VeChain Overview

Vechain Key Summary

- Vechain has committed to driving enterprise blockchain adoption since its launch in 2017, boasting many use cases and partnerships with leading global brands and Fortune 500s.
- Vechain's enterprise adoption approach shows promise, leveraging globally integrated channel partners such as PwC, DNV, and Grant Thornton Cyprus to further their reach, leading to commercial SaaS being launched such as DNV's MyStory and PwC's AirTrace platforms.
- Vechain has since broadened its scope of focus following its partnership with Boston Consulting Group, working to build ecosystems that leverage gamification and incentivization to reward users who engage with certain platforms and products.
- This focus on enterprise adoption sees the VechainThor blockchain lag behind other L1 in non-enterprise developer metrics, however, the opening of a European Technology Centre and commitment to hiring 100 developers has helped increase the pace of tool development and launch.
- New platforms, most notably, VORJ (*detailed in a future report*), mark a critical leap towards onboarding Web2 developers, helping Vechain drive protocol adoption through an intuitive no-code, no-fee solution.
- Vechain's latest tech update can be found here.

Introduction to VechainThor

Initially launched as a private consortium chain in 2015 to enable enterprise blockchain ecosystems, the team quickly realized the value-add of trustless, immutable, and decentralized information. With this realization, Vechain began the process of going public, launching a foundation, and conducting an Initial Coin Offering (ICO) in 2017.

VechainThor is the public blockchain launched in 2017 and built by the Vechain Foundation. It was conceived with a focus on enterprise use cases and designed to foster the proliferation of business-oriented decentralized applications (dApps). The network was specifically designed to overcome technical hurdles posed by other public blockchains such as scalability, unpredictable gas fees, and an unwillingness by businesses to handle crypto assets directly.

Initially conceived to solve problems in supply chain management - a vision born from CEO Sunny Lu's experiences as Chief Information Officer at Louis Vuitton China - Vechain launched its mainnet in 2018, embracing Ethereum's technology framework but with additions aimed at tackling issues like high transaction costs and scalability. Vechain's blockchain delivers instant visibility, traceability, and transparency within business operations, enabling blockchain adoption with adherence to local regulatory regimes. In turn, Vechain has allowed companies to save on costs and time while increasing operational efficiency.

In March 2023, Vechain announced its partnership with Boston Consulting Group, considered a Top Two Global Management Consultant with specialisms in the fields of ESG and sustainability. Between them, the pair outlined their approach to helping enterprises and individuals act more sustainably through ecosystems that reward and incentivize specific user engagement. An early prototype of this approach to sustainability can be found here, developed alongside BYD and DNV, rewarding drivers of electric vehicles with credits that could be spent with participating retailers.

Use Cases And Technologies

Starting life with the Ethereum Virtual Machine (EVM) at its core, VechainThor is a programmable smart contract platform that can be used for any purpose. While Vechain's recently opened Technology Centre is building out both enterprise and individual developer tooling, to date, the most evident use cases on the network have been based around business supply chains. Most notably, the 'Food Safety Traceability Platform' for Walmart China, built in collaboration with PwC has been the most voluminous for the network. This partnership has seen over 170 million transactions generated since 2019.

Vechain's recently published whitepaper 'Web3 for Better' builds on Vechain's enterprise ecosystem expertise and expands its focus to the rapidly growing sustainability sector. With supply chains representing the base of all production, Vechain can add additional layers to its offerings, tracking carbon and sustainability data from upstream and downstream suppliers. The rationale is to encourage sustainable behavior while helping reduce greenwashing and other common sleights in a trustless manner using blockchain.

Vechain is not only limited to blockchain services. VeChain ToolChain is a Blockchain as a Service (BaaS) platform that combines commercial applications and hardware on VechainThor, with proprietary Near Field Communication (NFC) chips and sensors that, when combined with Non-Fungible Tokens and blockchain, create an immutable stamp of identity that can be used for provenance or digitalizing physical goods - a digital-physical hybrid dubbed a 'phygital'.

Through this combination of Internet of Things (IoT), NFC, and blockchain technologies, companies and users can verify the proper handling of their products, prevent counterfeiting, and enable trustless secondary markets for resellers. Vechain envisions a future where all aspects of global commerce operate harmoniously on the VechainThor blockchain, interoperating with the digital world beyond. The goal is to link disparate data trails, from supply chains to manufacturers and distributors, enabling greater scales of collaboration and transparency through blockchain.

Vechain's on-chain data is displayed differently from traditional public blockchains like Bitcoin and Ethereum. Rather than the data be shown as pseudonymous, hashed information on a block explorer, Vechain is able to offer enterprises the same blockchain guarantees while complying with strict data protection regimes such as GDPR. For example, EH-Cert, a medical health records Dapp built on VechainThor, is able to deliver blood and lab results directly to patients via public blockchain. The Dapp is currently live in two private hospitals in Cyprus.

Network Architecture, Governance and Key Technologies

VechainThor

VechainThor is the full name of Vechain's public blockchain. It is an EVM-compatible network, optimized for scalable enterprise solutions. It is a fully programmable smart contract platform, having originally been forked from Ethereum before taking on multiple modifications. VechainThor blockchain currently supports multiple programming languages, with Solidity as the more common programming language for its smart contracts.

The VechainThor blockchain is capable of handling over 10,000 transactions per second and is able to leverage data collected by real-world sensors making its scope of application quite versatile. Vechain uses proprietary chips and sensors in combination with IoT to both read and publish data to the VechainThor blockchain. Vechain IDs, assigned digital identities created with a SHA256 hash, are tracked with NFC, RFID, and QR codes. Only the hash value of the raw data is stored on-chain and can be accessed by permissioned entities, mitigating the risk of data breaches.

Block Producers - Authority Masternodes

Vechain's blockchain operates a modified version of the "Proof of Authority" (PoA) consensus model, an architecture purpose-built to account for future regulatory developments around enterprise/real-world adoption of blockchain. Vechain is the first public blockchain to run on the PoA mechanism and recently saw a major consensus upgrade go live in the form of Proof of Authority 2.0.

On VechainThor, block validators must hold a minimum stake of VET tokens and undergo KYC to run a node. KYC is performed by a community-voted Steering Committee, which validates the credentials of an entity/business/organization/individual before adding them to a waiting list for the next time a position opens up.

The VechainThor blockchain is maintained by 101 geographically dispersed, Authority Masternodes (AMs) that hold a complete copy of the blockchain. The number 101 was chosen to ensure sufficient decentralization to guarantee the trustlessness and immutability of hashed data while enabling the level of scalability and agility demanded of a blockchain built to meet real-world needs.

Authority Masternodes are the backbone of VechainThor, producing blocks and running VechainThor's mainnet, attesting blocks, processing transactions, and earning block rewards for doing so. Becoming an AM is open to anyone who passes the KYC check and stakes the required VET.

Bock producer selection is governed by a randomized algorithm, not computational or asset resources as with some other blockchains. This means all Authority Masternodes have an equal chance to create the next block, gaining 30% of the transaction fees as a reward with the remaining 70% burned. The random nature of block production also makes network interference nearly impossible, as predicting or influencing future blocks is not possible, addressing some of the common threats other leading blockchains face.

Proof of Authority 2.0 Consensus Upgrade - 'SURFACE'

In July 2021 after a community vote, the VechainThor mainnet underwent a hardfork to its current upgraded consensus mechanism known as "PoA 2.0" or SURFACE (Secure Use-case-adaptive Relatively Fork-free Approach of Chain Extension). In it, Vechain's research teams created a hybrid consensus model that combined the best attributes of the two most common consensus types - Nakamoto and Byzantine Fault Tolerance consensus. This innovative upgrade improved the security and efficiency of the validation mechanism, further mitigating the risk of any third-party network manipulation.

Key features of SURFACE include:

- A Verifiable Random Function (VRF)-based source of randomness: This function ensures the unpredictability and unbiasedness of the block-proposing schedule, thereby enhancing data security. For instance, adversaries cannot manipulate the leader selection process to control several consecutive block proposers or predict and corrupt several consecutive block proposers well in advance.
- Committee-endorsed block production: This process significantly reduces the likelihood of forking, which in turn decreases the confirmation delay and increases the throughput (Transactions Per Second, or TPS). It also introduces a 'committee' of three randomly selected block producers to verify the quality of the block in production.
- The finality mechanism: This feature provides block finality, ensuring performance even under asynchronous conditions and maintaining consistency. In PoA 2.0, a block is first confirmed in a probabilistic manner with very low latency before being finalized within a longer period.

