Token Economy

Working Paper v0.1

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Kintsugi Labs

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1. Introduction: Interlay, interBTC and Kintsugi

1.1 Definitions

Interlay is a R&D company focusing on blockchain interoperability. Interlay envisions a future where blockchains seamlessly connect and interact. Interlay's imminent mission is to make Bitcoin interoperable in a fully trustless and decentralized way. Founded by ex-Imperial College CS PhDs, our products are backed by top-tier scientific papers and collaborate with leading research labs and tech companies around the world.

Kintsugi Labs is a non-profit oriented organization responsible for the Kintsugi launch, whose mission is to support the development and growth of the decentralized network.

interBTC is Interlay's flagship product - Bitcoin on any blockchain. A 1:1 Bitcoin-backed asset, fully collateralized, interoperable, and censorship-resistant. interBTC will be hosted as a Polkadot parachain and connected to Cosmos, Ethereum and other major DeFi networks.

INTR is interBTC's governance token, distributed across network participants and used to elect council members and vote on proposals. INTR will be used to govern the interBTC parachain on Polkadot.

Kintsugi is Interlay's canary network for interBTC, a testnet with real economic value deployed on Kusama (Polkadot's canary network). Kintsugi and interBTC share the same code base - with the difference that Kintsugi will be 2-3 releases ahead of interBTC with more experimental features.

kBTC is a 1:1 Bitcoin-backed asset on the Kintsugi canary network, deployed on Kusama. It follows the same design as interBTC, yet may feature more experimental functions and parameterizations.

KINT is Kintsugi's governance token, the Kusama counterpart to INTR.

XCLAIM is the protocol underlying interBTC and kBTC. XCLAIM was invented in 2018, and published as a top-tier, peer-reviewed scientific paper by Interlay founders. You can read the paper here.

1.2 Outlook on interBTC

In the rest of this document we outline the Kintsugi KINT token model. INTR and interBTC will follow a widely similar model as Kintsugi and KINT, albeit with a larger supply and potential improvements after lessons learned from Kintsugi's launch. The supply of INTR is expected to be 100x of KINT, following the proportions of DOT and KSM.

2. Why Does Kintsugi Need a Token Model?

- **Self-Governance by Risk Takers.** Interlay's vision is that Kintsugi is governed by its decentralized network of users from day 1. Vaults, kBTC users, developers and protocols integrating kBTC must be able to vote on system changes to protect their interests.

- **Liquidity Bootstrapping.** Vaults face capital costs from locking up insurance collateral to secure BTC. While Kintsugi's fee and collateral model provide competitive APY in the mid-term, a bootstrapping mechanism is needed to reward early liquidity and accelerate growth.

3. Key Functions of KINT

KINT is the native token of the Kintsugi parachain on Kusama. It serves two main purposes:

- **Governance participation**. Make and vote on governance proposals, and elect council members to make day-to-day operational decisions. See 7. Governance below for details.
- **Utility**. Kintsugi will also support transaction fee payments in KINT tokens, as well as other digital assets.

4. Supply and Emission Schedule

KINT has an **unlimited supply.** The emission schedule is defined as follows:

- **10 million KINT over the first 4 years (40:30:20:10 million)**
- **2% annual inflation afterwards, indefinitely.**

Specifically, the emission schedule for the first 6 years looks as follows:

Year	**Emitted**	**Explanation**	**Total Supply**
Year 1	4 million KINT	40% of 4yr supply	4 million KINT
Year 2	3 million KINT	30% of 4yr supply	7 millionKINT
Year 3	2 million KINT	20% of 4yr supply	9 million KINT
Year 4	1 million KINT	10% of 4yr supply	10 million KINT
Year 5	200 000 KINT	2% of 10mm supply	10.2 million KINT
Year 6	204 000 KINT	2% of 10.2mm supply	10.404 million KINT

5. Minting and Distribution

KINT follows a **fair launch scheme**. KINT tokens are distributed to network participants, builders and early backers in two forms: airdrops and block-rewards. There will be no public sale or ICO.
Kintsugi will be governed by the community from day 1:

- **70% of the initial 4 year KINT supply is distributed to the community as airdrops and block rewards.**
- **30% of the initial 4 year KINT supply is airdropped to the Interlay team, and (early) Interlay investors, who funded initial development of the protocol - subject to lockup & vesting.**

Starting in year 5, only the community receives new KINT from the annual inflation. The Interlay team and (early) investors only receive a one-time airdrop from the initial 4 year token supply.

