

Tagion Tokenomics – A Deep Dive

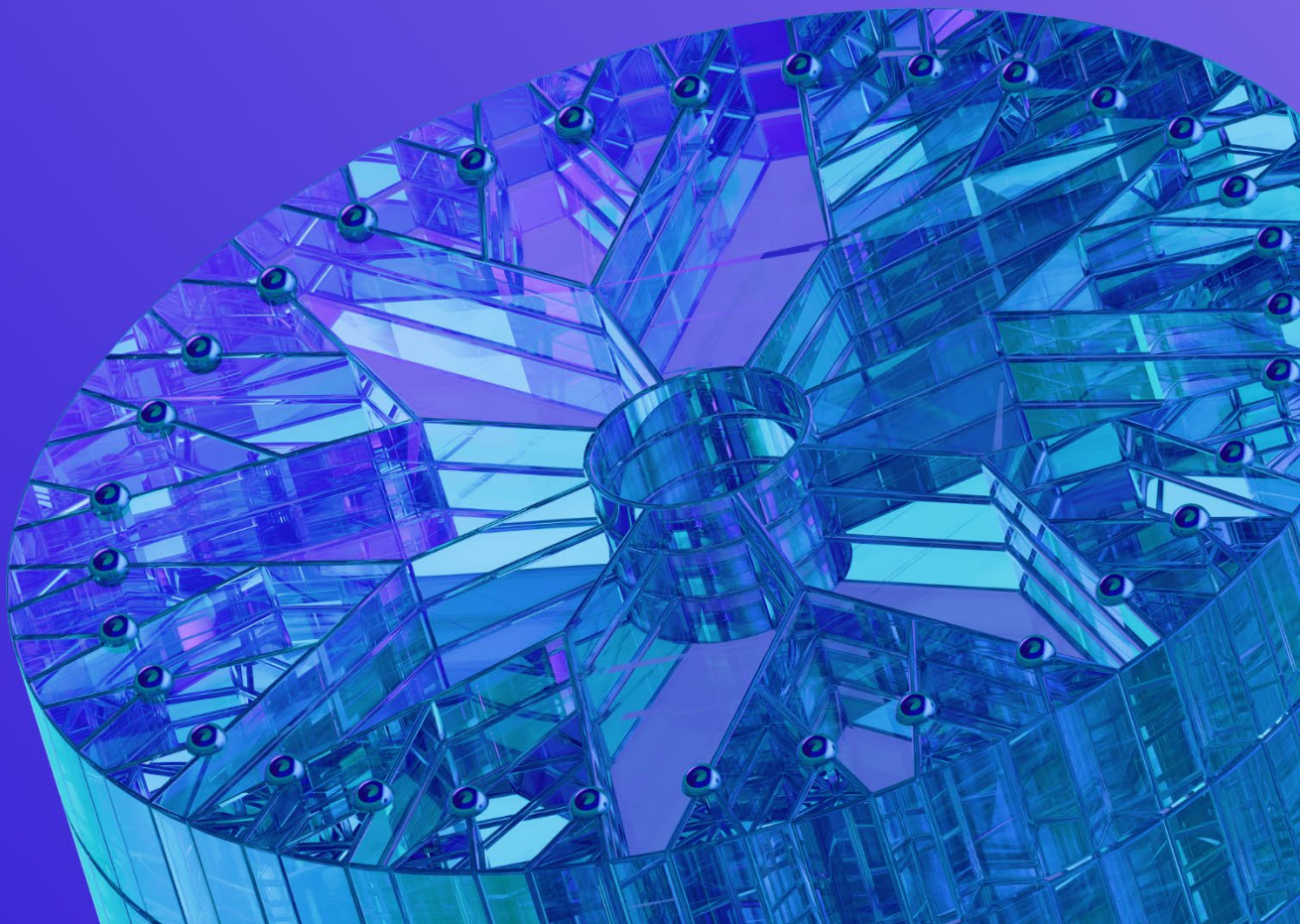
The document includes:

Supply

- Token Allocation
- Vesting Periods
- Token Emissions

Demand

- Network Entities
- Network Security
- Transactions
- Treasury



Supply-side Tokenomics

1. Introduction

The supply-side of a token economy lays the foundation for a token's circulation, distribution, and overall economic health. It's here that the principles of allocation, emission, and vesting come into play, shaping the token's journey from its genesis to its eventual role and circulation within the ecosystem.