In the SURFACE system, the creation of a new block involves additional time for communication, transmission, and validation of data. This optimization of data transmission to Masternodes can lead to improvements in transactions per second (TPS) and bandwidth efficiencies.

One of the key features of this system is the delayed validation of a block. Unlike other networks where a block is validated in the consensus round in which it was generated, SURFACE validates the block in the subsequent round. This parallel transmission and validation of blocks allow for simultaneous operations, enhancing the network's efficiency. This means PoA 2.0 allows for both probabilistic and absolute finality to coexist. This dual approach offers various security guarantees for applications operational on the blockchain platform.

Fee Delegation - Third-Party Gas Payment

Fee delegation was a technology Vechain introduced back in 2018 designed to allow enterprises to use blockchain without having to manage or handle crypto assets themselves directly. In short, fee delegation relies on a third-party designated gas-paying address to fund transaction costs created by business activity on the network. This resulted in enterprises simply paying a consistent fiat subscription to use the platform. Walmart, one of the largest live use cases running on the network, has, to date, submitted around 170 million transactions without having managed or expended crypto assets themselves directly.

The rationale of this technology was removing one of the largest barriers to entry to blockchain for incumbent enterprises - that being a need to own, manage, and spend crypto for every

transaction. Furthermore, this allows fluctuations associated with crypto to be mitigated, with businesses instead paying a set cost to use the network based on their transaction volumes. This ecosystem has seen the most commercial success via ToolChain (*described later in the report*) a commercial 'blockchain-as-a-Service' platform.

Multi-Task Transactions - Clauses

Vechain introduces a novel transaction model to address some of the fundamental challenges that currently impede the widespread adoption of blockchain technology. This new model incorporates a feature known as a "clause," which allows a single transaction to execute multiple tasks. This unique capability is referred to as Multi-Task-Transaction (MTT).

In traditional blockchain platforms like Bitcoin or Ethereum, a transaction is composed of three basic components: "From," "To," and "Payload." Each transaction has one sender, one recipient, and one payload intended for that recipient. This payload may contain multiple contract calls for a single contract.

VechainThor's model is distinct from these in that only the "From" component is unique. By leveraging clauses, a single transaction can carry payloads for multiple recipients or multiple payloads for a single sender. This applies whether the transaction involves the transfer of VET, VTHO, or other contract data.

The MTT mechanism offers a secure and efficient method to handle tasks such as fund distribution, token airdrops, mass product registration, and more. Furthermore, as the tasks are processed sequentially, the MTT mechanism can be utilized to conduct a multi-step process "atomicadd." This means that if one transaction fails, the entire transaction will be reverted and attempted again in the following block. This innovative approach to transaction handling significantly enhances the versatility and efficiency of blockchain transactions, making VechainThor a pioneering force in the blockchain space.

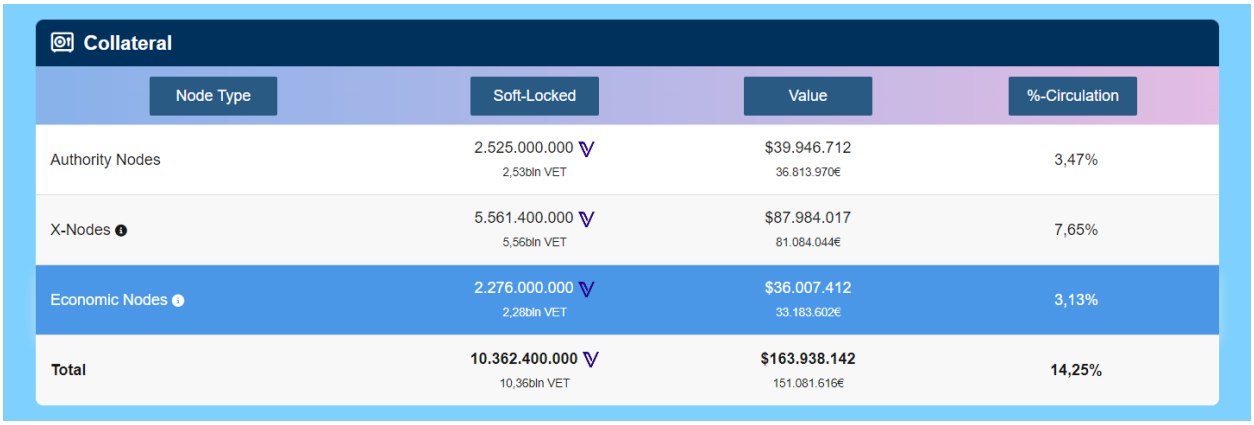
Staking and Governance - X-Nodes and Strength Nodes

X-Nodes and Economic nodes form a key part of Vechain's governance ecosystem, as well as providing a kind of staking reward mechanism. These nodes do not require hardware to run, instead, they require a minimum stake of VET tokens and then acquiring an NFT that represents either node.

In the case of Economic nodes, users can generate them freely once they have acquired the requisite stake in VET tokens. For X-nodes, these NFTs were created in a one-time-only event at the inception of VechainThor mainnet as a special unique reward for early supporters of Vechain.

X-nodes earn additional VTHO, generated from a pool of 5 Billion VET set aside by the Vechain Foundation. There are four tiers of a node - VeThor-X, Strength-X, Thunder-X, and Mjolnir-X. Each tier requires a higher stake in terms of VET and generates increasing VTHO bonuses based on total VET staked.

Unlike economic nodes which can be freely generated and destroyed by dropping below the minimum stake, X-Nodes can never be created, meaning each destroyed X-Node reduces the overall total, increasing the VTHO distributed to the remaining X-Node NFT holders.



Node types and soft-locked collateral - Source

Proprietary RFID/NFC and Phygital Technologies

Near Field Communication (NFC) and Radio Frequency Identification (RFID) are technologies that use radio waves to identify objects. NFC/RFID tags come in various forms and can be attached to products for the purposes of tracking and authentication. Vechain uses NFC in combination with NFT technology to create digital twins of a product, a concept known as a 'phygital' (a portmanteau of physical and digital). Recently, Vechain's technology was used to turn the winner's trophy of the BNL Internazionale D'Italia into a phygital, as well Djokovic's Finals racquet of the 2023 Australian Open, which was subsequently auctioned for charity.

Vechain ToolChain, a BaaS platform, has proprietary NFC/RFID tags that can perform a variety of functions and open up new options for brands, including tracking the movement of goods in real-time, authenticating luxury products, monitoring temperature/GPS data and helping brands more reliably track and report upstream and downstream sustainability information to meet ESG obligations.

For example, a winemaker could use Vechain to track the movement of their wine from the vineyard to the retail outlet in real-time, and the buyer can verify the authenticity of the product independently. The producer can now reliably record and share logistical and provenance-related data trustlessly via the blockchain, and more effectively measure the individual carbon footprint of a product, helping to eliminate greenwashing.

Winemakers can also use specialized RFID tags to track the temperature and humidity of their products during transport, helping to ensure compliance with regulators.

By combining blockchain, NFC/RFID, and NFT technology, Vechain offers many business benefits. This combination opens up many additional benefits for brands of all sizes, including:

- Trustless blockchain-powered second-hand marketplaces where authenticity is guaranteed, reducing a need for costly intermediaries and eliminating fraud.
- Brands gain greater insights into the life cycle of products, on data such as how many times a given product is resold, while offering a new means to communicate with

secondary and tertiary consumers directly. It creates new opportunities to generate revenue and extract royalties following the sale of a product.

- Enables the creation of token-gated or incentivised ecosystems, where brands can reward repeat customers, enabled by the accrual of a certain number of products, verified by NFTs, with tokens or other rewards being automatable via blockchain.

Vechain's combination of digital technologies offers significant innovation for business operations and consumers alike. It has the potential to revolutionize the way that businesses track and manage their products, report sustainability data, engage with customers, and obtain additional insights into goods after their initial sale.

VechainThor Governance

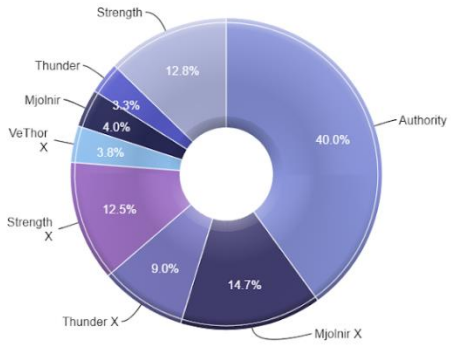
In the Vechain ecosystem, the Vechain Foundation is responsible for maintaining, managing, and upgrading the core protocol, VechainThor. The Foundation itself is governed by the Steering Committee, a group of individuals publicly elected by community stakeholders every two years. The latest vote took place in February 2023, with voting taking place on Vechain's decentralized voting platform - VeVote. All changes to mainnet require public voting and consensus before they can be enacted.

