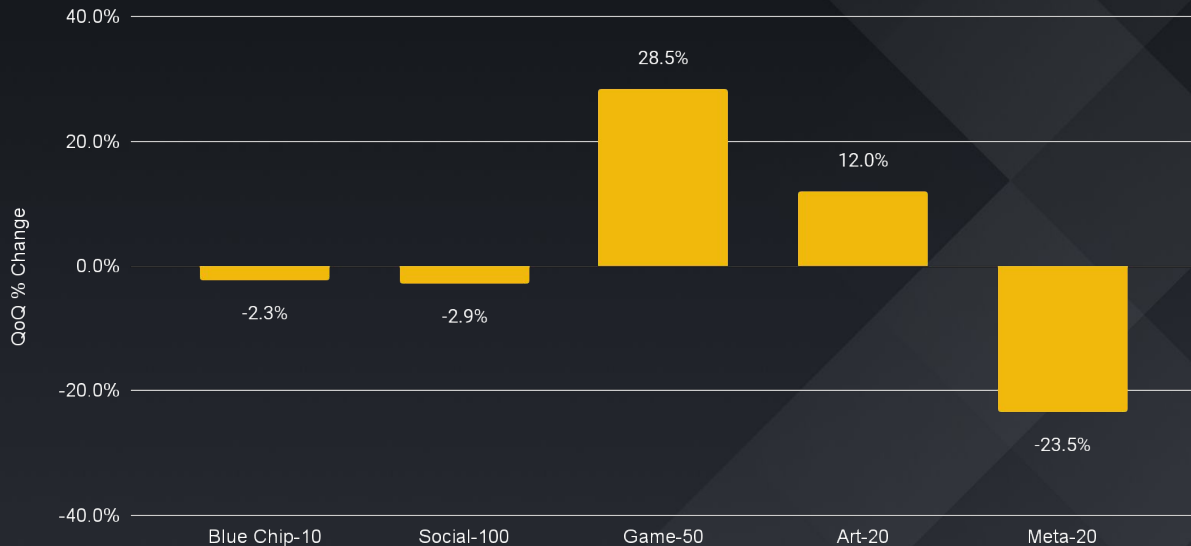
Gaming and Art collections were bright spots in Q4

- GameFi NFTs such as Creepz and generative art collections such as Chromie Squiggle saw higher activity and floor prices in the latter part of Q4.

- Metaverse NFTs continue to underperform for the third consecutive quarter.

Source: Nansen, Binance Research. Data as of 31 Dec 2022.
Note: Blue Chip-10 consists of ten notable and classic NFTs organised by its market capitalization. Social-100 tracks the top 100 Social NFT collections by market capitalization. Gaming-50 index tracks 50 Gaming NFT collections ranked by market capitalization. Art-20 tracks the top 20 art collections by market capitalization. Metaverse-20 index tracks the top 20 Metaverse NFT collections by market capitalization.

NFT Market Share by Category
Social NFTs dominate the NFT market

NFT Market Share Split (By Market Cap)

Legend: ■ Social ■ Metaverse ■ Marketplace ■ Game ■ Art

Source: Nansen, Binance Research. Data as of 11 Jan 2023.
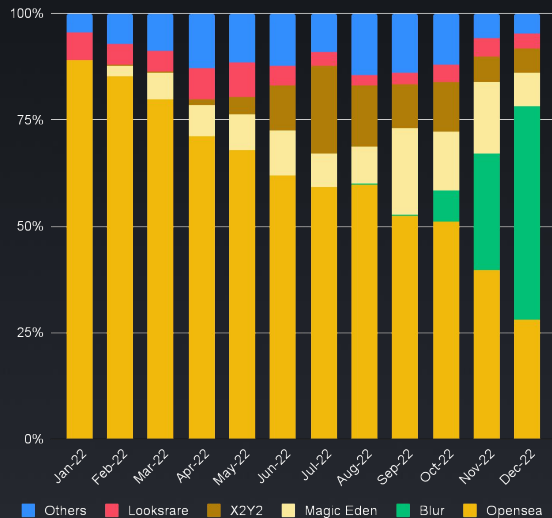Note: Social NFTs include profile pictures, access and membership, utility, and others.

Social NFTs represent the largest category by market capitalization

- Social NFTs enable users to network, interact and socialise. They include profile pictures (e.g. Cryptopunks), membership (e.g. proof-of-attendance), and utility (eg. Ethereum name service).