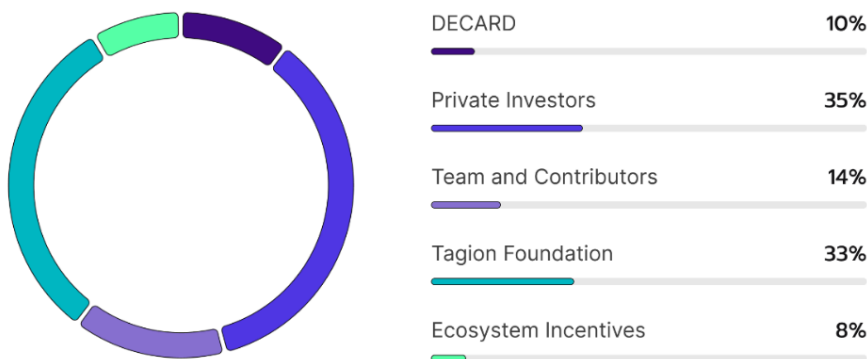
Token allocation speaks to the initial distribution strategy, reflecting the network's values, goals, and of course funding needs. Emission, on the other hand, deals with the creation and introduction of new tokens, a mechanism that can influence the token's value and scarcity. Lastly, vesting periods serve as a commitment tool, ensuring that stakeholders remain aligned with the network's success over the coming years.

This section delves into the supply-side mechanics of TGN, the native token of the Tagion Network, elucidating the strategies and thought processes behind the allocation, emission, and vesting of the token. Through this exploration, we aim to provide a comprehensive understanding of how TGN is initially distributed within the Tagion ecosystem.

2. Token Allocation

Token allocation provides a clear picture of how tokens are distributed among various entities and for what purpose. In the Tagion Network, the allocation of its native token, TGN, is planned to ensure the network's long-term sustainability and growth. As such, a portion of the tokens is earmarked for private investors to secure essential funding for development and operations, while the majority of the tokens is allocated with an eye on the future, ensuring that tokens are designated to support and sustain the ecosystem's overarching goals and objectives over time.

TGN Allocated



Tagion Foundation

Allocation: 12,000,000,000 TGN

33% of the total TGN supply has been allocated to the non-profit Tagion Foundation. The Foundation will earmark its TGN holdings solely to back initiatives that resonate with its core purpose and accompanying bylaws. This guarantees that a significant portion of the total TGN supply, 33%, is channeled directly into projects and community-oriented initiatives that improve the network infrastructure and enhance the ecosystem.

Ecosystem Incentives

Allocation: 3,000,000,000 TGN

8% of the entire TGN token supply is set aside for the community. Such allocations aim to motivate, reward, or engage the broader community of users, developers, or other stakeholders in ways that benefit the growth, security, and overall health of the Tagion Network. This encompasses airdrops, grant distributions, compensation of educational content creators, and more.

Crucially, these 3,000,000,000 TGN will be used for TGN-denominated donations and cannot be sold to either public or private investors.

Private Investors

Allocation: 13,000,000,000 TGN

To finance core infrastructure development and augment the network's usefulness, 35% of the tokens are allocated to private investors. Out of this, 8%, representing 3B TGN and distributed among over 1,000 investors, has already been sold in the pre-seed. TGNs not sold to private investors by the time of an exchange listing will be transferred to the Tagion Foundation.

DECARD

Allocation: 3,700,000,000 TGN

DECARD holds an allocation of 10% of the TGN supply. DECARD, a commercial enterprise, has served as the foundational catalyst and financial backbone of the development of the Tagion Network. Its core mission centers on building applications on the Tagion Network and bolstering the encompassing ecosystem.

Team and Contributors

Allocation: 5,300,000,000 TGN

14% of the total TGN supply will be allocated to team and contributors, who have been an integral part of developing the network. As of today, this group comprises more than 40 individuals.

3. Vesting Periods

In the context of token distribution, vesting refers to the structured release of tokens after their initial allocation. This release can be restricted by certain conditions or periods, ensuring that stakeholders don't flood the market prematurely, which could destabilize the token's value.

Vesting can be time-based, where tokens are released systematically over a predetermined timeline, or event-based, where tokens are released upon achieving specific milestones or events.

By predominantly using time-based vesting, the Tagion Network ensures a steady token release, fostering a predictable token evolution in the supply-side of TGN.

Private Investors

The allocation for Private Investors can be segmented into two categories: those who already have invested, pre-seed investors, and those who have yet to invest.

Pre-seed

- At the outset of the Tagion Token Generator Event, 10% of their tokens are immediately available.
- Thereafter, there's a 12-month cliff, following which 5% of the tokens become available each month.
- This structure results in a total vesting period of 30 months.

Other investors

While the vesting terms might be subject to negotiation, they are anticipated to mirror those applied to pre-seed investors.

