Communication: Towards a More Mission-Aligned Token Distribution Mechanism

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1 Overview

One of the central difficulties facing the TIG community is a disconnect between *token emission* and *tangible progress* toward the protocol's mission. In our existing scheme, newly minted tokens flow into circulation at a rate that can feel detached from on-the-ground development or community engagement. This has led to a situation where tokens are being distributed more quickly than warranted by genuine growth or adoption, risking dilution and undervaluation of the asset itself.

Here, we propose an approach that *retains* the original minting schedule $M(t)$ but *modulates* how tokens flow out to participants, thereby making distribution more mission-aligned. The goal is to reward the network when it meets legitimate milestones, while curtailing excessive token releases when protocol progress is slow or uncertain. The key to achieving this alignment is a function $\Gamma(n)$ that, roughly speaking, converts protocol achievements into a *fraction* of tokens that can be unlocked. This is illustrated in Figure 1.

2 Current Issue: Excessive Token Emission

As it stands, the protocol simply releases newly minted tokens $\Delta M(t)$ into the market at regularly scheduled intervals, without a robust check on whether the network has reached the milestones that justify such issuance. This can be problematic:

$$\text{Rapid, Unconditional Supply Growth} \;\rightarrow\; \text{Market Pressure} \;\rightarrow\; \text{Reduced Incentive Power.}$$

In other words, the emission rate is not sufficiently mission-sensitive. **Our concern is that the value and integrity of the token could diminish if we continue at the current pace, especially in times where active participation or measurable usage lags behind the initial expectations.**

3 Proposed Solution: Goal-Oriented Distribution

In response, we keep $M(t)$, the cumulative minted supply curve, as is. This preserves the foundation and any prior commitments made about total token generation over time. However, instead of immediately distributing $\Delta M(t)$ to participants, we deposit it into a *vault*. Tokens are then released from this vault according to an event-based mechanism, as TIG hits relevant *milestones*. This distribution is governed by a **rate-limiting function**, $\Gamma(\cdot)$, illustrated as the faucet in Figure 1..

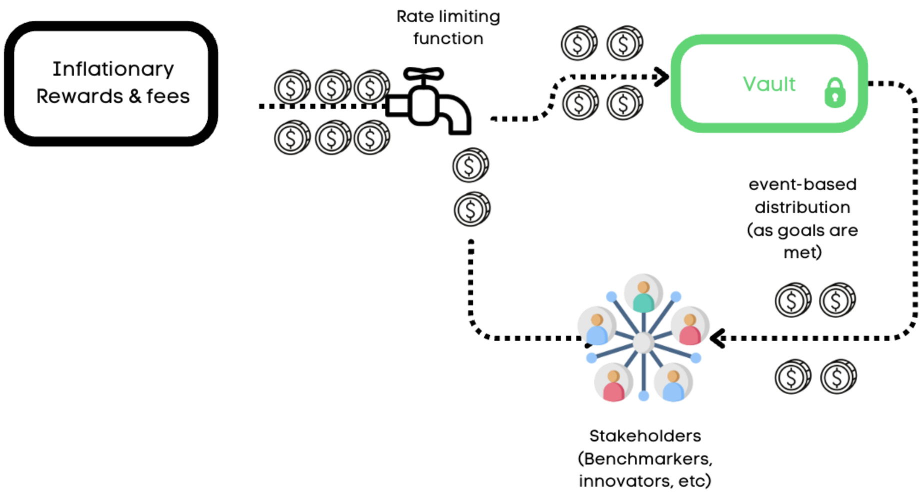

Figure 1: Proposed Distribution Scheme.

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3.1 OK, So, How Does $\Gamma(\cdot)$ Work?