NFT Marketplaces Market Share
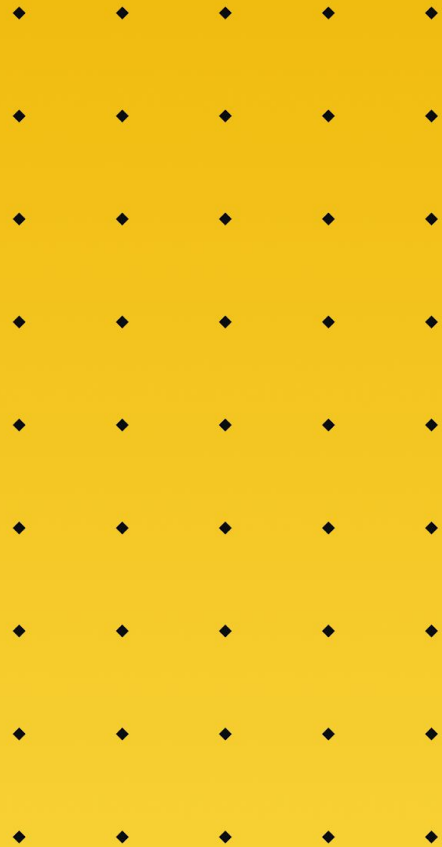## Blur overtook OpenSea in transaction volume

By Volume	By Users

By Volume

100%

75%

50%

25%

0%

Jan-22 Feb-22 Mar-22 Apr-22 May-22 Jun-22 Jul-22 Aug-22 Sep-22 Oct-22 Nov-22 Dec-22

■ Others ■ Looksrare ■ X2Y2 ■ Magic Eden ■ Blur ■ Opensea

By Users

X2Y2
2.9%

Looksrare
2.9%

Blur
6.7%

Magic Eden
24.0%
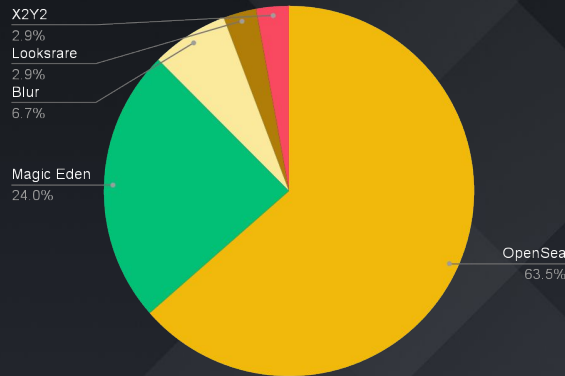
OpenSea
63.5%

New entrant, Blur, rose to the top in terms of volume

- Blur's volume growth was driven by upcoming token airdrop. It remains to be seen if they will be able to hold on to the top spot.

- Looking at user metrics in the form of unique active wallets, OpenSea remained the top NFT marketplace by a large margin in December 2022.
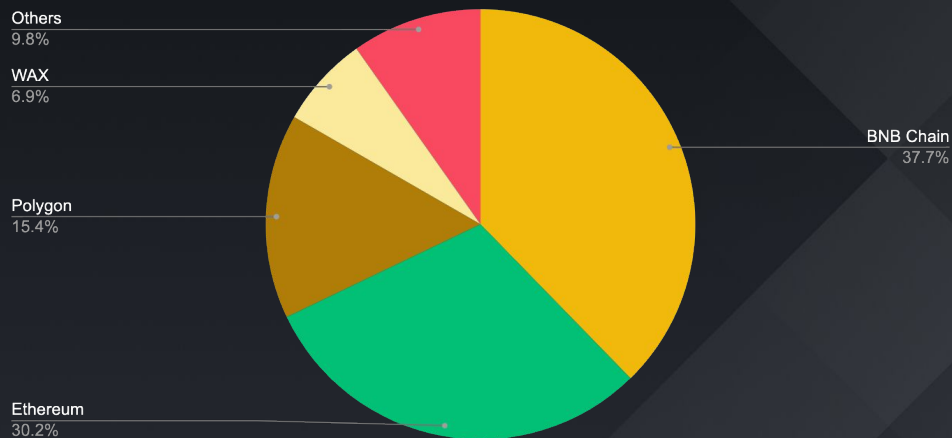
GameFi