3.2 Team and Contributors

- Their vesting terms mirror those of Private Investors with one key difference: the cliff period is extended to 18 months.
- The total vesting period for this group spans 36 months.

3.3 DECARD and Tagion Foundation

- Both entities are viewed as long-term pillars supporting Tagion's sustainability.
- Their vesting begins with a 20% token release at the Tagion Token Generator Event.
- From then on, 20% of their token allocation is released annually.
- Cumulatively, their vesting period stretches over 5 years.

3.4 Ecosystem Incentives:

- Contrary to other entities, Ecosystem Incentives aren't subjected to any vesting constraints.
- The underlying philosophy is to instantly provide resources to foster community growth and spark initial engagement.

In essence, vesting periods serve as strategic tools, ensuring stakeholders remain committed and invested in Tagion's long-term vision and success.

4. Token Emissions

Emission mechanisms play a pivotal role in maintaining a healthy and robust network. Adequate compensation for node operators, through well-structured rewards, is imperative to ensure active participation, transaction validation, and consistent network consensus. Understanding these emission processes is crucial, as it offers insights into the potential supply fluctuations and the long-term viability of the TGN token economy.

4.1 Minting

Nodes actively participating in the network undertake the crucial roles of transaction validation and ensuring network consensus. It's vital that these nodes receive adequate compensation for their services. Insufficient rewards may deter potential node operators from joining or maintaining their participation in the network, highlighting the significance of an apt reward structure.

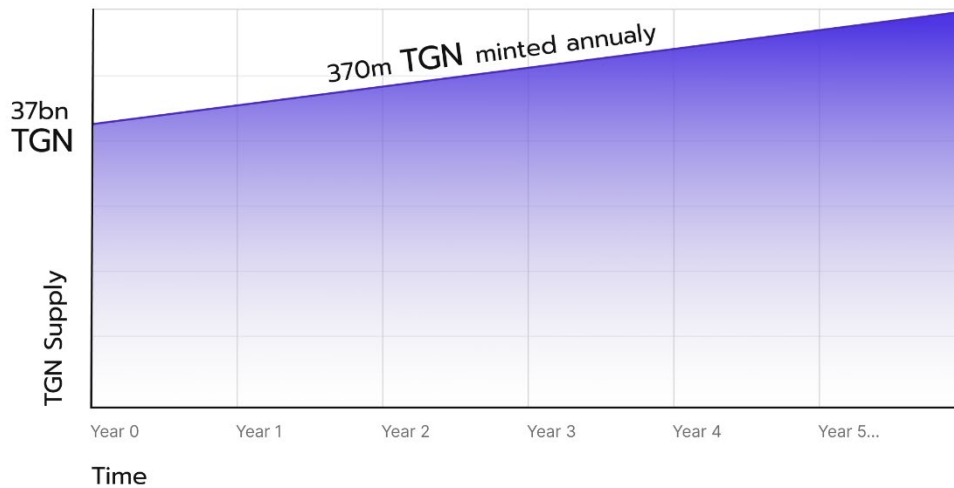
Under the assumption of a consistent reward structure, we observe that with a smaller node pool, say five nodes, the competition for rewards is minimal, leading to higher rewards per node. On the other hand, when the node pool is saturated with thousands of participants, rewards per node naturally diminish. Rewards per node and the number of participants in the node pool therefore share an inverse relationship.

This inverse relationship means early node operators enjoy higher rewards due to limited participation. Such high rewards can entice nodes to join the network. However, as more nodes are drawn in by the potential for higher rewards, this will give rise to diminishing returns. Eventually, the network may reach an equilibrium where it's no longer significantly profitable for additional nodes to join.

When users transact on the network, they incur a gas fee. However, it's crucial that these gas fees don't become the main compensation for node operators. If they did, during periods of reduced network activity, node operators might lack the incentive to maintain the network's security and validate transactions.

Instead, a consistent annual addition of 1% of the original TGN supply will be introduced, resulting in a steady emission of 370,000,000 TGN each year. These new TGN tokens will be distributed as rewards to node operators in recognition of their contributions. Based on this

structure, early node operators, when let's say only five nodes constitute the pool, would earn an average of 74,000,000 TGN each. However, as the node pool expands to include, say, 1,000 nodes, the average reward per operator would decrease to 370,000 TGN.



While a reward system that increases with a larger node pool may seem attractive for promoting network decentralization, it has its drawbacks. Specifically, it might unintentionally encourage current operators to game the system by setting up multiple nodes. For this reason, the rewards will not be tied directly to the size of the node pool.