At a high level, $\Gamma(n)$ maps a performance or growth metric for TIG, n_t, to a real number in $[0, 1]$. Specifically:

$$\Gamma : \quad n \quad \mapsto \quad \Gamma(n_t) \in [0, 1].$$

We then define the distribution in each round t as

$$\mathcal{D}(t) \;=\; \Gamma\Big(n_t\Big) \;\times\; \Delta M(t),$$

where n_t is the metric of interest at time t. If n_t is small—indicating fewer challenges or slower protocol growth—$\Gamma(n_t)$ remains comparatively low, and the vault releases only a modest fraction of its contents. Conversely, when n_t becomes large, $\Gamma(n_t)$ may climb close to 1, allowing the vault to distribute tokens more generously.

3.2 Why It Is Effective?

Linking distribution to a metric n_t ensures that tokens flow in proportion to meaningful contributions or milestones. By bounding $\Gamma(n) \leq 1$, we never exceed the minted tokens, thereby preventing an overshoot. Additionally, designing Γ with an *increasing* and *concave* shape (i.e., exhibiting diminishing returns) can incentivize early challenges or contributions while avoiding runaway token releases.

4 Sure. Which Metric do we use though?

A natural metric n_t for TIG is the number of *challenges* posted to the protocol by time t. We believe this is a good metric as it is (i) related to the long-term well being of the protocol, (ii) it is *difficult to game* (since *challenges* need to go through a rigorous approval process), and (iii) it can be seen as a proxy for *breakthroughs*, which will ultimately directly impact the profitability of the protocol. Hence, we believe that this metric directly aligns with the protocol design goals. As such, **we want to incentivize *challenge mantainers* to submit more and more challenges!**

5 Mechanism Advantages

Maintains Original Supply Commitments. By leaving $M(t)$ (the total minted over time) intact, we honor all previously stated inflationary promises. There is no retroactive change to the tokenomics baseline.

Prevents Overshoot in Periods of Low Adoption. When challenges and usage slow down, n_t remains low, so $\Gamma(n_t)$ stays modest. Newly minted tokens instead accumulate in the vault, preventing an unproductive flood of tokens on the market.

Provides Clear and Adaptable Targets. A well-communicated metric n_t lets participants understand exactly which behaviors or developments lead to token releases. This fosters a sense of progress and collaboration: pushing the metric higher *unlocks* more of the vault.

Scalable and Extensible. Should the community wish to add, remove, or weight multiple metrics (e.g., *liquidity*, *active maintainers*, *benchmark progress*), the vault mechanism easily accommodates combined or more complex Γ functions. The fundamental principle—tokens are minted but only circulated upon achievement—remains intact.

6 Sure, I Buy It. So What's Next?

We are currently working towards **building a suitable distribution function**. The core point is to design $\Gamma(\cdot)$ so that the distribution system is both fair and robust. We typically want:

- *Monotonicity:* $\Gamma(n+1) \geq \Gamma(n)$ for all n, so that more challenges or more engagement never reduces the unlock fraction.
- *Diminishing Returns:* The marginal increase in Γ gets smaller as n grows. This discourages large players or large bursts of effort from exhausting the vault too quickly.
- *Bounded Range:* $0 \leq \Gamma(n) \leq 1$, ensuring no more than the vault's entire balance is ever released.

- *Saturation (Optional):* $\Gamma(n) \to 1$ as $n \to \infty$, meaning unlimited engagement eventually unlocks the full mint if the protocol truly flourishes.

Several families of curves satisfy these properties, each with distinct incentive profiles:

$$\Gamma_{\text{bounded\_power}}(n) = \frac{n^{\alpha}}{1+n^{\alpha}}, \quad \Gamma_{\text{logistic}}(n) = \frac{1}{1+e^{-b\,(n-c)}}, \quad \Gamma_{\exp}(n) = 1-e^{-b\,n}, \quad \text{etc},$$

as shown in Figure 2 below.

