



2021-Q3

QUARTERLY INDUSTRY REPORT

KuCoin Labs Quarterly report

2021.7 - 2021.9

Table of Content

	INFRASTRUCTURE DEVELOPMENT	P.01
1.1	Background	P.01
1.1.1	- Blockchain architecture	P.01
1.1.2	- Current situation of Ethereum	P.01 - P.03
1.1.3	- Overview of Layer 2 scaling technologies	P.04 - P.05
1.2	Analysis of Optimistic Rollup projects in Q3	P.05
1.2.1	- Optimism	P.05 - P.06
1.2.2	- Integrated projects	P.06 - P.07
1.2.3	- Market performance	P.08 - P.09
1.3	Arbitrum	P.09
1.3.1	- Integrated projects	P.10
1.3.2	- Arbitrum ecosystem	P.11
1.3.3	- Market performance	P.11 - P.12
1.4	Market performance of Layer 2 scaling technologies	P.13 - P.14
1.4.1	- Alternative scaling solution: Polygon	P.14 - P.15
1.4.2	- Market performance	P.15 - P.17
1.4.3	- Performance of the Polygon Ecosystem	P.18 - P.19
1.5	Current situations of cross-chain protocols released by major ecosystems	P.19-P21
1.6	Metaverse and its future technical support	P.22
1.6.1	- Influence of Metadata on the Metaverse	P.22 - P.23
1.6.2	- Significance of VR, AR, and AI for the Metaverse	P.23 - P.25
1.7	Influence of infrastructure on the market	P.25
	NFT AND METAVERSE	P.26
2.1	Overview of NFT in Q3 2021	P.26 - P.27
2.2	Overview of NFT market data	P.27 - P.30

2.2.1	- NFT art	P.30 - P.31
2.2.2	- NFT collectibles	P.31
2.2.3	- NFT games	P.32
2.2.4	- NFT trading markets	P.32
2.3	Loot, a driver of NFT frenzy	P.33
2.3.1	- What is Loot?	P.33 - P.35
2.3.2	- Why is Loot so popular?	P.35 - P.37
2.3.3	- Loot future	P.38

DEVELOPMENT OF METAVERSE

P.39

3.1	ROBLOX- the first Metaverse stock	P.40
3.1.1	- What is Roblox?	P.40 - P.41
3.1.2	- Roblox performance data	P.41 - P.45
3.1.3	- Roblox summary	P.45
3.2	Rise of good mining trade union, Yield Guild Games (YGG)	P.46
3.2.1	- Yield Guild Games (YGG)	P.46 - P.47
3.2.2	- Significance of gaming guild to the Metaverse	P.47 - P.48
3.3	Attention of the Capital Market to the Metaverse	P.48 - P.51
3.4	Summary	P.51 - P.52

ANY-FI

P.53

4.1	Overall DeFi market	P.53
4.1.1	- TVL	P.53 - P.54
4.1.2	- Borrowing volume	P.54 - P.56
4.1.3	- Performance of DEX	P.56 - P.57
4.1.4	- Performance of stablecoins	P.57 - P.58
4.1.5	- Performance of derivatives	P.59
4.1.6	- Summary of DeFi	P.60
4.2	Gamefi	P.60
4.2.1	- Development and P2E model	P.60 - P.61
4.2.2	- Leading GameFi projects	P.61 - P.66
4.2.3	- Summary of GameFi	P.67 - P.68
4.3	SocialFi	P.68
4.3.1	- Development process	P.68
4.3.2	- Discovery and capture of SocialFi value	P.68 - P.69
4.3.3	- SocialFi ecological track	P.69 - P.75
4.3.4	- Summary of SocialFi	P.75 - P.76
4.4	Summary	P.76

BLOCKCHAIN INDUSTRY USERS

P.77

5.1	Metaverse/NFT users in Q3	P.77
5.1.1	- NFT users	P.77 - P.79
5.2	Fi-related users in Q3	P.79
5.2.1	- DeFi users	P.79 - P.80
5.2.2	- CEX and DEX users	P.81 - P.82
5.2.3	- GameFi users	P.83
5.2.4	- SocialFi users	P.83 - P.84
5.3	User-based summary	P.85

REGULATION

P.86

6.1	U.S. policies	P.86
6.1.1	- SEC's review on the legality of BTC ETF	P.86 - P.87
6.1.2	- SEC's investigation into Uniswap Labs	P.87
6.2	European policies	P.87 - P.88
6.2.1	- Anti-terrorism/anti-money laundering	P.88
6.2.2	- Tax regulation	P.88 - P.89
6.3	China's policies in Q3	P.89
6.3.1	- Regulation on mining	P.89 - P.90
6.3.2	- Regulation on virtual currency speculation	P.90 - P.91
6.4	Adoption of Bitcoin in El Salvador	P.91 - P.92
6.5	Binance and international regulation	P.92 - P.93

2021 Q3 INDUSTRY SUMMARY

P.94

Table of Content

1.

Infrastructure Development

- ① Background
- ② Analysis of Optimistic Rollup projects in Q3
- ③ Arbitrum
- ④ Market performance of Layer 2 scaling technologies
- ⑤ Current situations of cross-chain protocols released by major ecosystems
- ⑥ Metaverse and its future technical support
- ⑦ Influence of infrastructure on the market

Infrastructure Development

① Background

Before the enthusiasm aroused by DeFi in the summer of 2020 faded, non-fungible token (NFT) and GameFi brought a new wave of enthusiasm in Q3 of 2021. The active cryptocurrency market attracted a large number of new users, who brought surging demands for hosting contracts on Ethereum. As a result, the Ethereum gas price soared. The EIP-1559 protocol introduced in August makes the transaction fees payable by users more reasonable, but it is not a permanent cure. As the gas price varies depending on the supply and demand in the market, the ultimate solution is to expand the Ethereum network to alleviate congestion on the Layer 1 network. Although there are still two milestones to achieve before the official launch of Ethereum 2.0, the newly released Layer 2 scaling solutions like Optimism and Arbitrum have brought new vitality and innovations to the cryptocurrency industry.

1.1.1 Blockchain architecture

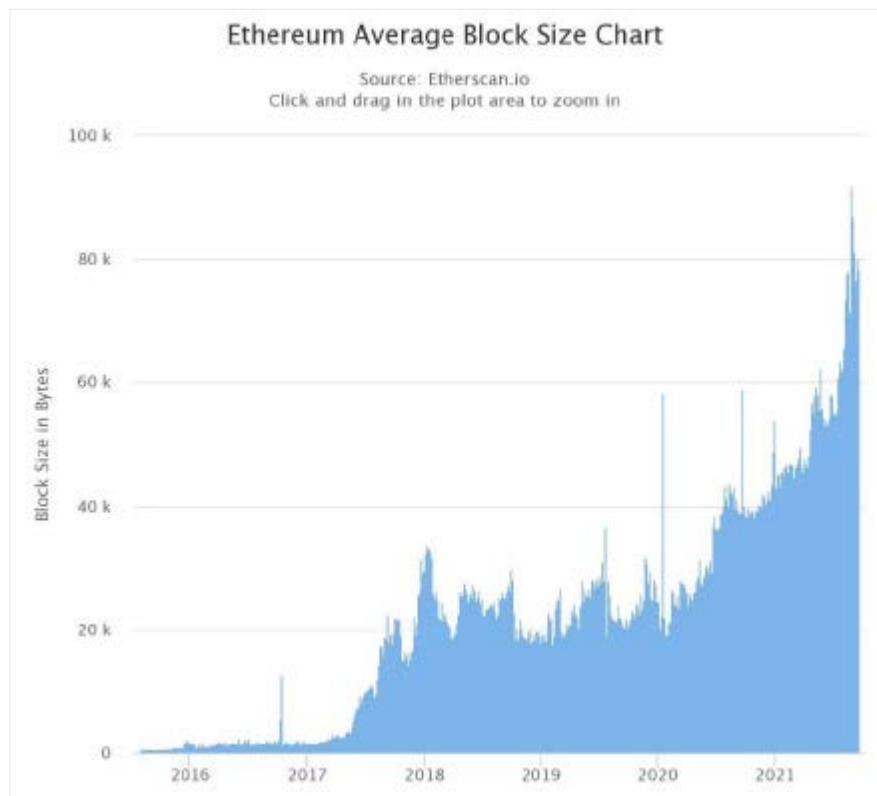
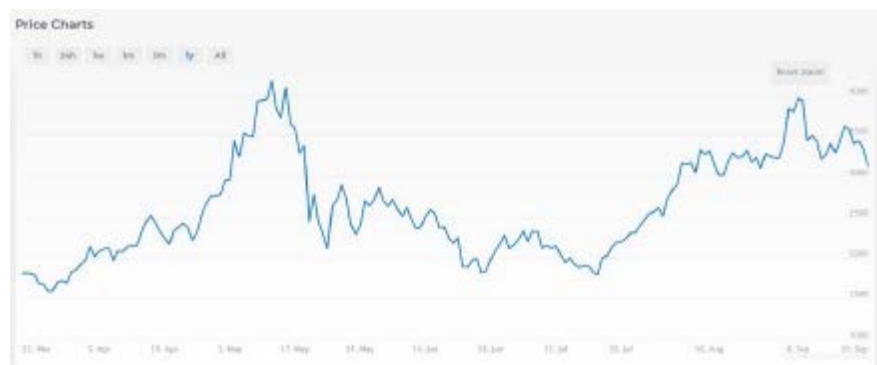
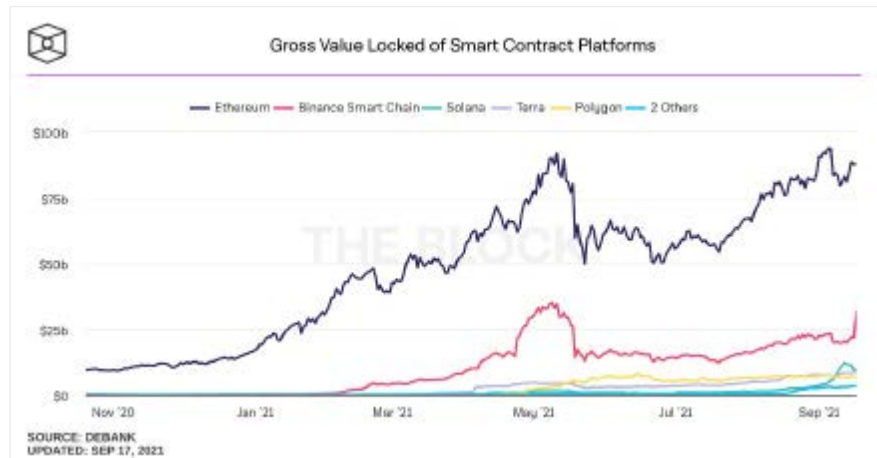
Generally, the blockchain architecture is divided into Layer 0, Layer 1, and Layer 2 based on the Open System Interconnection (OSI) model for computer communication networks. Layer 0 runs the underlying protocols defined in the OSI model and covers the physical layer, data link layer, network layer, and transport layer. Layer 1 runs the upper-layer protocols defined in the OSI model and covers the data layer, network layer, consensus layer, and actuator Layer, which are specific to the blockchain. Layer 2 does not affect the rules and consensus mechanisms on Layer 1. It matches the contract layer and application layer in the OSI model and can run independently. The three layers play different roles. Layer 1 ensures the security and decentralization of the blockchain. Layer 2 handles computational loads for Layer 1 as its external storage, and transfers valuable data to Layer 1 for efficient transaction processing.

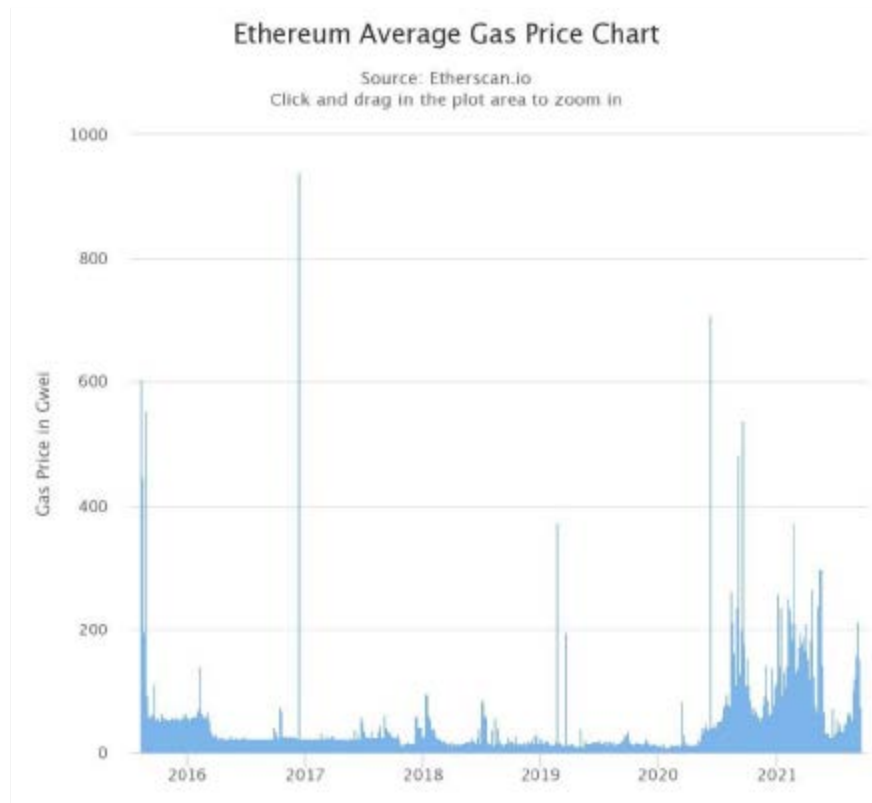
1.1.2 Current situation of Ethereum

Currently, Ethereum runs a large number of smart contracts and decentralized applications (DApps). It ranks first among all public blockchain projects by the total value locked (TVL), accounting for 72.2% of the total. Despite the significant decline in Q2 of 2021, the TVL of Ethereum rebounded at a surprising speed in Q3, leading to a surge in the Ethereum gas price following a similar trend. As of September 15, 2021, the Ethereum gas price increased by 59% compared with the end of Q2, 2021.

The rising demand inevitably brought great pressure to blocks of Ethereum. From June 30 to September 15, the average block size on the Ethereum network increased by 41%, and reached the peak of Q3 on August 24. It is worth noting that the average block size did not change significantly after the EIP-1559 protocol was introduced to Ethereum on August 5.

Meanwhile, the average gas price on Ethereum fluctuated similarly to Q2. As of September 15, the gas price surged to 75.05 ETH (75 Gwei, 1 Gwei = 10⁻⁹ ETH), up 135% compared with the end of Q2. During this period, the gas price reached a peak of 214 ETH on September 7. The EIP-1559 protocol designed to improve the pricing mechanism seems to have little influence on the gas price. After it was put into use on August 5, the gas price was still rising. The high transaction cost proved that the busy transactions on the Ethereum network led to an extremely high demand of users for Ethereum block space.





Of course, players in the industry have started to discuss the Ethereum block scaling solutions long ago, including Layer 1 scaling and Layer 2 scaling. Layer 1 scaling, also known as on-chain scaling, directly changes the native state of Ethereum, including the block size and consensus mechanism of blockchain. The Beacon Chain released in December 2020 is an important milestone during the evolution of Ethereum from 1.0 to 2.0. As a core component of Ethereum 2.0, the Beacon Chain implements a brand-new consensus mechanism: proof of stake (PoS).

However, no one knows whether Ethereum 2.0 will have new performance issues. Endless innovations in the blockchain industry have driven the players to develop Layer 2 scaling solutions continuously since 2018. Layer 2 scaling provides a new method to expand the block space: migrating computational tasks for a large number of transactions on the main chain to Layer 2, and then sending valuable results back to Layer 1. This method not only mitigates congestion on the public chain and improves its efficiency, but also ensures the storage and notarization of information. DApps and game marketplaces deployed on the Ethereum public chain are becoming increasingly popular. However, the rising transaction fees degrade the user experience and discourage new users. The urgent need for a larger capacity makes Layer 2 scaling particularly necessary.

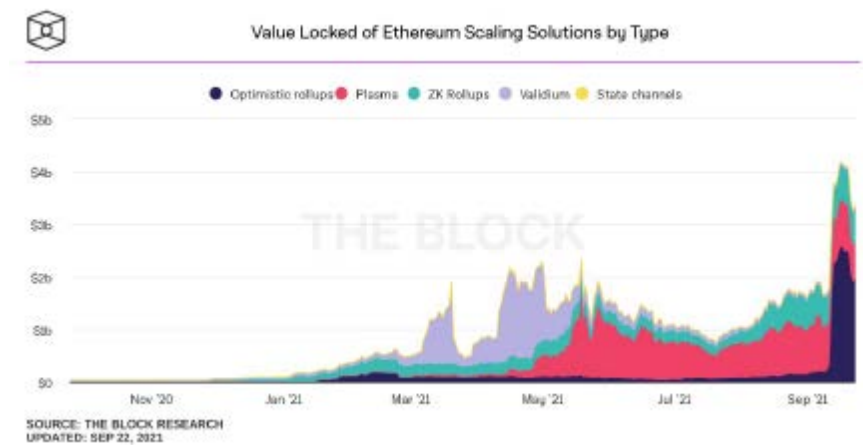
1.1.3 Overview of Layer 2 scaling technologies

At present, the most popular scaling technologies include sidechain, state channel, Plasma, Validium, and Rollup.

Scaling Technology	Feature	Advantage	Disadvantage	Representative Projects
Sidechain	Off-chain data	Simple implementation Low service charge High scalability	Low security Low decentralization level	Rootstock
State channel	Off-chain data	Very low service charge High scalability	Fewer users, low capital efficiency, low system security, and limited applications	Raiden Network Celer Network Connext
Plasma	Off-chain data Fraud proof	High security Quick operation Low service charge Flexible control of the user count	Transaction reversal not allowed on the main chain Long challenge period before withdrawals of funds Need for periodic network inspection	OMG Network Matic Network Gazelle LeapDAO
Optimistic Rollup	On-chain data Fraud proof	High compatibility High security	Low validation efficiency and long waiting time Transaction handling order changeable by "operators"	Optimism Arbitrum Fuel Network Cartesi
ZK Rollup	On-chain data Zero knowledge proof	High security High decentralization level Quick transaction handling Zero waiting time	Lack of EVM compatibility in some projects High computational loads	Loopring Starkware Matter Labs zkSync Hermes Network
Validium	Off-chain data Zero knowledge proof	<i>Source: DuneAnalytics</i> No delay in transactions High capital efficiency	Low scalability High computational loads and low cost effectiveness No security guarantee for the main chain	Matter Labs zkPorter

Advantages and disadvantages of Layer 2 scaling technologies
Source: ethereum.org, KuCoin Labs

It can be easily found from the changes in value locked of Ethereum scaling solutions that the state channel technology has lost its market share and been eliminated from the market. Validium has been phased out since Plasma showed a strong momentum of growth in May 2021. The momentum of Plasma was maintained for four months till September 2021, when the first place on the value locked ranking list was taken by Optimistic Rollup. Now, only Optimistic Rollup, Plasma, and ZK Rollup have large market shares.

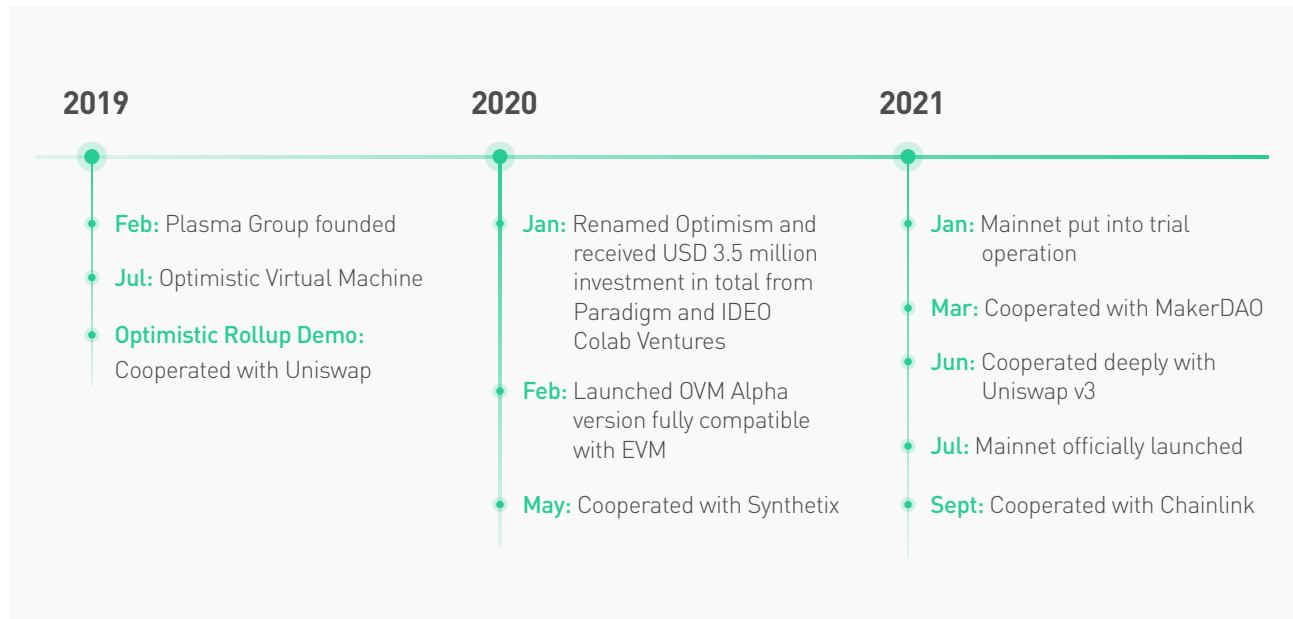


Many DApps have been migrated to Optimistic Rollup chains for the good compatibility with Ethereum Virtual Machine (EVM), ease of development, and high security. As a solution used to scale general smart contracts, Optimistic Rollup is undoubtedly the most well-known scaling technology at present.

② Analysis of Optimistic Rollup projects in Q3

1.2.1 Optimism

Optimism, formerly known as the Plasma Group, is a team engaged in the research of Ethereum scaling and is the first proposer of the Optimistic Rollup technology. The team was renamed Optimism in early 2020. The Optimistic Rollup technology links the Ethereum main chain and Layer 2 through the smart contract rollups deployed on the Ethereum network. The main chain stores transaction data and sends the data to Layer 2 for computation through the rollups. The computation results are then returned to the main chain.



Important milestones of Optimism
 Source: Optimism Medium, summarized by KuCoin Labs

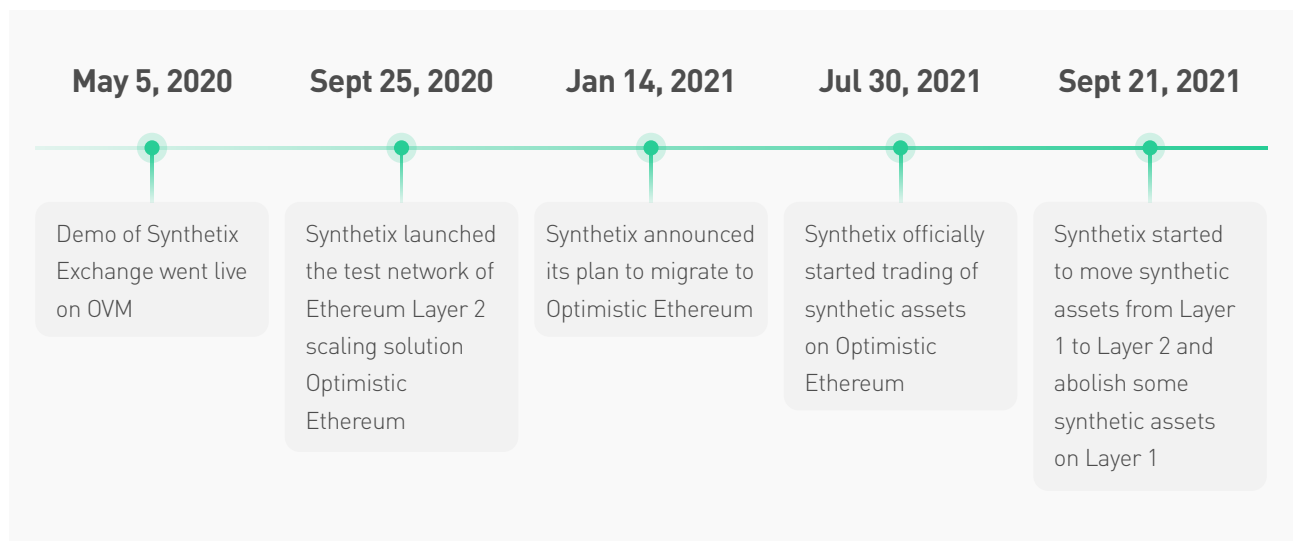
The Optimism team wants to establish smart contracts that allow for instant transactions and scaling on Ethereum. Its scaling solution achieves this goal by establishing an Optimistic Virtual Machine (OVM). OVM is an EVM-compatible runtime environment that replaces transaction-related EVM opcodes with OVM opcodes to perfectly simulate rollup chains and the Ethereum main chain.

1.2.1.1 Integrated projects

Multiple leading projects in different sectors have established strategic cooperation with Optimism and deployed their smart contracts on Optimism, including Synthetix, Compound, Uniswap v3, Chainlink, and MakerDAO.

Synthetix

Synthetix is an Ethereum-based protocol for the issuance of synthetic assets (Synths), which can be regarded as derivatives. Synths track prices of the underlying assets without requiring the users to directly hold the assets. Synthetix is a smart contract more complex than other standard protocols. Therefore, Synthetix depends on a high-security scaling technology to migrate assets to Layer 2 and requires high compatibility of this technology. The timeline of the cooperation between Synthetix and Optimism is shown in the following figure.



Source: Information collected and summarized by KuCoin Labs

Uniswap v3

Uniswap has become one of the largest decentralized exchanges, with its market capitalization reaching USD 18 billion in no more than three years. Uniswap started the cooperation with Optimism in as early as October 2019, when it released Unipig, a demo of Uniswap on Ethereum Layer 2. The only disadvantage of this demo was that it was customized based only on Uniswap and could not be applied to other Ethereum smart contracts. Based on the Optimistic Rollup technology, this demo has shortened the waiting time by 36,346 minutes and reduced the gas price by 33.2304 ETH.

On July 13, 2021, Uniswap announced on its official website that it would launch the Alpha version of Uniswap v3 on the Optimistic Ethereum mainnet and make it accessible to all users. In the Alpha version, Optimistic Ethereum supports an initial throughput of 0.6 TPS.

MakerDAO

In the decentralized finance ecosystem, the first decentralized stablecoin DAI generated by Maker is not only a currency used in exchanges, but also a stable payment tool used on many DApps by default. DAI is popular for the convenience of use, high security, and low cost of transfer. As the demand for DAI increases continuously, DAI may lose its advantages if MakerDAO does not take any scaling measure. Optimism is the only Layer 2 scaling solution recognized by the MakerDAO community.

On March 9, 2021, MakerDAO announced that it would launch an "official" DAI on Optimism Layer 2. The Optimism DAI Bridge will drastically reduce the time needed for a withdrawal of DAI, and allow locking up Layer 1 DAI to mint Layer 2 oDAI. When a user sends a withdrawal command, oDAI can be burned in exchange for near-instant access to Layer 1 DAI. This technology allows users to escape the one-week lockup period required on Optimism for the fraud proof mechanism. Therefore, the Maker protocol shortens the lockup period and allows instant withdrawals of DAI. MakerDAO has officially launched the Optimism DAI Bridge in July 2021.

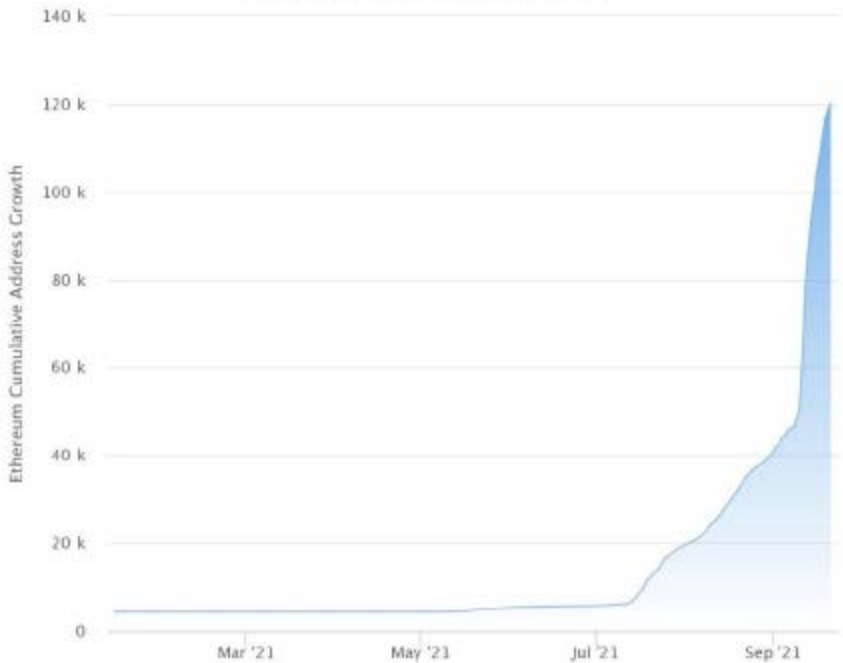
1.2.1.2 Market performance

Since the official launch of the mainnet in July 2021, the number of user addresses on the Optimism Ethereum chain has increased from 8,000 to 120,000, surging 1,323%. The growth rate after early September is even greater than that from July to September, which reflects the urgent need for the Optimism scaling solution in the market.