Importantly, the community retains the authority to modify the reward rate. Such flexibility ensures the reward mechanism remains responsive to both shifts in the node pool size and unforeseen market conditions.

4.2 Burning

When users transact on the network, they incur a gas fee denominated in TGN. Initially, these fees will be burned.

However, the future vision encompasses the establishment of a Community Treasury. Once established, and upon mutual community agreement, the entirety of these gas fees may be directed straight into the Treasury. From this communal reservoir, the community holds the power to either eliminate the tokens via burning or distribute them via grants, enhanced node rewards, or investing into projects. But again, it's worth emphasizing that, initially, all tokens will be burned.

The volume of tokens burned naturally influences the TGN inflation rate. If the quantity of burned tokens surpasses the annual minting of 370 million TGN, the token supply trends deflationary:

$$\text{Deflation} = \text{mint} < \text{burn}$$

If not, the supply trends inflationary:

$$\text{Inflation} = \text{mint} > \text{burn}$$

As such, TGN's inflation rate is a dynamic function of the minting and burning rate. However, it should be emphasized that the inflation rate will from the outset be capped at 1%.

Initially, the network will be primarily managed by a select few nodes, rendering it centralized in nature. Until decentralization is achieved, the minted TGN will equate to the amount burned from transaction fees, ensuring that the total TGN supply remains non-inflationary.

Demand-side Tokenomics

1. Introduction

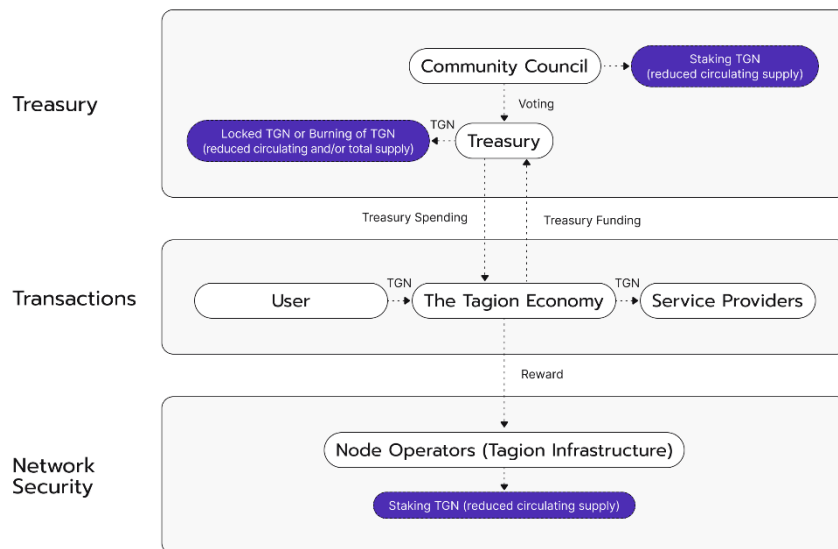
The term 'utility' comes from the Latin word 'utilitas', meaning 'usefulness'. Whenever we speak of utility in the context of DLT, we often speak of the usefulness of a token.

The Market in Crypto Assets (MiCA) regulation defines a utility token as *"a type of crypto asset which is intended to provide digital access to a good or service, available on DLT"*. A utility token is accordingly a digital asset on a distributed ledger, granting holders access to certain products or services. Here, we further extend the notion of a utility token to encompass a token used for staking in the consensus layer and for compensating node operators for validating and recording transactions.

While the classification of a utility token is binary - either it is or isn't a utility token - the notion of token utility conversely operates on a spectrum, indicating that a token can vary in its usefulness. As such, when speaking of token utility, we refer to the usefulness of the token, defined as its ability to access or unlock goods and services; the more needed it is for accessing and utilizing services, the greater its utility.

Building on the economist Randal Wray's renowned saying "taxes drive money", we may say that "utility drives demand." As a token's utility increases, its demand naturally follows, enticing individuals to purchase and use it. Yet, in the world of distributed ledger networks, the demand aspect of a token economy frequently receives insufficient attention. This oversight can translate into a sub-optimal token economy, potentially rendering token utility non-existent.

This section delves into the intricate token economy underpinning the Tagion Network, emphasizing the mechanisms that stimulate demand of its native token, TGN. Below, the demand-side dynamics have been illustrated.