The Steering Committee oversees the various functional committees of the Foundation and aims to balance the interests of all VechainThor stakeholders. The Steering Committee itself is composed of individuals with expertise in a broad array of areas, and utilize their respective networks and expertise to drive growth and expansion of VechainThor. The Steering Committee constitutes a first step toward decentralizing Vechain's governance and was designed in this current form to ensure the agility and responsiveness demanded of an emerging new technological field.

Voting weighting is distributed among Vechain's various node types, with Authority Masternodes having 40% of voting weight, X-nodes carrying 40%, and Economic Nodes carrying 20% of the total voting weight. This helps ensure a broad representation of community, enterprise, and organizational interests.

Governance

Type	Node	Count	Votes	%	Power
Authority	-	101	1	40%	40,0%
X-Nodes	Mjolnir X	138	26	40%	14,7%
	Thunder X	219	10		9,0%
	Strength X	1.017	3		12,5%
	VeThor X	925	1		3,8%
Eco Nodes	Mjolnir	30	15	20%	4,0%
	Thunder	75	5		3,3%
	Strength	1.451	1		12,8%



Voting Weight Distribution/Node Types - Source

Tokenomics

Vechain operates on a unique two-token model, consisting of VET and VTHO tokens. The primary objective of this model is to decouple the cost of transactions on the blockchain from market volatility, thereby stabilizing the cost associated with transactions or executing smart contracts on the VechainThor blockchain. This ensures costs are forecastable and able to be stabilized, which had proved a major adoption hurdle for business applications built on public blockchains.

VET is the primary token of Vechain and serves multiple purposes. It serves as the governance token of the network, with a certain stake required to take part in governance matters. It is the Store of Value (SoV) and value transfer medium of VechainThor. Uniquely, it also generates VTHO, the network's gas token.

VTHO is required for transactional costs when executing actions on VechainThor. Companies and developers utilizing the blockchain must use VTHO to add data to the blockchain and create smart contracts. This is similar to Ethereum, which uses ether for its gas payments. However, as token prices and network adoption increase in Ethereum, transaction fees also rise. Network congestion further escalates these fees, making blockchain interaction impractical for some use cases. Vechain's dual-token model was designed to eliminate this issue and ensure more stable, forecastable costs for their enterprise business environment.

Each VET token generates VTHO at a daily rate of 0.000432 VTHO, or 0.15 VTHO per VET per year. Users can "stake" large amounts of VET in a node to earn bonus VTHO generated from a pool of 5 billion VET tokens held by the foundation. Vechain users can either purchase VET on

the open market to generate VTHO for their application, purchase VTHO directly, or utilize 'fee delegation' and have a third party fund transaction costs, via a smart contract.

This dual-token system is a key feature of Vechain's strategy to replicate the success of the Ethereum ecosystem while addressing perceived challenges related to the unpredictability of transaction fees. The model was built for mass adoption, when high volumes and thus high volumes of VTHO burn ultimately translate into a sustainable and fundamental value driver of the VET token, as the unit that ultimately generates VTHO.

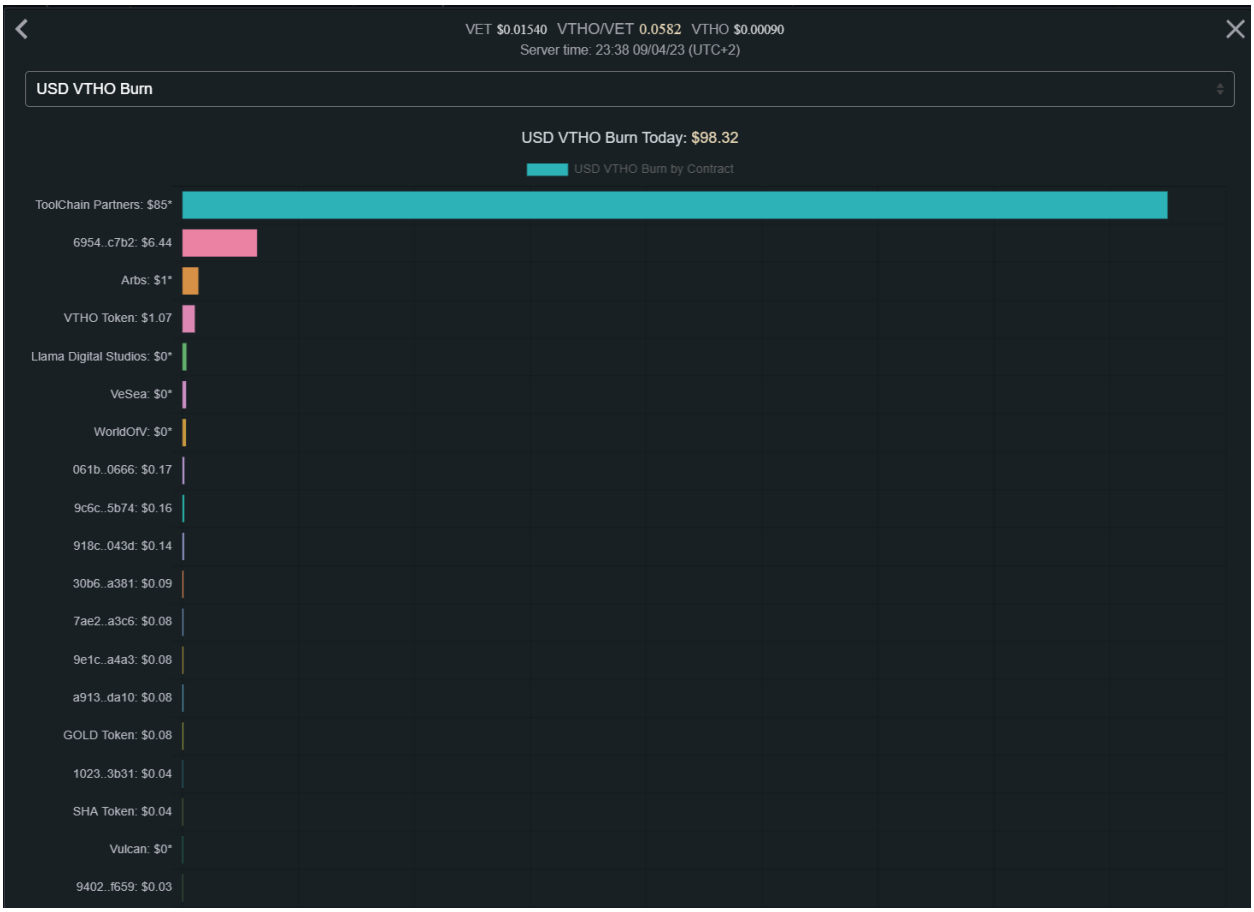
Benefits of the Dual-Token System

By introducing a second token, VTHO, VechainThor separates the SoV and gas functions of the blockchain creating a means to manage the cost of using the network without impacting the native token.

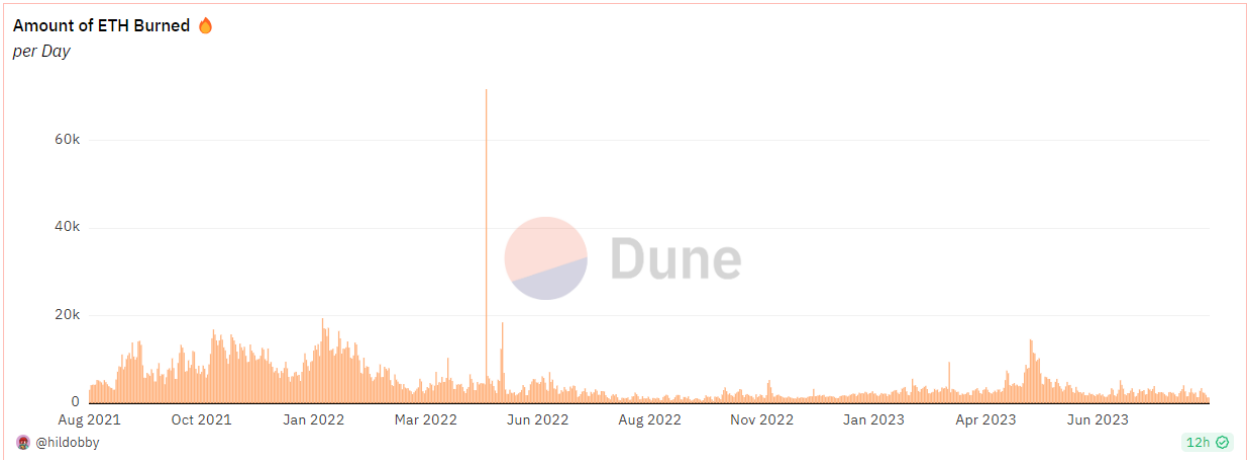
If the fiat costs of fees become too high, the governance system of the VechainThor protocol can be triggered, and the Steering Committee can propose a vote to adjust the amount of gas consumed per transaction for the protocol. This proposal is then put to the community, who subsequently vote on the level of change they perceive to be appropriate.