The transaction volume of integrated projects deployed on Optimism shows a similar trend to the number of addresses on the chain. From July 16 to September 21, the number of daily transactions increased by 980%, with an average of 30,746. The number reached a peak of 89,593 on September 12.

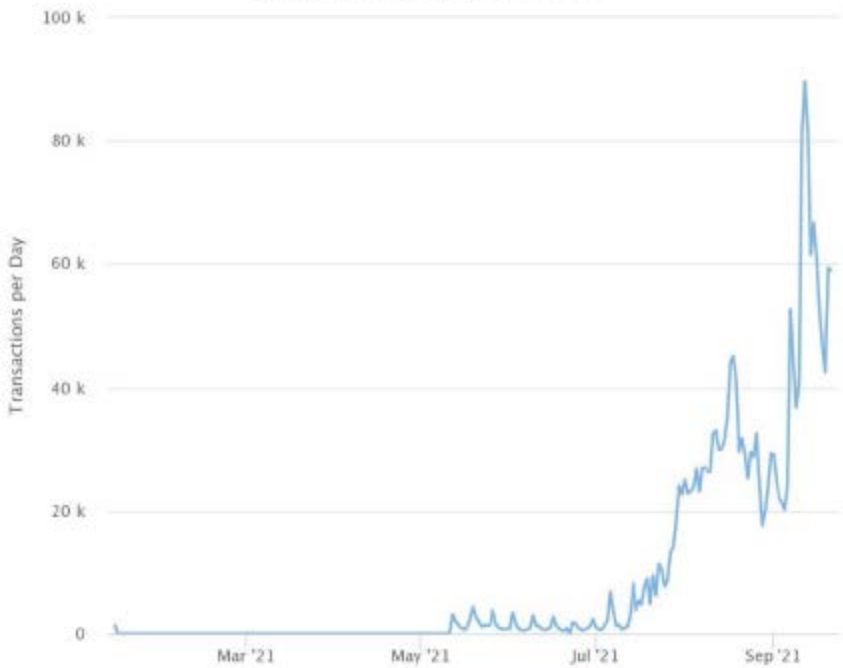
Ethereum Unique Addresses Chart

Source: optimistic.etherscan.io
Click and drag in the plot area to zoom in








Optimistic Ethereum Daily Transactions Chart

Source: optimistic.etherscan.io
Click and drag in the plot area to zoom in



Although the integrated projects have been running for only a few months, the Optimism scaling solution has helped these projects reduce gas fees significantly. This can be seen most obviously from Synthetix. In the beta version, its gas fee was reduced 143-fold, and the average time taken for transaction confirmation was 0.3 seconds. After the launch of the official Optimism version, the gas fee was reduced 44.4-fold. Regarding Uniswap, its gas fee was reduced 10- to 100-fold in the beta version, and the average time taken for transaction confirmation was 169 milliseconds. The official version reduced its gas fee 10.2-fold, similar to the beta version. The gas fees of Chainlink, MakerDAO, and Compound were reduced 10.8-fold, 14.5-fold, and 21.2-fold, respectively.

	 Chainlink	 UNISWAP		 MAKER	
Gas fee: Layer 1	126,374	144,278	512,365	197,251	244,475
Gas fee: Optimism	11,706	14,136	11,550	13,566	11,514
Saving	10.8x	10.2x	44.4x	14.5x	21.2x

Source: <https://optimism.io/gas-comparison>, as of 14:30, September 22, 2021

③ Arbitrum

Arbitrum is a Layer 2 scaling solution developed by Offchain Labs based on Optimistic Rollup. This solution has four elements: smart contract (EthBridge), Arbitrum Virtual Machine (AVM), ArbOS (Layer 2 network operating system), and asset bridge. Like Optimism, Arbitrum uses Optimistic Rollup technology to scale Layer 2 and is based on the fraud proof mechanism. The major difference between the two solutions lies in the implementation of the fraud proof mechanism.

Optimism features single-round fraud proofs. If a challenger initiates a challenge, the whole transaction in question will run on EVM. Therefore, Optimism settles disputes in a simpler way but is more dependent on EVM. In addition, a waste of resources may occur during the settlement process. Arbitrum, by contrast, uses a recursive dichotomy algorithm to implement multi-found fraud proofs. The validator and challenger interact with each other to narrow down the dispute, until the first opcode of the disputed block is found. The opcode is then sent to EVM for final validation. Although Arbitrum consumes more time than Optimism to handle a disputed transaction, it uses EVM more efficiently, because EVM only needs to process the opcode submitted, instead of the whole transaction to be processed on Optimism. Therefore, the gas fee of Arbitrum is lower than that of Optimism.

1.3.1 Integrated projects

Before the official launch of Arbitrum One, more than 250 projects had applied to join the Arbitrum ecosystem in June. Some of these projects are leading DeFi projects and wallet providers, including Uniswap, MCDEX, Sushiswap, DODO, and Metamask.

Representative DeFi Project	Disadvantage	Time
MCDEX	MCDEX is a decentralized crypto derivatives exchange and the first project to adopt the Arbitrum scaling solution.	The project was deployed on the test network in 2020. MCDEX V3 was officially launched on the Arbitrum mainnet on September 1, 2021.
Sushiswap	Same as Uniswap, Sushiswap is a decentralized exchange, which leverages the automated market making mechanism and pays out 0.25% swap fees to liquidity providers.	Sushiswap announced its move to the Arbitrum platform on May 23, 2021. It went live on the Arbitrum mainnet on September 1, 2021.
DODO	DODO is a decentralized exchange powered by the Proactive Market Maker (PMM) algorithm. It improves the capital efficiency and supports the liquidity provision of unilateral tokens.	DODO went live on the Arbitrum mainnet on September 2, 2021, and allocated 5 million DODO tokens as trading incentives.
Bounce	Bounce is an Ethereum-based decentralized auction platform. The duration and upper limit of funds must be set for each auction, and the amount beyond the upper limit will be bounced back to the user.	Bounce participated in the DeFi Demo project of Arbitrum in January 2021.
Hop Protocol	Hop Protocol is a cross-rollup transfer application that allows assets to be moved from one Layer 2 network to another by establishing asset bridges between the networks and leveraging automatic market makers. It supports multiple cryptocurrencies, including USDC, USDT, and MATIC, and significantly shortens the transfer time.	Hop Protocol has supported transfer of USDC/USDT between Arbitrum and other scaling networks since September.

Source: Information collected and summarized by KuCoin Labs

1.3.2 Arbitrum ecosystem

As of September 26, 2021, Arbitrum has received investments from multiple leading DeFi projects in only three weeks of operation. Among these projects, Curve ranks first with a TVL of USD 209.53 million, followed by SushiSwap with a TVL of USD 129.37 million. Less well-known projects dForce and Abracadabra.money take the third and fourth places, with TVLs of USD 85 million and USD 61 million, respectively. It is worth noting that ArbiNYAN, a high-risk mining project on top of TVL rankings in the first week after the launch of Arbitrum, has dropped out of the top 10 rankings.

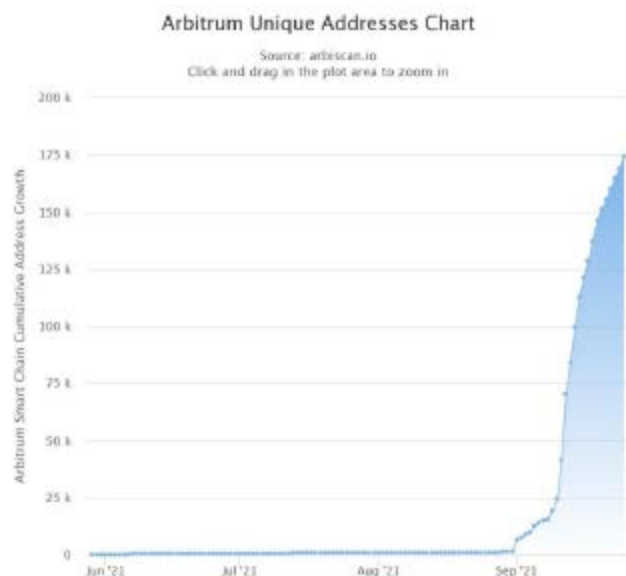


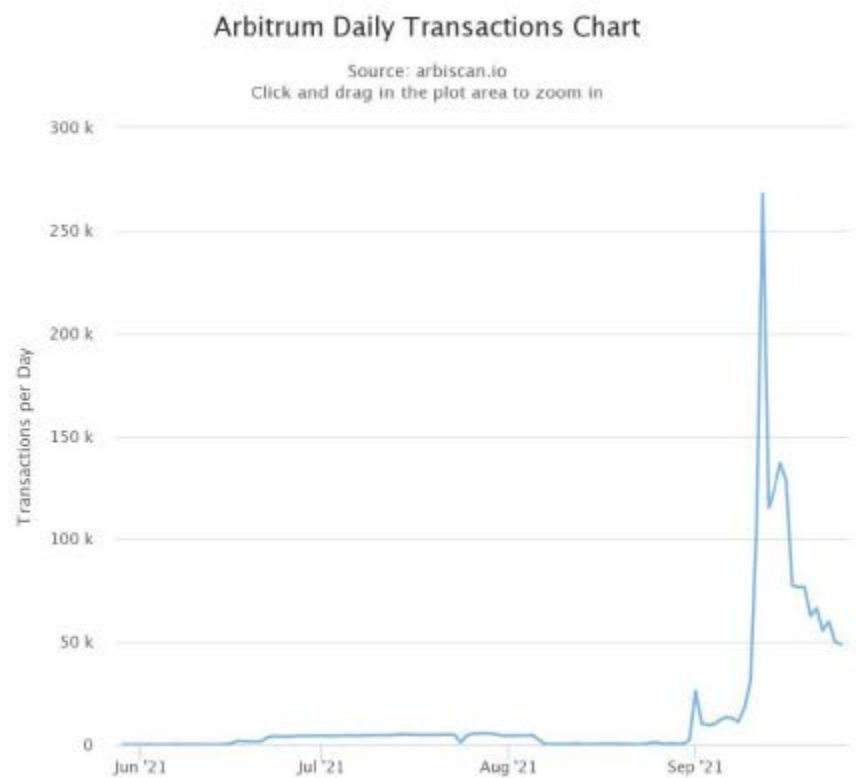
Name	Chain	1d Change	7d Change	TVL ↓
1 Curve (CRV)	Arbitrum	+0.11%	-0.09%	\$209.53m
2 SushiSwap (SUSHI)	Arbitrum	+4.12%	-12.22%	\$129.37m
3 dForce (DF)	Arbitrum	+0.78%	+11.28%	\$85.253,049
4 Abracadabra (MIM)	Arbitrum	-0.89%	-	\$61.074,939
5 Abracadabra (MIM)	Arbitrum	+4.44%	-0.14%	\$61.386,640
6 SushiSwap (SUSHI)	Arbitrum	-0.22%	-15.89%	\$58.667,825
7 AnySwap (WFF)	Arbitrum	-1.48%	-	\$52.881,348
8 Bridge DAO (BDAO)	Arbitrum	-0.01%	-10.22%	\$48,776,373
9 Uniswap v3 (UNI)	Arbitrum	+1.88%	-0.18%	\$38,605,424
10 DODO (DODO)	Arbitrum	-1.07%	-6.05%	\$36,967,876

Source: Information collected and summarized by KuCoin Labs

1.3.3 Market performance

According to Arbiscan.io, the number of unique addresses on the Arbitrum network had exceeded 170,000 as of September 24, a 26-fold increase compared with September 1. On September 12 alone, 28,930 unique addresses were added to the network. The number of daily transactions reached a peak of over 260,000 on September 12, and the highest growth rate 243% was seen on September 11. However, it seems that Arbitrum failed to maintain its momentum. The number of daily transactions dropped by 81% from September 12 to September 25.



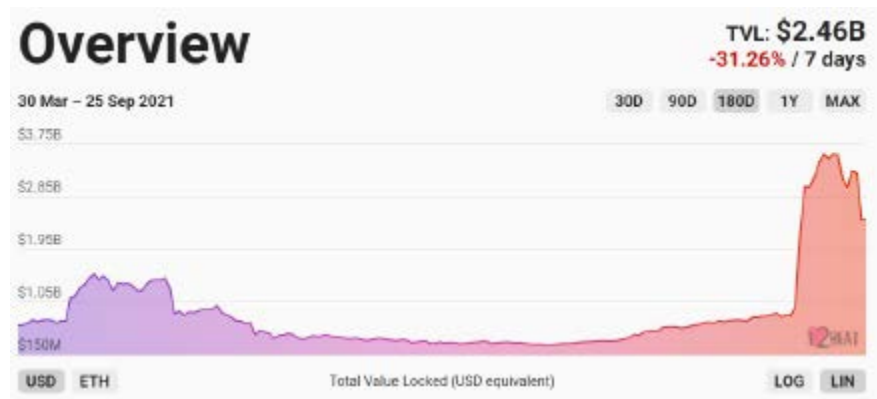


1.1
Optimism and Arbitrum
Performance Summary:
Advantages and Disad-
vantages

Optimism and Arbitrum have many common advantages because they both use the Optimistic Rollup technology. For example, they both guarantee the availability of on-chain data, optimize the user experience, be compatible with EVM, greatly reduce transaction costs, and improve transaction speeds. However, they provide slightly lower scalability than Plasma and ZK Rollup. Optimism and Arbitrum also have their own advantages and disadvantages: OVM of Optimism requires OVM opcodes generated by a special Solidity compiler, and therefore developers need to modify the code for migration of smart contracts. AVM of Arbitrum is fully compatible with EVM; therefore, smart contracts can be migrated to Arbitrum without any modification to the code. As Arbitrum adopts multi-round fraud proofs, both parties involved in a challenge must stay online before the end of the challenge.

4 Market performance of Layer 2 scaling technologies

According to L2BEAT.com, the TVL of Layer 2 scaling technologies has reached USD 2.46 billion as of September 27, 2021, up 50% compared with Q2, with a sharp increase in September.



Source: L2BEAT, as of September 27, 2021

Measured by TVLs, Optimistic Rollup and ZK Rollup are dominating the Layer 2 scaling market, with 70% and 26% market shares, respectively. Among the projects using the two technologies, Arbitrum ranks first with a TVL of USD 1.5 billion (61.21%), followed by ZK Rollup project dYdX with USD 447 million (18.18%), and Optimism with USD 214 million (8.71%).

No.	Name	Value Locked	7 days change	Market share	Purpose	Technology
1.	Arbitrum	\$1.50B	-43.27%	61.21%	Universal	Optimistic Rollup
2.	dYdX	\$447M	+14.01%	18.18%	Exchange	ZK Rollup
3.	Optimism	\$214M	-7.56%	8.71%	Universal	Optimistic Rollup
4.	Loopring	\$108M	-13.95%	4.42%	Payments, Exchange	ZK Rollup
5.	ZKSwap V2	\$67.17M	-13.35%	2.73%	Payments, Exchange	ZK Rollup
6.	DeversiFi	\$60.61M	+30.29%	2.46%	Exchange	Validium
7.	zkSync	\$13.52M	-6.66%	0.55%	Payments	ZK Rollup
8.	Sorare	\$12.64M	-8.46%	0.51%	NFT, Exchange	Validium
9.	Boba Network	\$10.96M	+50868.48%	0.45%	Universal	Optimistic Rollup
10.	ZKSwap	\$5.60M	-18.55%	0.23%	Payments, Exchange	ZK Rollup
11.	ImmutableX	\$3.53M	-5.56%	0.14%	NFT, Exchange	Validium
12.	Habitat	\$3.40M	-29.79%	0.14%	DAO, Treasury	Optimistic Rollup
13.	OMG Network	\$3.08M	-0.27%	0.13%	Payments	Plasma
14.	Aztec	\$1.85M	+57.20%	0.08%	Private payments	ZK Rollup
15.	Gluon	\$1.25M	-7.62%	0.05%	Exchange	Plasma
16.	Polygon Hermez	\$295K	-6.49%	0.01%	Payments	ZK Rollup
17.	Layer2.Finance	\$258K	-15.04%	0.01%	DeFi aggregation	Optimistic Rollup
18.	Fuel	\$6.90	+0.00%	0.00%	Payments	Optimistic Rollup

Source: L2BEAT, as of September 27, 2021

Although Optimism and Arbitrum charge higher transaction fees than ZK Rollup projects, their charges are much lower than the transaction cost on Ethereum. It should be noticed that Optimism and Arbitrum One are throttled in the beta stage. Fees will decrease as this throttle is lifted.

Cost Comparison	ETH Transfer	Token Transfer	Token Swap
Loopring	\$0.11	\$0.11	\$0.79
ZKSync	\$0.16	\$0.16	N/A
Polygon Hermez	\$0.25	\$0.25	N/A
Optimism	\$0.65	\$0.65	\$0.91
Arbitrum One	\$1.11	\$1.22	\$1.91
Ethereum	\$3.21	\$7.13	\$15.60

Source: [L2fees.info](https://l2fees.info)

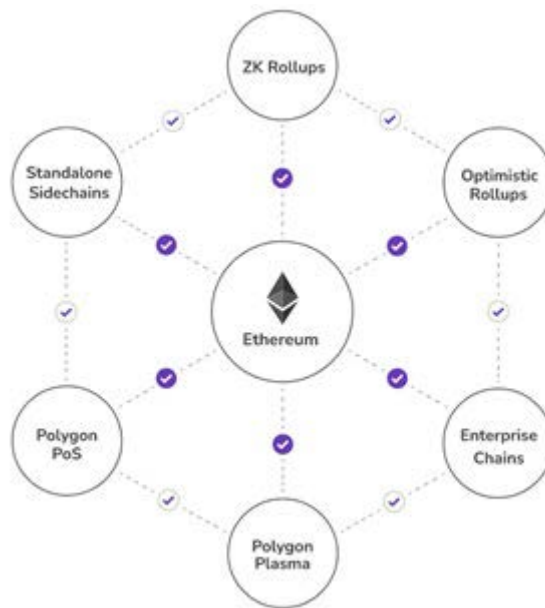
1.4.1 Alternative scaling solution: Polygon

Unlike Optimism and Arbitrum, this year's new star Polygon is not a real Layer 2 scaling solution, but it is the most promising alternative scaling solution. Polygon, formerly Matic Network, was launched in 2017 by an Indian team. The platform was renamed Polygon after the strategic reorganization in February 2021. As its name suggests, Polygon aims to become an aggregator of Layer 2 scaling solutions on the Ethereum network, turning Ethereum into a multi-chain system. By integrating different scaling technologies, Polygon guarantees the efficiency and security for operators while sharing security with Ethereum.

Polygon provides operators with two types of Ethereum-compatible blockchain networks: standalone chains and Ethereum secured chains. Standalone chains are more suitable for enterprises or applications with special requirements, enabling them to maintain their independence and flexibility. Secured chains require operators to be fully integrated into the Ethereum security layer, where the fraud proof and validity proof mechanisms of Ethereum are used to ensure the security of transactions. Polygon mainly uses three scaling solutions:

- **Polygon Plasma chain:** As mentioned above, Plasma allows users to transfer transactions from the main chain to a sub-chain. On the sub-chain, security of transactions is guaranteed by the fraud proof mechanism, but users need to wait a long time before withdrawals of funds.
- **Polygon PoS chain (commit-chain):** It runs in parallel with the Ethereum chain and uses its own PoS consensus mechanism on validator nodes. Unlike sidechains, the Polygon PoS chain depends on Ethereum for the security of validator nodes and checkpoints. It is compatible with EVM. Generally, funds can be withdrawn from Layer 2 in only around 3 hours.

- **ZK Rollup chain:** Polygon has obtained the most complex ZK Rollup technology through the USD 250 million acquisition of Hermez. ZK Rollup bundles multiple transactions off the chain into one transaction and generates a zero-knowledge proof for the bundle. The zero-knowledge proof is posted on Layer 1. The ZK Rollup smart contract on the main chain only needs to validate this zero-knowledge proof, and interacts with it continuously to verify the validity of all bundled transactions on the chain.



1.4.2 Market performance

According to DeBank, Polygon's TVL started to decline in Q2 after reaching a peak in June. Although the rate of decline was not high, the declining trend showed that the migration from Ethereum to Polygon was slowing down. In Q3, the TVL did not fluctuate greatly, except for a slight increase in mid-September. Now, Polygon's TVL is around USD 9 billion.

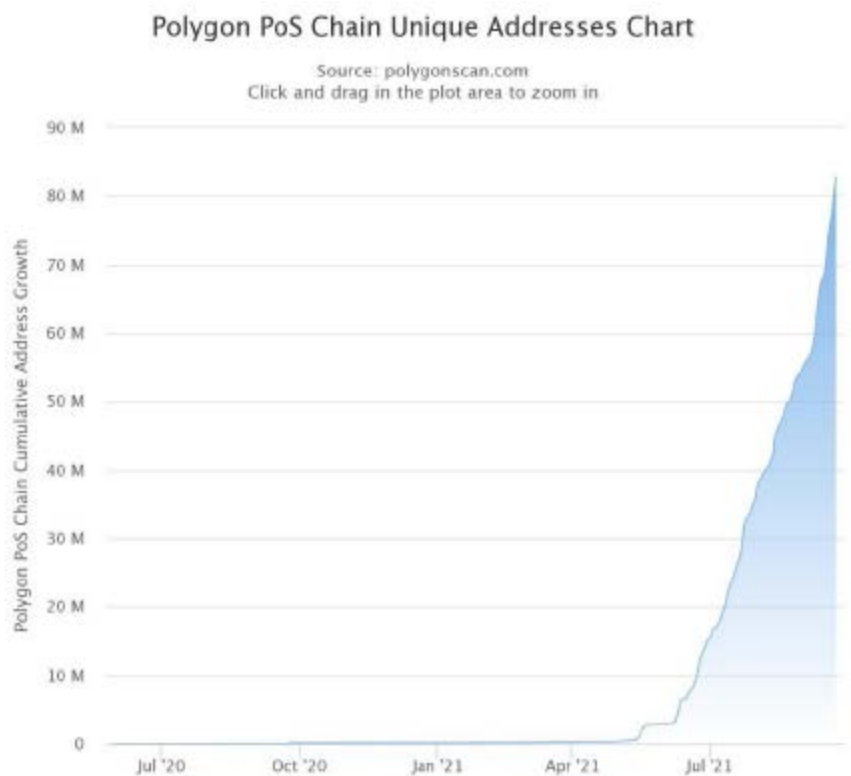


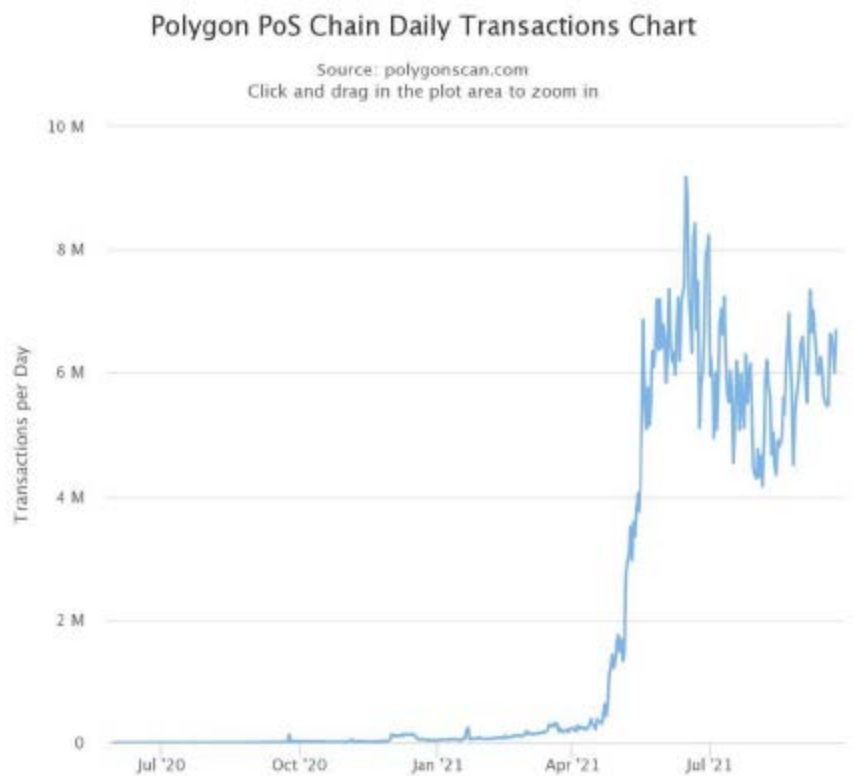
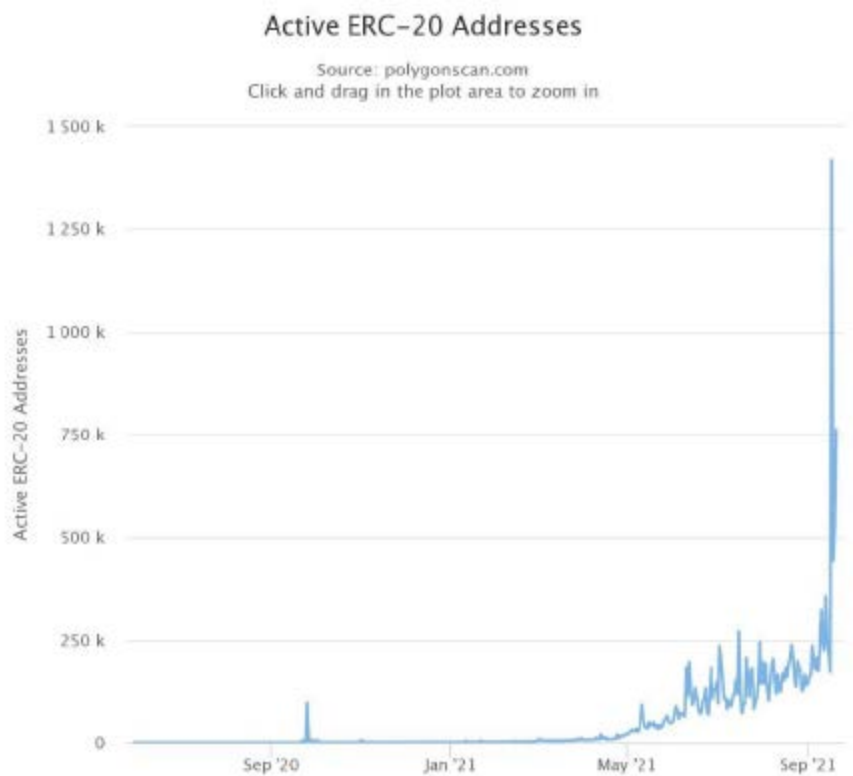
Source: DeBank, summarized by THE BLOCK

According to PolygonScan, the transaction fees on Polygon are about USD 0.00078-0.014, far lower than the gas fees on Ethereum (about \$12-\$231).

Interactions	ethereum	polygon
ETH Transfer	~\$12.40	~\$0.000782
NFT Transfer	~\$29.51	~\$0.001953
ETH-ERC20 Swap	~\$76.73	~\$0.004844
Add Liquidity	~\$82.54	~\$0.000218
Operator Registry	~\$231.03	~\$0.014084

PolygonScan also discloses that the number of unique addresses on the Polygon PoS chain exceeded 840,000, increasing at a daily growth rate of 2% in Q3. The number of active ERC-20 addresses reached a peak of 1,417,400 on September 17, but dropped sharply by about 50% later. In Q3, the transaction volume on the Polygon PoS chain saw a quarter-on-quarter decline of 20%, following a 35-fold increase in Q2.





1.4.3 Performance of the Polygon Ecosystem

Among the top 10 players with the highest market capitalization in the Polygon ecosystem, only the Ren Project saw a price rise in the past 7 days. The other nine projects all experienced a decline of 12%-19% in the prices of their tokens. Aave, with the third highest market capitalization in the ecosystem, has a TVL of USD 1.78 billion, ranking first among DeFi projects. Quickswap, dubbed the "child of Polygon", ranks second with a TVL of USD 679.13 million, followed by Curve with USD 397.5 million and Sushiswap with USD 319.4 million.