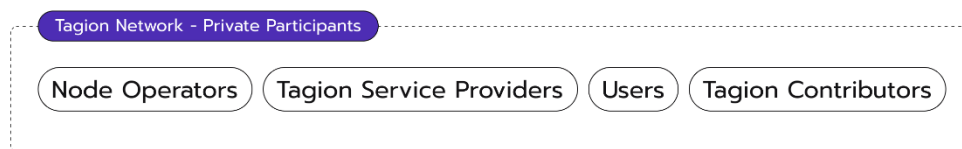
TGN serves as a means of payment used by stakeholders when transacting on the Tagion Network. However, TGN serves not only as the primary medium for network transactions, but also as a pivotal staking instrument within the network's sybil-resistant mechanism and as a governance tool in its innovative Treasury design. As the backbone of the Tagion Network, TGN will accordingly serve as the focal point around which value will revolve, evolve, and unfold.

2. Network Entities

The Tagion Network shares similarities with traditional economic systems in terms of the roles and relationships between various actors. Just like in conventional economies, the Tagion ecosystem relies on the interaction and cooperation of different stakeholders, both public and private, to function effectively.

2.1 Private Participants

The Tagion Network brings together an assemblage of private actors, including Node Operators, Tagion Service Providers, and Users, and Tagion Contributors.



- **Node Operators** play a vital role in maintaining the network's integrity and security by running nodes and validating transactions. They participate in the transaction settlement process and ensure the smooth functioning of the Tagion Network. Node Operators require TGN for staking within the consensus layer. Details on this will be explored in Section 2.
- **Tagion Service Providers** develop and provide a range of services built on top of the Tagion Network. They leverage the network's capabilities to create innovative solutions that cater to various needs, such as financial services, supply chain systems, or other utilities, thus enhancing the overall value of the Tagion ecosystem. As Tagion Service Providers craft innovative use cases powered by TGN and gain widespread adoption, the inherent utility of the token inevitably rise.
- **Users** “consume” the services and applications built on top of the Tagion network. They utilize and engage with the solutions, assets or goods provided by Tagion Service Providers or other stakeholders, benefiting from the decentralized, secure, and efficient nature of the Tagion ecosystem. Notably, Users may also take on the role of suppliers, when for example selling goods or

assets on the DEX Protocol or providing content to decentralized social media platforms. In this context, Users require TGN to access services and purchase goods. This will be explored in Section 3.

- **Tagion Contributors** actively participate in the growth and development of the Tagion ecosystem by sharing their skills, knowledge, and resources. Their diverse contributions may include core development, marketing, governance, or other forms of support, fostering a collaborative environment that drives innovation and progress. Tagion Contributors drive demand for the TGN token in two ways. Directly, by utilizing TGN for staking in Treasury Governance. This will be elaborated in Section 4. Indirectly, by drawing in new users via, say, educational content creation, leading these new users to seek TGN for transactional purposes.

These participants can fluidly transition between multiple roles. For instance, a Tagion Service Provider might take on the role of a User when utilizing services offered by one of its counterparts. Likewise, a User may assume the role of a Node Operator, if he or she actively runs a node and validates transactions.

2.2 Public Institutions

Non-profit public institutions play an active role in governing, maintaining, and developing the Tagion ecosystem. These institutions are instrumental in fostering the sustainable growth and evolution of the network.



- **The Tagion Foundation** is a charitable foundation dedicated to maintaining, developing and promoting the Tagion Network. The objective of the Foundation is to establish Tagion as an open, independent, and sustainable application platform governed as a Common, fostering a sustainable economic future accessible to individuals worldwide. In its mission, the Foundation is committed to financing the continuous enhancement and upkeep of core infrastructure. Additionally, it will allocate grants, orchestrate airdrops, host hackathons, and spearhead other community-centric endeavors. A cornerstone of the Foundation's long-term vision is the establishment of the Tagion

Treasury and its associated governance frameworks. This is all part of a grand design to evolve the Tagion Network into a truly community-driven, decentralized platform. It's therefore essential to view the Foundation's role as interim, paving the way for the Tagion Treasury to ultimately lead the charge.

- **The Tagion Treasury** is a DAO responsible for raising and allocating capital within the Tagion Network. It collects TGN tokens via a set of funding mechanisms, subsequently redistributing them to fund specific initiatives. The Community Council, working closely with the Proposal Committee, oversees the Tagion Treasury. The Community Council comprises Network Participants who voluntarily stake TGN in the Governance Pool, granting them a say in the Tagion Treasury's active management and the democratic election of the Proposal Committee. The Proposal Committee is entrusted with drafting and presenting proposals, which the Community Council then deliberates and votes on, specifically pertaining to the management of the Tagion Treasury.

Public institutions will play a pivotal role in nurturing the ecosystem, not only by financially supporting core development but also by funding application-building undertaken by Tagion Service Providers. Together, private and public actors thus form a dynamic and interconnected economy, working collaboratively to build, maintain, and evolve the Tagion Network, driving its growth and success in the process.