5.1 Initial 4-Year Emission

Over the first 4 years KINT has a predefined emission of 10 million units, distributed as detailed in the following.

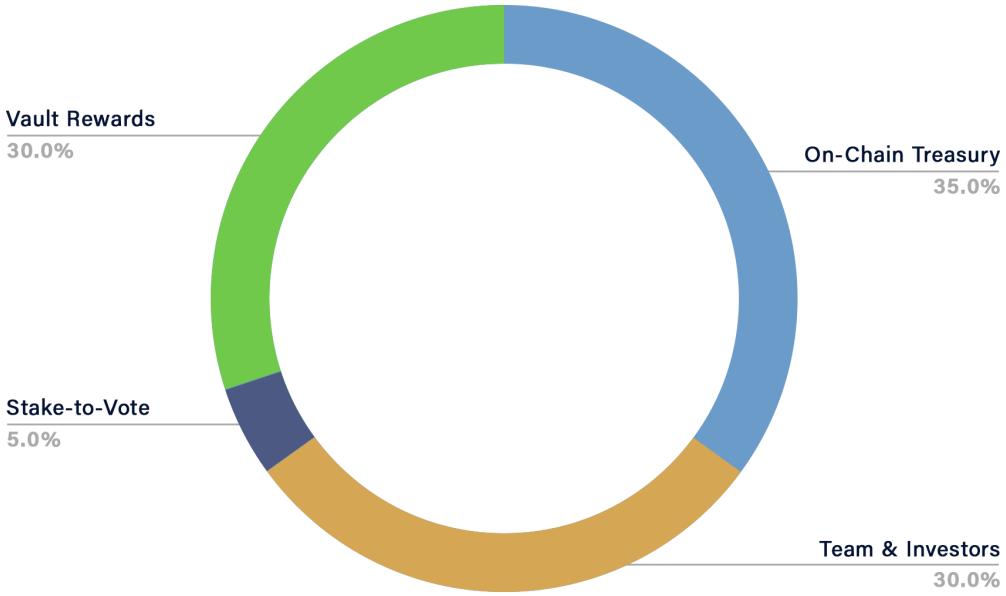

Figure 1: Pre-defined distribution schedule of 10 million KINT over the first 4 years.

On-chain Treasury (35%)

The On-Chain Treasury is controlled by protocol governance, which can utilize funds as deemed necessary. Below is a suggested allocation of treasury funds:

- **Crowdloan (10%).** KINT airdropped to the community at launch, using the public crowdloan voting data as distribution mechanism. Will be subject to linear vesting for the period of the parachain slot lease. See 6. Crowdloans below for more details.
- **Crowdloan In-Protocol Rewards (2%).** KINT airdropped to crowdloan participants who actively use Kintsugi, running Vaults and minting kBTC, distributed over the parachain lease period. See 6. Crowdloans below for more details.
- **Crowdloan Reserve (5%).** KINT reserved for future crowdloan campaigns. Additional KINT may be allocated by protocol governance if necessary.
- **LP Rewards (8%)**. KINT reserved for incentivizing kBTC liquidity pools across the DeFi ecosystem.
- **Ecosystem (5%).** KINT to be used for grants, bounty programs, and other ecosystem development activities.
- **Rainy Day Reserve (5%).** KINT reserved to fund rebalancing of the kBTC peg in case of critical exchange drops leading to mass liquidations. Protocol governance may decide to diversify into assets with other risk profiles, e.g. stablecoins and centralized wrapped BTC versions.