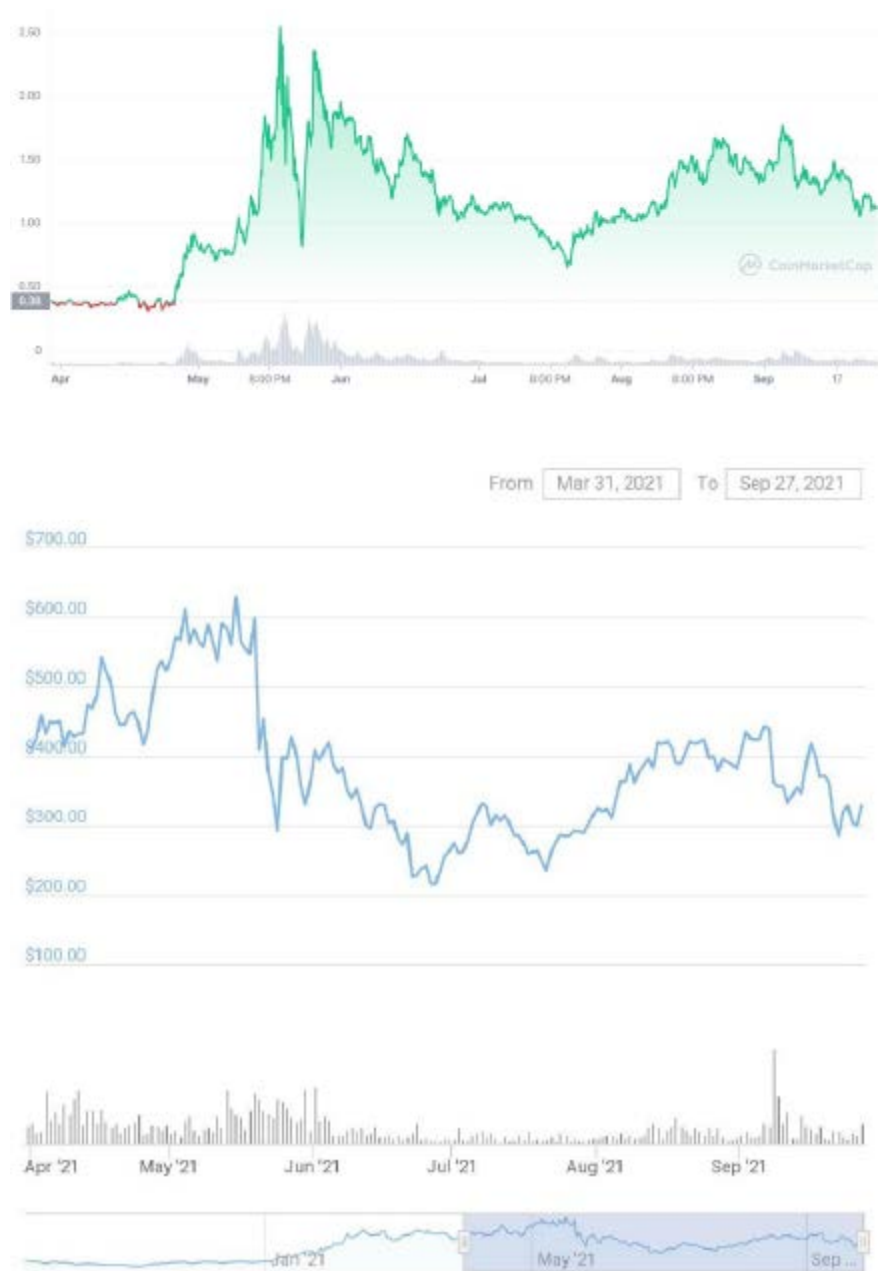
#	Token	Price	1d	7d	24h Volume	Mkt Cap	Last 7 Days
18	Chainlink	\$0.85	0.7%	7.8%	\$2,710	\$1,279,062,707	
21	Polygon	\$1.15	-0.2%	0.2%	\$120,818,549	\$1,499,375,801	
43	Aave	\$287.30	0.2%	0.8%	\$170,878,287	\$1,895,287,528	
50	The Graph	\$0.694541	0.1%	1.2%	\$175,308,111	\$1,300,340,528	
61	Sushi	\$11.30	-1.0%	17.2%	\$985,608,600	\$2,328,288,334	
101	Curve DAO Token	\$2.43	-0.2%	4.3%	\$299,240,185	\$874,190,544	
103	Decentraland	\$0.725921	0.2%	0.7%	\$195,697,215	\$858,036,175	
106	Telcoin	\$0.0198815	0.1%	0.8%	\$5,857,632	\$818,080,762	
108	REN	\$1.82	-0.2%	-4.4%	\$183,272,581	\$801,522,460	
110	En	\$0.804212	0.7%	1.7%	\$103,700,182	\$758,270,807	

Source: Coingecko

TVL Rankings				
Name	Chain	1d Change	7d Change	TVL ↓
1 Aave (AAVE)		-4.39%	-6.33%	\$1.78b
2 Quickswap (QSPC...)		-14.8%	-15.44%	\$679.13m
3 Curve (CRV)		-12.1%	-3.90%	\$397.5m
4 Sushiswap (SUSHI...)		-4.5%	-13.0%	\$319.4m
5 Balancer (BAL)		-0.80%	-	\$154.78m
6 Beefy Finance (...)		-0.19%	-0.39%	\$154.85m
7 Olympus Network (OLYMPUS)		+0.90%	-14.38%	\$94.91m, 482
8 Gnosis (GNO)		+0.27%	+3.28%	\$71,038,910
9 Advanced Finance...		+0.01%	-17.47%	\$69,757,690
10 Wethswap (WETH)		+0.00%	-12.43%	\$69,673,625

Source: defillama.com, as of September 26, 2021

The price of Polygon's native token MATIC soared in Q2 because it was used by many blue-chip DeFi projects. However, its performance in Q3 was lackluster, due to the influence of the stagnant DeFi market and release of competitive protocols. It can be seen from the following figures that the price of the MATIC token changed consistently with the DeFiPulse Index (a market capitalization-weighted index which consists of the 10 most popular DeFi tokens).

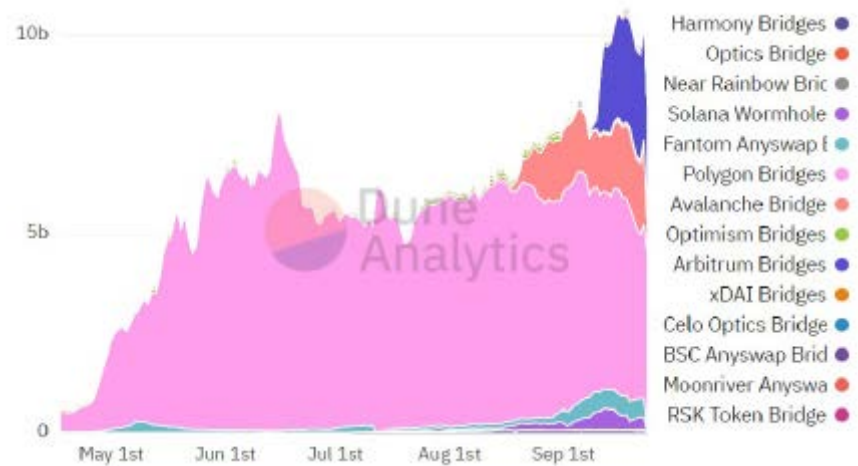


5 Current situations of cross-chain protocols released by major ecosystems

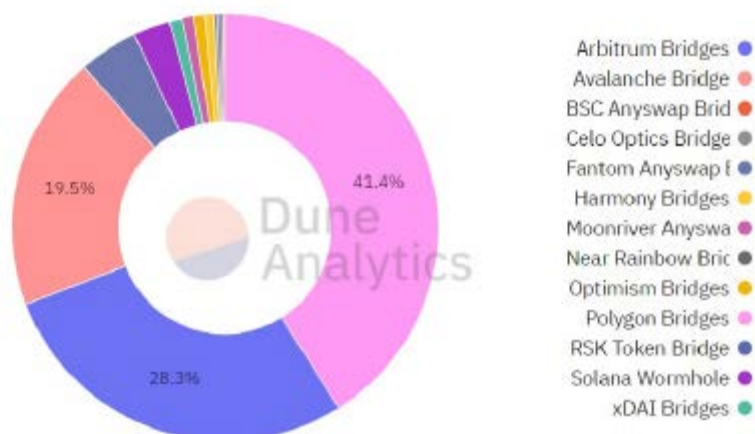
The official launch of Optimism and Arbitrum speeds up the deployment of smart contracts on Layer 2, which leads to an increase in the demand for asset transfers between Layer 1 and Layer 2. Currently, many third-party cross-chain protocols allow users to withdraw their assets quickly from Layer 2 to Layer 1, but they need to pay certain fees to provide liquidity for the cross-chain protocols.

In Q3, TVLs of cross-chain protocols in the Ethereum ecosystem fluctuated slightly before September and maintained at about USD 5 billion. Polygon dominated almost the entire market in July but lost its monopoly in August, when Avalanche was released. Then, the market was shared by Polygon and Avalanche. In September, Arbitrum went live and had the TVL approximate to Polygon's in no more than one week. As of September 24, the TVL of Arbitrum accounted for 28.3% of the sum of the Ethereum ecosystem. It is worth noting that the surge of TVL shortly after the launch of Arbitrum was related to inflows of hot money into multiple high-risk mining projects. About 90% of the money flowed into the ArbiNYAN project, making its token price fall from 7 USDT to 0.7 USDT in one day. Fantom, Solana, and Harmony launched liquidity mining plans to promote the development of their ecosystems. However, they did not perform as well as Polygon, Avalanche, Arbitrum in the market.

TVLs of Ethereum
cross-chain protocols in Q3

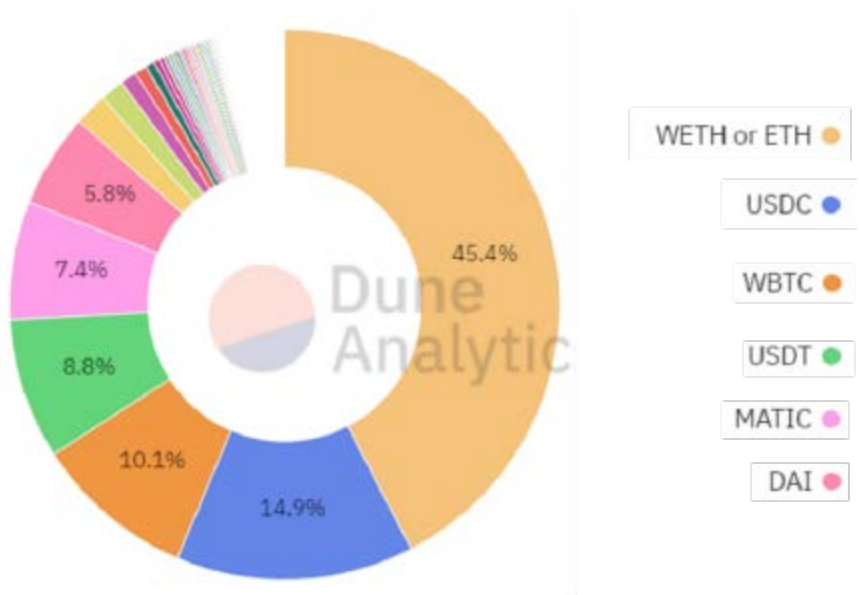


Market shares of Ethereum
cross-chain protocols (as of
September 24, 2021)



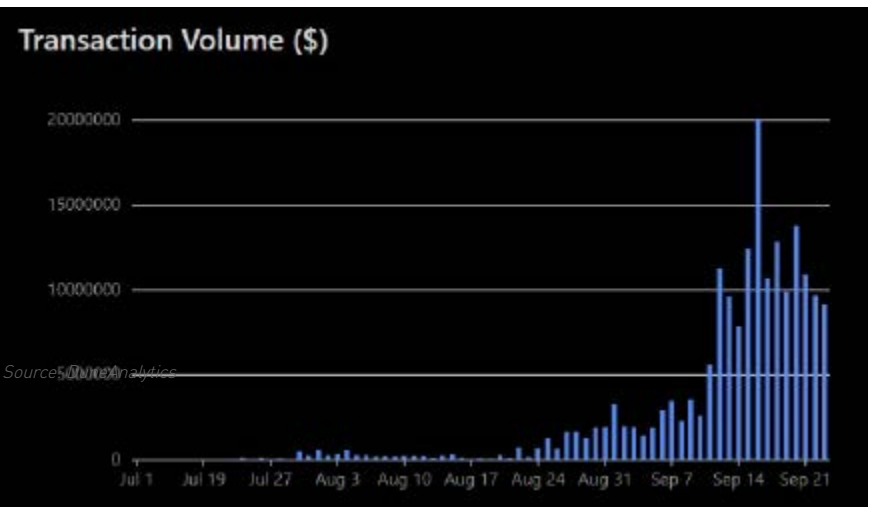
Regarding asset flows, Ethereum coin (ETH) contributed to 45.4% of the ecosystem's TVL, amounting to USD 4.8 billion. The second to sixth places were taken by USDC, Bitcoin, USDT, MATIC, and DAI, respectively.

Assets of Ethereum
cross-chain protocols (as of
September 24, 2021)



The new cross-chain protocol cBridge also showed a remarkable performance. Although cBridge only supports a few types of assets, Celer Network provides a series of new cross-chain transfer services. It supports asset transfer between Ethereum and Layer 2 chains, different Layer 2 chains, as well as between Layer 1 chains. Since the launch of cBridge 1.0 in Q3, the total cross-chain transaction volume of cBridge has reached USD 189 million, and the daily cross-chain transaction volume also exceeds USD 10 million. On September 23, cBridge announced its plan to upgrade to 2.0, which will provide more functions. The upgraded version is expected to seize more market share.

Cross-chain transaction
volume of cBridge



6 Metaverse and its future technical support

The metaverse is a digital mapping of the real world, which is presented to users as a game but is more than a game. The metaverse enables us to experience a different life in a virtual world, where we can have different identities, assets, and social connections, and take part in new production and social activities.

Before the birth of blockchain, the metaverse was only a concept of virtual world. Blockchain links the virtual world with the real world, making them a pair of parallel universes. Blockchain achieves this because it is fully decentralized and not controlled by any party. In addition, blockchain removes the barriers between virtual assets and reality, and enables users to establish social connections, accumulate assets, and do all things they can do in the real world.

The goal of the metaverse is to map what exist in the real world to a virtual world, so that users can immerse themselves in a series of virtual activities, such as socializing, gaming, and creating. To achieve this goal, the metaverse needs to depend on a value element brought by blockchain technology — NFT. Each NFT is a unique mapping of an item in the real world. In Web 3.0, NFTs prove the unique ownerships of digital assets and allow for trading with their uniqueness and scarcity. Trading spawns commerce, and economic exchanges in commerce power operations of the metaverse. Therefore, NFT technology is one of key underlying supports of the metaverse, and empowers the generation, ownership validation, pricing, transfer, and tracing of digital assets in the metaverse.

Speaking of underlying technical support, the use of metadata is the most important for the development of the metaverse.

Meta means beyond. Metadata is the structured data extracted from information resources to describe their features and content. It is simply data about data.

Many operations can be performed based on metadata that describes resources, for example, identifying resources, providing search points for resources, and exchanging data between different systems. The greatest benefit that metadata brings is that information resources can be described and classified in a unified form, which makes machine processing possible.

1.6.1 Influence of Metadata on the Metaverse

As crypto assets on the blockchain, NFTs are distinguished by their unique identifiers and metadata. Each NFT pass has its own metadata URL, which defines some more detailed information about the NFT, such as the name and description of the NFT, the URL of the picture, and special attributes. Take Bored Ape Yacht Club as an example. Each ape has unique attributes, such as the color, shape, and name. Searching through metadata can help users quickly locate the target NFT range. The application of metadata to NFTs demonstrates the function of metadata: to provide descriptive information for a specific token ID.

For developers, the first decision to make is whether to write metadata directly into the token smart contract or to host metadata separately. Representing metadata on the chain enables metadata to coexist permanently with tokens and remain unchanged in the lifecycle of any given application. Metadata can be changed based on the logic on the chain.

If the sustained value of an asset is far higher than its initial value, the permanent existence of metadata is very important. For example, digital art will continue to exist in the whole era, whether the original website used to create the art exists or not. Therefore, it is important to retain metadata of token IDs in their lifecycle. Moreover, the logic on the chain may need to interact with metadata. For example, the reproduction speed of CryptoKitties is affected by their "generations", and all reproductions occur on the chain. Therefore, the logic of the smart contract needs to read the metadata in the internal states of CryptoKitties. In spite of the advantages of on-chain metadata, most projects store their metadata off the chain because of the limited storage capacity of the Ethereum blockchain.

1.6.2 Significance of VR, AR, and AI for the Metaverse

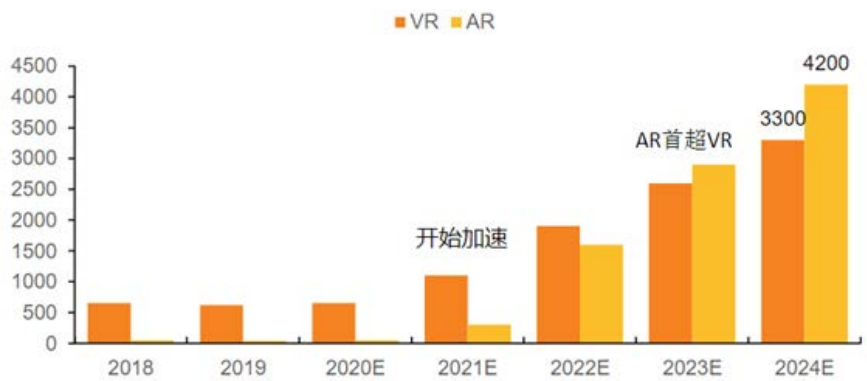
The metaverse is a world where users can immerse themselves in a range of virtual activities, such as socializing, gaming, and creating. To improve the immersive experience of users, the metaverse must rely on VR, AR, and AI technologies. As we see in the movie Ready Player One, the hero can enter the metaverse "Oasis" by wearing a VR headset and a haptic suit, and complete a series of social activities by controlling his "virtual avatar". The avatar acts exactly the same as the hero in the real world. This cannot be achieved without the support of VR, AR, and AI. AI produces a massive amount of sustainable content for the metaverse, whereas VR and AR create immersive experiences for users.

The VR and AR technologies used to build an interactive immersion environment are important for the metaverse. After an evolution from manual tracking to face tracking and then full-body tracking, VR and AR give users a real life-like experience in the virtual world, so that they have a strong sense of identity in the metaverse. Only under this circumstance can users take the new world seriously and embrace it. People usually choose the metaverse because they do not have a satisfactory experience in the real world. In the new world of virtual reality, users will find they can enjoy entertainment more efficiently at a lower cost. For example, they can go skiing on a mountain, join a music carnival, or surf on waves in 1 second. In the virtual world, users can also try many things that they dare not do in the real world. When VR/AR enables users to live a more efficient life and try new things by disregarding existing rules, users will have more fun in the virtual world than they do in the real world.

AI is also indispensable for the development of the metaverse. The virtual world is more attractive to users than the real world because it provides more and better content and experiences through AI, an important tool to improve the efficiency of content creation. With the advancement of technology and improvement of the AI model, the quality of instantly created content may surpass that of the content created by human beings one day. By then, immersive experiences of users in the metaverse will be improved greatly, attracting more users to the metaverse.

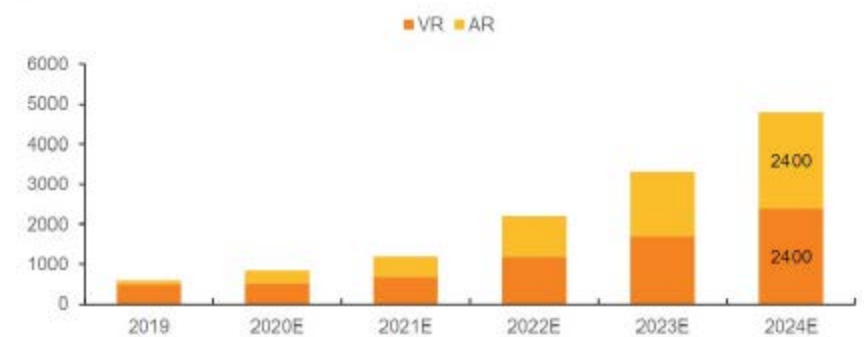
According to the China Academy of Information and Communications Technology (CAICT), the global VR/AR market size was about RMB 90 billion in 2020 and is expected to increase at an average annual growth rate of about 54% from 2020 to 2024. From 2021, the global shipments of VR devices will increase more quickly and are expected to reach 75 million units in 2024. As more VR devices are put on market, the user base will expand further, and content will have wider applications, helping to enhance the user stickiness in the industry and promote sustainable market development.

Global shipments of VR and AR devices



Source: CAICT, TF Securities

Global VR and AR market size



Source: CAICT, TF Securities

As the VR industry chain is improved gradually, VR/AR technology will spark a flywheel effect in empowering the industry. In the early stage, the technology will be applied to the entertainment sector represented by games. When the technology is mature, it will

be applied to more sectors, including but not limited to AEC (architecture, engineering, and construction), manufacturing, telecommunications, infrastructure, and automobile.

As an underlying support of the metaverse and virtual reality, AI empowers the development of the industry with algorithms, images, and other capabilities. In the first half of 2020, the market size of China's AI R&D platforms reached USD 140 million, with a compound growth rate of over 30%. The leading platforms, such as Alibaba Cloud and Baidu Brain, all had more than 1 trillion calls a day. The AI ecosystem is also expanding. The open platform of iFLYTEK now has 1.756 million developers and has supported a total of 2.89 billion terminals. Tencent's AI open platform has 2 million customers and is serving more than 1.2 billion users worldwide. As far as technology R&D is concerned, Google TensorFlow and Facebook PyTorch have become the leaders in the market thanks to the first-mover advantage and endorsement by key accounts. For example, the leading position of TensorFlow in the industrial sector enables it to stay in the first place for a long time, with three times more market attention than the immediate follower. PyTorch rises quickly in the market for the ease of use and has contributed to more than 50% of top academic papers.

7 Influence of infrastructure on the market

Despite frequent launches of new technologies from NFT to Loot in the market, there is no doubt that the demand for Layer 2 will increase dramatically. Market data shows that congestion on the Ethereum network has been effectively alleviated after the launch of Arbitrum and Optimism. Although Optimistic Rollup is the most popular Layer 2 scaling solution at present, ZK Rollup may change the situation if the difficulties in its technical implementation are addressed.

Naturally, different smart contracts are designed with different levels of complexity and have different requirements for interactive security. As Layer 2 scaling solutions become mature gradually, applications can choose the most suitable solution. We believe the competition among Layer 2 scaling solutions will continue intensifying before the launch of Ethereum 2.0. Let's wait and see whether the Layer 2 scaling market will be dominated by one player or shared by multiple players.

2.

NFT and Metaverse

- ① Overview of NFT in Q3 2021
- ② Overview of NFT market data.
- ③ Loot, a driver of NFT frenzy

NFT and Metaverse

① Overview of NFT in Q3 2021

In early Q2 2021, NFT successfully attracted the eyeballs of investors and institutions in the blockchain industry and the traditional industries through NFT art auction. Market attention has shifted from art exploration to NFT games and community development, and then to the construction of Metaverse. This is also the hot topic in Q3 2021.

NFT art seems to have died away since its boom in 2021. This is mainly because that the slow technological development limited Web 3.0 art creation, and the extensive use and hype of NFT art concept by authoritative figures and institutions in the traditional art industry made NFT art temporarily deviate from the blockchain and the core concept. As the market became more rational, creators, developers and investors turned their eyesight to the most valuable environment of NFT art - Metaverse.

Sandbox, CryptoVoxel, Decentraland and other virtual land projects captured a large number of creators amid the NFT art wave, and developer communities started to build exhibition spaces, galleries and other public facilities for their works, which further expanded the active user base and also enabled them to support and invest in NFT collectibles and related services. These projects have also become the hot favorites for Metaverse construction in the market.

Meanwhile, Axie Infinity, boosted by the gaming guild-Yield Guild Games, has become a successful example of how blockchain games can participate in and promote the operation of the real economy, and has provided many young people in Southeast Asia with the possibility of coping with the economic impact of the COVID-19 pandemic through gold mining. This also echoed and proved the ideas and demands of the market for an economic system in the Metaverse.

We also witnessed the popularity of the NFT avatar project - Bored Ape Yacht Club. Stephen Curry, a basketball star of the NBA Golden State Warriors team purchased an ape for USD 180,000 and used it as his avatar on Twitter. This kind of news made NFT a constant topic in the market.

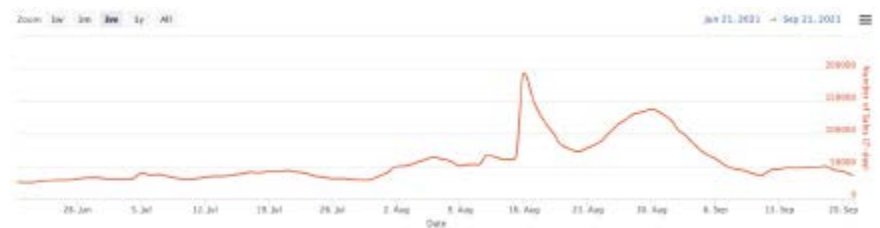


Source: Twitter @StephenCurry30, KuCoin Labs.

Later, the appearance of Loot awakened the market's technical appreciation of NFT art to a great extent. The key words generated by algorithm and probability also provided a lot of materials and imagination space for various creators in the Loot community, created the possibility of creation by combining technology with art, and brought new opportunities for NFT art.

2 Overview of NFT market data.

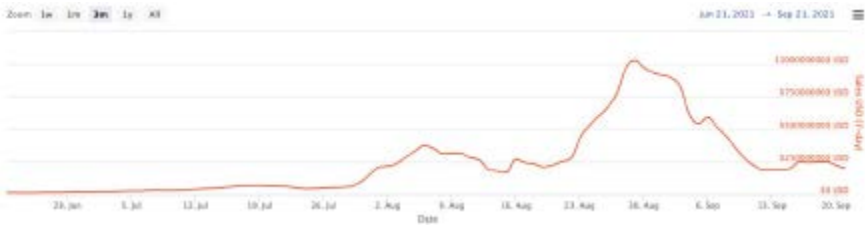
Number of transactions in Q3 2021 in the NFT market.



Source: KuCoin Labs, NonFungible.com.

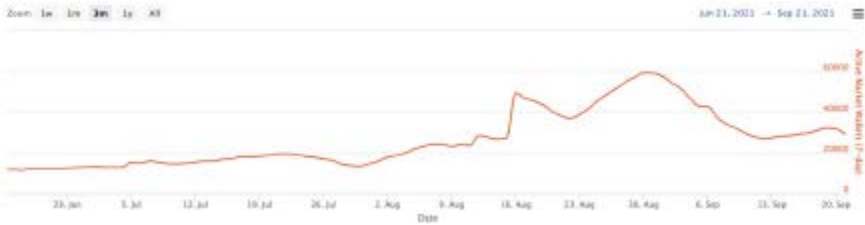
Similarly, the NFT sales also saw significant increases to more than USD 1,000,000,000 in August, while their peak day did not fall on August 16 when the number of transactions peaked, but on August 23 through 30 when the number of transactions slightly fell. The NFT sales finally fell back to USD 250,000,000 at the end of September, more than five times higher than that at the end of the previous quarter ended June.

NFT Sales in Q3 2021



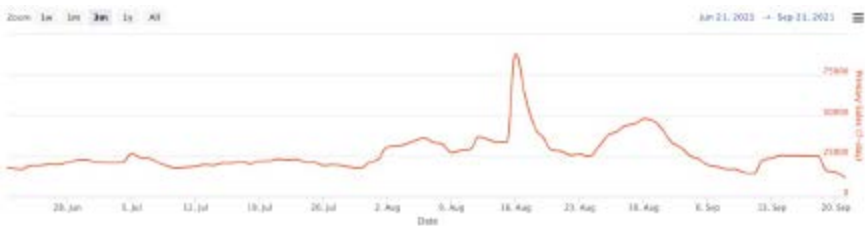
In Q3 2021, the rising trend of active wallets in NFT market accorded with that of the previous two. Following the market heat in mid-August, there were more active wallets at the end of August, indicating that many users tried to seize the second opportunity after they have lost the previous one. The number of active wallets in NFT market finally dropped to below 30,000 at the end of September, about 200% higher than that at the end of the previous quarter ended June.

Number of active wallets in NFT market in Q3 2021



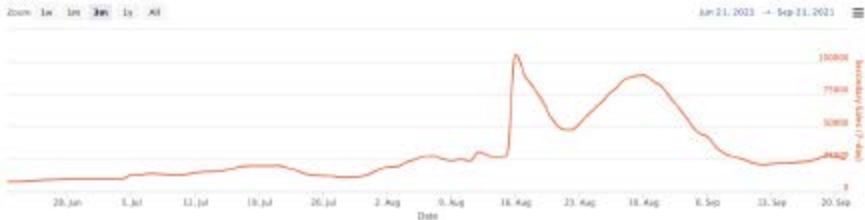
From the comparison of the number of transactions in the NFT primary market and the secondary market in Q3 2021, we can see that the primary market was very hot in mid-August, while the secondary market had good performance in both mid-August and late August, suggesting that many primary purchasers in mid-August resold their collectibles in late August.