3. Network Security

Staking emerges as a central mechanism to bolster security in the Tagion Network, relying on economic incentives to ensure honest behavior. Here, TGN plays a pivotal role. Node Operators are required to stake a certain amount of tokens as collateral to participate in the network's consensus process. This staking serves a dual purpose:

Incentive Alignment: Node Operators are rewarded with tokens for validating transactions. Conversely, any malicious activity or attempt to compromise the network's integrity can result in the loss of their staked tokens through slashing.

Network Health and Stability: By requiring Node Operators to have a stake in the network, it ensures that those responsible for its security and operation have a vested interest in its long-term success and stability.

3.1 Staking Requirements

To become a node in the Tagion Network, participants must meet an adjustable minimum TGN staking requirement, initially set at 5m TGN. This threshold not only ensures node operators have a vested interest in the network but also deters malicious actions, with penalties enforced through slashing of their stake.

Furthermore, establishing a minimum staking threshold is one facet of a comprehensive strategy to curb the threat of Sybil attacks, where an individual or entity spawns multiple nodes to gain undue influence over the network. If this threshold is set too low, a malicious actor with a sizable TGN holding might flood the system with a plethora of nodes, posing a risk to the consensus process. Consider this: When the required staking limit is 5,000,000 TGN, an individual holding 250,000,000 TGN can only deploy 50 nodes. Conversely, with a threshold of 1,000,000 TGN, they can spin up 250 nodes.

However, if set too high, the threshold may inadvertently exclude too many individuals and entities from participating in the validation process, thereby centralizing the consensus process and thus the network.

3.2 Becoming an Active Node

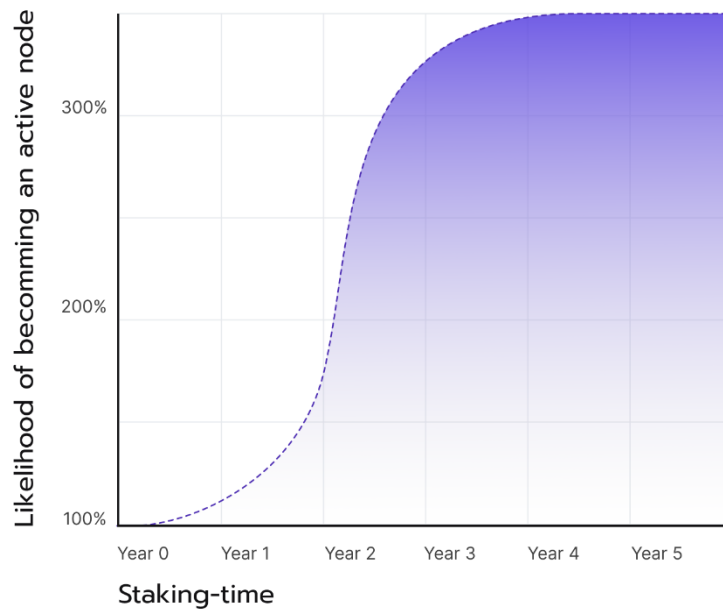
Tagion features a node swapping mechanism, where active nodes—those carrying out validation tasks—are continuously rotated with passive ones. This enables a permissionless system where everybody can partake in the validation process - assuming they are able to satisfy the minimum requirement - thereby promoting decentralization and security in the process.

Your stake fundamentally determines your chance of being selected as an active node. The probability follows a linear progression, where every additional TGN staked leads to a steady and uniform boost in the chances of becoming an active node. This method is preferred over a diminishing returns model. The latter could entice operators to launch several nodes, compromising network transparency by suggesting the system is more decentralized than it truly is.

Departing from conventional Proof-of-Stake models, the size of your stake doesn't influence the weight of your vote in the consensus layer. This guarantees that consensus isn't unduly skewed by stake magnitude, resulting in a more egalitarian consensus process.

3.3 Staking-time

To foster enduring commitment among node operators and promote long-term stability within the network, those who maintain their stakes for prolonged durations are granted heightened seniority. This seniority directly enhances their odds of being chosen as an active node, which follows a gamma distribution with an S-curve progression. Specifically, node operators experience a gradual accumulation of seniority during the initial 12 months. This is followed by a more rapid accrual over the subsequent 24 months, after which the seniority growth begins to plateau and gradually diminishes over the next 24 months.



The s-curve model fosters long-term engagement amongst node operators. Simultaneously, it sets an upper cap on accumulated seniority, ensuring that power isn't disproportionately concentrated, thereby safeguarding against centralization in the consensus process.