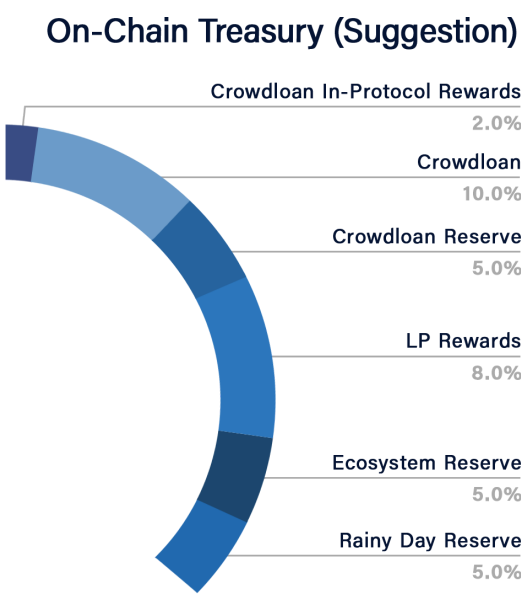

Figure 2: Suggested constellation of the on-chain Treasury.

Distribution	Airdrop
Emission	One-time upon launch
Vesting	None

Vault Block Rewards (30%)

Vaults receive KINT as fees for keeping BTC locked and providing the required insurance collateral in DOT and other assets. Early Vaults receive more rewards as they take up higher risk in terms of protocol maturity.

Distribution	Block reward

Emission	• **First 4 years**: 30% of the initial KINT supply, emitted as follows:
	  ○ **Year 1:** 12% of initial KINT supply (40% of 4 year Vault rewards)
	  ○ **Year 2:** 9% of initial KINT supply (70% of 4 year Vault rewards)
	  ○ **Year 3:** 6% of initial KINT supply (90% of 4 year Vault rewards)
	  ○ **Year 4:** 3% of initial KINT supply (100% of 4 year Vault rewards)
	See below for an auxiliary visualization.
	
	• **Starting with year 5**: 40% of the annual inflation

Vesting	None

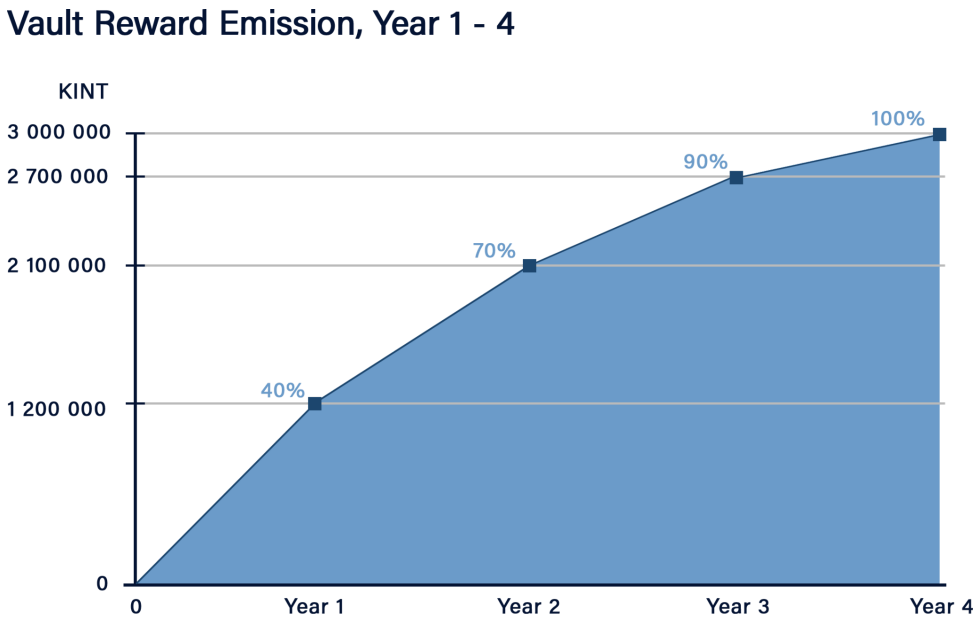

Figure 3: Emission schedule for Vault block rewards over the first 4 years.