Number of transactions in the NFT primary market in Q3 2021.



Number of transactions in the secondary market: 26,496.

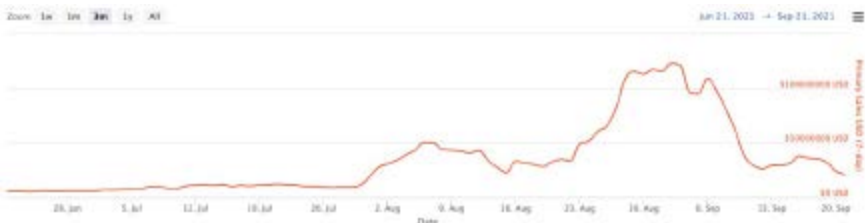
Number of transactions in the NFT secondary market in Q3 2021.



Source: KuCoin Labs, NonFungible.com.

Meanwhile, the sales also showed a similar trend. In mid-August, although the number of transactions was huge and many wallet addresses were activated, the sales in the primary market were almost unaffected. From this, it can be reasoned that the vitality in mid-August was due to the airdrops, activities and claims of major NFT projects, which accumulated certain communities and potential energy for the frenzied transactions in the secondary market in late August, pushing the NFT sales in the secondary market to peak at USD 1,000,000,000.

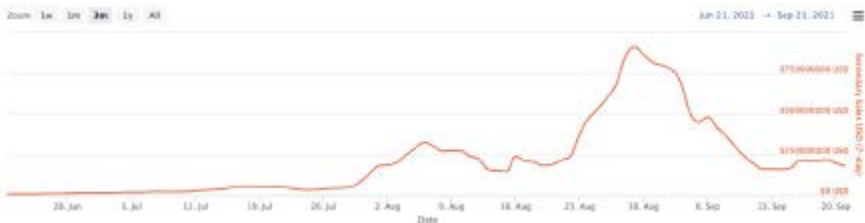
NFT sales in the primary market in Q3 2021



Source: KuCoin Labs, NonFungible.com.

Sales in the secondary market: USD 191,872,595.72

NFT sales in the secondary market in Q3 2021



Source: KuCoin Labs, NonFungible.com.

From the ranking list of top 10 transactions of NFT collectibles in September 2021, it can be seen that Axie Infinity, as the only game project, comfortably maintained its top position. Except the old NFT projects like CryptoPunks and its derivative project PUNKS Comic, the remaining were mostly industry rookies, including 5 avatar NFT projects and 2 generative NFT projects.

It is obvious that NFT currently has a strong social attribute, and communities in form of avatar clubs, have been gradually differentiated from organizations established for the purpose of technology development or for meeting the financial demands. After the boom of NFT art in Q2 2021, the algorithm generation, through Art Blocks, Loot and other projects, attracted a group of active NFT enthusiasts and creators.

NFT Collection Rankings by Sales Volume (30 days)

	Collection	Sales	Change (30d)	Buyers	Txns
1	Axie Infinity	\$589,538,275	↓ -30.58%	306,907	1,768,407
2	CryptoPunks	\$580,274,863	↓ -72.23%	805	1,544
3	Art Blocks	\$517,231,459	↑ +100.59%	11,024	35,667
4	Bored Ape Yacht Club	\$275,861,608	↓ -111.65%	1,128	1,704
5	Mutant Ape Yacht Club	\$258,867,792	↓ -0.00%	6,317	10,569
6	Loot	\$244,670,942	↓ -0.00%	3,255	9,028
7	DN1 Force	\$115,676,411	↑ +494.60%	3,851	7,551
8	Meebits	\$81,217,740	↓ -58.03%	1,424	3,089
9	PUNKS Comic	\$79,621,574	↓ -235.61%	1,570	3,325
10	Cool Cats	\$73,966,923	↓ -272.74%	2,332	4,190

Source: CryptoSlam, KuCoin Labs.

2.2.1
NFT art

In the NFT art market, we can see that Art Blocks has been outperforming other NFT art distribution platforms since July, with the sales surpassing USD 600,000,000 in August 2021, accounting for 85% of the total NFT art sales.

Crypto art market data



Source: CryptoArt.io, KuCoin Labs.

Art Blocks is the first on-demand and on-chain generative art market on the Internet established by Erick Calderon in 2020. He is a senior Crypto Punks player, a generative artist and a technical expert. Artists may use p5.js to program and adjust the

parameters of works, with the script stored on-chain, which may randomly generate "seeds" to generate works.











Most Art Blocks generative artists have no experience in the traditional art industry, but there are many computer scientists and engineers who have been creating works since as early as the 1960s. In June 2021, Sotheby's sold a series of [Natively Digital] works on Art Blocks for more than USD 80,000.

According to OpenSea, its total sales reached about USD 86,000,000 billion on September 2, 2021. As early as August 27, 2021, Ringer #879, one of the generative series of works, was sold for USD 5,685,000, the third highest price for NFT art in history.

2.2.2 NFT collectibles

NFT collectibles sold in Q3 2021 were mainly game and avatar collectibles. NBA Top Shot, which dominated the ranking list in the previous quarter found no position on the list this quarter. In Q3 2021, NFT collectibles, with a strong social nature and good circulation in the secondary market, emerged as a dark horse, and thanks to the Play-to-Earn model, Axie Infinity also became a big influencer in the blockchain game market.

Generally speaking, NFT collectibles market is not yet mature. The "due" form of NFT collectibles in the emerging fields, such as avatar collectibles and generative art, are still being defined, further refreshing market's understanding, aesthetic appreciation and acceptance of NFT.

TOP COLLECTIONS			
COLLECTION	VOLUME	TRADESB	SALESB
1  Axie Infinity # ETH - P2P	\$21.72M 6.82%	44,078 -8.95%	70,078 5.67%
2  GOOP TROOP # ETH - Automatic Integration	\$6.45M 18843.35%	2,437 3953.45%	6,619 1971.38%
3  CryptoToadz by GREMPIN # ETH	\$3.93M -59.67%	122 -33.60%	74 -33.33%
4  SuperRare # ETH - Automatic Integration	\$8.4M 14.63%	49 -15.52%	31 -29.05%
5  Art Blocks # ETH	\$3.37M 14.65%	499 -15.54%	313 -14.94%
6  Hushes # ETH - Automatic Integration	\$2.41M 33.3%	616 186.02%	727 44.93%
7  Bored Ape Yacht Club # ETH	\$2.06M -43.79%	24 -42.86%	13 -43.91%
8  CryptoPunks # ETH	\$1.87M -65.6%	8 -68.64%	4 -68.64%
9  The Doge Pound # ETH	\$1.78M -18.34%	199 -9.13%	128 -22.42%
10  StackedToadz # ETH - Automatic Integration	\$1.64M -18.45%	282 -44.05%	227 -43.53%

DappRadar, KuCoin Labs.











2.2.3 NFT games

Axie Infinity boomed in early Q3 2021, and quickly rose to the top place in terms of NFT traffic. By the end of September 2021, when the following snapshot was taken, Axie Infinity had fallen to the second place. Compared to Q2 2021, Voxies, as a tactics RPG, ranked third in the NFT game category by virtue of the character image, game application scenario and the secondary character trading market. The first place was still occupied by Gods Unchained veteran card game, by virtue of its similarity with the traditional turn-based card game Hearthstone.

Name	Volume 7d (USD)	Last 7d sales	Volume all time (USD)	All time sales
 Gods Unchained	US\$4,950	14	US\$22,217,424	573,651
 Axie Infinity			US\$20,694,429	325,676
 Voxies	US\$472,065	89	US\$15,791,481	14,682
 Plethora Bears	US\$110,655	13	US\$11,821,775	2,801
 F1 Delta Time	US\$2,470	29	US\$11,724,296	12,093
 MyCryptoHeroes	US\$1,302	12	US\$5,237,838	57,331
 Milton Dollar Rat			US\$4,100,052	3,499
 MegaCryptoPole	US\$4,689	9	US\$3,781,500	82,394
 MegaCube	US\$20,804	1	US\$3,703,430	305
 ChainGuardians	US\$59,256	22	US\$3,004,550	2,806

2.2.4 NFT trading markets

In Q3, 2021, OpenSea maintained its leading position with its outstanding performance, and attracted a large number of users and traders with its Polygon. Axie Infinity, as a trading market, had increased transactions and sales thanks to its game attributes. PancakeSwap, as an NFT trading market, also had good performance on BSC ecological management in the later period this quarter. It can be found that the ranking of NFT trading markets is more stable than other categories, and almost all users were effectively retained after they have gathered in some fixed secondary markets. Compared with a single project, the trading markets can effectively gather resources and traffic, thus making the NFT circuit more robust and active.

MARKETPLACES				
MARKET		TRADERS	VOLUME	
1	 OpenSea ETH - Q2 Polygon	42,693 -16.53%	\$93.1M	-24.79%
2	 Axie Infinity ETH - BNB/BSC	44,876 -3.95%	\$21.12M	-5.58%
3	 PancakeSwap BSC	8,508 -218.89%	\$18.93M	-168.61%
4	 SuperRare.co ETH	47 -25.4%	\$3.4M	-26.39%
5	 CryptoPunks ETH	8 -68.84%	\$1.87M	-66.8%
6	 AtomichMarket MAY	11,024 25.26%	\$1M	-82.75%
7	 NBA Top Shot FLUX	10,496 3.94%	\$882.61M	8.87%
8	 Rarible ETH	438 -6.78%	\$475.04M	-51.87%
9	 Azavegozhi Q2 Polygon	474 63.14%	\$391.88M	77.88%
10	 Hicetru B2020	4,483 8.76%	\$382.87M	-8.7%

DappRadar, KuCoin Labs.

③ Loot, a driver of NFT frenzy

In Q3 2021, there was not much change in the ranking of competitors, and the NFT market as a whole, was still developing vigorously. In this quarter, an NFT project in the txt format ("jpg" picture) with black background and white characters went viral overnight, and attracted attention of major media worldwide within one week of its launch. Yes, the project is Loot, which was designed and launched by Dom Hofmann, a co-founder of Vine. It came as a dark horse in Q3, driving the NFT frenzy to a small climax and was a "trophy" for adventurers.

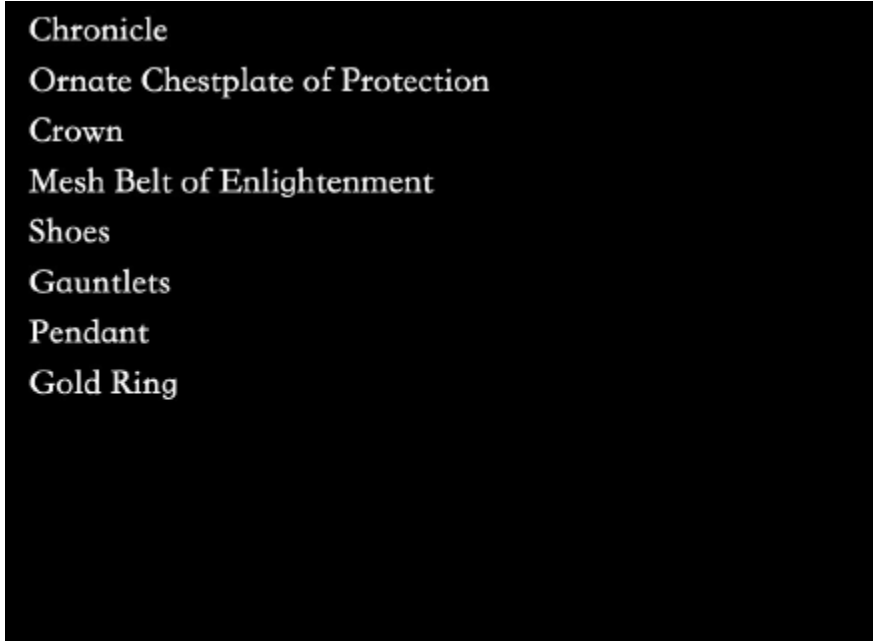
2.3.1 What is Loot?

According to the introduction on its official website, "Loot is a trophy. It is adventurer equipment randomly generated and stored on the chain. Statistics, images, and other features are deliberately omitted for explanation by others. Feel free to use Loot in any way you want."

In short, Loot is an unprecedented and simple NFT on the chain. With white characters on black background, it only contains text; anyone who takes part in minting will get a set of random "adventurer equipment" in verbal form, characterized by the scarcity of random distribution. In order to ensure the random scarcity of each Loot, the smart contract will assign a token ID to the owner, who may add a prefix or suffix to each Loot based on the hash value of the token ID, and the prefix is scarcer.

Each Loot only contains 8 lines of characters, each line representing a kind of equipment, namely, Weapons, Chest Armor, Head Armor, Waist Armor, Foot Armor, Hand Armor, Necklaces and Rings. They sound like the equipment and props in games. Players just need to set free their imagination.

Loot examples



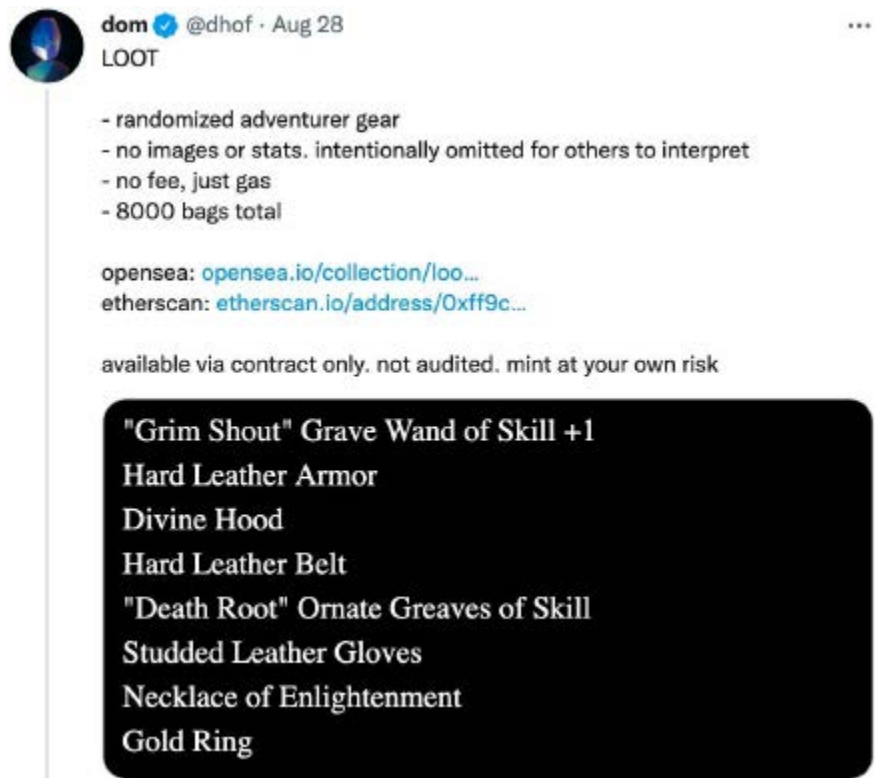
Chronicle
Ornate Chestplate of Protection
Crown
Mesh Belt of Enlightenment
Shoes
Gauntlets
Pendant
Gold Ring

Source: OpenSea, KuCoin Labs.

The Loot release process was also very simple. On August 28, 2021, Dom Hofmann, creator of Loot and a co-founder of Vine, published the project in a short tweet on Twitter (@dhof), and the information was compiled as follows:

- There are 8,000 Loots in total, and all Loots share the same scarcity distribution. Among them, 222 Loots are reserved by creators for themselves.
- Everyone can claim Loots free of charge according to the smart contract, and those who claim the Loots are called minters;
- Minters can mint Loots by paying gas fee;
- Loot has no official website at the time of its release and has not been verified; minters shall take all risks on their own.

Loot release through Twitter.



Source: Twitter[@dhof], KuCoin Labs.

Unlike all existing NFTs, Loot has no formal official website, and only has a short text description on OpenSea; there is no interactive interface for minting or buying tokens on the webpage, so users can only mint Loots through smart contract on the block browser, and then trade on OpenSea. All 8000 Loots were minted and claimed on the day of going live. According to on-chain data, there were a total of 2,468 Loot NFT holders, and 20,460 transactions in less than one month, suggesting its great popularity.

Top ten Loot holders on the chain

Rank	Address	Quantity	Percentage
1	0x0cf809bba1d9ee75c69911e2974163cd2555418	342	4.3965%
2	0x450538de0caedbdd9f8cb4a411a1b24788b123e	230	3.0595%
3	0xd725041047644626468922598128349778349982	237	3.0467%
4	0x13377970e8389ccbc525647ce58a9dada5aa96	223	2.8667%
5	0xd30a7923b6b518d3481ad1990ceeb8a62824b19	120	1.5428%
6	geo.eth	89	1.1441%
7	literallyshaking.eth	81	1.0413%
8	*.*.eth	80	1.0284%
9	catchmeoutside.eth	79	1.0156%
10	ilzer.eth	69	0.8870%

Source: Etherscan, KuCoin Labs

2.3.2 Why is Loot so popular?

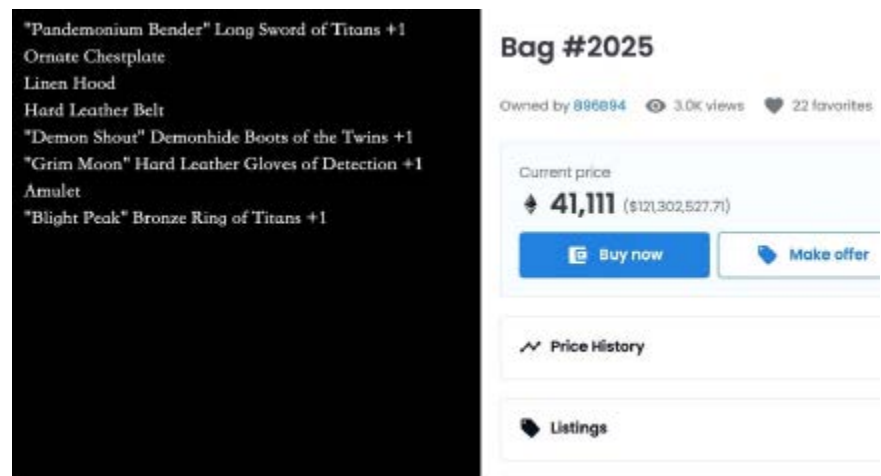
According to statistics of an NFT trading platform OpenSea, as at September 22, the base price of a Loot was about 5.8ETH, and there were 2.5K Loot owners. The total trading volume was up to 65.4 K ETH. The most expensive Loot was on OpenSea, sold at a price of 41,111 ETH(\$121,302,527.71), or about USD 100 million.

Real-time data about Loot



Source: OpenSea, KuCoin Labs.

Example of the most expensive Loot



Source: OpenSea, KuCoin Labs.

Among the top 10 NFT projects sold on CryptoSlam, Loot ranked sixth in less than one month after its going live. This is a runaway success, and will even change the value perception of some people. What makes Loot so popular in such a short time? Is it an incomprehensible bubble or an NFT revolution?

Ranking of NFT sales in September

NFT Collection Rankings by Sales Volume (30 days) ?

	Collection	Sales	Change (30d)	Buyers	Txns
1	Axie Infinity	\$578,114,181	-31.66%	307,201	1,770,620
2	CryptoPunks	\$575,224,218	-67.05%	796	1,516
3	Art Blocks	\$493,454,245	+70.24%	10,593	32,018
4	Bored Ape Yacht Club	\$270,345,663	+97.15%	1,103	1,643
5	Mutant Ape Yacht Club	\$262,462,564	+0.00%	6,455	10,802
6	Loot	\$244,950,697	+0.00%	3,262	9,045
7	0N1 Force	\$88,634,204	+89.97%	2,917	5,128
8	Meebits	\$80,707,184	+54.52%	1,401	3,057
9	PUNKS Comic	\$78,618,031	+212.81%	1,530	3,203
10	Cool Cats	\$73,501,702	+250.99%	2,266	4,039

Source: CryptoSlam, KuCoin Labs.

Loot was released in a way different from a top-down approach adopted for traditional NFT projects. Before Loot, most NFT projects adopted a top-down “INO approach”, which was similar to ICO, that is, the project sponsor would be responsible for making, displaying and promoting the project to attract buyers. While the release of Loot involved no project sponsor, it was released in a way that was more appropriate to decentralized NFT minting on blockchain. Loot does not even have an official website. Everyone is given the same opportunity and freedom to participate in the simple process; in other words, the value of Loot NFTs is no longer linked to any institution or

individual, but completely depends on and is driven by the community consensus (the last popular project that completely relied on community consensus was Meme Coin); in the long run, the development of Loot depends not on the planning of the project sponsor, but on whether the Loot community and its ecological development can support its future development. This is precisely the original attribute of blockchain, and is what this industry has been looking forward to seeing.

Loot makes everything simple and return to what it is supposed to be. The concept is simple, yet novel. By throwing away all NFT forms, layers, videos and scenes, and only keeping the abstract metadata, Loot leaves all displays and presentations to the upper level, so that all people may set free their imagination. In this way, NFT resumed its original and essential mission. As an underlying protocol, it defines a set of universal standard primitives, just like a minimum viable product (MVP). With sufficient community support, we can combine, connect and expand Loot with other protocols, and build our own Metaverse from bottom to top.

Many still believe at the moment that the high price of Loot is driven by its novelty and concept hype, and Loot itself has no base value. However, within Loot's short ecological development period of just one month since its going live, many ecological applications have been built around it. From the official introduction page of Loot, we can see that it includes Loot community, development tools, guilds divided by items and attributes, Loot attributes tracking websites, derivative projects restructured and built on Loot. It is undeniable that the emergence of Loot has broadened NFT's future development path and gives us more imagination on NFT.

Loot ecological resources

The screenshot shows the 'Loot' website with a dark theme. At the top, there are links for 'FAQ' and 'Resources'. The main content is divided into two sections: 'Communities' and 'Developer Tooling'. The 'Communities' section lists three spaces: 'Loot Community Discord', 'Loot Talk (Forum)', and 'Loot Builders Discord'. The 'Developer Tooling' section lists four aggregated resources: 'Loot Rarity', 'dhof-loot', 'Loot subgraph', and 'loot-sdk'.

Loot FAQ Resources

Communities

Spaces run by the community for Loot enthusiasts to share news and build together:

- **Loot Community Discord** — For all things Loot and derivatives (note: high traffic)
- **Loot Talk (Forum)** — A place for structured discussion of all things Loot, for builders and the community
- **Loot Builders Discord** — Focused on developers, artists, and writers with minimal derivative, token, and market chat

Developer Tooling

Aggregated resources built by the Loot community:

- **Loot Rarity** — Loot attributes and rarities sheet by @AustinGreen
- **dhof-loot** — All bags, item occurrences, bag rarity, and images by @anish-agnihotri and @ktasbas
- **Loot subgraph** — Loot bag, owner, and transfer subgraph by @shahrz
- **loot-sdk** — TypeScript wrapper to loot subgraph by @shahrz

Source: <https://www.lootproject.com/resources>, KuCoin Labs

2.3.3
Loot future

Screenshot of Matt Huang’s
tweet

On September 2, Matt Huang, a co-founder of Paradigm asked on Twitter, “is LOOT the seed for a game? Or is the process of building around LOOT the actual game?” Perhaps the former is the game we are experiencing, while the latter is the game mode we will experience in the future.



Source: Twitter ([@matthuang]).

The future of Loot depends on all people in the community, or all people who are interested in and willing to participate in its building. Everyone can recreate around the simple text of Loot. Some have given it a picture background, and some have designed its surroundings, music ... and more forms are waiting for us to explore. To maintain long-term vitality in the future, the ideal option for Loot is to build a vigorous ecology, and expand its own “Loot universe” as an infrastructure layer in the NFT world.

3.

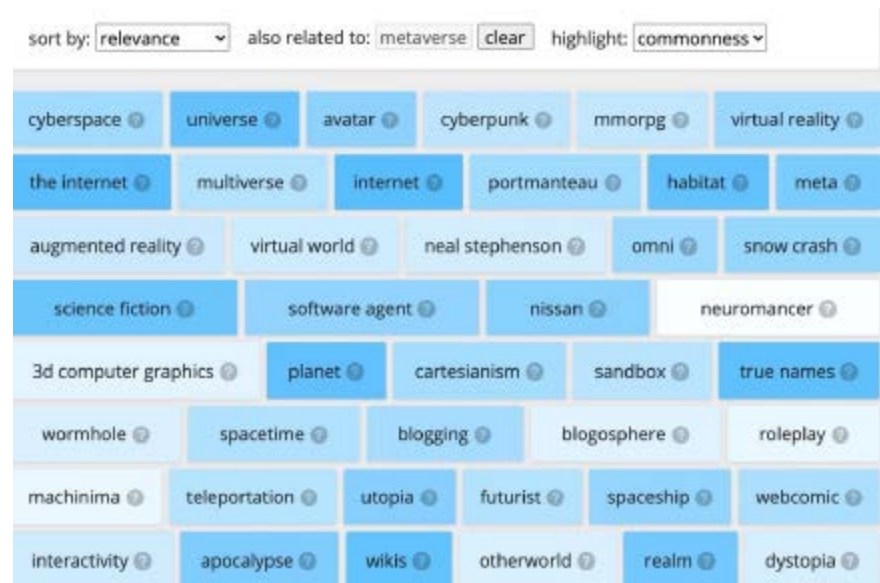
Development of Metaverse

- ① ROBLOX- the first Metaverse stock
- ② Rise of good mining trade union, Yield Guild Games (YGG)
- ③ Attention of the Capital Market to the Metaverse
- ④ Summary

Development of Metaverse

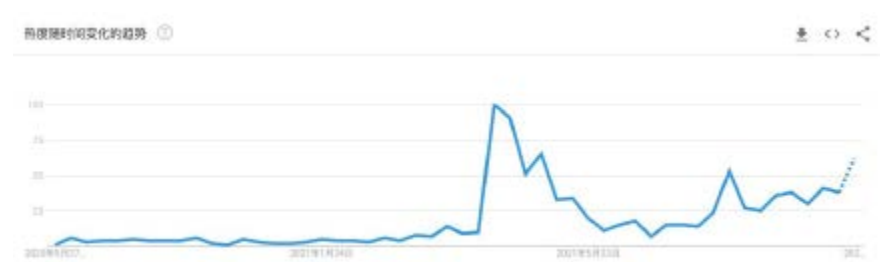
Metaverse-related terms found in Google search results

The word “Metaverse” is a combination of Meta (beyond) and Verse (universe), meaning “beyond universe”. Metaverse-related terms like Cyberpunk, virtual reality, parallel universe, role playing, augmented reality and science fiction can be found in Google search results. In fact, these are the multiple attributes of Metaverse.



Source: Google, KuCoin Labs.

The exploration for Metaverse, which has lasted for several years, has never stopped. Its real boom came in the year 2021. On March 10, 2021, Roblox — hailed as “the first metaverse stock” got listed on the New York Stock Exchange. Its share price soared for several consecutive days, with its market value exceeding USD 40 billion. On April 13, Epic Games, a well-known game and unreal engine developer, announced that it had received USD 1 billion in funding, and the money would be mainly used to develop Metaverse. “We would like to thank new and existing investors who support our vision of Epic Games and Metaverse,” said Tim Sweeney, CEO of Epic Games. Epic’s game project Fortnite has more than 350 million registered players. As an influential veteran in the game industry, Epic announced its entry into the field of Metaverse, and proved to the world with practical actions that the exploration of Metaverse is fascinating. From the Google search index in recent two years, it can be seen that the search volume of Metaverse began to soar in April 2021, marking the popularity of Metaverse.



Source: Google, KuCoin Labs.

Metaverse Google search index

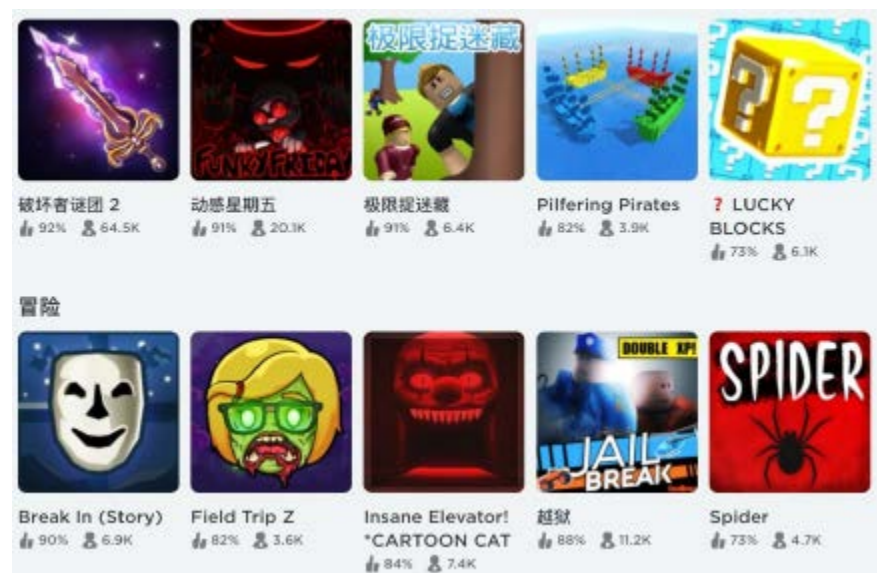
① ROBLOX- the first Metaverse stock

3.1.1 What is Roblox?

Roblox is an online sandbox game, mainly designed for teenagers and children, allowing them to create 3D worlds and games. Its core simulation engine shows a virtual world similar to Lego. The game is very popular among American teenagers at present. Roblox is regarded as the pioneering work of Metaverse - the first Metaverse stock. It is an open platform, a freely created game and a decentralized world.