Games by Chain

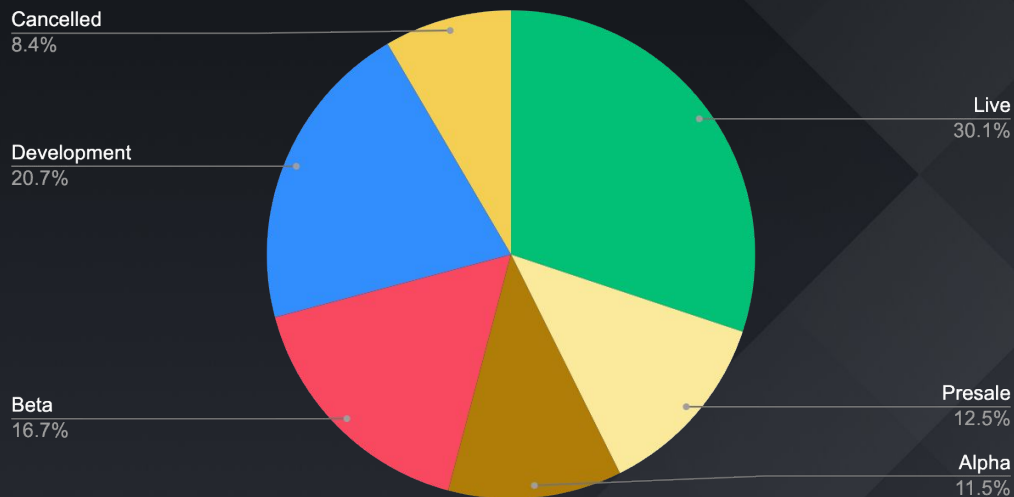## BNB Chain leads with the greatest number of games

Web3 Games by Chain

Others
9.8%

WAX
6.9%

Polygon
15.4%

Ethereum
30.2%

BNB Chain
37.7%

The gaming landscape is led by the top three players

- BNB Chain, Ethereum, and Polygon account for more than 80% of all games.

Source: Footprint Analytics, Binance Research. Data as of 11 Jan 2023.

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Games by Status

GameFi is still in its early days

- Cancelled 8.4%
- Development 20.7%
- Beta 16.7%
- Live 30.1%
- Presale 12.5%
- Alpha 11.5%

With only ~30% of games live, most games are still under development

- Only a small percentage of projects have been cancelled and there are many projects in Development, Beta, or Alpha stages.

Source: PlaytoEarn.net, Binance Research. Data as of 11 Jan 2023.

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Games by Device
Most blockchain games are on Web and Mobile

Web3 Games by Device
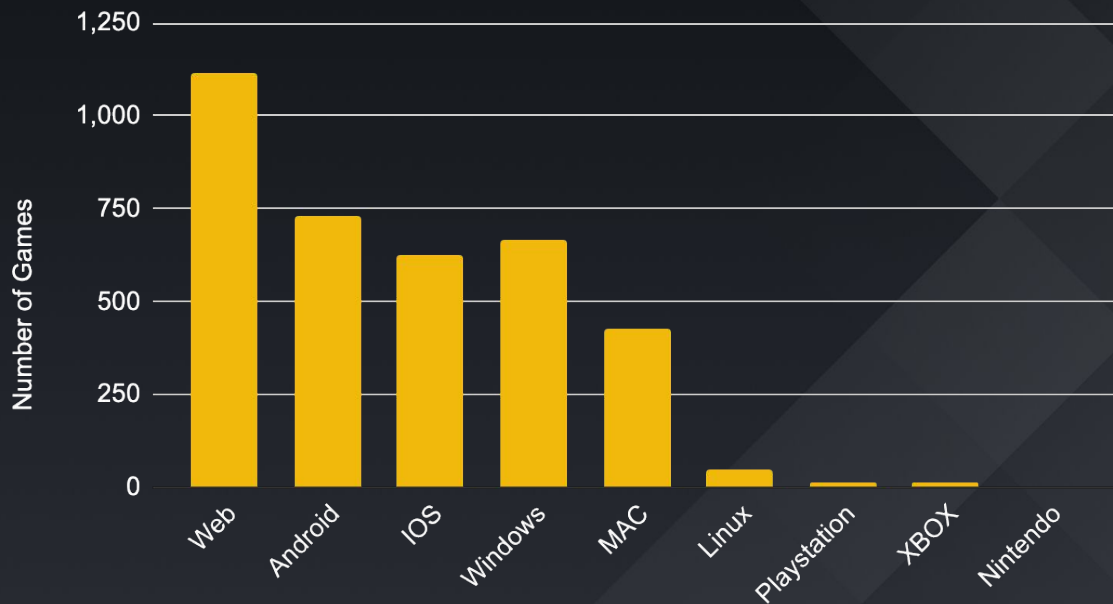
As of now, web-based and mobile games are head-to-head

- Mobile games (Android + iOS) are leading by a small margin. Considering a large mobile gaming market in Asia and high crypto adoption for the region, we are not surprised.

- Console games are clearly lagging behind.

Source: PlaytoEarn.net, Binance Research. Data as of 11 Jan 2023.