This has happened once before, with the gas level being adjusted from a minimum of 21 VTHO for a simple VET transaction to 0.21 VTHO per transaction after the surge in VTHO's value during the 2021 bull market, which saw VTHO reach over 1 cent. 1122 stakeholders voted in total.

Upon use, 70% of the VTHO gets burned while the remaining 30% is paid out to the Authority Node as a reward for validating the transaction. However, as illustrated by the two charts below, following the gas cost reduction, the amount of VTHO does not currently have a meaningful impact on the token supply, as opposed to the industry leader, Ethereum.



~$98 worth of VTHO was burned on September 04, 2023. Source



~$2,000,000 of ETH was burned on September 04, 2023. Source

One notable distinction here is that $100 of VTHO burn enabled roughly 320,000 transactions on VechainThor, while $ 2 million in ETH burning facilitated only around three times more transactions. This highlights Vechain's ability to more cost-effectively scale to the kinds of levels demanded when blockchain adoption is ubiquitous. However, Vechain still needs orders of magnitude more adoption to make a meaningful impact on the VTHO burn.

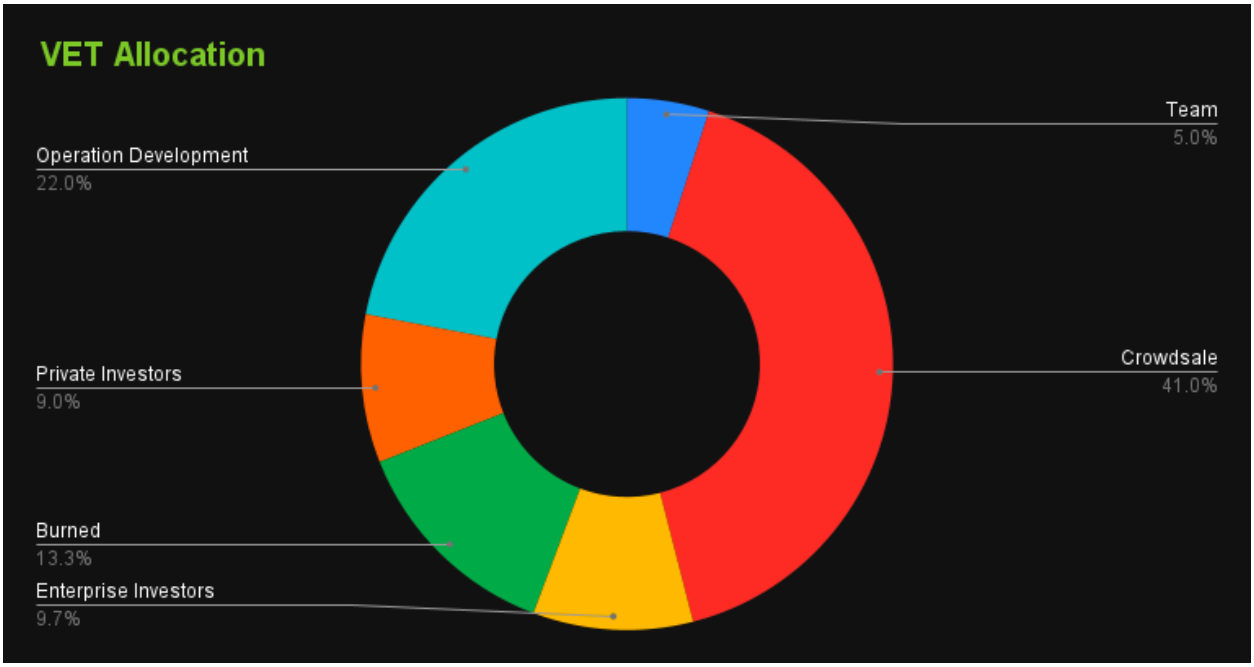
ICO

Vechain initially conducted its Initial Coin Offering (ICO) in 2017, during which the Vechain Foundation distributed its native token, VEN, to private investors, enterprises/corporations, and crowdsale investors. The original supply of VEN tokens was 1 billion.

In 2018, Vechain built its own blockchain, VechainThor, and decided to swap the VEN tokens for a new token, VET. The exchange rate for this swap was set at 1 VEN to 100 VET, effectively increasing the total supply to 100 billion VET tokens.

Out of the initial 1 billion VEN tokens:

- 41% (410 million) was sold in a public sale.
- 9% (90 million) was sold in a private sale.
- 14% (140 million) was given to enterprise investors.
- 5% (50 million) was received by the team.
- 12% 120 million) was allocated for the operational cost of running the network and the Foundation.



Source

However, following the initial token sale, Vechain was required to refund all Chinese citizens who participated in the ICO due to regulatory changes in China. This led to the burning of approximately 13% of the total token supply (around 133 million VEN), thereby reducing the total supply to 867.2 million VEN. After the token swap to VET, this adjusted total supply translated to 86.72 billion VET.

As previously stated, the Vechain Foundation was allocated 12% of the ICO distribution. As of Q1 2023, the Vechain Foundation's treasury holdings are valued at ~$380,400,000 at the end of March 2023 highlighting a healthy Treasury and financial management.

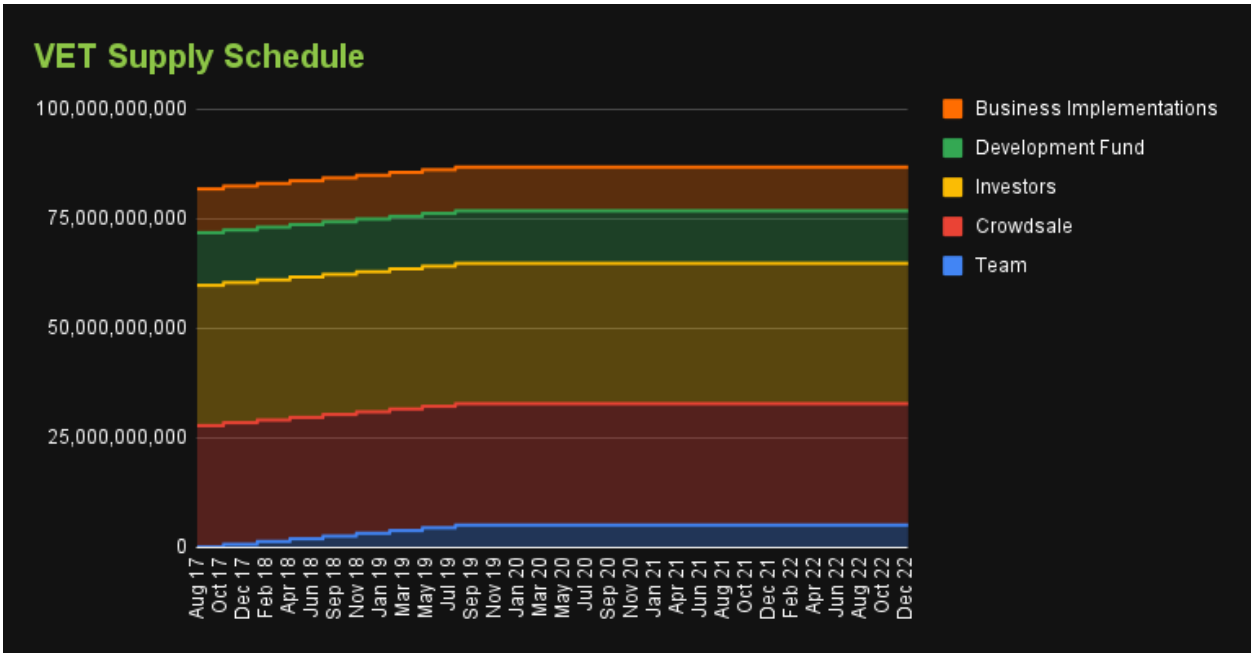
	31/12/2022	31/03/2023
Stablecoins	35,203,624.19	34,037,409.55
BTC/ETH/VET	240,357,705.23	346,374,890.70
Total in USD	**275,561,329.42**	**380,412,300.26**

Value of Treasury holdings at the end of Q1, 2023

Source

Supply Schedule and Issuance

The maximum supply of VET is capped at 86,712,634,466, with an inflationary type emission rate since genesis. ~85% of the max token supply is currently in circulation. The supply schedule can be seen below.