A true Metaverse should have eight basic elements, namely, identity, social interaction, immersion, low delay, diversification, immediacy, economic system and civilization. By far, Roblox has possessed many of the above core elements. First of all, Roblox offers a virtual world to players, where they can create games or consume games, or trade the game token Robux. With an economic system in place which supports expansion and consumption, the virtual world has become a Metaverse that can be freely constructed and infinitely expanded.

Roblox display



Source: Roblox official website, KuCoin Labs.

Through the immersive 3D virtual world client provided by Roblox, users can be engaged in creative development as both players and creators. By purchasing and creating games, users can obtain the game currency Robux to purchase items for virtual image upgrading or obtaining special skills in the works. Developers may use the Roblox cloud service and Roblox Studio toolset on Roblox platform. After they have downloaded the development environment from Roblox Studio platform and installed Roblox Studio compatible with the operating system, they may start creating and building their own virtual world. Like users, developers can also earn Robux and convert it proportionally into dollars.

It can be seen that with Robux, Roblox has created a business model linking the virtual world and the reality. Roblox uses UGC content to attract users to acquire and consume

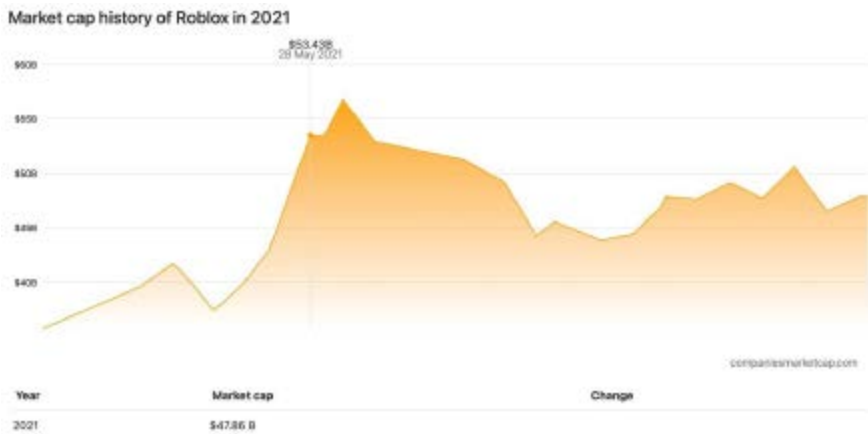
Robux, while the acquisition and consumption of Robux by users will propel Roblox to produce more UGC content, thus forming a virtuous circle.

Roblox offers a wide variety of games, including work, adventure, monster hunt, treasure hunt, beauty makeup, survival and competitions, etc. They are highly playable and mostly based on the game benchmark of win-win cooperation and creation. In addition, they are completely open and free, and thus are in line with people’s demand for exploration games in a fast-paced world. While providing excellent game experience, Roblox also supports real-time cross-platform operation among smartphones, computers and game consoles based on the cloud platform, so besides playing games, more and more teenagers begin to use Roblox as a daily social networking platform. During the outbreak of the pandemic, by allowing players to conduct online activities and communication in the game, Roblox greatly improved user viscosity. By connecting the world through games, Roblox provides users a space for imagination, creation and having fun with friends.

3.1.2
Roblox performance data

According to statistics of CompaniesMarketCap, as of September 2021, the market value of Roblox had reached USD 47.86 billion, ranking the 400th in the world. Roblox has proved its strength as the first Metaverse stock.

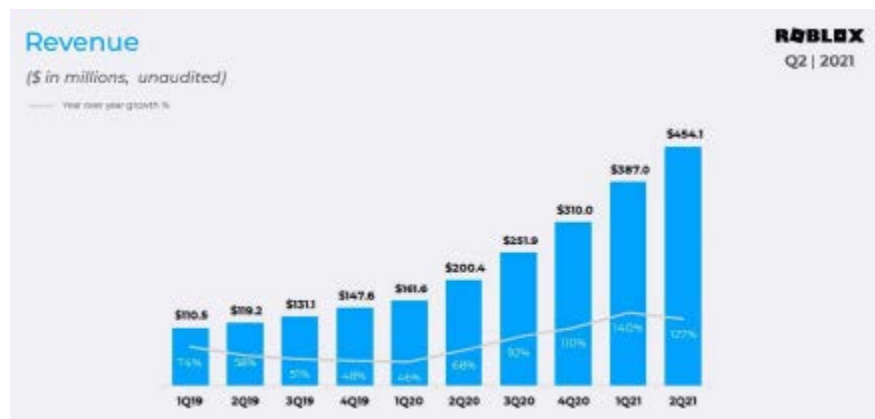
Roblox market value



source: CompaniesMarketCap, KuCoin Labs.

In Q2 2021, Roblox released a financial report, the second one since its listing. In this quarter, Roblox registered a revenue of USD 454.1 million, up 127% from USD 387 million in Q1, but still suffered a net loss of USD 140.1 million. Compared with 2019 and 2020, the growth rate of Roblox’s revenue in 2021 was much faster, a testimony of a Metaverse boom in 2021.

Roblox's revenue
(2019 Q1-2021 Q2)



Source: Roblox 2021 Q2 Financial Report, KuCoin Labs

Roblox's revenue in Q2

GAAP Net Loss
(\$ in thousands, unaudited)

3 Months ended

	6/30/2021	6/30/2020
Revenue	\$454,100	\$200,392
Cost of revenue	116,930	53,669
Developer exchange fees	129,714	85,052
Infrastructure & trust and safety	108,986	61,853
Research and development	124,748	40,249
General and administrative	97,678	38,707
Sales and marketing	18,990	13,908
Total cost and expenses	597,046	273,438
Loss from operations	(142,946)	(73,046)
Interest income	26	294
Other expense	10	494
Loss before provision for income taxes	(142,910)	(72,258)
Provision (benefit) for income taxes	20	5
Consolidated net loss	(142,930)	(72,263)
Net loss attributable to the noncontrolling interest	(2,796)	(742)
Net loss attributable to common stockholders	\$ (140,134)	\$ (71,521)

Source: Roblox 2021 Q2 Financial Report, KuCoin Labs

In fact, according to the two financial reports, Roblox had been in the red for 13 quarters before this quarter, despite the growing revenue. This is believed to be related to Roblox's profit model. As a free creation platform, Roblox mainly relies on users to create contents, and will share proceeds from the sale of virtual currency Robux on the platform with developers. From data on the Roblox official website, it can be seen that the costs of Roblox mainly consist of several parts, including the developer costs, accounting for about 1/4 of the total, mainly resulting from rewarding freelance developers who have made contributions to the development of the platform.

Roblox platform costs distribution.

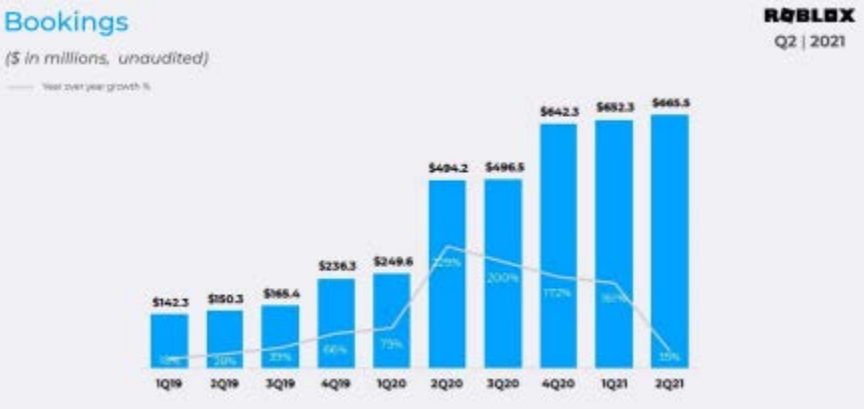


Source: Roblox official website, KuCoin Labs.

However, with the increase of developers on Roblox in recent years, the developer costs are on the rise, and become the largest part of the total costs. Most developers are reluctant to cash Robux, but choose to re-invest it in games again, thus leading to loss of Roblox. However, in the long run, due to the constantly expanding loyal users and developers, Roblox will see a more stable development.

Why is Roblox still attractive to capital after losing money for 14 consecutive quarters? Perhaps we can find the answer from Roblox bookings and user activity. According to Roblox's financial report, as at June 30, 2021, Roblox bookings were USD 665.5 million, up 35% compared to Q1 2021, and up 161% compared to Q1 2020.

Roblox bookings in Q2



Source: Roblox 2021 Q2 Financial Report, KuCoin Labs

The so-called Roblox bookings are actually the proceeds earned by Roblox from sale of the platform virtual currency Robux. As mentioned above, Roblox has its own closed-loop virtual economic system, and users who participate in games may obtain the token Robux through creation, or directly purchase Robux to buy skin or game tools in games. And the Roblox platform will set aside a certain proportion of the proceeds to reward creators and developers in the form of Robux, which may be converted to money in the real world, thus forming a virtuous circle. Since the bookings refer to the amount of Robux purchased by users, the proceeds will go to Roblox platform after users spend Robux on the platform. That is to say, the final proceeds will be confirmed with the passage of time. Although the increase in Roblox bookings cannot be immediately reflected in the revenue of Roblox platform, in the long run, Roblox will achieve profitability.

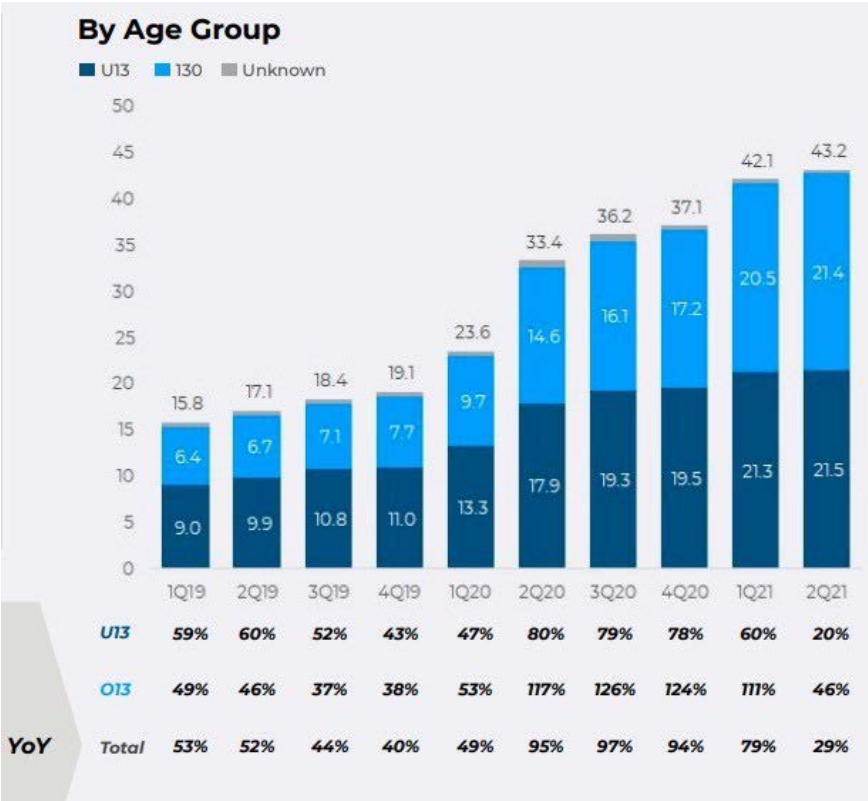
In terms of active users, in Q2 2021, Roblox had 48.2 million daily active users (DAU), up 29% compared to Q1, and up 32% compared to August 2020. Much of the growth is coming from users over the age of 13 years outside the United States/Canada. "In the quarter ending June 30, 2021, cash from operations and free cash flow continued at record levels. The third quarter is off to a strong start with our highest levels of users and engagement to date," said Michael Guthrie, Chief Financial Officer of Roblox in a statement. It can be seen that the number of Roblox DAUs has maintained an upward momentum over the past two years, and users are becoming more viscous and engaged. Roblox's popularity is no longer limited to teenagers and children. It is being extended to young and middle-aged people.

Activity of Roblox
users in Q2



Source: Roblox 2021 Q2 Financial Report, KuCoin Labs

Activity of Roblox users at different ages.



Source: Roblox 2021 Q2 Financial Report, KuCoin Labs

Due to the spread of the pandemic in 2020, many schools started to teach online, and students had to stay at home, which gave them more time to play games. Benefiting from this, Roblox saw a surge of users. In 2021, due to the implementation of pandemic prevention and control measures and extensive vaccination, students started to return to their normal school life. In the face of this change, whether Roblox can hold on to young users and continue to attract young and middle-aged users is a major issue affecting its future revenue.

3.1.3 Roblox summary

Roblox's originality, development and recent performance have a reference value for Metaverse. "We will continue investing aggressively in the key areas that we believe will drive long-term growth and value, specifically hiring talented engineering and product professionals and growing the earnings for our developer community," said Michael Guthrie, Chief Financial Officer of Roblox in a statement. "We believe we must continue to innovate and so remain focused on building great technology to make progress on our key growth vectors, primarily international expansion and expanding the age demographic of our users." Roblox needs to make further breakthroughs in both art and game fields, and to constantly explore its infrastructure. Roblox, the first Metaverse stock, is expected to achieve profitability early and have a more brilliant performance in the future.

② Rise of good mining trade union, Yield Guild Games (YGG).

3.2.1 Yield Guild Games (YGG)

"Gold mining" is a gaming term, referring to "the behavior of earning in-game gold coins or game equipment in online games and then selling these virtual items to players having limited time to play in exchange for real money through the Internet." Trade unions originally refer to social organizations organized spontaneously based on common interests. YGG is such a DAO organization that gathers users to participate in games to earn profits.

YGG is a Philippine gaming guild, a decentralized autonomous DAO organization, and one of the important promoters of the concept of "Play-To-Earn". Axie Infinity, an NFT game, has built a virtual world of pet Axies, in which players can breed, raise and trade Axies, and earn game coins by battling and completing tasks. Axie Infinity, launched in 2018 and having been quiet for more than two years, saw a sudden boom in Q2 2021, rising to be among the top ten NFT games (for details of Axie Infinity, please refer to KuCoin Labs' report July 2021). Axie Infinity token AXS was also soaring all the way. Axie Infinity's rise is due to both its own merits and the substantial promotion by the mysterious Philippine force - YGG.

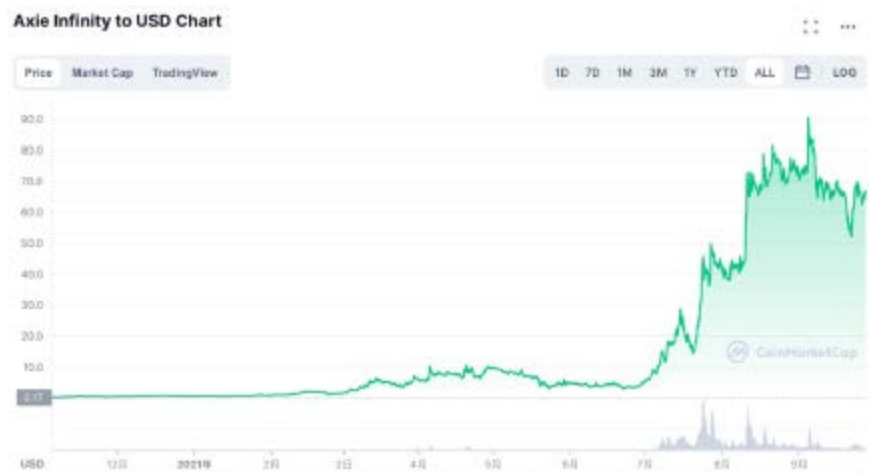


Fig.19 Price trend of AXS
Source: CoinMarketCap

Yield Guild Games was founded in 2020, when the unemployment rate in the Philippines was as high as 40% due to the outbreak of the COVID-19 pandemic and local people tried to make a living by playing on-chain games. Axie Infinity's success is also contributed by the Axie Scholarship program launched by YGG, in which there are three roles: player, manager and Yield Guild. Newcomers receive game training from managers; managers train newcomers and lend them 3 Axies as a team. With the borrowed Axies, players can start to earn SLPs in the game nearly empty-handed. SLP is Axie Infinity's gold coin in-game, which can be used to pay for and breed pets in the game. Players can also exchange SLPs for real legal currency to earn. Managers can initiate smart contracts to recover SLPs when more SLPs are hoarded by players (players receive 70% of the revenue, managers receive 20% and the remaining 10% belongs to YGG).

Meanwhile, YGG will purchase new in-game assets with the revenue, and distribute them to members of YGG. After the earliest players have gained benefits from the game, more newcomers joined in, forming a perfect closed loop with YGG and Axie. Through their interaction for mutual benefits, an internal capital model is gradually formed.

On August 19, 2021, Yield Guild Games(YGG) announced that it had completed the financing of USD 4.6 million, led by Andreessen Horowitz(a16z), a venture capital institution. When Axie Infinity achieved success, YGG also reached its peak, with the token price soaring all the way, and remaining at a high level after fluctuations. YGG hopes that players from all over the world will join the "Play-to-Earn" model, and its own success has indeed attracted a large number of players.

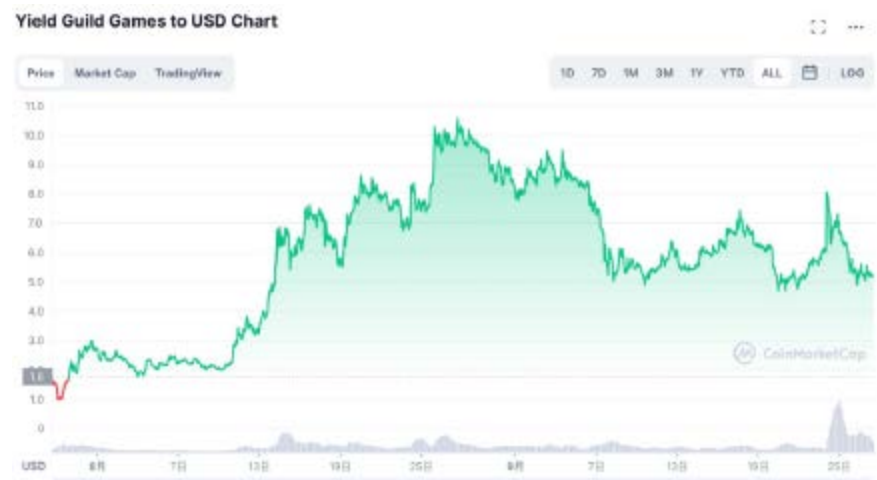


Fig.20 YGG price trend
Source: CoinMarketCap

3.2.2 Significance of gaming guild to the Metaverse

The win-win case of Axie Infinity and YGG has drawn people's attention to the gaming guild, and provoked thoughts on the relationship between the gaming guild and the Metaverse. A gaming guild can not only help people join the game, but more importantly, help reduce the threshold for newcomers, thus providing the opportunity to earn in the process of "helping others". Moreover, if a gaming guild has the scale and internal operation mode as good as those of YGG, it can boost the cold start of new chain game projects by saving the start-up capital and providing a free marketing channel. The success of the gaming guild also gave rise to a new concept GameFi, providing an interesting development direction for chain games.

Today, most projects sharing a similar concept as Metaverse, like Roblox, encourage users to be "self-sufficient", that is, to earn by exporting contents, building platforms and creating games. They are also, to a certain extent, the practicer of the "Play-to-Earn" model. Meanwhile more and more early Metaverse projects try to build

their own guilds to pave the way for Metaverse building in the future. They attempted to, through the guild, gather players, and enable them to monetize their time in the game so as to increase their viscosity.

The emergence of concepts such as NFT, GameFi and Metaverse has not only brought new development directions for blockchain, but also driven the integration of various related fields. It is more convenient for users to purchase decentralized financial assets in games, the boundary between games and finance is becoming increasingly vague, and the parallel development of the virtual world and the real world is being realized step by step.

③ Attention of the Capital Market to the Metaverse

On March 10 this year, Roblox was listed on the New York Stock Exchange, with its share price rising by 54.4% on the first day, bringing its market value to more than USD 40 billion; Epic Game, a world-renowned game company, announced that it would invest USD 1 billion it received in April in Metaverse development; and Facebook acquired Oculus and invested heavily in AR and VR technology. These showed that capital market has been paying constant attention to the Metaverse.

Tencent has been investing in various fields over the past few years. With respect to the not yet fully-fledged Metaverse, Tencent has dabbled into many key fields consisting of it, such as AR, VR, music and Internet, including Epic Games, a virtual engine supporting the underlying technology of the Metaverse, Roblox, a leading Metaverse project, Spotify, a world-renowned music giant, and Discord and Reddit, the two commonly used blockchain social software.

In 2012, Tencent purchased a nearly 50% equity in Epic Games for USD 330 million. On April 13, 2020, Epic Games completed a huge financing of USD 1 billion, and announced in a high profile that all the funds would be used to build Metaverse. In less than one year, Epic Games' estimated value rose by 60%. "Their investment will help accelerate our work around building connected social experiences in Fortnite, Rocket League and Fall Guys, while empowering game developers and creators with Unreal Engine, Epic Online Services and Epic Games Store," said Tim Sweeney, CEO of Epic.

Tencent's Metaverse



Source: KuCoin Labs

ByteDance, another big company in Chinese mainland, invested nearly RMB 100 million in the mobile game company "Code View" in early 2020. Based on the interactive physics engine technology independently developed by Code View, the company launched the UGC creation platform, Reworld. "Reworld is a platform for teenagers to create, entertain and socialize, integrating content creation, entertainment experience and social interaction. It allows every interesting mind to create and share happiness, to make more interesting friends and to enjoy the wonderful world together. " It can be called the domestic version of Roblox.

At the end of August 2021, ByteDance announced that it would acquire Pico VR for about USD 1.5 billion to deploy the Metaverse. Following the acquisition, Pico VR, which ranked first in domestic VR hardware sales in 2020, will be merged into VR related businesses of ByteDance. ByteDance also said that its internal team is working on a Metaverse social product, "Pixsoul". ByteDance's investment in the Metaverse has much greater significance than it seems. Although Metaverse has not been clearly defined by far, it is certain that it will allow us to connect all people and things in the real world in the form of virtual world.

Examples of Reworld



Source: Reworld official website, KuCoin Labs.

In 2014, Oculus, a virtual reality company, was acquired by Facebook for USD 2 billion. "At present, everything Facebook does is based on the platforms created by others (referring to computers and the Internet)," said Mark Zuckerberg, CEO of Facebook. "But now, I think it's time to invest in building what I think is the next mainstream computing platform, namely VR/AR. This technology will not only change the way you socialize and live, but also have a profound impact on the society. It may even change human beings and the planet."

Facebook, which has been devoted to VR construction, is also a firm practitioner of the Metaverse. In September 2019, Facebook launched Facebook Horizon, a VR social platform. In August 2020, Facebook launched the public beta version of Facebook Horizon, in which users can create and socialize. "Facebook Horizon will play a great role in building a broader Metaverse that spans across VR and AR," said Zuckerberg, founder of Facebook in an interview. Before the concept of Metaverse became a buzzword in 2021, Facebook Horizon didn't make a splash in the market, and it didn't seem to make a positive turn until the VR hardware Oculus quest 2 became a hit last year.

Examples of Facebook Horizon



Source: Facebook Horizon official website, KuCoin Labs

As for investment in Oculus, Zuckerberg said in an AMA Q&A that Facebook is building an operating system based on microkernel, hoping to basically design and customize each layer of the stack, to provide the performance and efficiency required by these systems (AR/VR). Facebook's recent acquisition of Crayta, a Metaverse platform similar to Roblox, further shows its belief in the Metaverse. Crayta supports creation of characters, switching of game scenes and building of social scenes.

Metaverse is not an undertaking that can be accomplished by one company. It needs the joint efforts of companies in various technical fields, and it needs a media morphosis supporting public participation. It is the common vision of many technology companies, and even the whole technology industry, and is a revolution taking place following the mobile Internet. From the deployment of the Metaverse by major companies over these years and its boom in 2021, it can be seen that the development of Metaverse has been gradually on the right track.

④ Summary

As a whole, all sectors of NFT performed well, but there was no big splash. Loot, as a driver of the small climax of NFT in Q3, led us back to the nature of NFT, and attracted our attention to and triggered our thoughts on the Metaverse. Maybe in the future, when human civilization has developed to a certain stage, the real world and the virtual world can be organically combined in the ultimate form of Metaverse. Everyone can have an avatar in the Metaverse, and all human activities, including social interaction, work and production, can be carried out in the virtual world. This is a great challenge to the Internet.

At present, although the NFT Metaverse in many fields including art and games has taken the initial shape, the Metaverse concept has not matured. In order to realize the true combination of the reality and the virtual world, it is necessary to continue with the exploration to seek breakthroughs in the fields of art and games, and to obtain support from other fields, such as the sense of reality and immersion of digital identity, one of the basic elements of the Metaverse. Experience is inseparable from the support of technology. There is still a large space for us to play in terms of Metaverse infrastructure, like the tier architecture of the underlying blockchain, NFT, server and cross-chain stability technology architecture that constitute the trade chain of the virtual world; back-end infrastructure like GPU, artificial intelligence and cloud computing that support the infrastructure of the Metaverse; and VR, AR, smart wearable devices and other front-end devices that support the immersive experience.

Only with sectoral breakthroughs and infrastructure support, can a large number of

users be attracted to join the Metaverse ecological activities, and can more high-quality contents for games and social activities be generated. A virtual world, which is born out of, parallel to and interacts with the real world, and is always online, will eventually be realized.

4.

Any-Fi

- ① Overall DeFi market
- ② GameFi
- ③ SocialFi
- ④ Summary

Any-Fi

This chapter will introduce and analyze the development and extension of blockchain finance in three sections: DeFi, GameFi and SocialFi.

1 Overall DeFi market

On the whole, DeFi performed moderately in the third quarter, with most projects still in a stable development stage. On the one hand, the market as a whole was relatively weak; On the other hand, DeFi craze gradually subsided and it has entered a stable period. More attention was paid to GameFi and SocialFi in the second half of the year. The following will analyze the overall market performance of DeFi in the third quarter from the following dimensions: the total value locked (TVL), the borrowing volume, DEX trade volume, stablecoins and derivatives.

4.1.1 TVL

Changes of DeFi TVL in Q3

In the third quarter of 2021, the TVL in DeFi projects showed an overall upward trend, from USD 77 billion to USD 120 billion, with a quarterly increase of about 55.84%. Under the influence of ETH, the TVL change trends of DeFi projects and ETH are almost the same. From USD 77 billion in early July, it has been rising steadily since then, reaching the peak of USD 129.4 billion in early September, and then fluctuating around USD 120 billion.



Source: Debank, KuCoin Labs

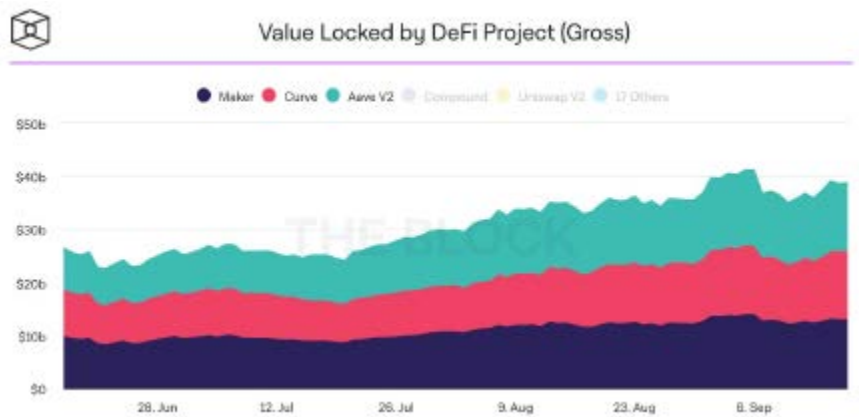
In the third quarter, ETH TVL in DeFi fluctuated and rose, reaching the stage maximum of USD 93.503 billion on September 6. According to the data from DeBank, ETH locked in DeFi continued to rise since July, and reached its peak at the beginning of September, and then fell to fluctuate in the range of USD 80–90 billion in the later period. In this quarter, ETH TVL increased by about USD 31.5 billion, an increase of 56.76% compared with the beginning of the period.



