

## Tokenomics Review

*Chainlink (LINK): Decentralized Oracle Network*

March 17, 2022

- **Chainlink is widely integrated into many crypto projects due to its integral role as an oracle network connecting smart contracts to real world data**
- **However, while its total value secured (TVS) has increased over 8x since early 2021 to US\$58B (March 2022), its market cap has grown less than 30% to \$6.1B over that same period**
- **In this report, we discuss that growth discrepancy by looking at the tokenomics behind its native LINK token. We also explore some key changes potentially represented by Chainlink 2.0**

Oracles maintain a critical role in crypto infrastructure as a means of connecting smart contracts to off-chain data (i.e. the outside world), and Chainlink is often viewed as the de facto decentralized data provider for those contracts, thus representing a significant component for [web 3.0](#) development (requiring decentralization.)

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Chainlink has expanded significantly over the last year, increasing the size of its total value secured (TVS) from \$7B in early 2021 to ~\$58B in March (up >800%.) Comparatively, the market cap of Chainlink's utility token (LINK) is currently up only ~30% from \$4.7B in early 2021 to \$6.1B today.

Given the disproportionate growth between Chainlink's TVS and LINK's market cap, we think the discrepancy may reflect several issues: (1) market saturation may limit the platform's future growth prospects, (2) potential dilution of LINK's circulating supply is uncertain, and (3) imbalances pertaining to dapp demand, node operator fees and operating costs contribute to selling pressure.

That said, it's possible that Chainlink 2.0 could address some of these issues. For example, the [roadmap](#) suggests super linear staking could be introduced in 2022. This could potentially lead to more LINK locked up on the network and limit the amount of circulating tokens that are actively traded- thus directly supporting the token price. Further Chainlink adoption could also be facilitated by additional use cases and more cost efficient off-chain computations. However, the precise timing for these roadmap developments is still unclear, which makes them difficult to price in.

## Background

Chainlink was the first decentralized oracle network that allowed smart contracts to securely connect to external (off-chain) data. To oversimplify the [workflow](#), Chainlink allows someone purchasing its services to specify (1) a query and (2) the number of oracles needed to fulfill that query, among other details. This is all written into a service level agreement (SLA), and an order-matching process then selects the oracles required to execute the services written into the SLA (note that the [node operators](#) retrieving the data may not necessarily be the data providers themselves.)

The process is more complicated than that, insofar as Chainlink also checks the track records of oracle providers and aggregates information in such a way to ensure validated data. Moreover, the services provided by Chainlink are expanding, currently including but not limited to:

- data feeds (such as pricing data for digital assets) which are regularly updated and make up the bulk of the requests,
- offchain API / data sources,
- verifiable randomness functions (VRF) used for random number generation in gaming, betting markets and dynamic NFTs ([version 2](#) was launched on February 16),
- proof of reserves used to verify stablecoin and cross-chain (i.e. wrapped tokens) holdings off chain,
- a [Keeper network](#) that helps dapp developers automate smart contract transactions that require off-chain input

That breakdown can make tracking the economic incentives driving the framework between buyers (dapp developers for example) and sellers (node operators) particularly challenging. Adding to the complexity of tracking rewards is that Chainlink also runs on [multiple blockchains](#) and layer-2s including Ethereum, Polygon and Binance Smart Chain, to name a few.

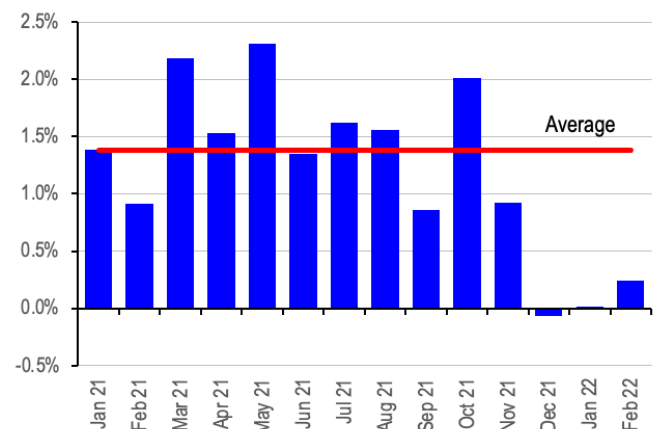
## Monetary policy

All LINK tokens (1B total) were issued in September 2017 at inception, which is to say that there is a finite supply of these tokens – contributing to its scarcity value. At launch, 35% of LINK tokens were sold, establishing an initial circulating supply of 350M, which has since grown to 467M. Another 30% (300M LINK tokens) were allocated to LINK's parent company (SmartContract.com) and have likely been reduced since then to around 183M (as these tokens were spent on hiring, operations and development.)

The last 35% (350M tokens) are held in reserve to pay incentive rewards to network participants like node operators. So far, it doesn't seem as if these reserves have yet been tapped, as Etherscan shows no significant change in the balance of the [wallet address](#) pointing to these holdings.

Overall, we have seen LINK's circulating supply grow at an average pace of around 1.4% per month (see chart 1.) Note that circulating supply growth over the last three months has been limited, reflecting similar lower activity observed elsewhere in the crypto universe.