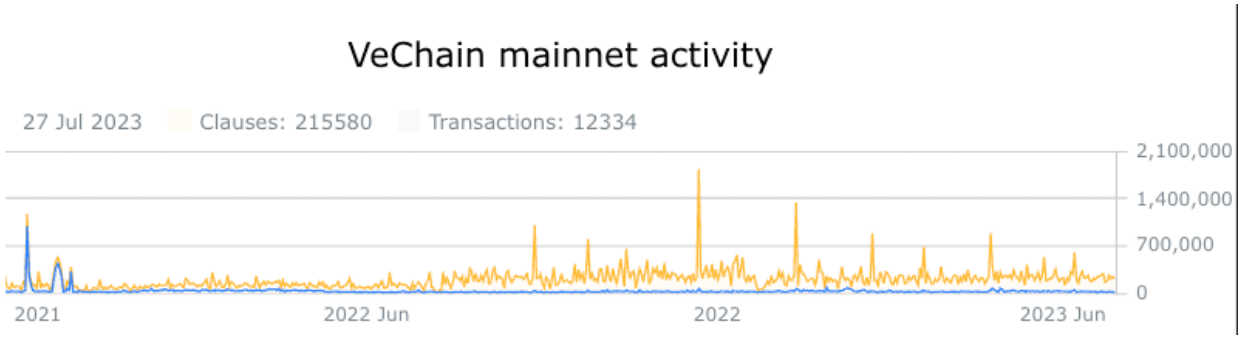


Source

Network Activity and Adoption Metrics

On-chain Activity

Transactions (blue) and associated clauses (orange), a proxy for network activity, picked up in Q2 2022 and have remained consistently at this new level throughout 2023.



Source

Contracts on the Vechain blockchain have continued to grow over time, albeit at a slower pace since 2022. This suggests dampened activity at the moment but a chain with real functionality even in a bear market. The stair-stepped pattern in the contracts curve seemingly suggests momentary bursts of growth/adoption followed by a lull period that is repeated over time that roughly correlates to crypto's overall boom-bust cycle.

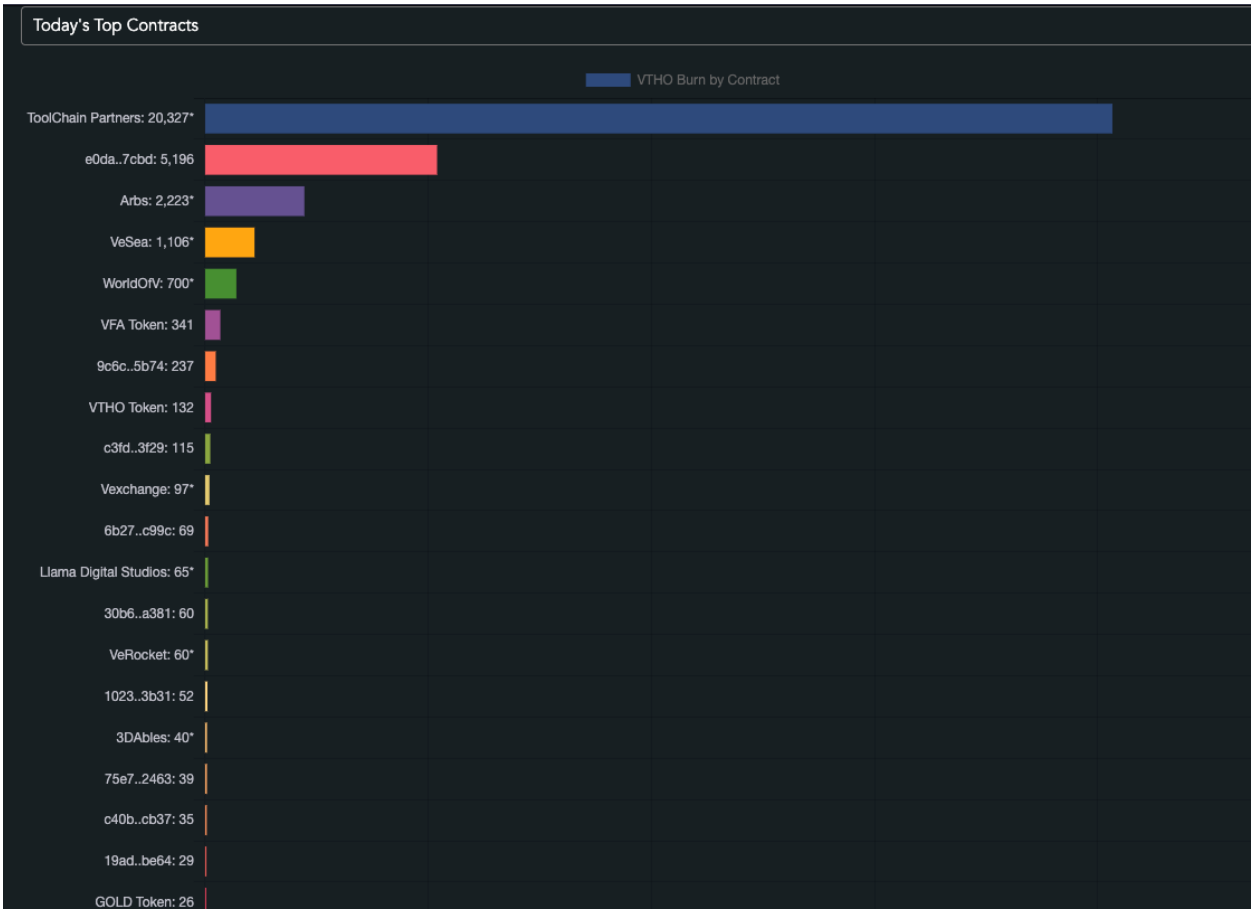
Vechain cumulative contracts deployed on-chain. Source

ToolChain Technology

Vechain ToolChain™ is a proprietary blockchain application platform designed to enable businesses, regardless of their size, to collaboratively develop new products and services. It offers a comprehensive suite of solutions, including Blockchain-as-a-Service (BaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). These offerings empower businesses to enhance transparency, gain insights into product life cycles, and unlock new value-generation avenues for consumers, brands, and supply chain participants.

Vechain ToolChain's™ unique design allows multiple companies to operate within it, each with its own smart contracts and services. This approach simplifies the integration and utilization of blockchain services for businesses, eliminating much of the overhead typically associated with such endeavors.

One of the most notable users of Vechain ToolChain™ is Walmart, in collaboration with PwC. The retail giant leverages the platform to track products from farms to shelves across logistics trails. This allows consumers to verify the journey of their food purchases, ensuring the quality and origin of the items. As the image below illustrates, ToolChain™, which is a collection of contracts across multiple users, is by far the most used contract in the Vechain ecosystem.



Source

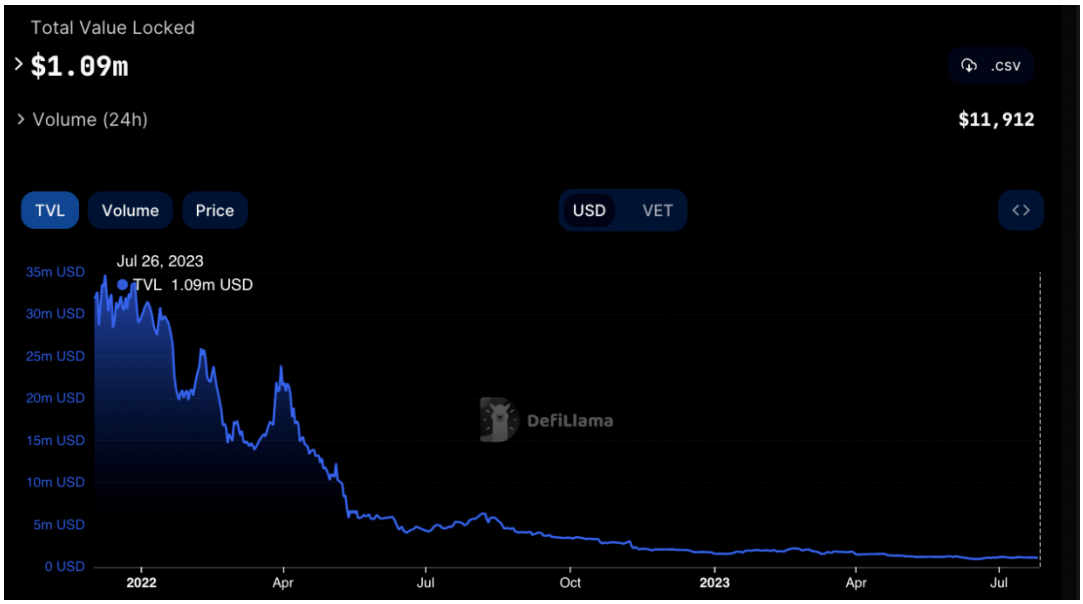
In addition to its blockchain services, Vechain also designs and builds various types of chips that incorporate Internet of Things (IoT) elements. This integration of IoT with blockchain technology further enhances the capabilities of the Vechain ToolChain™ platform, offering businesses an even more robust and versatile tool for their operations.