Source: DeBank, KuCoin Labs

Changes of the top three DeFi projects by TVL in Q3

On the whole, the top three DeFi projects by TVL are Maker, Curve and Aave V2, all of which are on the Ethereum blockchain. As of the reporting date, the TVL in these three projects are USD 13 billion, USD 12.9 billion and USD 12.8 billion, respectively, which are very close to each other. As of the reporting time, the TVL in these three projects accounts for over 75% of the TVL in all the DeFi projects, which is slightly lower than the 80% in the previous quarter.

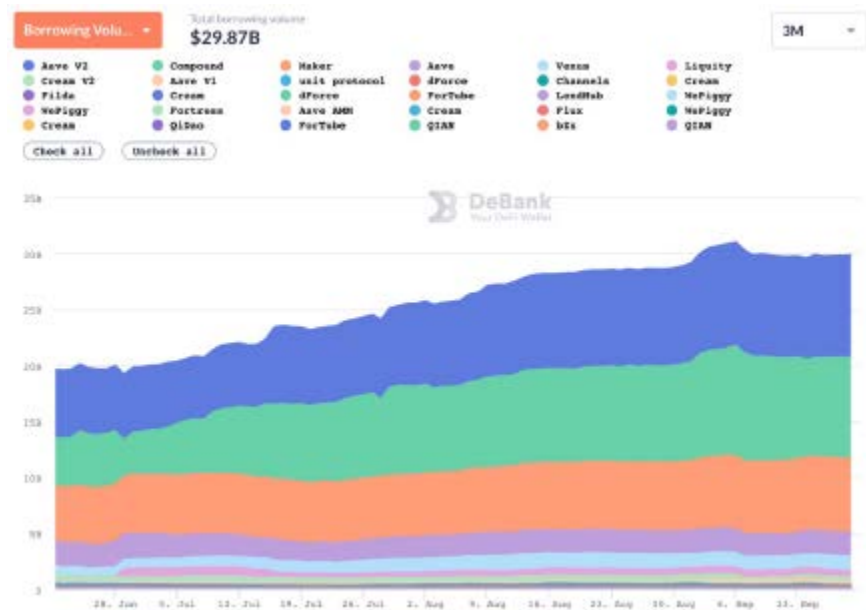


Source: DeBank, KuCoin Labs

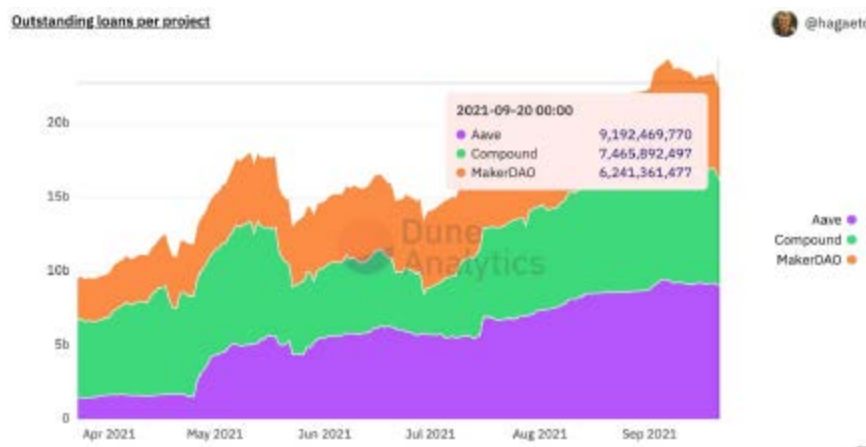
4.1.2 Borrowing volume

Changes of the total DeFi borrowing volume in Q3

The overall trend of the DeFi lending market in the third quarter is still rising, with an increase of about 50% from USD 20 billion to USD 30 billion. Compared with the second quarter, the lending market fluctuated within a narrow range and was growing steadily in the third quarter. Aave, Compound and Maker, the top three platforms in the lending market, accounted for more than 90% of the total market share in the third quarter.



Source: DeBank, KuCoin Labs



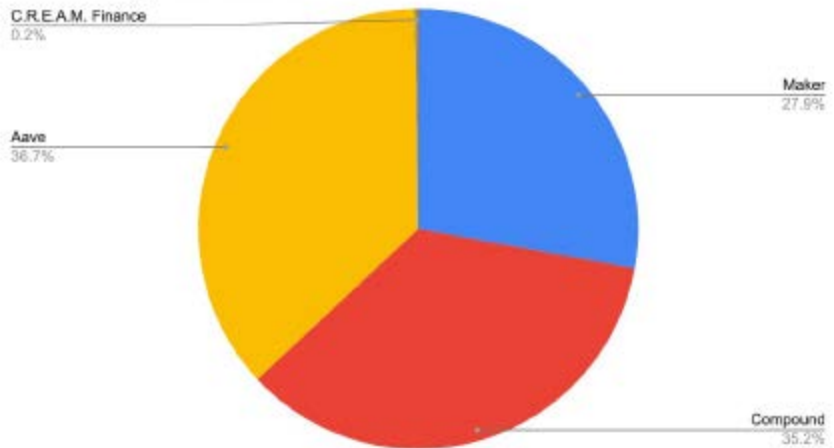
Source: Dune Analytics, KuCoin Labs

Market shares of the DeFi lending platforms in Q3

Throughout the year of 2021, the competition between lending platforms was quite fierce. From January to March, Maker ranked first with an average market share of 40%–43%. Starting from April, the token price of Compound rose, the market share of Maker and Aave was eroded, and Compound returned to the top. Later, by virtue of inter-blockchain layout, Aave's market share ranked first in early August, with an average market share of about 42%.

According to the statistics from KuCoin Labs, by the end of September, the market shares of the three major lending platforms tended to be relatively stable and balanced. Aave ranked first with a share of 36.7%, followed by Compound, accounting for 35.2%. Maker ranked third, accounting for 27.9%.

Outstanding Debt Total USD Value

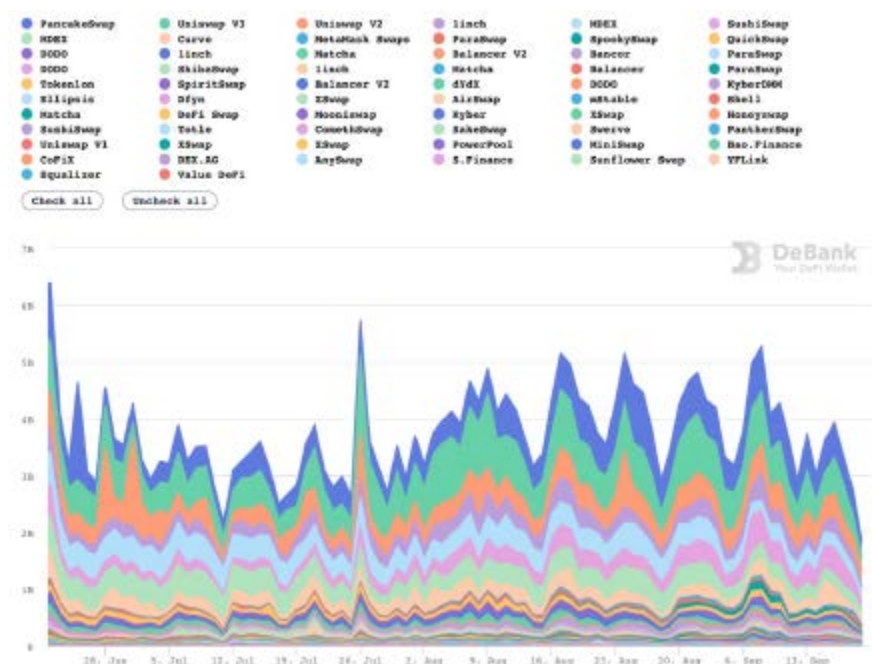


Source: KuCoin Labs

4.1.3 Performance of DEX

Total trade volume of DEX market

According to DeBank data, compared with the second quarter, the trade volume of the DEX market in the third quarter obviously shrunk. The total trade volume of the DEX market was about USD 4.3 billion at the beginning of the third quarter, and fell to about USD 2.8 billion by the end of September, a decrease of 35%, which was an order of magnitude different from the maximum trade volume of USD 23 billion in the second quarter. In the third quarter, the maximum trade volume was only USD 3.5 billion, and the overall trade volume was lower than the average of the first half of the year.

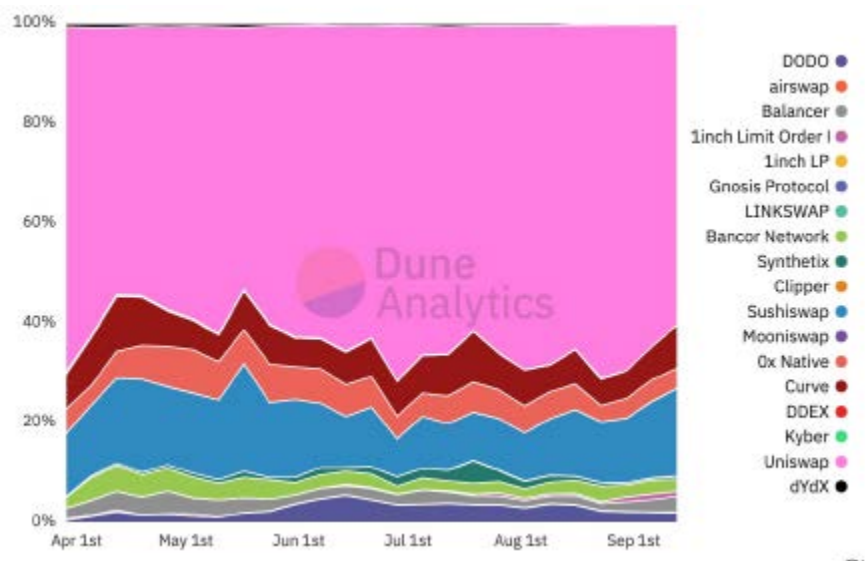


Source: DeBank, KuCoin Labs

Top three DEXs in terms of trade volume

-

In the third quarter, Uniswap, Sushiswap and Curve continued to dominate and lead the market, with the total market share of these three exceeding 90%. Uniswap alone had a market share of more than 65%, and its average share in the third quarter was slightly higher than that in the second quarter, with less fluctuation. However, the average market share of Sushiswap in the third quarter was 12%, which was slightly lower than the 15% in the second quarter, but there was a slight expansion trend on the whole. Curve's market share in the third quarter averaged about 7%, which was almost the same as that in the second quarter.



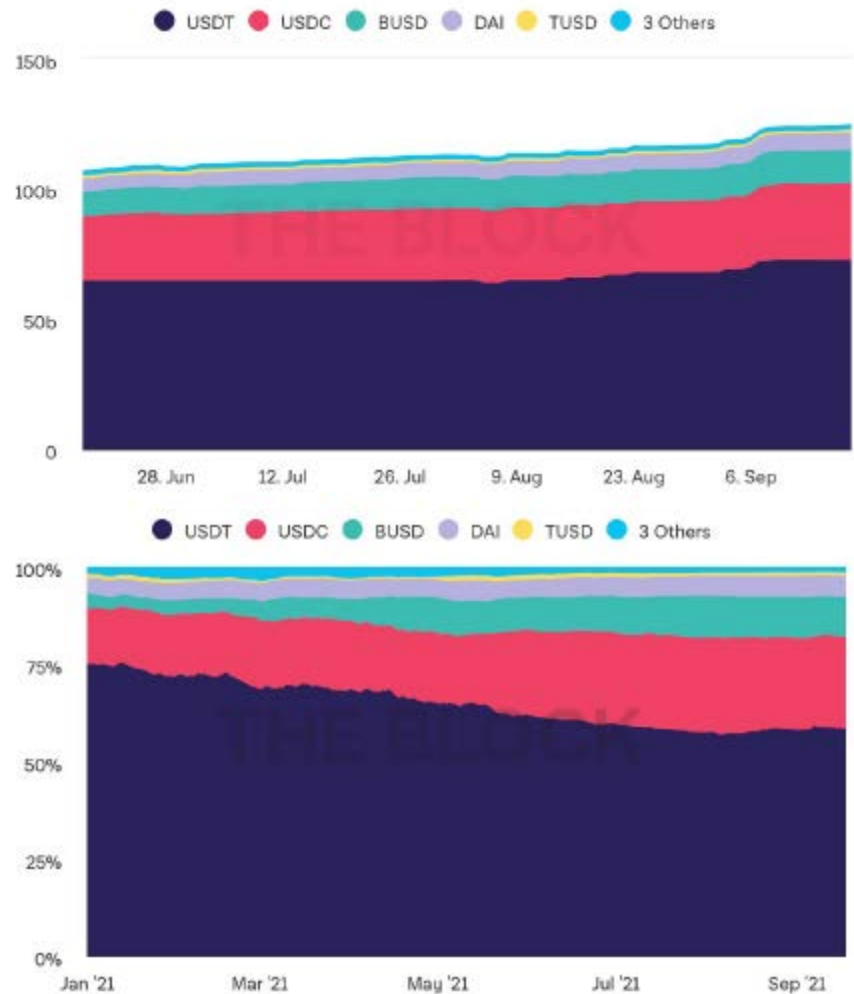
Source: Dune Analytics

4.1.4 Performance of stablecoins

Top three stablecoins by market cap in Q3

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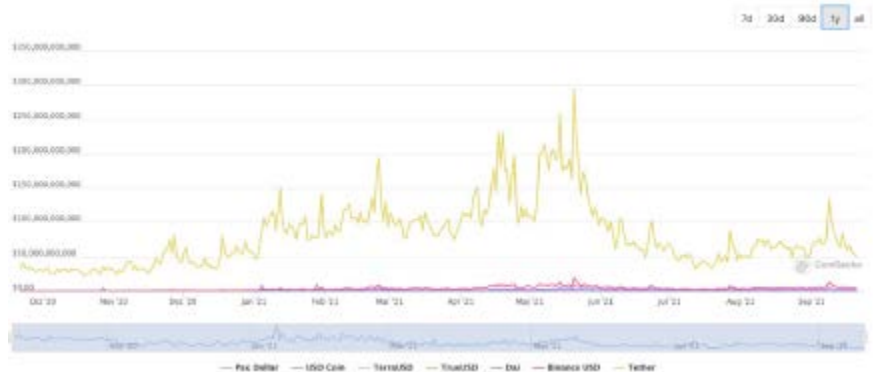
In the third quarter, the total market cap of stablecoins continued to rise, reaching USD 125 billion, an increase of 25% from the previous quarter. As was the case in the first half of 2021, USDT maintained its dominant position in the third quarter. By the reporting time, the market cap of USDT has exceeded USD 72 billion, up by 14%, and its market cap ratio has dropped to around 58%. USDC ranked second, the market cap of which was close to USD 30 billion, up 18% from the previous quarter. Its market cap ratio increased to 24%. BUSD, ranking third, had a market cap of about USD 13 billion, up by 30%. Its market cap ratio increased to 10%. On the whole, the market share of the leading stablecoins has reached 90%.



Source: Theblockcrypto, KuCoin Labs

Trends of stablecoins' trade volume in Q3

In the first half of 2021, the amount of stablecoins in circulation showed an overall upward trend, reached its peak of about USD 300 billion in May, and then began to decline. Since June, it fluctuated within the range, and reached the annual low of less than USD 50 billion in July. In the third quarter, the trade volume of stablecoins fluctuated in the range of USD 50–150 billion, which was relatively stable compared with the increase of 275% in the second quarter.



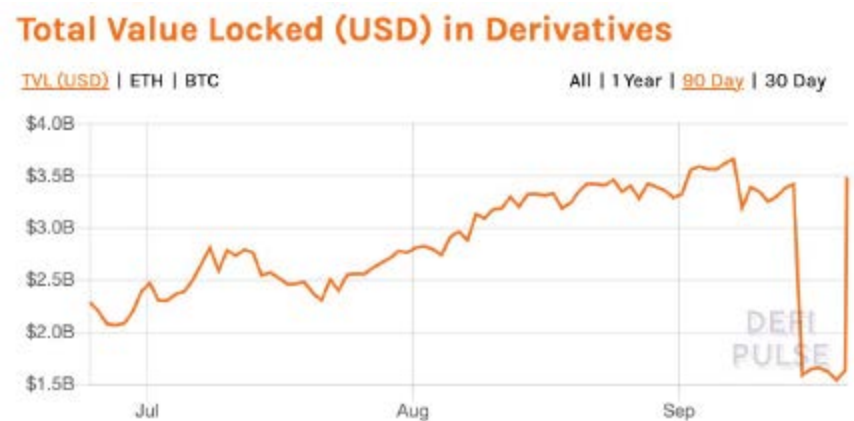
Source: CoinGecko, KuCoin Labs

4.1.5
Performance of
derivatives

Changes of derivatives'
TVL in Q3

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In the second quarter, after a severe shock and a cooling-off period, the TVL in DeFi derivatives finally stayed at USD 2.4 billion. At the beginning of the third quarter, the TVL in derivatives started to rise in a relatively stable manner. On September 17, it plunged to a new low of this year, falling by nearly 50% to only USD 1.6 billion, and then rose to USD 3.5 billion. During the period, the overall growth was about USD 1.1 billion, with an increase of 45%.



Source: DeFi Pulse, KuCoin Labs

Top three derivatives by
TVL in Q3

-

Syntheticx, dYdX and Nexus Mutual still ranked top, just like their excellent performance in the second quarter. Among them, TVL in Syntheticx still far exceeds that of the other two derivatives, and the current TVL is about USD 1.88 billion, accounting for about 55% of the overall market share. The current TVL in dYdX amounts to USD 537 million with a market share of about 15.7%, followed by Nexus Mutual, with TVL and market share being USD 394 million and 14.4% respectively. Compared with the second quarter, the performance of the top three projects improved, and their market shares also increased to varying extents.



Source: DeFi Pulse, KuCoin Labs

4.1.6 Summary of DeFi

After a year's vigorous development, the scale of DeFi market has increased by an order of magnitude. Such rapid development makes DeFi possible to subvert the financial industry in the future. As the overall market cooled in the third quarter and GameFi and SocialFi boomed gradually, DeFi's development tended to be gentle. Now, the regulatory authorities in various countries pay more and more attention to DeFi. Recently, SEC sent letters to national DeFi start-ups, including Uniswap, as part of its efforts to audit the cryptocurrency lending services. It is expected that in the next one to two years, as the external regulation awareness is enhanced, it may be imperative to promote the promulgation of regulatory rules for DeFi.

② GameFi

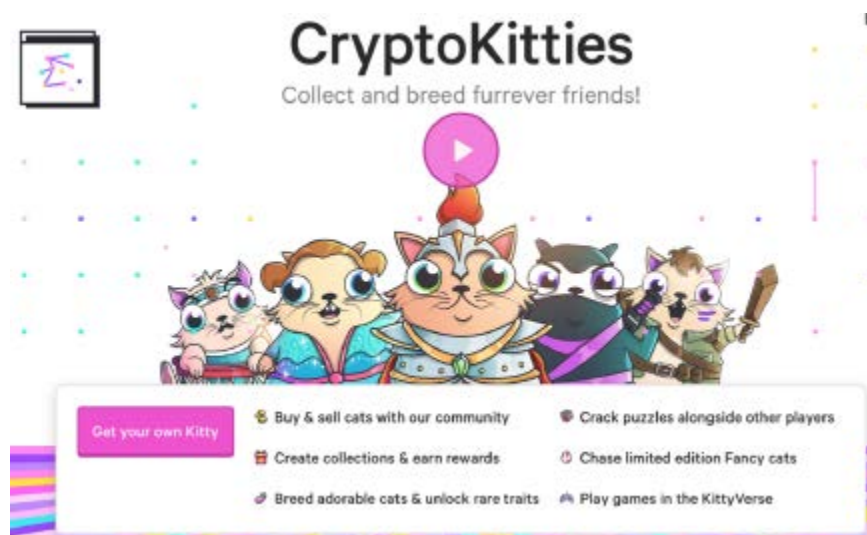
If DeFi is titled the main product market of Ethereum, GameFi can be called the most obvious use scenario of NFT. DeFi democratizes finance, while GameFi enables participants to have an independent driving force. Developers can integrate with the real world and accumulate value by running their own "digital" economy and players can gain wealth and benefits while experiencing games through Play to Earn (P2E). The popularity of GameFi benefits from the development of DeFi and NFT technology, the combination of which leads to the growth of capitalization and commercialization value of blockchain gaming.

4.2.1 Development and P2E model

In the second half of 2019, Mary Ma, Chief Strategy Officer (CSO) of MixMarvel, first proposed GameFi, also known as Game Finance, in her speech at Wuzhen Summit, to add financial elements to games. To put it simply, GameFi refers to the presentation of decentralized financial products in the form of games. It introduces DeFi into blockchain games to have games played in a brand new way by gamifying DeFi rules, and registering derivatives of game props as NFTs. One of the most striking features of GameFi is that users' capital becomes in-game equipment or tools, and users can also get benefits or rewards while participating in the game.

But as early as 2017, GameFi's game prototype was born as CryptoKitties. In fact, the expansion of Ethereum was largely influenced by CryptoKitties, as the game traffic accounted for 25% at the peak period. The first generation of GameFi was more like NFT games. The games were usually free, and developers could get commissions on chain transactions to make profits. Those games were mainly leisure-oriented, including CryptoKitties (collecting articles to breed cats with different characteristics), EOS Knights (an RPG game built on EOS, mainly rescuing villagers from orcs), EtherGo (a competitive game built on Ethereum) and Etheremon (Pokemon in blockchain game

version built on Ethereum). However, the first generation of games lacked intrinsic economic value and digital scarcity, and therefore failed to fully bring out the characteristics of Play to Earn.



Source: CryptoKitties, KuCoin Labs

Since 2019, the second generation of games has emphasized the in-game digital economy, making up for the P2E mode lacking in the first generation, and improving the long-term engagement of players. Players can convert in-game tokens into game proceeds through P2E mode, and then trade them on an exchange or cash them into fiat currency. GameFi is now a combination of DeFi, NFT and gaming, with DeFi as the core, NFT as an important means of decentralization, and gaming as its manifestation.

GameFi's Play to Earn mode attracts a large number of users, which is also the main reason for its popularity. Play to Earn successfully restores the primary premise that GameFi is a game of capital, with experience as the first element of the game, and capital acquisition as the desired result. Through this mode, users can make money in the experience process. From another angle, this is not much different from DeFi's liquidity mining in essence. The liquidity mining is ultimately paid through staking, while P2E is paid through early investment.

4.2.2 Leading GameFi projects

Axie Infinity

The following three projects, Axie Infinity, Alien Worlds and Illuvium, will fully demonstrate the diversity and future development of GameFi from different angles.

Axie Infinity is the leading GameFi project. It is a pioneer of the "Play to Earn" mode and an NFT game inspired by Pokemon, which is built on Ethereum. At present, Axie is the largest game on Ethereum, with 58,000 daily active users. In an open universe, players use their digital pets, Axies, to battle, collect, raise creatures and build kingdoms.



Source: White paper: Axie Infinity, KuCoin Labs

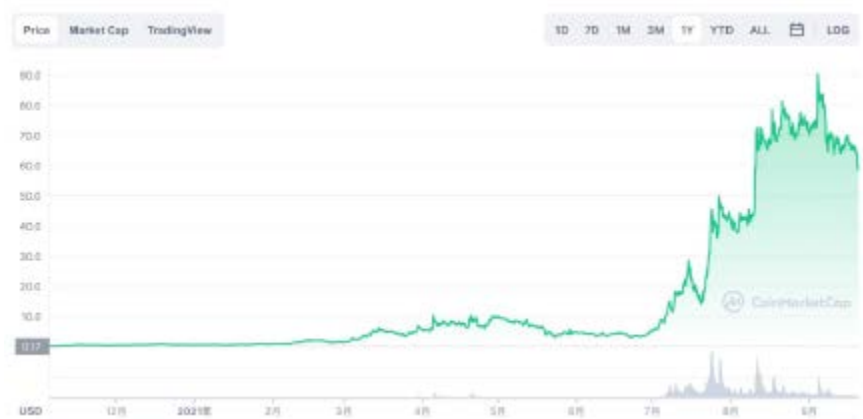
There are two usage scenarios of NFT in the game. One is Axie, which is synthesized by using AXS tokens. Axie is a kind of NFT capital in the game, and at least three Axies are needed to start the game. Axies make money by mining and doing daily and competitive missions in the game. The other is land plots. Users can use NFT, game capital and native tokens to trade on Axie Marketplace or Uniswap.



Source: Axie Infinity, KuCoin Labs

AXS is the governance token of Axie Infinity, which is used for governance and other operations in games, and can offer holders the right to share platform fees. There are two main channels for obtaining AXS. Players can buy AXS on the public exchanges, such as Uniswap and OpenSea. The other channel to get AXS is by completing in-game challenges and missions, including daily missions, PvP and PvE games, reproduction, etc.

In July, the price of Axie began to increase. First, the sales of Axie Infinity exceeded USD 121 million in June, an increase of 350% from the previous month. In the second quarter, the cumulative trade volume reached USD 276 million, ranking third in the NFT market. Then, in early August, the cumulative trade volume exceeded USD 1 billion, taking the first place in the NFT market. This contributed to the constant rise of Axie price. From early 2021 to the reporting date, the token price increased by 100 times. During this period, the highest price was USD 88.7, and the largest increase in a single day reached 36%. In September, Axie's price began to decline. After several large declines, the current price is USD 64.



Source: Coinmarketcap, KuCoin Labs

Alien Worlds

Alien Worlds, combining DeFi and NFT and featuring land mining, NFT card game and Decentralized Autonomous Organizations (DAO), has become the first Free to Play (F2P) blockchain game with over 100,000 players. Alien Worlds exists on Ethereum and WAX blockchains, and is the first and the only cross-chain NFT Metaverse game. Alien Worlds is very popular. As of the reporting time, Dappradar data shows that Alien Worlds has about 680,000 users within 30 days, ranking first among all blockchain gaming Dapps.

		CATEGORY	BALANCE	USERS	VOLUME	ACTIVITY
1		Crystal Finance	DeFi	\$2.35M	4.85k +15.68%	\$8.31M
2		Alien Worlds	Games	\$0	677.92k +80.34%	\$0.2
3		Splinterlands	Games	\$42.53k	421.20k +183.93%	\$428.75k
4		Galaxy Blocks	Games	\$21.06k	296.2k +182.97%	\$20.68k
5		MOBOX: NFT Farmer	Games	\$56.19k	216.75k +142.12%	\$127.26M
6		Axie Infinity	Games	\$227.81M	200.5k +8.98%	\$436.6M
7		CryptoBlades	Games	\$46.33k	189.87k +4.57%	\$245.06k
8		Upland	Games	\$45.88k	160.67k +0.88%	\$26.45k

Source: Dappradar, KuCoin Labs

Alien Worlds combines DeFi, NFT and Metaverse, and builds six virtual planets, each of which is a DAO. Every player has the opportunity to become a member of DAO and participate in planet governance through staking. DeFi is mainly embodied in mining and DAO in games. Different from the liquidity mining of DeFi projects, mining in Alien Worlds does not require staking. To participate in mining Alien Worlds players only need to register an account number.



Source: Alien Worlds, KuCoin Labs

Trilium (TLM) is the native functional token of the game, which can be used in the following scenarios: planet governance, where TLM holders stake TLM to participate in planet governance and other potential rewards; in-game currency, where players purchase TLM to upgrade props; incentive mechanism, where highly active users may get TLM as participation rewards. Players can get TLM by mining, and at the same time have a certain chance to get NFT.

In-game items such as land, mining tools and weapons can be cast into NFT. The game NFT can also be purchased from the secondary market. In addition, when mining TLM in the game, players may also receive an NFT.



Source: DappRadar, KuCoin Labs

It is worth noting that TLM is not limited to one blockchain. It was initially designed as a cross-chain between Ethereum and WAX, and blockchains can be added when appropriate. The purpose of this cross-chain mechanism was to allow the game to interact with projects on multiple chains, and allow players to freely choose which chain to store TLM on.

Alien Worlds

Illuvium is a strategic automatic combat game based on Ethereum, which has been dubbed by players as the first 3A masterpiece of Ethereum. The game is still under development, and a beta version is expected at the end of 2021. At present, the game only has the functions of liquidity mining and locked staking. Since the announcement, the game has attracted a lot of attention on social platforms. By now, the number of followers on Twitter has reached 82,000 and kept growing, and the market cap has reached USD 5.5 billion. Kieran Warwick and Aaron Warwick, the founders of Illuvium, have also attracted much attention in the coin community, because their brother Kain Warwick is the founder of Synthetix.

The core mechanism of the game is that players capture creatures called Illuvials by fighting and upgrading, cast them into NFT, and then sell NFT in the trading market for profit. In Illuvium's design, there are more than 100 kinds of Illuvials, and the difficulty of capturing them varies. Greater difficulty means a rarer, more valuable and more useful Illuvial.