4. Transactions

As more applications are introduced, Users find a broader range of services, prompting them to engage more with the ecosystem and its native token, TGN. This growth isn't just one-sided. There's a positive feedback loop at play: As Tagion Service Providers draw more Users to the network, the growing user base catches the eye of new developers. Sensing the opportunity in this rising demand, they join the ecosystem. Their presence and innovations then attract even more Users, creating a continuous cycle where each wave of users lures in more Tagion Service Providers, and vice versa. It's a cycle where each growth phase fuels the next, creating a continuous loop of expansion. This not only boosts the overall value of the network, but also amplifies the demand for TGN. After all, TGN is the native token of the Tagion Network, serving as a means of payment used by stakeholders when transacting on the network.

Users and Tagion Service Providers may also opt to provide services, goods, or assets that can be purchased or accessed using TGN tokens, further increasing the demand for TGN within the ecosystem.

As an open application network, Tagion meanwhile enables both private and public entities to establish their own subNetworks known as subDARTs. With the aid of an accessible and user-friendly SDK, these subDARTs can be tailored with bespoke transaction fee structures.

5. Treasury

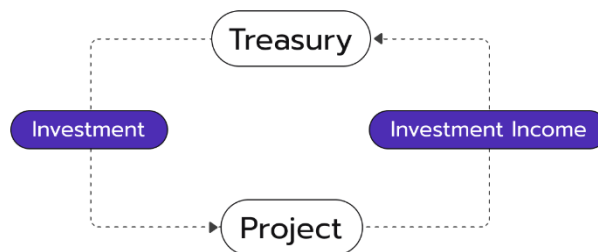
The Tagion Network aspires to evolve into a genuinely democratic system, governed as a commons. In pursuit of this, and after the successful launch of the Tagion Mainnet—defined as when the initial supply of TGN tokens are minted— the Tagion Foundation will take the lead in rolling out a community treasury, aptly named the Tagion Treasury. Notably, this treasury will fall under the stewardship of a Community Council, composed of Network Participants who commit their TGN to a Governance Pool.

5.1 Treasury Funding

The community Treasury will play a pivotal role in the Tagion ecosystem. The Treasury fulfills a dual role consisting in raising capital and spending capital. The Tagion Treasury's design mirrors the management and allocation of resources in conventional economies. It gathers tokens through diverse funding mechanisms, and then burns, redistributes, sells, invests or uses them for market-making purposes based on decisions made by the Community Council.

As the Treasury expands, the incentive to participate in the governance process and stake tokens correspondingly rises. Consequently, the Treasury's size is intimately connected to token demand.

The Treasury's growth can be achieved through multiple avenues. One such method involves profitable investments made by the Community Council:



Funds from the Treasury can also be strategically assigned to professional traders, effectively acting as asset managers, who leverage these resources to invest on behalf of the Treasury, seeking profitable opportunities and contributing to its overall financial health.

The primary means of facilitating the Treasury's growth is, however, through the strategic implementation of various funding channels.

5.1.1 Gas Fees

Transactions on the Tagion Network require payment in TGN. At first, these TGN fees will be automatically burned. However, after setting up the Treasury, the full amount of the gas fee will be directed into the Tagion Treasury. This ensures that the Treasury's growth is fueled by transactional activities on the network.

5.1.2 Donations

The Donation system encourages Network Participants to contribute to a common pool of funds or resources in exchange for certain benefits, such as increased influence, recognition, or rewards. This approach shares some similarities with philosopher [Peter Sloterdijk's ideas on philanthropy](#), by emphasizing the importance of public recognition and rewards for entities that contribute to the greater good.

In the context of the Tagion Network, Donations can be a mechanism to incentivize network participants, here referred to as Donors, to actively contribute to the network's development and improvement. Donors will be rewarded with elevated network reputation, and visibility.

Additionally, each month, the Treasury conducts a lottery where Donors have the chance to win a bonus equal to $x\%$ of the total amount of tokens collected during the donation period. The more tokens a Donor contributes, the more lottery tickets they receive, and thus, the higher their chances of winning the bonus become. This lottery system encourages Donors to contribute more tokens to the Treasury, as doing so increases their probability of winning the bonus reward.

This lottery-based approach fosters a competitive and gamified environment in which Donors are encouraged to contribute to the network's development. By creating a system where the rewards are distributed in a lottery fashion, the Tagion Treasury can maintain a level of excitement and engagement among its participants while promoting the importance of voluntary contributions for the network's ongoing development and success.