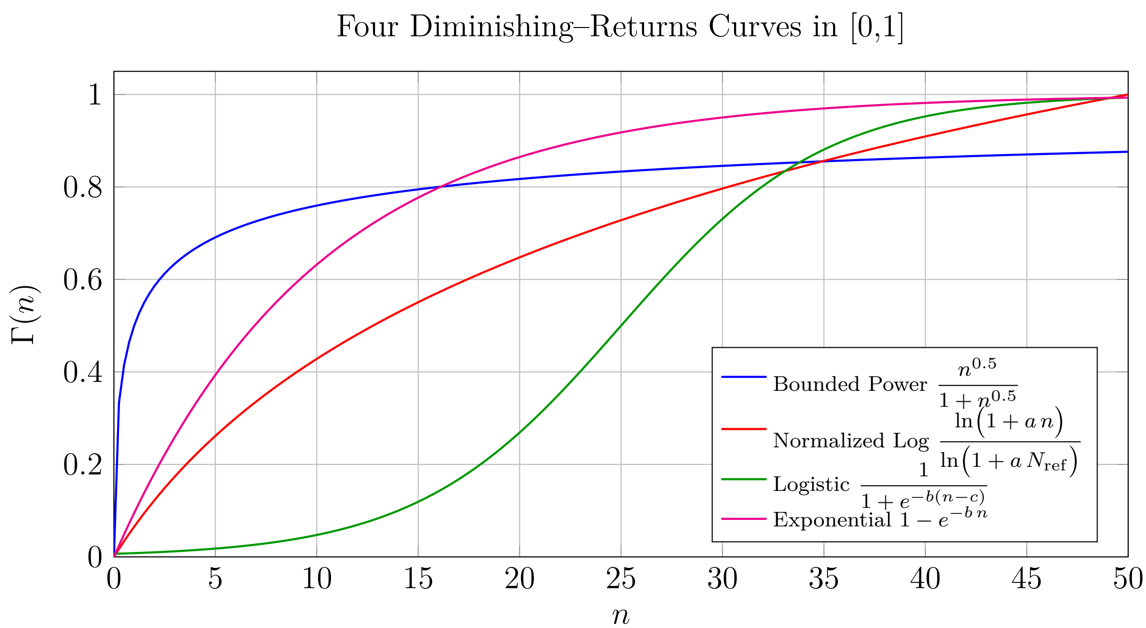

Figure 2: Different curves for Γ

We are currently analyzing the implications behind the choice of several different curves. Choosing among these depends on the protocol's priorities. Is a smooth, gradual release best (exponential), or should there be a sharper threshold of adoption (logistic)? Meanwhile, a bounded power function grows steadily without a strict inflection point, which might be simpler to communicate to the community. Some of these tradeoffs are presented in Table 1 below.

Table 1: Comparison of Four Diminishing–Returns Curves $\Gamma(n)$ in $[0,1]$.

Name	Formula	Behavior	Pros	Cons
Bounded Power	$\dfrac{n^\alpha}{1+n^\alpha}$	$\alpha \in (0,1)$; Sublinear for small n; gently approaches 1 as $n \to \infty$.	Simple form; smooth; easy to tune α for stronger/weaker diminishing returns.	Lacks a steep "shoulder"; still grows slowly to 1 (no strong cutoff).
Normalized Log	$\dfrac{\ln\Big(1+a\,n\Big)}{\ln\Big(1+a\,N_{\mathrm{ref}}\Big)}$	Increases quickly at first, then flattens heavily; hits 1 at $n = N_{\mathrm{ref}}$.	Strongly penalizes very large n; transparent parameter N_{ref} for max value.	Must pick N_{ref} to define the cap; for $n > N_{\mathrm{ref}}$, $\Gamma(n)$ cannot exceed 1.
Logistic (Sigmoid)	$\dfrac{1}{1+e^{-b\Big(n-c\Big)}}$	S–shaped curve; near 0 for $n \ll c$, near 1 for $n \gg c$.	Familiar in incentive design; strong control over midpoint c and steepness b.	If b or c is poorly chosen, ramp–up may be too abrupt or too gradual.
Exponential	$1 - e^{-b\,n}$	Smooth rise from 0 toward 1; no abrupt inflection.	Very common; easy to interpret b (rate); strictly bounded by 1.	When b is too large, saturates too fast; too small, remains near 0 for long.