Source: Illuvium, KuCoin Labs

Axie Infinity and Illuvium both have collectible characters that can be used for fighting and trading and can be upgraded. The former mainly attracts players who are proficient in cryptocurrency, while the latter is aimed at a wider range of players, including those who have no experience in cryptocurrency and NFT games.

Set in a science fiction world, all the players in Illuvium are survivors on an interplanetary ship, and their mission is to travel to different parts of the world to find Illuvials and fight. It is reported that the game contains three main parts: capturing Illuvials, fighting between Illuvials and fighting between players.



Source: Illuvium, KuCoin Labs

According to the Illuvium White Paper, when novice players join in the game, they can get some fragments for free through completing game missions, and then use the fragments to capture cubs and upgrade them. However, players can also use ETH to purchase equipment at Illuvium DEX to join battles directly. Illuvium's token is called ILV for short. Users who participate in game competitions, complete missions and daily challenges will get ILV rewards. ILV holders can participate in the voting of all the chain governance proposals of Illuvium, and the governance of protocol income and profit distribution. In addition, ILV holders can stake the ILV, or form ILV-SUSHI pair, to become LP to obtain liquidity mining rewards. In addition, the online trading market IlluviDEX allows players to buy and sell all in-game NFT biological assets.

However, in the long run, Illuvium's success mainly depends on two aspects. One is the playability of the game itself. It needs to be verified in the future whether the quality of the game can attract real players, and whether its concept can be transformed into high-quality products. The other is the design of its economic mechanism. Whether its token use can support sustainable development of Play-to-Earn is also one of the keys to the sustainability of encrypted games.

4.2.3 Summary of GameFi

Existing challenges:
infrastructure, market
and so on.

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GameFi is in its early stage, facing many challenges and problems. Firstly, the most important and most influential challenge in the future is the regulatory barrier. Just like that in the early stage of token development, regulatory authorities judge the nature of different STOs in order to better regulate them. GameFi is also facing such a problem. The P2E mode begins to get popularity, but will form of earning money through gaming be taken as gambling? What is the extent and boundary of its legal compliance? These are all hidden risks that do exist, as well as the risk of money laundering which has long been concerned. Will the GameFi market be used for money laundering?

Secondly, with regard to infrastructure, although GameFi is born on the basis of DeFi and NFT, and relevant technical implementation is already in place, the game includes broader attribute content. Like the current popular concept of Metaverse, the related products are all endowed with grand blueprints, but in fact only a small part has been realized. The construction of a Metaverse needs more powerful and stable infrastructure support, including hardware and software equipment, as well as equipment for AR, VR, information input and feedback. With the continuous upgrading of products, developers and designers need to deal with more problems, such as how to improve players' experience and enhance their engagement.

GameFi is still at an early stage of development, so it is not restricted by many rules and regulations yet, and it will naturally adapt to the industry as it grows. However, with the development and expansion of the market in the future, GameFi is bound to face more and more complex challenges.

Prospect

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"DeFi summer" in 2020 ignited the DeFi industry, and this year's Play to Earn mode opened a new chapter of blockchain gaming. Playing games is no longer just a pastime, but a way for players to earn money as a reward for the time and energy they invest. Influenced by the COVID-19 epidemic, people's work, study and life patterns have changed to adapt to new situations. GameFi is not only a brand-new empowerment of DeFi and NFT, but also a new impetus to shake traditional game concepts and bring economic opportunities.

Moreover, GameFi is also an inevitable outcome as the DeFi and NFT markets develop and mature. On the one hand, GameFi allows players to truly own in-game props and items and accumulate economic wealth through gaming; On the other hand, investors can also inject money into the game to gain benefits or earnings. GameFi has opened up a new track to make crypto assets both financial and entertaining, which brings new imagination to the blockchain gaming and even the blockchain world.

According to the roadmap of many GameFi projects at present, many projects will not be launched until next year, when players and traffic will be really attracted. Therefore,

at present, GameFi is still in the early growth stage, and there will be a time window for GameFi from now to the future, which will bring about a good chance for GameFi to become a mainstream sector in the blockchain industry in the future. Based on this point, GameFi still has great market potential to be tapped.

③ SocialFi

With the rise of DeFi and GameFi, SocialFi has joined the wave. More and more people believe that SocialFi may be the next potential sector, because "social" has always been one of the important directions of blockchain industry, and it is also highly demanded by Web 3.0.

4.3.1 Development process

As the name implies, SocialFi is actually a combination of Social and Finance, allowing users to get more benefits through financialization and tokenization of their social influence. In other words, SocialFi has built a perfect and autonomous economic system for users, and everyone involved can gain benefits by showing their value. Social Token is defined as "a token supported by personal reputation, brand or community".

As early as around 2017, a large number of blockchain+community-oriented projects emerged. However, due to low market visibility and technical limitations at that time, many projects failed to develop in the long term. In addition, the concept of DeFi was not profound and clear at that time, nor was it mature enough to realize the value potential of SocialFi. At the early stage, YeeCall, Steem, TTC Protocol, Huobi Chat and other projects were unable to sustain due to the unfavorable market environment, immature economic model and limited users.

Until 2020, with the advent of the DeFi era, NFT and GameFi burst one after another, and SocialFi succeeded in drawing the public attention again. This time, under the influence of multiple concepts such as liquidity mining, "Fi" in SocialFi is more connected to "DeFi" than "Finance". In the first half of 2021, as one of the popular tracks, SocialFi also opened a new chapter as many new projects were introduced.

4.3.2 Discovery and capture of SocialFi value

GameFi's value discovery is achieved through P2E mode, while SocialFi's value is captured through the demonstration of personal value of the content creators. In other words, SocialFi empowers individual creativity and social influence to create an economic system of creators that ultimately drives the growth and expansion of the entire ecosystem.

A good case — Elon Musk and DOGE (dogecoin) Dogecoin was born in 2013, and its

popularity even surpassed many mainstream coins due to its affordable price and high community activity. The price of dogecoin hovered around USD 0.01 all year round, until February this year, when Elon Musk, the founder of Tesla, made intensive remarks about dogecoin, which made its price increase amazingly. As shown in the price chart of dogecoin, there were several obvious rises in February, April, May and June. In fact, these rises were closely related to Musk. Just because Musk intensively mentioned dogecoin to his more than 40 million social media followers, dogecoin was pushed to the "altar" and frequently topped the annual increase list published by major exchanges. The market cap of dogecoin once even approached USD 10 billion, ranking among the top ten cryptocurrencies by market cap.



Source: Coinmarketcap, KuCoin Labs

Musk has directly driven the market price of dogecoin through his personal influence on social platforms. However, this influence is not exclusive to dogecoin. Usually, any cryptocurrencies Musk mentioned on social platforms would experience a price boost. These phenomena have already reflected the attributes of SocialFi.

4.3.3 SocialFi ecological track

At present, the most mainstream categories of social tokens are personal tokens, community tokens and social platform tokens.

The following will introduce each category of social token in detail through typical projects.

Personal tokens

-

Personal tokens are mainly issued and controlled by individuals. Issuers can tokenize themselves, and the value of tokens will appreciate with the development of individual creators.

As one of the most established personal token issuance platforms, Roll issues personal

social tokens for content creators based on the social token protocol developed on Ethereum. Roll provides each issuer with the same template of token economy: a fixed supply of 10 million tokens for each issuer, of which 20% (2 million tokens) is directly issued to content creators; 1.2% (1.2 million tokens) is allocated to Roll as a platform fee to develop the economy and provide initial liquidity for creators; and the remaining 68% (6.8 million tokens) will be unlocked linearly every month during three years.

Whale Shark, a major NFT player, issued a well-known personal token WHALE in Roll. Its value is based on more than 3,200 NFT assets owned by him, covering 45 projects with a total value of about USD 1 million. These assets are kept in the address named "The Vault". According to the audit report by Nonfungible.com in September, the total value of the "The Vault" has reached 3957 ETH, which is about USD 1.24 million, an increase of 49.3% from the previous month.



Source: Nonfungible, KuCoin Labs

At the end of February this year, Whale Shark indicated that he would donate his 10% NFTs to an unnamed charitable trust fund, which made WHALE's price rise continuously, reaching a record high of USD 52.56. On March 14, many tokens including WHALE suffered losses because Roll was hacked. Among them, WHALE lost 1362 ETH, which caused the token price to plummet for several consecutive days. On March 25, Whale Shark announced that WHALE had completed private equity financing of USD 1.5 million, and then the token price began to rise. Since the end of July when WHALE announced the completion of the second round of private equity financing, the token price has rebounded sharply for the third time.

WHALE to USD Chart



Source: Coinmarketcap, KuCoin Labs

Community tokens

Community tokens are mainly issued and controlled by a group, usually managed by a decentralized autonomous organization (DAO).

Props, one of the most typical community tokens, is a kind of creator incentive token based on YouNew streaming media platform. It derives its value from a collective of apps that chooses to offer benefits to Props holders, and these participating apps join forces to imbue value in the Props. Props rewards contributing apps, users and verifiers. It's a central hub where data can be stored. It incentivizes participants to coordinate their interests and form a community.

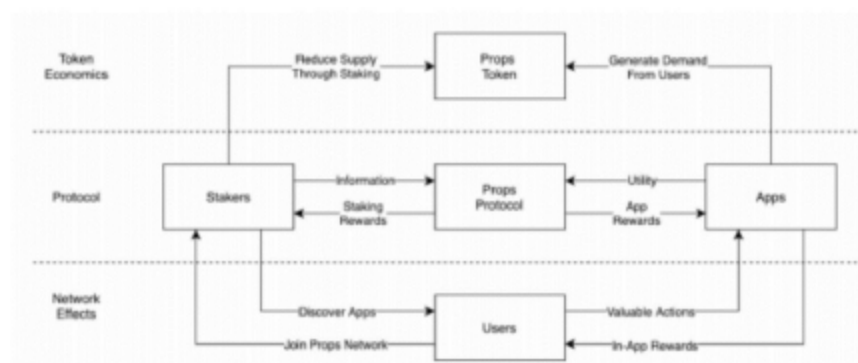
Apps Running Props			
Props is deployed by popular consumer apps, each with millions of users worldwide. Transactions are activities that accrue Pending Props. Rewards represent Pending Props			
	TRANSACTIONS	USERS	REWARDS
younow	113,686,593	5,304,276	69,857,788.8536
camfrog	57,472,958	3,873,274	5,452,320.9504
paltalk	40,181,770	1,891,539	2,438,619.6600
listia	2,050,915	96,191	3,642,103.4080
Tegger	47,131	4,829	42,868.0076

Source: Props, KuCoin Labs

In addition, Props was one of the first security tokens approved by SEC and was issued according to the strictest RegA+ clause in the STO system. However, in August this year, Props announced that it would stop operating at the request of SEC of the United States, and YouNew also announced that it would stop issuing Props tokens and supporting Props Loyalty plan in December this year.

The core mechanism of Props is to incentivize apps to provide benefits for Props token holders. The two main token use scenarios are: (1) staking: users stake Props to a specific App and obtain a corresponding number of App points; (2) App rewards: the number of App points will determine which benefits the users can unlock.

The above-mentioned process exerts influence from three levels respectively. Firstly, unlocking benefits for Props holders by apps will drive the demand for Props and incentivize users to participate, instead of just holding Props. Secondly, through the rewards provided by apps and the added utility for Props, apps will also get Props rewards, which can be distributed to users. Finally, because the stakers stake Props to apps they think valuable, this behavior also indirectly provides data to Props to know which apps can effectively promote Props to increase their value and utility. In this way, apps and Props can promote and benefit each other in a positive circular relationship.



Source: Coinmarketcap, KuCoin Labs

The apps drive demand for Props tokens by unlocking benefits for Props token holders. This benefits the entire Props community and adds overall utility to Props. As a result, apps can earn Props rewards for the benefits they offer and the utility they add to the token. Apps can then distribute a portion or all of their Props rewards to their users. This creates a powerful feedback loop between the apps and the Protocol, with each driving value for the other.

In February this year, Props released a white paper on the project. In April, it announced that the SEC had conducted qualification examination on the issuance of Props, and announced the cooperation with new partners, etc. These caused the price of Props to soar, with a maximum increase of 94.26%. Until August 14, when the SEC announced that the Props project would stop operation in December, and that the Props Loyalty plan would be terminated, the token price fell by more than 50% below the issue price.

Props Token to USD Chart







Source: Coinmarketcap, KuCoin Labs

Social platform tokens

On the basis of personal tokens, the concept scope is expanded to the field of social platform tokens. Social platform tokens often represent the control over a platform, and platform creators can create their unique creator tokens on the basis of basic governance tokens, which not only facilitates the issuance and exchange of social tokens, but also ensures the liquidity of basic governance tokens.

Rally, one of the most representative social platform tokens, enables creators and brands to publish their own tokens without relying on any social media platform, facilitating interaction with fans, and creating better engagement and profit-making opportunities. In other words, creators can define their own social tokens and become independent economies, while fans can support their favorite creators and get some special benefits by purchasing Rally's governance tokens RLY. Overall, Rally is user-friendly for beginners without the need for complex coding on Ethereum.

All Creators

Market Cap		Price	Rewards	
Coin	Creator	Price	Circulating Coin Supply	Market cap
 \$RKY	RKY	\$40.26	150,282	\$487,758
 \$PLAY	The Play Coin	\$37.67	149,890	\$472,569
 \$TILT	Joe Pulizzi	\$33.77	148,729	\$431,082
 \$CHOU	Kevin Chou	\$33.46	148,639	\$428,062

Source: Rally, KuCoin Labs

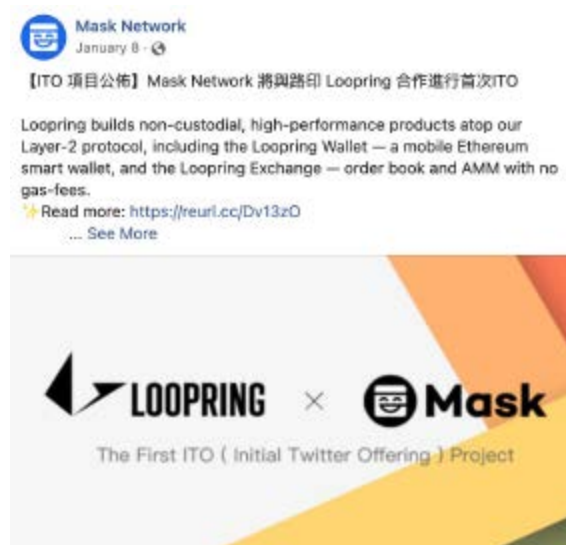
Rally's token application scenario is relatively simple and clear. Creators can buy RLY tokens directly on the platform, and then create their own social tokens with RLY. Because of network effect and linkage between RLY and creators' tokens, social tokens will inherit the liquidity of RLY. In addition, Rally allows tokens to be converted into some other currencies, such as USD or other cryptocurrencies. Fans can directly create accounts and buy creators' social tokens, and by holding or exchanging tokens, they can realize some special benefits, such as visiting private communities and undisclosed content.

This decentralized management enables creators and their communities to enjoy unfettered control rights. On the one hand, while expanding their fan base through personal social tokens, creators also absorb capital, turning their creations into personal interests. On the other hand, fans can be closer to creators, not only their works, but also themselves.

Third-party tools

Because social tokens have strong social attributes, they often need to be implemented with third-party tools, which often overlap with tools used by other blockchains.

Mask Network, as the representative of third-party tools, is officially described as a portal to help users make a seamless transition from Web 2.0 to Web 3.0. Similar to a small plug-in in apps and a SAAS applet in WeChat, Mask Network does not create its own platform. It is mainly used to send encrypted information and encrypted currency seamlessly, and even decentralized apps such as DeFi, NFT and DAO, without using a centralized server. Because Mask Network is mainly based on Twitter, Facebook and other social platforms, it falls into the category of social features. ITO (Initial Twitter Offering), a brand-new token issuing method, was initiated by Mask Network, allowing Twitter users to subscribe directly on the Twitter platform.

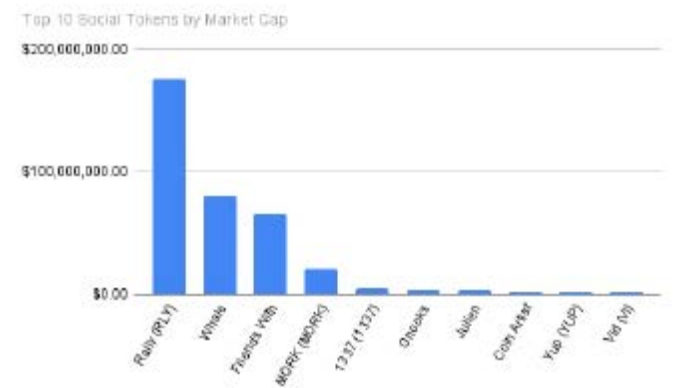


Source: Mask Network, KuCoin Labs

However, this kind of "light" token subscription method arouses mixed opinions. On the one hand, Mask Network plays the role of middleware, helping users to realize decentralized socialization and better protect their privacy and interests, and also creating a decentralized environment for the whole ecology. On the other hand, Mask Network is not a must. For example, under ITO's token sales model, counterfeit tokens were once purchased during a system crash. The critical problem is that plug-ins can only provide functions and make demonstration based on the platforms they are built on, making it difficult to line up with customer demands. This is similar to the case in which users have to go to the original shopping platform for purchase though the products are recommended to them on social platforms.

4.3.4
SocialFi ecological
track

According to the incomplete statistics by KuCoin Labs, Rally is currently the most valuable social token, with a market cap of over USD 150 million. WHALE ranks second, with a current market cap of USD 75 million, about half of Rally. Fyooz, the third-ranked token, is currently valued at about USD 59 million.



Source: KuCoin labs



Source: Coingecko, KuCoin Labs

The transition from Web 2.0 to Web 3.0 will need to attract user traffic, and social interaction will play a vital role in this process. DeFi realized decentralized capital flow, NFT contributed to the uniqueness of value, GameFi provided more choices to earn money, and SocialFi brought users freedom, convenience and value discovery. Decentralized social interaction is a brand-new attempt. Whether it is creator economy, owner economy or fan economy, it is an innovation and breakthrough in value mining. Although SocialFi has experienced a round of growth, the proportion of social market is still very small in the entire cryptocurrency market. In the future, maybe more people will find the significance of SocialFi, but there is still a long way to go before SocialFi becomes a real market hotspot.

4 Summary

After DeFi Summer, NFT, GameFi and SocialFi emerged one after another, and value discovery and wealth accumulation on the blockchain are increasingly obvious. In essence, this is undoubtedly the migration of capital. In the era of Web 2.0, users can spend, invest and socialize online. To realize Web 3.0, it is necessary to gradually attract such traffic and capital, and transform the existing things into products suitable for the new era in the process of traffic attraction. DeFi, GameFi and SocialFi all have chosen different carriers and forms while focusing on capital, in order to promote this process in a more comprehensive and diversified way.

The rule of concept evolution is that a concept comes into being, develops, accumulates to a certain point, and then transforms into a product. During this period, there will be a large amount of capital investment. Despite risk of failure, some core things will be left to inject energy for the next rise.

5.

Blockchain Industry Users

- ① Metaverse/NFT users in Q3
- ② Fi-related users in Q3
- ③ User-based summary

Blockchain Industry Users

① Metaverse/NFT users in Q3

5.1.1 NFT users

Turnover of NFT in the latest year (in USD)

This year is known as the first year of NFT. Since the outbreak of COVID-19 last year, many countries have taken loose monetary policies to stimulate the economy. In a short period, the traditional investment schemes lost their appeal, and people increasingly turned their eyes to the Blue Ocean. Since the beginning of this year, news about NFT has been springing up, companies have successively announced investments in NFT, and NFT auctions have hit record highs. With growing popularity, NFT is ushering in a golden period of development.

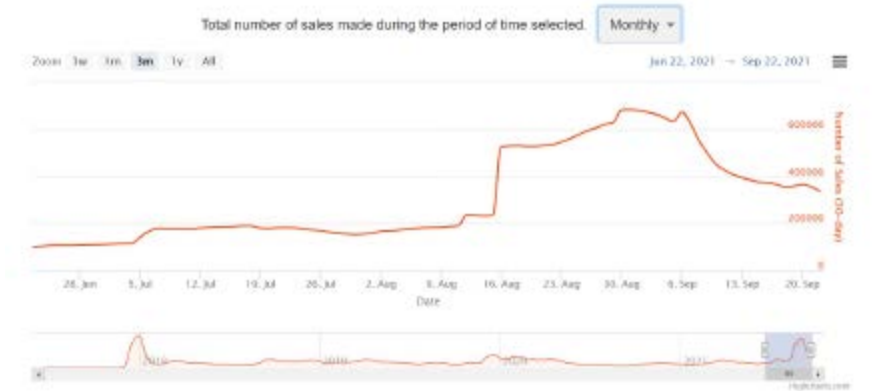
From the USD turnover of NFT in the latest year, it can be seen that the NFT market is relatively modest in 2020, and the monthly turnover remains stable at about USD 10 million. Since the beginning of this year, the NFT market has shown exponential growth, with the turnover reaching USD 10.18 million on January 1, 2021. In the first and second quarters, the market became more active and the trade volume began to surge. In the third quarter, the market became even more vigorous. By the end of the third quarter, the turnover amounted to USD 2.5 billion, an increase of 254 times compared with the beginning of this year. The highest single-day trade volume was observed on September 6, 2021, reaching USD 2.842 billion.



Source: NonFungible, KuCoin Labs

In the third quarter, the overall number of trades in the NFT market was also soaring. In particular, driven by the NFT series such as Axie Infinity, CryptoPunk and NBA Top Shot, the number of NFT trades reached record highs in August. The number of trades on June 30 reached 111,030, and then began to climb gradually. After August, the number of trades per day remained above 200,000, with the highest number of trades on a single day being 682,621. By the end of the third quarter, the number of trades was 365,532, an increase of about 329% compared with the previous quarter.

Number of NFT trades in Q3



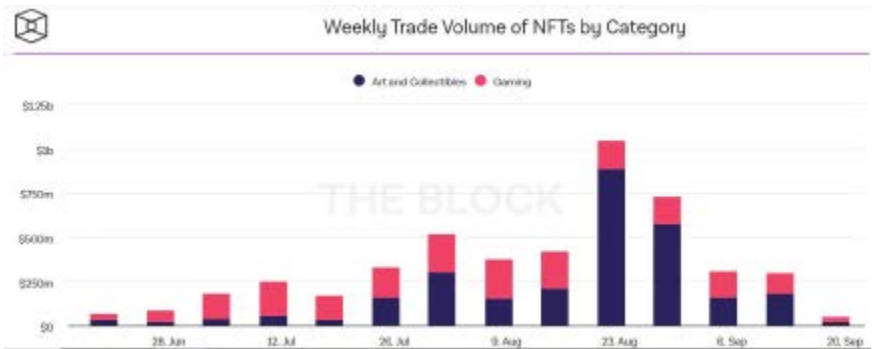
Source: NonFungible, KuCoin Labs

NFT active wallets in Q3



Source: Nonfungible, KuCoin Labs

Q3 Trade volume of NFT art and collectibles & gaming

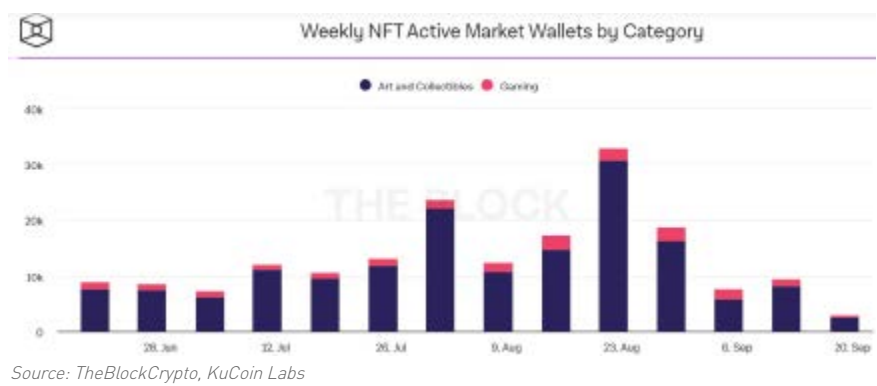


Source: TheBlockCrypto, KuCoin Labs

Q3 Number of trades of
NFT art and collectibles &
gaming



Q3 Number of active
wallets of NFT art and
collectibles & gaming



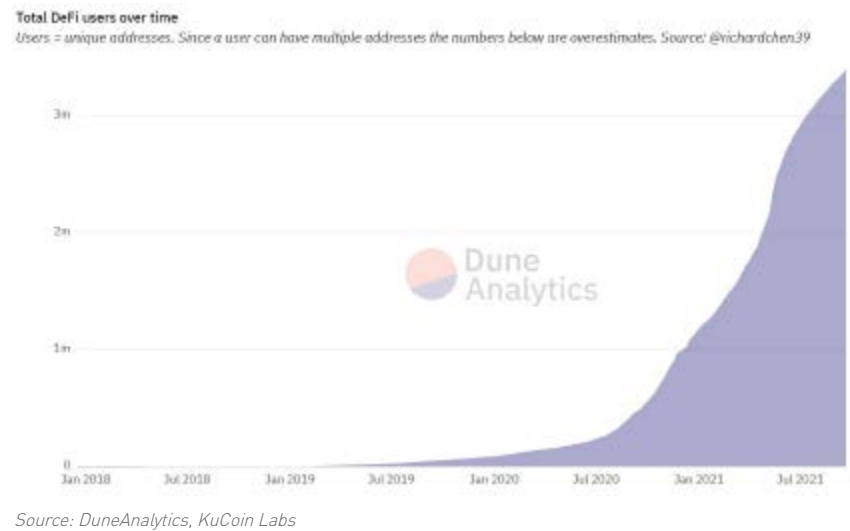
2 Fi-related users in Q3

5.2.1 DeFi users

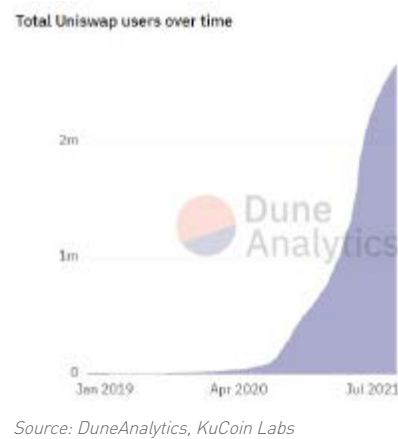
Since the outbreak of COVID-19 last year, more and more people have recognized the broad market prospects of DeFi. The development of DeFi gradually returned to rationality, and meanwhile, the intrinsic value of DeFi was gradually developed. Throughout this year, due to the influence of market environment, the growth rate of DeFi users slowed down in the first and second quarters. As the market picked up in the third quarter, the popularity of Bitcoin and Ethereum gradually rebounded, driving the continued growth of DeFi users. Uniswap V3 was well received by the market, leading to certain growth of DeFi users. In addition, other users remain involved in several DeFi top projects such as Compound and 1inch.

In terms of the number of users, the total number of DeFi users was 2,914,027 by the end of the second quarter, and increased by 16.6% to 3,400,686 by the end of the third quarter, of which the number of Uniswap users was 2,678,683, accounting for 78.76%; the number of Compound users was 329,428, accounting for 9.67%; and the number of 1inch users was 312,817, accounting for 9.17%.

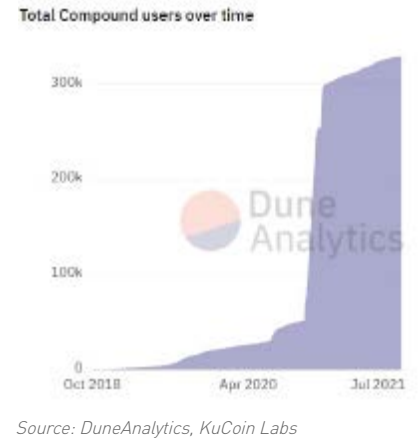
Total DeFi users



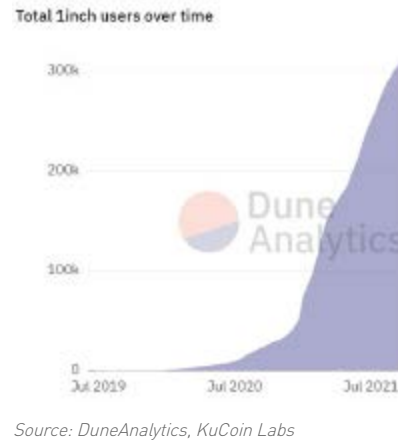
Total Uniswap users



Total Compound users













Total 1inch users



5.2.2 CEX and DEX users

In terms of weekly visits by CEX users, top decentralized exchanges are still favored by users. In particular, most users showing interest in BTC and ETH participate in the market based on CEX. At present, CEX mainly attracts traffic through and launches projects around DeFi and NFT. In the third quarter of this year, the concept of Metaverse went viral. Many companies announced investments in Metaverse, and Metaverse projects gradually emerged in the market, becoming an important direction for attracting traffic.