5.1.3 Treasury Bonds

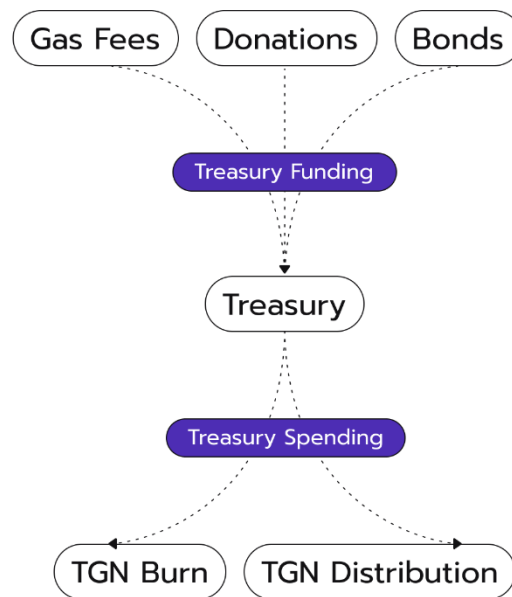
As a supplementary funding mechanism, the Community Council may opt to issue bonds to fund Treasury initiatives. The Community Council will determine both the interest rate on bonds and the number to be issued. Several factors are considered when deciding on the volume and interest rate of bonds to be issued. These include the current and projected Treasury needs, the prevailing economic environment, the supply of TGN in the market, and the appetite of investors for the bonds.

Upon purchasing a bond, TGN is channeled into the treasury, where it can be allocated for various purposes. But unlike other treasury assets, the proceeds from bond issuances cannot be burned. This is due to the fact that the burning process would reduce token supply, potentially rendering it difficult to honor the promise to pay back bondholders.

Bondholders seeking to liquidate their bonds prior to maturity can do so using the Exchange Protocol. On the Exchange Protocol, the Treasury remains prepared to facilitate these transactions, purchasing bonds at a discounted rate. The exact discount is contingent upon the remaining time until the bond's maturity. This mechanism not only provides an exit strategy for investors wanting to offload their bond holdings, but it also enables the treasury to accumulate TGN at a reduced cost. Therefore, it simultaneously nurtures the growth of the treasury and provides liquidity to investors, proving advantageous to both parties.

5.2 Treasury Spending

Once funds have been allocated to the Treasury, they can be harnessed for a myriad of purposes such as burning, investment, distribution, or potential sale. Ultimately, the management of the treasury rests with the Community Council in collaboration with the Proposal Council.



5.3 Treasury Governance

Treasury co-ownership promotes transparency, trust, and accountability, as Tagion stakeholders collectively participate in decision-making processes and oversee the allocation of resources. This shared governance structure helps ensure that the network's growth and development are in line with the interests of its stakeholders, rather than being driven by the agendas of a select few.

The governance framework encompasses two key public entities: the Proposal Committee and the Community Council.

5.3.1 Proposal Committee

The Community Council reviews and votes on proposals submitted by the Proposal Committee, which is notably elected by the Community Council itself.

Once a proposal is deemed ripe for submission, Governance Voting will commence, empowering the Community Council to exercise its decisive authority. Each proposal undergoes the process of being submitted to the Network as a smart contract. If the proposal gets accepted by the Community Council, the smart contract is automatically executed. For example, should the Proposal Committee propose an investment by the Tagion Treasury into Company A, a smart contract is created. This contract includes the wallet address of Company

A, investment documents, and the specified amount to be invested. Upon successful passage of the proposal by the Community Council, the smart contract is executed automatically, ensuring complete transparency in the process.

This approach guarantees that all actions and transactions related to approved proposals are conducted openly and with full visibility, contributing to a transparent governance framework within the Tagion ecosystem. It is also important to note that the Proposal Committee operates strictly under the principle of democratic decision-making. Without a formal vote, the Proposal Committee holds no authority to initiate any actions. This guarantees that choices are made collectively and democratically, with the guiding force of the majority shaping the course of action.

5.3.2 Community Council

The Community Council will be governing the Tagion Treasury and comprises Network Participants who stake their TGN in a Governance Pool. Staked tokens are withdrawn from the circulating supply, thus creating a mechanism that inherently amplifies the demand for TGN while simultaneously contracting its supply.

The weight of each member's vote resembles that of Tagion's Proof-of-Stake model, and is accordingly determined by two factors:

1. *the number of tokens staked.*
2. *the duration of staking.*

The weighted voting approach ensures that stakeholders who are more invested in the network's long-term success have a stronger influence in the decision-making process.

To maintain decentralization and prevent concentration of power, each Community Member can stake a maximum of 1m TGN. This cap on staking ensures that voting processes remain representative of the wider community.