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Games by Genre
Entertainment across the board

Web3 Games by Genre
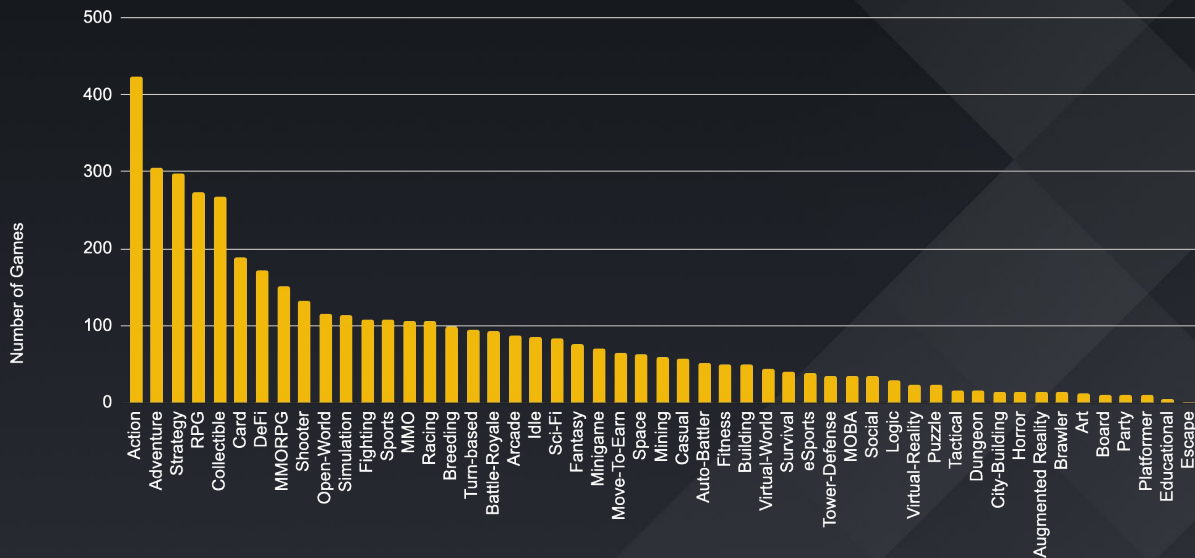
Action-oriented games are leading

- Action, Adventure, and Strategy are the categories with the greatest number of games, possibly indicating that developers see these verticals with the most potential.

- Educational and Escape games lag behind.

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Top 5 Games by Active Users in Past 30 Days
Alien Worlds holds top spot

Games by Active Users (Last 30 Days)
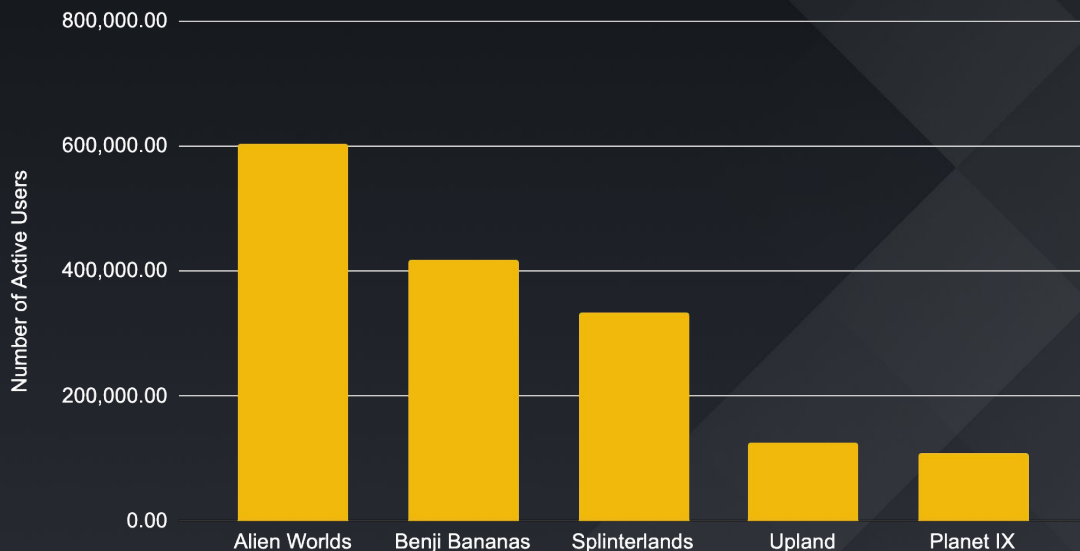
Alien Worlds led in terms of past 30 days users

- Alien Worlds is an NFT Metaverse that is available on WAX, Ethereum, and BNB Chain. The metaversal currency (Trilium) incentivises explorers to play games and must be staked by users to participate in governance.