Dapps, DeFi, and Total Value Locked (TVL)

DefiLlama lists only two applications within the Vechain ecosystem that hold any meaningful TVL: VEXchange and VeRocket. Between the two, the total TVL on Vechain is ~$1 million, demonstrating that Vechain is not currently competing in the DeFi industry like other smart contract chains such as Ethereum ($25B), Binance Smart Chain ($3.3B), Polygon (~$1B), and others, presenting a possible growth opportunity for those looking to expand to other chains.

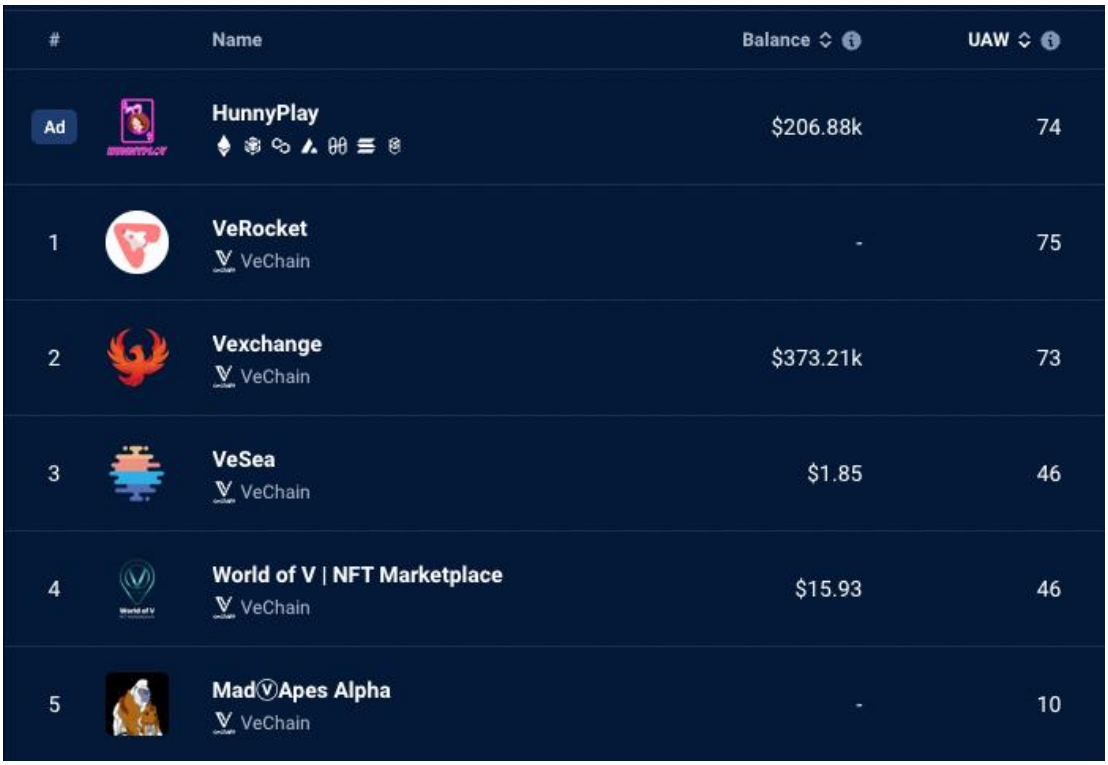
It is worth noting that, per Vechain's latest whitepaper and developmental direction with Boston Consulting Group, the duo intends to build out incentivized ecosystems that reward user engagement, which should lead to growth in Vechain's ReFi/DeFi volume.

Moreover, the recent launch of an Ethereum/Vechain asset bridge could mark the start of unlocking liquidity from other blockchains and migrating it to VechainThor.



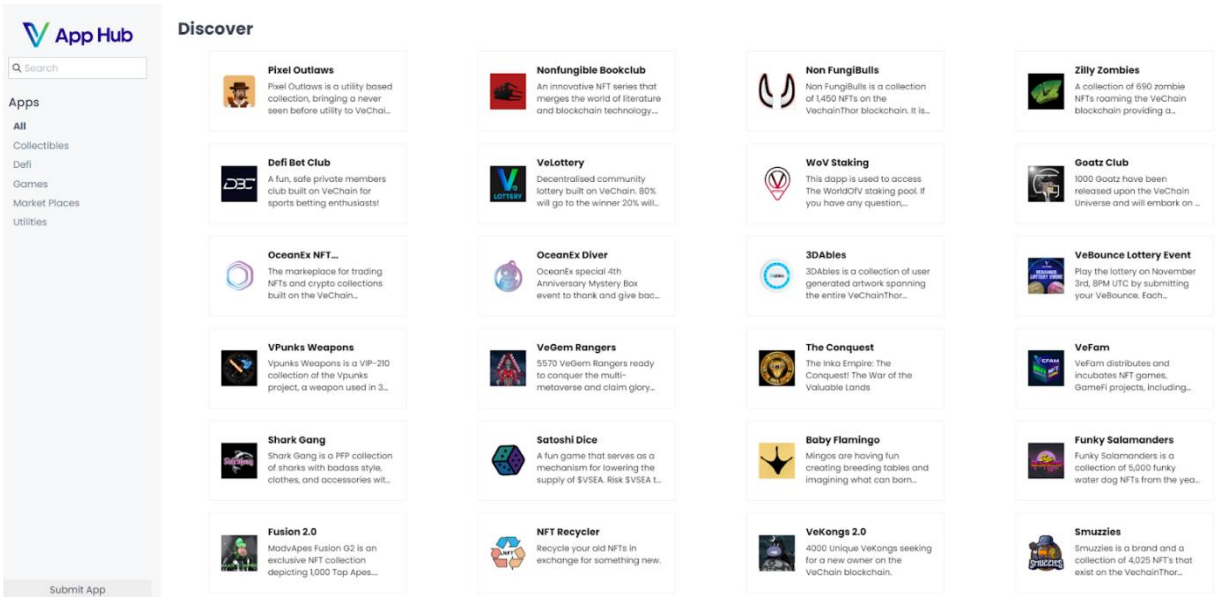
Source

Per DappRadar, Vechain's top DeFi dApps have less than 100 unique weekly active wallets (UAWs).



Source

Vechain has a relatively active developer community, with Dapps for many popular features such as token exchanges, NFT marketplaces, staking, GameFi, betting, atomic swap protocols and more listed on the Vechain Dapp Store.



Coinbase Integration

Coinbase recently announced its intent to list the VET and VTHO tokens, helping Vechain overcome a relative lack of availability on major exchanges and for US retail consumers, as well

as opening up VET and VTHO to institutional investors via Coinbase Custody. The listing marks a watershed moment for accessing the VechainThor ecosystem, with far-reaching access being opened up for the ecosystem.