### 1. Monthly growth in LINK circulating supply

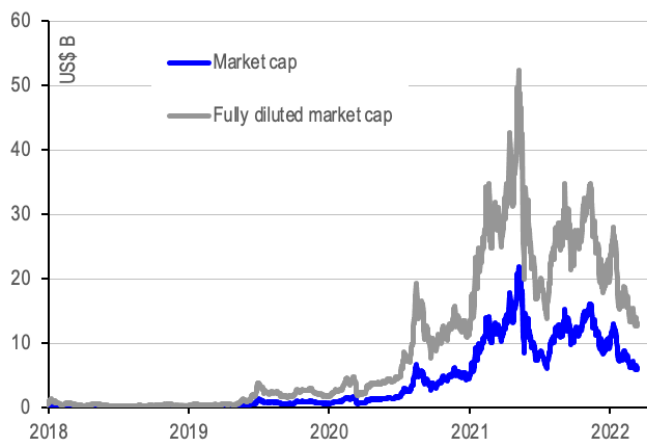


Source: TradingView and CoinGecko.

This brings the market cap of LINK to around \$6.1B, up from \$4.7B in early 2021, an increase of less than 30% (though this doesn't tell the whole

story about the market volatility over that period of time - see chart 2.) But comparatively, we saw the market cap increase 6.5x in 2020. The token's fully diluted market cap is currently ~2.1x higher at \$12.9B which suggests there is still a large amount of LINK supply that can be released to the market in the future. Most importantly, it's still unclear if, when or how the 350M tokens held in reserve could enter the circulating supply, and we think that potential dilution may be a factor in the token's speculative discount.

## 2. LINK market cap vs fully diluted market cap



Source: TradingView and Coinbase.

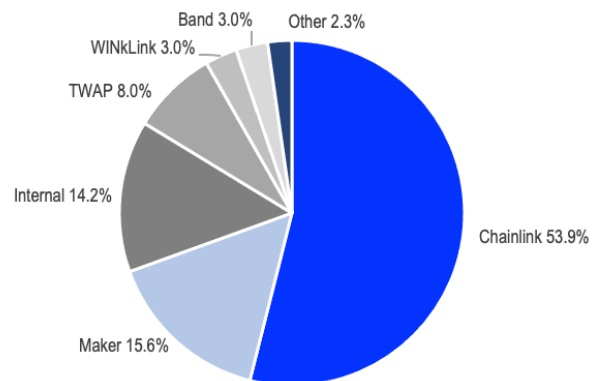
## Inconsistency with TVS growth

Meanwhile, Chainlink has expanded significantly over the last year, increasing the size of its total value secured (TVS) from \$7B in early 2021 to ~\$58B as of March 15, 2022 (up >800%). (Note that this is down from [\\$75B in November 2021](#), but that could reflect the overall weaker performance of the crypto asset class since that time. For example, lower gas fees on Ethereum's base layer hints at less DeFi/dapp activity in recent months.) Comparatively, the growth rate in 2020 was over 23x as the TVS climbed from \$254M to \$6.3B over the course of that year.

Among the total value secured by all oracles, Chainlink represents 54% of all activity, a position that it has been able to maintain since late 2020, despite the increase of internal oracle sources in

2H21. This may be a clue as to why we haven't seen a commensurate growth in the value of LINK even as demand for Chainlink's data and services has grown more than eight-fold. Chainlink's share of the layer-1/layer-2/dapps space appears to have [plateaued over the last 17 months](#). Future growth may therefore depend more on the growth of the crypto space itself rather than the partnerships that drove Chainlink's initial growth phase.

## 3. Chainlink represents 54% of all TVS



Source: DeFiLlama.

Also, prices for services rendered by Chainlink are variable - set by the node operators and paid by requesters (buyers). But requesters would also be responsible for any transaction fees on the blockchain(s) they're using, and depending on the underlying blockchain, that adds to the expenses on the requester side. This raises the question of how much decentralization is required for these projects' corresponding data layers to justify the fees they would pay.

Such considerations can affect the balance between supply and demand, acting as a limiting factor on the prices that node operators can theoretically charge. As such, we think these services can seem more like a public good than a source of revenue which would qualify the selling pressure on the part of node operators in order to offset operating expenditures.

## Chainlink's future

Some of these issues could be resolved by [Chainlink 2.0](#), a multi-year effort to enhance the current project's capabilities. The foundation of this plan is to create a platform of multiple interoperating decentralized oracle networks (DONs) to service hybrid smart contracts. This framework could theoretically accommodate persistent services for longer-lived relationships, with programs that can run continuously (executables) calling on adapters that retrieve off-chain data. The intent is that dapps would interact with multiple DONs which would manage the off-chain computational layer for these smart contracts in a secure and cost efficient manner, creating new use cases for its services.

The roadmap also indicates that super linear staking could be available on Chainlink as early as this year, according to co-founder Sergey Nazarov's [presentation](#) from January 1. While the focus of this new staking model is primarily security, the redesign aligns economic incentives according to (1) node reputation and (2) the size of node operators' deposited stake, which acts as a security guarantee for purchasers of Chainlink services. Similar to how staking works on proof-of-stake blockchains, node operators who stake more get access to more transaction opportunities and thus more rewards.

Moreover, this opens the door to individuals or pools being able to delegate or lend LINK to node operators to provide collateral and thus get a portion of the rewards. This could lead to more LINK being locked up and help resolve some of the issues we mentioned earlier, as staking and delegating tokens could limit the risk of LINK supply dilution as well as realign some of the fee imbalances that currently contribute to selling pressure.

## Conclusion

The exact schedule of Chainlink 2.0 is still unclear however, which makes it difficult to price in these potential developments, particularly when it comes to growth. Chainlink already maintains a high market share of the total value secured across the crypto universe, so it seems unlikely that we will see the same level of growth observed over the last two years. Conceptually too, some of the innovations described by the Chainlink 2.0 white paper seem to be contingent on future crypto project developments that may or may not materialize. Nevertheless, the introduction of super linear staking could represent an important inflection point for LINK's tokenomics, which will be worth following this year.

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