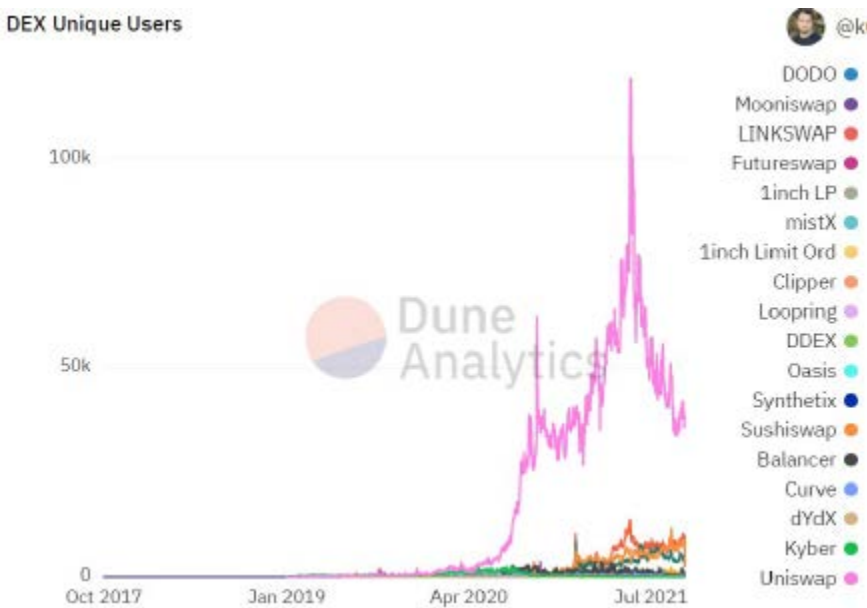
# ▲	Name	Weekly Visits ⓘ
1	 Binance	28,351,152
2	 Coinbase Exchange	2,901,407
3	 Huobi Global	962,260
4	 FTX	3,866,226
5	 Kraken	2,080,996
6	 KuCoin	1,746,860
7	 Bitfinex	846,579
8	 Gate.io	2,225,432
9	 Binance.US	666,807
10	 Bithumb	563,851

Weekly visits by CEX users

Source: CoinMarketCap, KuCoin Labs

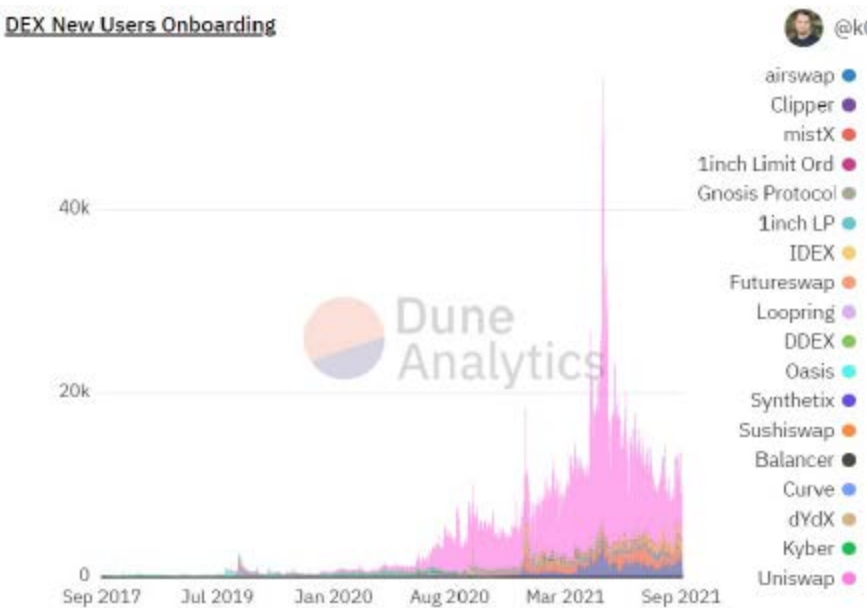
The number of DEX users began to increase gradually in the second half of last year, and has shown a rapid rise trend this year. At present, DEX users are mainly from top exchanges such as Uniswap, 1inch and Sushiswap, and the number of Uniswap users accounts for more than 70% of the total number of users. After Uniswap V3 was launched in March this year, the number of Uniswap users and of new Uniswap users soared, and reached the peak after the launch of Ethereum Mainnet in May at 98,598 and 47,784 respectively. After the craze passed, the number of Uniswap users and of new Uniswap users decreased relatively and returned to normal, reaching 40,790 and 5,458 respectively by the end of the third quarter.

Number of DEX users



Source: DuneAnalytics, KuCoin Labs

Number of new DEX users



Source: DuneAnalytics, KuCoin Labs

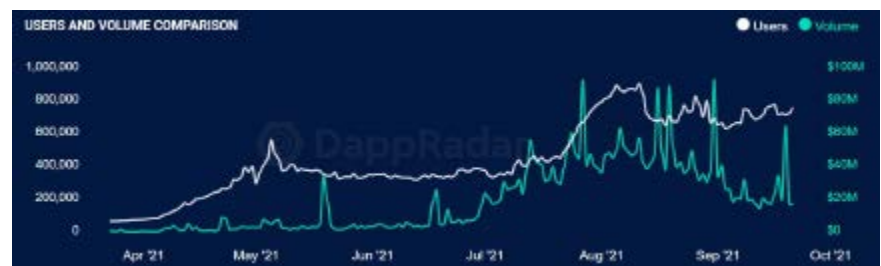
5.2.3 GameFi users

Total users and trade volume

Since the beginning of this year, NFT gaming projects have developed rapidly. Several popular games represented by Axie Infinity experienced explosive growth in June and July. The success of the P2E (Play-to-Earn) model has made GameFi the most watched sector.

The number of GameFi users increased gently in the first half of the year and remained at an average level. By the end of the second quarter, the number of GameFi users was 382,654. This figure increased significantly in the third quarter, especially as August began, when a large number of users flooded into GameFi gaming projects. By the end of the third quarter, the number of users participating in GameFi games reached 758,743, an increase of 198% from the second quarter.

The trade volume in the second quarter was relatively low, with the highest single-day trade volume standing at USD 34.26 million, and the trade volume at other times remaining at the million level. In the third quarter, the trade volume jumped sharply, achieving multiple peaks, with the highest single-day trade volume reaching USD 93.26 million and the average trade volume remaining above USD 10 million.



Source: DappRadar, KuCoin Labs

According to DappRadar data, the top five games in recent 30 days are Alien Worlds, Splinterlands, Galaxy Blocks, MOBOX: NFT Farmer, and Axie Infinity.

		BALANCE	USERS	VOLUME	ACTIVITY
1	Alien Worlds	\$0.00	921.21k +26.62%	\$0.20	
2	Splinterlands	\$31.61k	391.58k +193.41%	\$394.18k	
3	Galaxy Blocks	\$20.13k	258.51k +205.11%	\$29.78k	
4	MOBOX: NFT Farmer	\$71.78M	214.72k +266.57%	\$155.48M	
5	Axie Infinity	\$201.50M	212.05k -32.59%	\$460.68M	

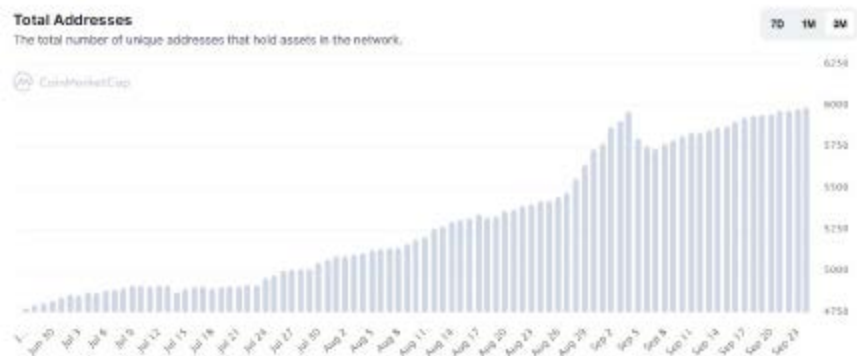
Source: DappRadar, KuCoin Labs

5.2.4 GameFi users

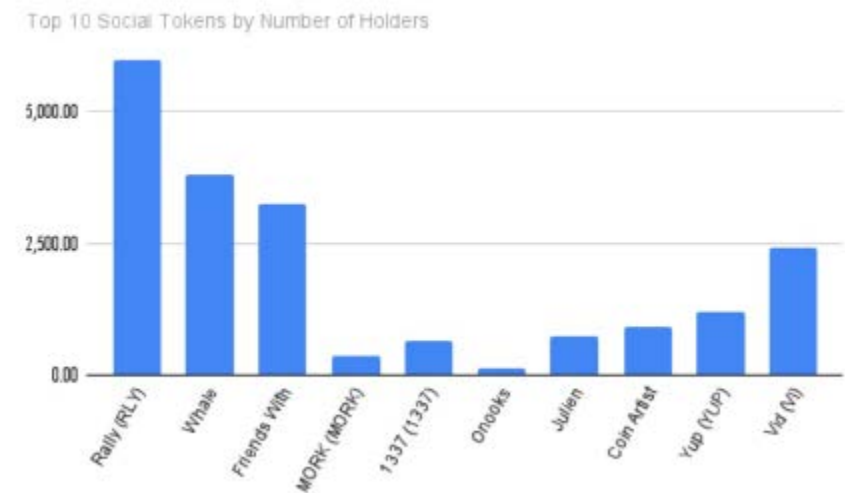
In the first half of last year, the SocialFi market was almost negligible. However, since the second half, this market began to surge. This year, the market cap of social tokens circulating in the market crossed USD 100 million. By the end of the third quarter, the total market cap of crypto assets under the SocialFi concept exceeded USD 3.5 billion,

which was only at the early stage of development of social tokens. As SocialFi became another hot spot after NFT and GameFi, it attracted more attention, users and funds.

In terms of the number of people holding social tokens at present, this report takes Rally, which has the highest market cap and the largest number of holders, as an example. By the end of the second quarter, the number of Rally holders was 4,822, which increased gradually in the third quarter, especially after the establishment of the Social DeFi Alliance in August, when the number of Rally holders once approached 6,000. By the end of the third quarter, the number of Rally holders was 5,988, an increase of 24% from the second quarter.



Source: CoinMarketCap, KuCoin Labs



Source: KuCoin Labs

③ User-based summary

Generally speaking, the target audience of the crypto asset industry is expanding constantly. In terms of both infrastructure and subsectors, this industry is attracting increasingly more people. With the improvement of blockchain underlying infrastructure, ETH 2.0 upgrade, and the launch of alternative expansion solution Polygon, user experience and user stickiness will be greatly enhanced.

From the perspective of subsectors, DeFi and NFT remain the two most important sectors in the crypto asset industry, attracting a large number of users. Relying on the continuous development of these two sectors, extended fields such as GameFi and SocialFi are derived, which greatly enhance users' interest in the crypto asset industry, and enable further exploration to future development directions for the industry.

6.

Regulation

- ① U.S. policies
- ② European policies
- ③ China's policies in Q3
- ④ Adoption of Bitcoin in El Salvador
- ⑤ Binance and international regulation

Regulation

1 U.S. policies

6.1.1 SEC's review on the legality of BTC ETF

Organizations that submitted BTC ETF applications to SEC in 2021

The approval of BTC ETF by the U.S. Securities and Exchange Commission (SEC) has been a major regulatory focus in the third quarter of 2021.

As a publicly traded investment tool, BTC ETF can track the value of BTC. New users unfamiliar with the concepts of blockchain industry platform, wallet, and private key may buy and hold BTC ETF, gradually forming BTC-based virtual currency investment exposure.

Since the first BTC ETF application was submitted in the United States in 2013, countries and regions such as Canada, Brazil and Dubai have successively launched officially approved BTC ETF. As the bellwether of the global financial industry, the SEC has always been cautious in its attitude towards BTC ETF, constantly rejecting or postponing BTC ETF applications submitted in the United States. Nevertheless, many BTC ETF applications were submitted to the SEC in 2021.

Applicant	Date of Application
Valkyrie Investments	January 2021
NYDIG/Stone Ridge	February 2021
WisdomTree Bitcoin Trust	March 2021
First Trust/SkyBridge	March 2021
Wise Origin Bitcoin Trust	March 2021
Kryptoin	April 2021
Galaxy Capital	April 2021
Ark Invest	June 2021
Global X Digital Assets	July 2021
One River Asset Management	May 2021
Inesco Galaxy Bitcoin ETF	September 2021

Source: KuCoin Labs

The transparency of BTC trading information and the risk of market manipulation have always been the concerns of SEC. Meanwhile, BTC futures ETF may be approved by SEC before BTC spot ETF, as BTC futures are regulated financial products in the United

States. In August and September 2021, Gary Gensler, the current chairman of SEC, publicly expressed his support for BTC futures ETF, rather than BTC spot ETF.

6.1.2 SEC's investigation into Uniswap Labs

In addition to the review on BTC ETF, the SEC also launched an investigation into Uniswap Labs in September 2021, formally intervening in the field of DeFi. Affected by the news, on September 3, 2021, UNI fell by 7.7% in a short time, but the total value locked (TVL) in crypto assets of Uniswap V1+V2+V3 exceeded USD 7.745 billion, without obvious fluctuation.

Gary Gensler, the current chairman of SEC, has been regarded as the most Crypto-aware regulator in the blockchain industry for the courses on "Blockchain and Money" he set at MIT. After taking office, he required Coinbase to cancel the issuance of its lending products. In July 2021, he issued an investigation summons from the SEC's law enforcement department to Circle, the issuer of USDC. All this show that Gary Gensler takes stringent policies for the crypto industry.

Uniswap issued the governance token UNI by way of airdrop + liquidity mining in September 2020. The value of UNI is related to the development of Uniswap Labs, and investors from all walks of life generally expect its appreciation. During Gary Gensler's tenure in the SEC, UNI may be rated as securities, so that it can be regulated in accordance with the securities law. Any SEC's conclusion about Uniswap Labs will serve as a model for all DeFi protocols.

Uniswap Labs, as the centralization entity responsible for operating the front end of Uniswap's trading webpage, has taken the initiative to restrict access to 129 tokens from the front end of app.uniswap.org. The industry has a deeper understanding of decentralized front end, which is also one of the major sectors gradually improved in the crypto industry.

② European policies

On the whole, European regulators have not taken measures to crack down on the issuance of cryptocurrency tokens, but actively studied targeted amendments and promoted legislation to effectively distinguish securities, payment and functional tokens, especially in the German-speaking areas of the European Union, including Germany, Switzerland and Austria. In the third quarter of 2021, the pro-European Ukrainian parliament also proposed to legalize crypto industry-related activities, lest that Ukrainian fiat currency be replaced.

Plagued by terrorist attacks from extremist organizations in recent years, European

countries have made many adjustments to policies regarding anti-terrorism, anti-money laundering and cryptocurrency taxation, and even issued bans, while actively embracing digital currency.

6.2.1 Anti-terrorism/anti-money laundering

In July 2021, a proposal of the European Commission banned anonymous investment in cryptocurrency to prevent the use of cryptocurrency for money laundering or terrorist financing.

The core of the proposal is to establish a new EU institution to transform the EU's regulation on combating money laundering and terrorist financing. The institution will become the EU's central coordinating body, and strengthen the cooperation among the financial intelligence agencies of member countries to ensure that private enterprises comply with EU laws. The institution will also assist the financial intelligence agencies in improving their ability to analyze illegal capital flows, and make financial intelligence the main basis for law enforcement.

With regard to combating money laundering and terrorist financing, this proposal details the rights and responsibilities of regulators and financial intelligence agencies for comprehensive due diligence on customers and beneficiaries. It also advocates that banks in different countries interrelate their bank account registration systems with each other and provide law enforcement agencies with access to their bank account systems in accordance with relevant requirements on financial information exchange in (EU) Directive 2019/1153, so as to facilitate the financial investigation of cross-border cases and the recovery of assets involved.

6.2.2 Tax regulation

Difficulties in the regulation of cryptocurrency taxation mainly involve the definitions of "taxable" in trading, exchange, and "mining" of cryptocurrencies.

As early as 2015, in the Hedqvist case, the European Court of Justice made a ruling on the VAT taxation for the exchange between cryptocurrency and fiat currency. However, there are no relevant precedents or solutions for VAT collection on cryptocurrency exchange and payment made in cryptocurrency.

In the judgment of the Hedqvist case, the European Court of Justice made it clear that VAT treatment with respect to exchanging other cryptocurrencies which "can flow in both directions, are accepted by all trading parties as a means of payment, and do not involve fiat currency" into fiat currency should refer to the VAT treatment of Bitcoin. According to the meaning and purpose of this clause, there is sufficient reason to apply it to cryptocurrency exchange.

In addition, the VAT issue involved in cryptocurrency "mining" is more complicated and

has not yet been solved.

Since the trading fees are paid by traders "voluntarily" to "miners", and the amount depends on the external environment rather than the "mining" services, the EU VAT Commission believes that there is no sufficient connection between the trading fees paid by relevant parties and the "mining" services. However, as trade verification consumes resources, the trading fees can compensate for the power and hardware cost paid by "miners". "Miners" usually verify the trade with the highest payment first, so the view that the trading fees are paid "voluntarily" does not hold. Therefore, there is sufficient reason to believe that sufficient connection exists between the trading fees paid by relevant parties and the "mining" services, thus meeting the requirements of consideration. In this case, the taxable amount of "mining" services is the trading fees obtained by "miners".

Though there is no final conclusion on the above issue, the latest draft of MiCA (Europe's Markets in Crypto-Assets Regulation) was issued in Q3 of 2021. In the draft, the Commission Nationale Mercado Valores (CNMV) and the Bank of Spain are designated as the main regulators of crypto assets in Spain, and the European Central Bank is designated as the regulator of crypto assets in the European Union.

We can expect that the EU will define its regulation of the crypto industry more clearly and will expand effective regulation to other EU countries from Spain.

③ China's policies in Q3

China is always cautious about the free market in the management of socialism with Chinese characteristics, and differentiates crypto assets and the consensus incentive mechanism from the development of blockchain technology in its publicity. Regulatory efforts in China focus on publicizing the illegality of crypto assets, preventing crimes, anti-money laundering, and strengthening people's awareness of risk prevention.

In the third quarter of 2021, the director of the Payment and Settlement Department of the People's Bank of China once again stated at the 10th China Payment and Clearing Forum that "Virtual currency weakens the position of clearing organizations, challenges the payment system, and makes illegal fund-raising and money laundering possible. We will resolutely clamp down on virtual currency speculation."

6.3.1 Regulation on mining

In order to promote "carbon neutrality" and reduce the pressure on energy conservation and emission reduction in other industries, China has successively introduced bans in Xinjiang, Yunnan, Inner Mongolia, Qinghai, Sichuan and other "big Bitcoin mining

provinces" since June 2021. After that, all provinces have started to clear and shut down virtual currency "mining" projects and cut off the power supply of key cryptocurrency mining projects. This has effectively controlled the price of mining machines. From April and May 2021 to date, the price of a mining machine has been reduced from RMB 4,000 to RMB 700–800. At the same time, it has strengthened China's financial risk control and ensured that China's economy remains stable.

In the process of reselling machines and seeking overseas solutions, China's Bitcoin mining has a higher return in the global Bitcoin mining network. Countries such as the United States, Canada, Australia, Russia, Belarus, Sweden, Norway, Kazakhstan, Angola, Congo (Brazzaville), and Indonesia have become potential high-quality power resource destinations for Chinese miners. According to data from the Cambridge Centre for Alternative Finance, the United States surpassed China to become the world's largest Bitcoin mining country in the third quarter of 2021, accounting for 35.4% of the global mining share, followed by Kazakhstan (18.1%), Russia (11%), Canada (9.6%), Ireland (4.7%), Malaysia (4.6%), and Germany (4.5%).

According to data from the Cambridge Centre for Alternative Finance, since China banned mining, the global Bitcoin mining has declined by 38%, and rebounded by 20% in July and August. We can speculate that most of China's Bitcoin mining business has migrated overseas.

6.3.2 Regulation on virtual currency speculation

Following the Bitcoin mining ban in June 2021, the People's Bank of China and 10 government regulatory authorities jointly issued the Notice on Further Preventing and Handling the Risk of Speculation in Virtual Currency Transactions on September 24, 2021.

This Notice completely prohibits services related to virtual currency settlement and the provision of trader information, and stipulates that illegal financial activities will be investigated for criminal liability. It is also forbidden for overseas virtual currency exchanges to provide services to Chinese residents through the Internet, and relevant departments will strengthen the monitoring of all related behaviors. Any domestic staff who help these organizations operate or provide marketing service and technical support will be held accountable according to law.

The Notice also pointed out that virtual currency transactions "disrupt the economic and financial order, and lead to illegal and criminal activities, such as gambling, illegal fund-raising, fraud, pyramid selling, and money laundering", listed the names of virtual currencies such as Bitcoin, ETH and USDT, and made it clear that these virtual currencies are not allowed to circulate in the market.

The Notice triggered a sharp fall in digital currency prices. Except for Bitcoin, which fell by 5.3% to USD 41,450.8, the prices of thousands of cryptocurrencies plunged by an average of 5.7% in 24 hours.

The withdrawal of China as a huge potential market for virtual currency marked the end of virtual currency other than digital RMB within the jurisdiction of Chinese law, further pushing the crypto market back to capitalist countries that advocate the "free market".

4 Adoption of Bitcoin in El Salvador

On September 7, 2021, the Republic of El Salvador, a Central American country, officially recognized Bitcoin as the fiat currency of El Salvador, allowing Bitcoin to circulate as fiat currency like the US dollar, and became the first country in the world to use Bitcoin as fiat currency.

El Salvador President Nayib Bukele has repeatedly stated that Bitcoin will attract investment for El Salvador, become the most convenient way to transfer overseas remittances, and enhance the real income of informal employment and low-income people. Besides, Bitcoin will promote financial inclusion and boost the economic growth of El Salvador.

The government of El Salvador indicated that it would allocate USD 120 million to provide incentives worth USD 30 to each of the 4 million registered users of Bitcoin wallets. Residents in El Salvador can download the government's digital wallet Chivo free of charge, which has been launched in the app stores of Apple, Google, and Huawei. According to Cointelegraph, the core service provider of Chivo is Bitso, a Mexican cryptocurrency exchange. According to Nayib Bukele, as of September 26, 2021, 2.1 million Salvadorans were using the government-supported cryptocurrency wallet Chivo.

In the fluctuation of Bitcoin prices on September 7 and 20, 2021, we can see that the government of El Salvador has purchased 700 BTC to fill the Bitcoin reserve. We can see in the figure below that although El Salvador is the first country to recognize Bitcoin as fiat currency, it only ranks third in the ranking of countries and governments that own Bitcoin. Bulgaria, Ukraine and Georgia, ranking first, second and fourth respectively, are all former Soviet countries with good scientific and technological development, widespread blockchain technology adoption, and weak economic stability.

Ranking of countries and governments that own Bitcoin

Countries & Governments that Own Bitcoin

Entity	Country	Filing & Sources	# of BTC	Value Today	% of 21m
Bulgaria		Filing 1 News	213,519	\$11,691,359,508	1.007%
Ukraine (govt)		Filing 1 News	46,361	\$2,538,099,917	0.221%
El Salvador		Filing 1 News	700	\$38,329,571	0.003%
Georgia (govt)		Filing 1 News	68	\$3,613,931	0.0%
Totals:			260,636	\$14,271,522,927	1.241%

Source: BuyBitcoinWorldwide, KuCoin Labs

We can see that the share of Bitcoin held by the government of El Salvador is small. The ranking of countries and governments that own Bitcoin suggests that Bulgaria and Ukraine may have certain risk-resistance ability. El Salvador, however, may be helpless in the face of market fluctuations.

Ranking of global Bitcoin addresses

Address	Balance	Value Today	% of coins
1 34xp4vRoCGJym3xR7yCVPFHoCNv4Twseo wallet: Binance-coldwallet	288,128 BTC	(\$15,765,474,437)	1.53%
2 bc1qg3qv0av3q56jv352kdjpy7gdp0ut8Bgmgrpmv24sq90ecnvqjww97 wallet: Bitfex-coldwallet	178,011 BTC	(\$8,740,272,027)	0.8447%
3 1P5ZEDWTKTFGxQJzshgWPOLpe654WKDIHQ	105,265 BTC	(\$5,768,788,254)	0.5587%
4 37XuVSEpWW4rktmvWzegTHQz7BdkSKUs wallet: T7504458	94,505 BTC	(\$5,171,060,183)	0.5016%
5 38UmuUqPCrFmQo4khkcmQwZ4VbY2nZMU87 2-of-6 wallet: OKEK-coldwallet	93,586 BTC	(\$5,119,675,641)	0.4666%
6 1FeexV8bAHb5ybZjgQMjJrcCrHGw9xb6uF	79,957 BTC	(\$4,375,036,168)	0.4244%
7 3Kzh9qAqVWQhEstQz7zEQL1EuSx5yNLNS 2-of-3 wallet: OKEK-coldwallet	74,508 BTC	(\$4,076,889,612)	0.3954%
8 3LYJfclHPXYJreMsASk2jkn6BLWEYKzeib	73,601 BTC	(\$4,027,251,964)	0.3906%
9 bc1qa5wkgaewZdkv56kty49j0av5nm45xsek9hz6	69,370 BTC	(\$3,780,745,386)	0.3682%
10 3LQeSjqs5aXJVCDSHFRB8QyheTwthP8N	68,815 BTC	(\$3,218,193,985)	0.3121%

Source: BuyBitcoinWorldwide, KuCoin Labs

5 Binance and international regulation

In the third quarter of 2021, the global regulation pressure on the cryptocurrency exchange Binance continued. Financial regulators in the United Kingdom, Thailand, Singapore, Cayman Islands, Malaysia and other countries and regions gave direct warnings to Binance and launched investigations.

Zhao Changpeng, founder of Binance, publicly stated in early July 2021 that "A sound regulatory and legal framework is crucial to the crypto industry. Binance will continue to develop its international compliance team and cooperate with regulators. In the future, Binance will strengthen the international compliance team, and expand compliance partnership, local operations and businesses to comply with local regulations."

The Hong Kong Securities and Futures Commission stated that Binance has not been licensed or registered to carry out "regulated activities" in Hong Kong. Stock tokens launched by Binance are likely to be regarded as "securities" defined in the Securities and Futures Ordinance in Hong Kong, and if so, they will be subject to the regulation of the Securities and Futures Commission. Meanwhile, on July 16, 2021, Binance shut down the stock token service, which was operated for only 95 days.

After that, Binance quickly launched an API tool for users to meet the tax return filing requirement specified by local regulators. Binance adjusted the daily withdrawal limit to 0.06 BTC for users who did not complete identity authentication. It also limited the maximum leverage to 20 times for new users. Also, Zhao Changpeng said that he "hoped to cooperate with local regulators and obtain regulatory permission".

Binance's official website and mobile terminals in Malaysia were banned and investigated by Securities Commission Malaysia as they may be involved in gambling services. Meanwhile, Binance banned derivatives related services in European countries such as Germany, Italy, and the Netherlands.

From the trend point of view, top cryptocurrency centralized exchanges with excellent global performance need to embrace international regulation in order to effectively carry out business operations in the long run. As the first exchange that is "cracked down on", Binance has found out the attitudes of various countries and the international regulatory trends for latecomers.

7.

2021 Q3 Industry Summary

2021 Q3 Industry Summary

- The demand for Layer 2 is increasing, and Arbitrum, Optimism and ZK Rollup in Ethereum 2.0 are promising.
- With the construction of Web 3.0, Metaverse will challenge Internet 2.0 at the social structure level for a long time.
- To make a breakthrough, NFT art needs to be combined with games, and effectively create interaction with users during the transition from Web 2.0 to Web 3.0 to support user experience limited by Web 2.0.
- With increasing user awareness and tightening international regulation, DeFi sector has shown a steady upward trend.
- GameFi will continue to effectively capture a large number of users thanks to its eye-catching financial and economic attributes, but the long-term compliance risk may be higher than that of the traditional gaming industry.
- SocialFi is competitive in terms of social attributes, but is limited. It has great prospects and may take off if combined with other crypto industry portfolio concepts.
- As crypto industry regulation intensifies, decentralized world and centralized regulation will continue to collide and integrate to seek a balance.
- After the issuance of the digital RMB with Chinese socialist characteristics, it is necessary to find ways for interaction between all kinds of currencies that can be issued by anyone and are circulating in a "free market", and we may continuously wait and see the possibility of various technologies and regulations.
- El Salvador set an example for "Third World countries". It can be expected that countries with long-standing unstable military regime systems or economic system collapse in Africa, Latin America, and Australia, as well as archipelagic countries with disadvantaged international status will invest in Bitcoin one after another. However, small and weak countries lack financial resources, so it is possible for them to form a political alliance system around virtual currency to resist the economic and financial hegemony of powerful countries.