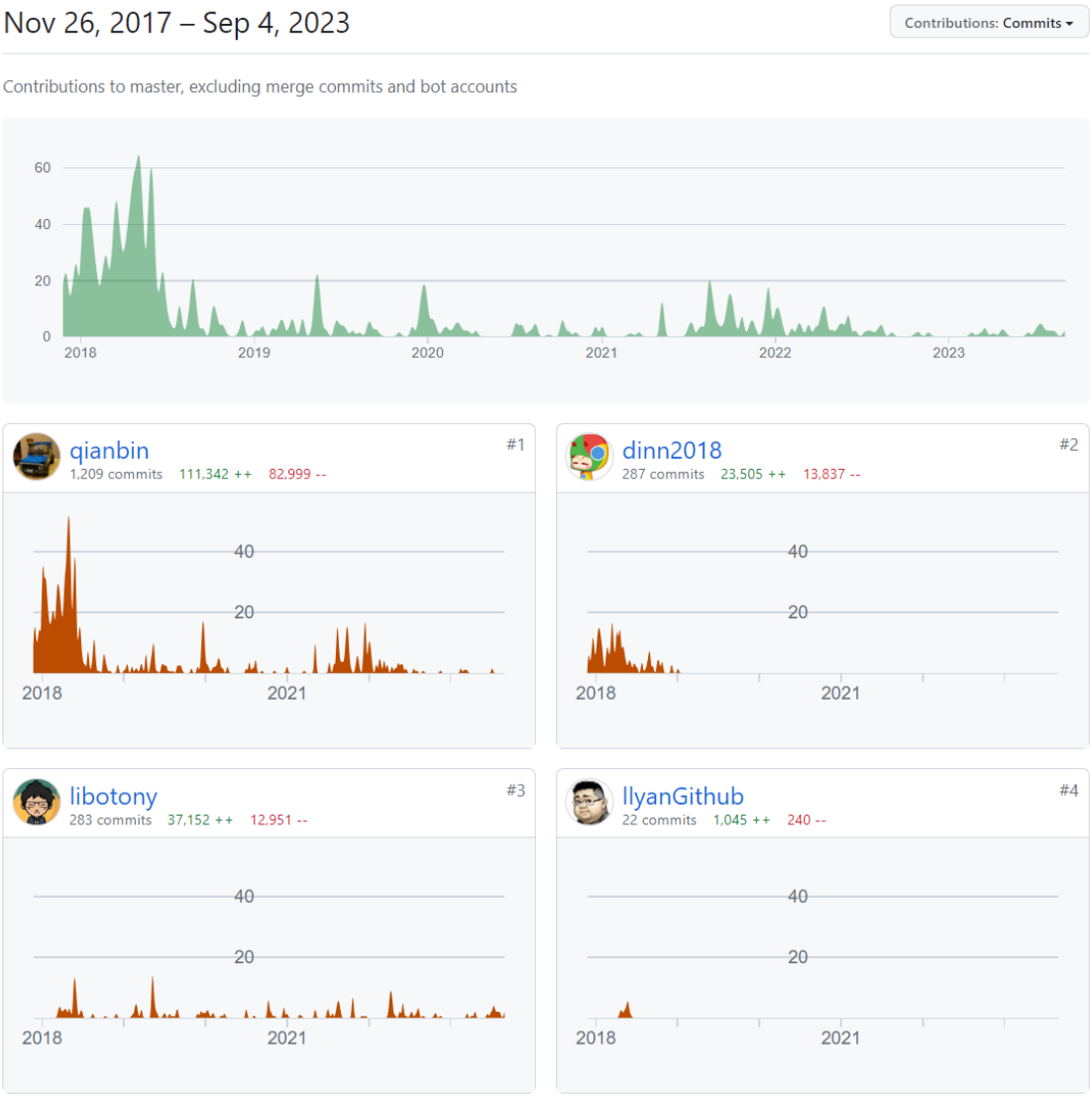
Developer Activity

Below is a snapshot of developer activity since Vechain's mainnet launch, from Vechain's core GitHub page. Despite the core Github repository being (primarily) maintained by a few individuals, Vechain maintains ~10 core blockchain developers, as well as a second Github page for the Foundation's European Technology Centre concentrated on building developer tools and services for the blockchain. Vechain has committed to hiring 100 developers over three years to accelerate the pace of development even more. Vechain's third Github, 'Vechain labs' is where more experimental builds are published, most recently publishing an ETH <> VET asset bridge (currently in alpha), shared on Twitter.

The Vechain team and advisory board operate with full transparency, maintaining public offices in China, Europe, the USA, Singapore, and Japan. This global presence suggests that Vechain is actively engaging with various governments to ensure long-term compliance and viability.

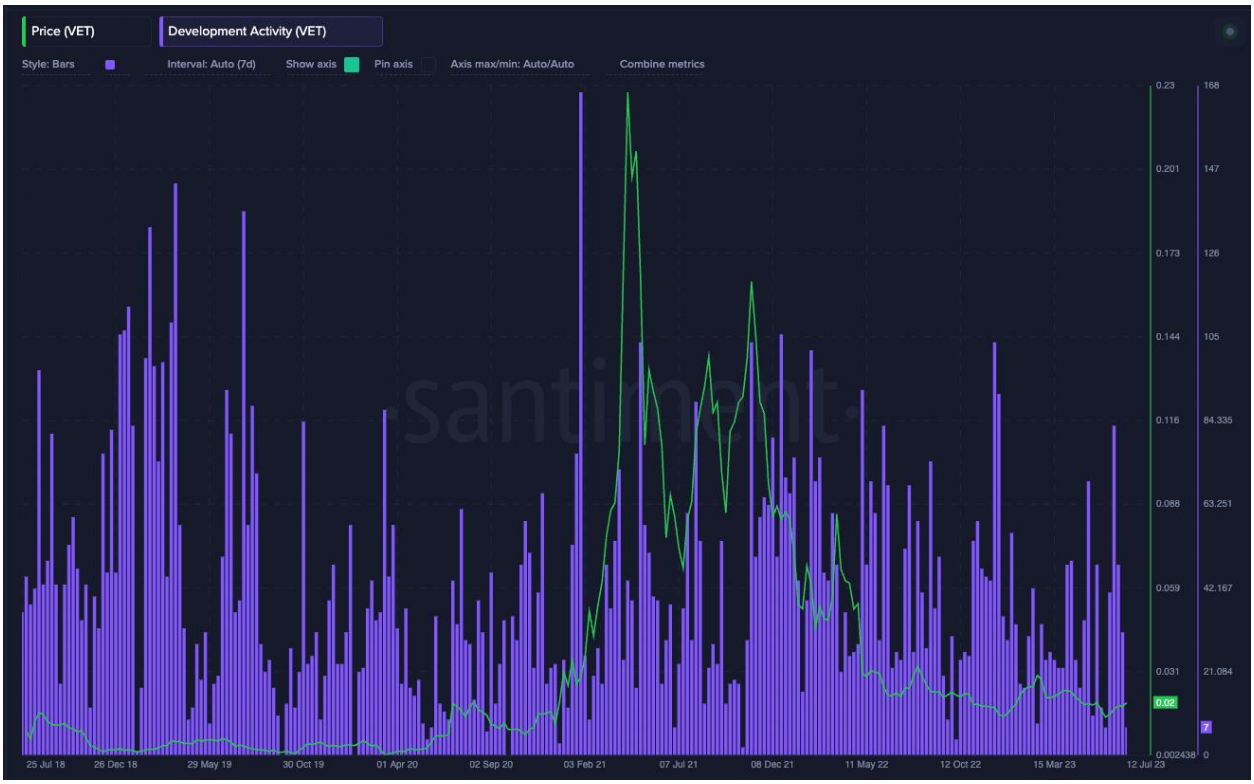
In addition, the Foundation recently launched a series of initiatives designed to attract and incentivize builders, such as the recently held 'Web3 for Sustainability' Masterclass in Paris, and a new $100k Vechain Improvement Proposal (VIP) bounty campaign (Vechain's equivalent to Ethereum's EIPs) to encourage builders to develop and propose enhancements for integration with the VechainThor protocol.

Mainnet development activity since 2018 is down, yet consistent, potentially demonstrating the maturity of the code for VechainThor.



Source

Santiment tracks Vechain development activity/consistency (pictured below). Vechain performs well in this area, despite the price decline and bear market.



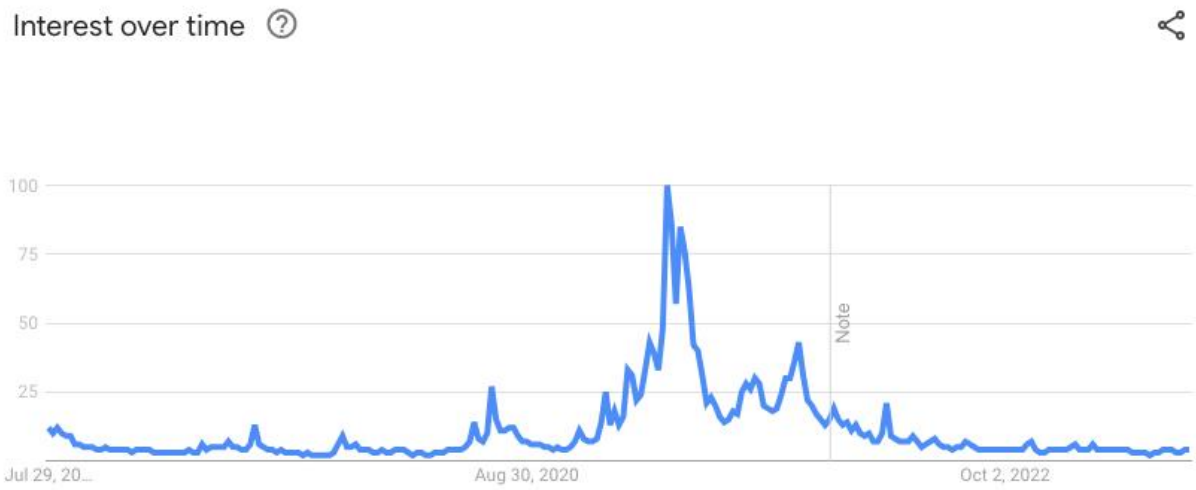
Vechain development has remained consistent over the years, despite any volatility in price. Source