Source: Dappradar.com, Binance Research. Data as of 11 Jan 2023.

Top 5 Games by Market Cap in Past 30 Days
The Otherside maintains its leadership position

Games by Market Cap (Last 30 Days)
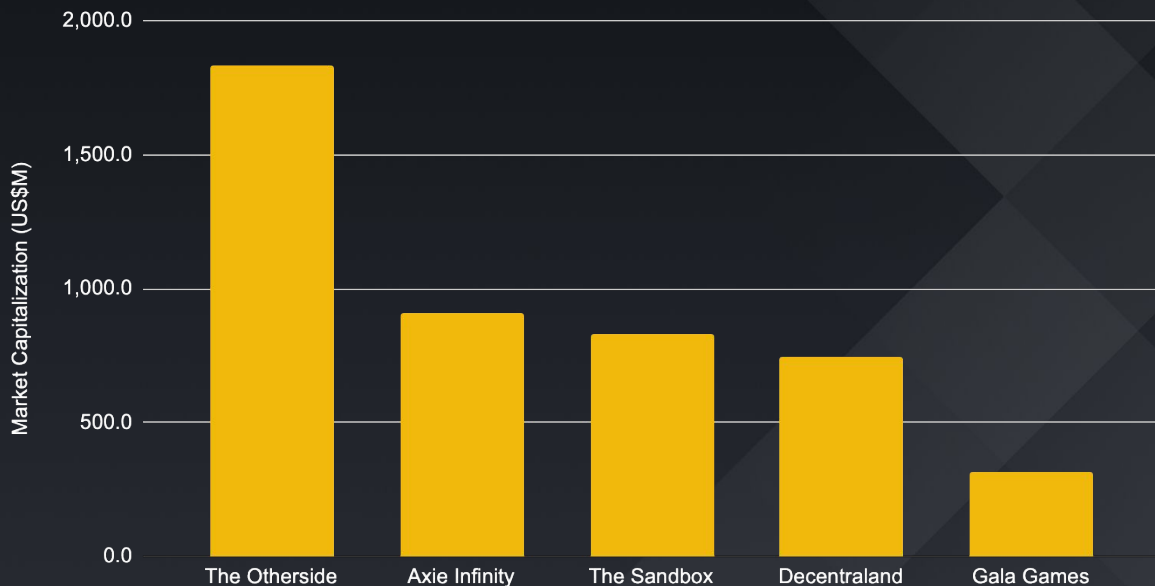
Metaverse projects stand out

- Out of the top 5 games by market cap, 3 are Metaverse-related projects.

Source: DeGame, Binance Research. Data as of 11 Jan 2023.

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About Binance Research

Binance Research is the research arm of Binance, the world's leading cryptocurrency exchange. The team is committed to delivering objective, independent, and comprehensive analysis and aims to be the thought leader in the crypto space. Our analysts publish insightful thought pieces regularly on topics related but not limited to, the crypto ecosystem, blockchain technologies, and the latest market themes.

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Contributors

JieXuan Chua, CFA

Jie Xuan ("JX") is currently working for Binance as Macro Researcher. Prior to joining Binance, he worked as a Global Investment Specialist with J.P. Morgan and had prior Equity Research experiences at various fund houses.

JX is a CFA charterholder. He has been involved in the cryptocurrency space since 2017.

Shivam Sharma

Shivam is currently working for Binance as Macro Researcher. Prior to joining Binance, he worked as an Investment Banking Associate / Analyst at Bank of America on the Debt Capital Markets desk, specializing in European Financial Institutions.

Shivam holds a BSc Economics degree from the London School of Economics & Political Science ("LSE") and has been involved in the cryptocurrency space since 2017.

Kaushik Guduru

Kaushik is an intern on the Macro Research team. Prior to joining Binance, he worked for Messari on their Enterprise Research team and for Curve Asset Management as a Fixed Income Quantitative Specialist. He also has experience in the Web3 venture capital and incubation space.

Kaushik is currently a student at Indiana University, where he is studying Finance and Political Science.

Mac Naggar

Mac is an intern on the Macro Research team. Prior to joining Binance, he worked as a Web3 Product Manager for HSBC's Global Ventures, Innovation, and Partnerships team. Additionally, Mac has had experience on the trading side, spending time with Morgan Stanley's Fixed Income Division, Algorand's Capital Markets Team, and CrossTower's Digital Assets Trading Desk.

Mac is currently a student at Cornell University, where he is studying Industrial Labor Relations, CompSci, and Business.

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