Why do Vaults receive KINT?

Vaults are the heart of the Kintsugi network. Vaults are network participants who ensure BTC remains locked on Bitcoin while kBTC exists - that is, they enforce the 1:1 peg to locked BTC. To prevent misbehavior, Vaults lock collateral (e.g. in KSM) with the parachain such that the collateral value always exceeds the value of the secured BTC. If a Vault misbehaves, their collateral is slashed and users reimbursed. Vaults take up liquidation risk as well: if the price of the collateral assets crashes compared to BTC, vaults may be liquidated and lose their collateral. Vaults hence receive KINT as reimbursement for their risk - and to ensure they can protect themselves against hostile governance takeovers. Anyone can become a Vault, anytime.

Stake-to-Vote (5%)

To participate in on-chain governance, KINT holders must lock their tokens with the parachain. The longer KINT are locked, the more voting power they have. See 7. Governance for more details on Stake-to-Vote.

As reward for locking KINT and participating in governance, network participants receive KINT block rewards, proportional to their share of the total locked KINT for voting.

Distribution	Block reward
Emission	• First 4 years: linear (25% of initial KINT supply / year) • After 4 years: 5% of the annual inflation
Vesting	None

Team & Early Investors (30%)

The Interlay team's (current and future members) token share, including an allocation to Interlay's Seed round investors, who funded early development.

Distribution	Airdrop
Emission	One-time upon launch
Vesting	48 week lockup, followed by 48 week linear vesting period (i.e., 1 lease period lockup, then 1 lease period linear vesting)

5.2 Annual Inflation Starting Year 5

After exactly 4 years and the full distribution of the initial supply of 10 million KINT, the protocol will initiate a 2% annual inflation that will continue indefinitely.

Thereby, the newly minted KINT will be distributed fully among the community.

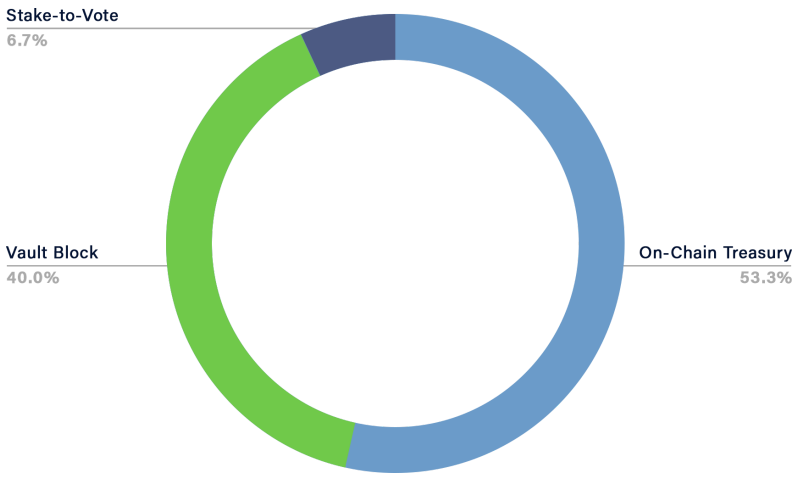

Figure 4: Distribution of 2% annual inflation among the Kintsugi community starting with year 5.

6. Crowdloans and Launch

Kintsugi will participate in the Kusama parachain auctions and support a crowdloan to enable the community to vote:

- **Target slot: 6 - 10**
- **Lease duration: 8 periods (maximum lease duration)**
- **Max. lockup target: 200 000 KSM**

Kintsugi will use the crowdloan as a mechanism to airdrop KINT to the community to achieve decentralization right at launch.