Funding to support continued code development and other Vechain expenses comes primarily from investor and VC funding. Some of the investors and investment groups that have contributed to Vechain are:

- Aenigma Capital
- Fenbushi Capital
- Hash Capital
- Myriad Capital Management
- LD Capital
- Block VC
- ChainFunder
- ChainPE
- Digichain Capital
- Draper Dragon
- Breyer Capital

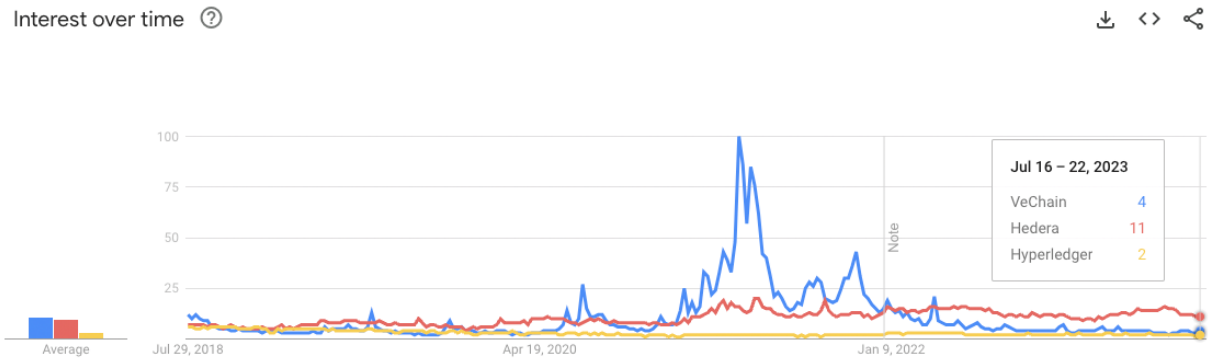
Web2 Trends

Google Trends illustrates the increased attention in Vechain during the 2021 cycle while also demonstrating the bear market cycle of 2022-23.



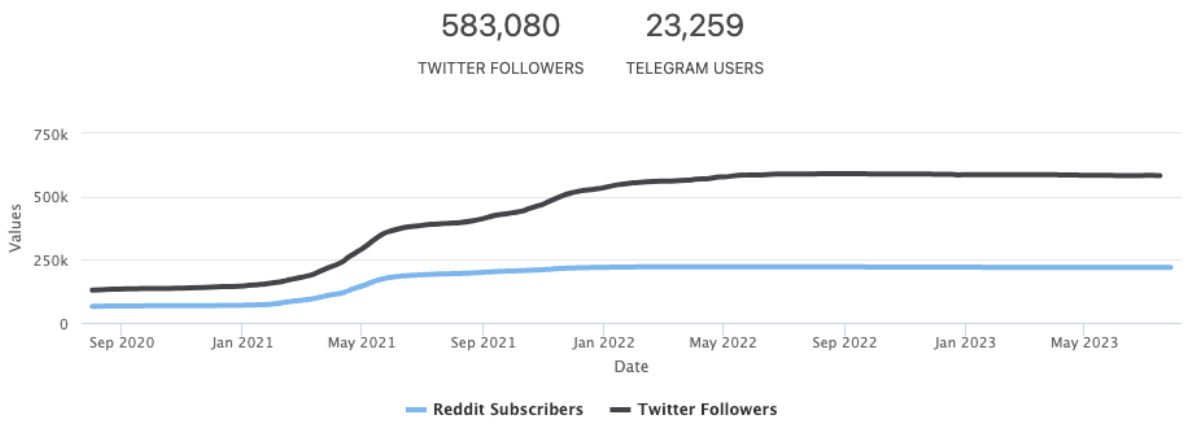
Google Trends

However, plotting Vechain over the same time period alongside competitors Hedera (red) and Hyperledger (yellow) shows just how the current supply chain blockchain industry compares to one another.

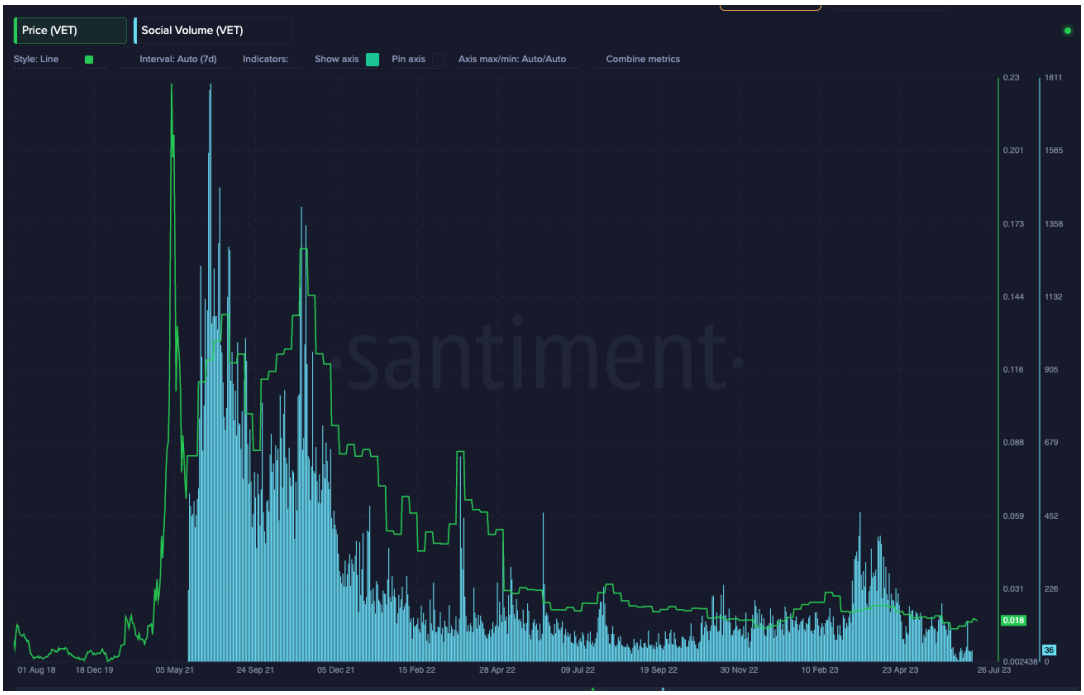


Google Trends

The official Vechain Twitter handle and Telegram appear to have plateaued (first image below) during this bear market after obtaining a respectable ~583,000 and 23,000 users, respectively. The second image below illustrates declining Social Volume (via Santiment) and has a strong correlation with token price.



Source



Source

Conclusion/Final Thoughts

Vechain has established itself as a leader in the realm of blockchain enterprise solutions, most notably in supply chain management. Additionally, Vechain looks to expand even further with a focus on creating sustainable ecosystems through its 'blockchain biosphere' framework being built with Boston Consulting Group.

Vechain's approach differentiates it from other crypto projects. While Vechain's blockchain is publicly usable, it technically runs a public-permissioned blockchain where Authority masternodes must be KYC'd in order to participate. This was an intentional design choice, intended to meet the expectations of institutional and enterprise clients which, to date, seems to have proven a beneficial choice. Yet, for decentralization maximalists, this might be considered a negative.

While the Proof of Authority (PoA) system used in VechainThor deviates from the fully decentralized model of blockchains like Bitcoin and Ethereum, its design means it has a greater ability to make changes which enhances the efficiency of its development. However, this approach necessitates a higher degree of trust in the entity building out the core blockchain and services. Importantly, the network is constructed to ensure the key attributes of blockchain are retained such as trustlessness and immutability, one of the key value propositions for mainstream blockchain adoption.

The PoA network attempts to mitigate malicious activity by vetting network participants before their acceptance into the network and leveraging the reputational risk that would follow any malicious actions. However, the threat of reputational damage may not necessarily deter individuals from engaging in nefarious activities. To counter this, Vechain has implemented network designs and block production that make it almost impossible to meaningfully impact the network. This gives potential enterprises confidence in leveraging Vechain's protocol and technologies.