- **10% of the initial KINT supply (1 million KINT) will be airdropped for the first crowdloan.**
- **2% of the initial KINT supply will be airdropped as in-protocol rewards to crowdloan participants who run Vaults or mint kBTC.**

An additional 5% of the initial KINT supply is reserved for future crowdloans. Once live, Kintsugi protocol governance may decide to increase or decrease the crowdloan rewards may choose to allocate more funding for future crowdloans, depending on market conditions and competition.

6.1 Crowdloan Airdrop Distribution (10%)

The KINT airdropped as part of winning the parachain auction will be distributed as follows.

Core Airdrop	750 000 KINT	Airdropped proportionally to all participants.
Early Airdrop	Up to 50 000 KINT	5% bonus for participants during the **first 3 days** of the crowdloan.
Referral Airdrop	Up to 100 000 KINT	Additional KINT distributed as part of a referral program. 5% of the KSM lockup for both the referrer and the referee.
Success Airdrop	Up to 100 000 KINT	Additional KINT distributed among all crowdloan participants if pre-defined KSM lockup targets are met. **See below.**

As a result, given a maximum lockup target of 200 000 KSM, the estimated airdrop per voted KSM can be calculated as:

- **Minimum airdrop (Core) per locked KSM: 3.75 KINT if 200 000 KSM are locked**

- **Core plus Early plus Success airdrop per locked KSM: 4.5 KINT if 200 000 KSM are locked** (excluding referral)

Any KINT not used for the Core, Early, Referral and Success Airdrop will be distributed proportionally among all participants, further increasing the ratio of KINT per locked KSM.

Success Airdrop is a new mechanism that increases the amount of airdropped KINT to all participants if the parachain auction is successful and reaches specific KSM lockup targets. The distribution of the success airdrop is defined as follows:

% of max. KSM lockup target	**KSM locked to vote for Kintsugi parachain slot (range)**	**Additionally airdropped KINT**	**Core plus Success KINT airdropped per locked KSM** **(assuming 200 000 KSM are locked)**
15%	30 000 - 60 000 KSM	25 000 KINT	3.875
30%	60 001 - 100 000 KSM	50 000 KINT	4
50%	100 001 - 200 000 KSM	100 000 KINT	4.25

6.2 Crowdloan In-Protocol Benefits (2%)

To accelerate adoption of kBTC in Kusama's DeFi ecosystem, crowdloan participants will enjoy benefits when actively using kBTC or running Vaults. Protocol governance will assign specific benefits to holders, **allocated from the LP Rewards** in the on-chain Treasury:

- **Vaults (1%)**: Additional KINT reward for locked BTC / collateral, distributed over the parachain lease period.
- **kBTC users / LPs (1%)**:
    - KINT reward on first kBTC minting.
    - Exclusive LP reward programs for crowdloan participants.

7. Governance

Kintsugi adopts Polkadot's governance mechanism, with two modifications: (1) optimistic governance and (2) stake-to-vote.

7.1 Council

Day-to-day decisions are made by an elected Council but can be overruled by the majority of KINT holders. The Council is democratically elected by KINT holders and anyone can run for office. A **Council rules for 7 days and users can change their vote after each such period**.

7.2 Optimistic Governance

To promote a more active governance process and avoid the “lazy voter” problem, Kintsugi implements “optimistic governance”: proposals agreed on by Council pass automatically, after an “objection period”, unless KINT holders actively vote to oppose.

7.3 Stake-to-Vote

To vote, users lock KINT with the Kintsugi parachain. The locking period thereby will impact the voting power: the longer KINT are locked, the more voting power they have, since the voter has a long-term stake in the health of the system.

7.4 Technical Committee

Kintsuigi also exhibits a Technical Committee (TC) of developer teams, voted on by the Council. The TC can make emergency proposals which, if accepted by the council, are “fast-tracked” and executed quickly, e.g. in case of critical software bugs.