KiiChain

The On-Chain FX Layer for Stablecoins and RWA.

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- *Lack of liquidity*: markets in their infancy can lack institutional liquidity for trading. The KII token could potentially suffer from liquidity issues rendering it hard to swap with other digital assets or fiat currency.
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This disclaimer strongly advises all potential participants to conduct thorough due diligence, comprehend the specific details and risks associated with KiiChain and its token, and seek professional advice as necessary.

Abstract

A lot has transpired since Satoshi's whitepaper announcing the arrival of Bitcoin in 2008. In 2013, Ethereum established itself as the leader in layer 1 infrastructure, initiating the cycle of growth among web3 businesses. Since then, over 1 million tokens have been publicly launched, each with its unique focus.

The growth of each project has a common theme within the technology: Communication. Blockchain infrastructure connects users in ways never before, eliminating a centralized counterparty needed to facilitate that connection, and instead proposes changes to the architecture enabling decentralization as the preferred means of communication. Even though this change has prompted user adoption globally, there remain gaps in the technology that adjust to specific market and cultural conditions in emerging economies.

In developing countries, the current transfer of value mechanisms that connect emerging economies to developed economies are overly centralized, slow and costly. It's determined to be why emerging economies in the last 25 years have yet to "emerge". These transfer of value networks have failed to improve globalization and local commerce in an efficient way, connecting important economic counterparts in order to create uniformity in how they communicate.

Although economically a very large industry, emerging markets don't just thrive on remittances from users aboard. Their economies are normally derived from production locally. Whether its natural resources and commodities, exports of goods, imports for raw materials for production of those goods, the necessity for a dedicated, open-sourced, unified liquidity layer is clear given that the B2B market is 10x+ the size of consumer remittances with higher average volumes and transactions. Faster fiat settlements, safer FX solutions, and access to international credit terms are only a few of the current existing pain-points.

This is where KiiChain introduces the concept of *On-Chain FX*: a unified liquidity layer for stablecoins and real-world assets that enables 24/7 foreign exchange settlement directly on-chain. By aggregating liquidity from both global USD stablecoins and local fiat-backed stablecoins (COP, BRL, MXN, and more), KiiChain eliminates dependence on traditional FX desks and banking hours. Businesses, remitters, and

institutions can now swap between currencies in real time, with transparent spreads and instant settlement across chains. This transforms how emerging markets interact with global liquidity — reducing costs, tightening FX spreads, and unlocking access to international credit.

Introduction to KiiChain

KiiChain is an On-Chain FX Layer purpose-built for stablecoins and real-world assets (RWA), designed to power international trade, finance, and payments in emerging markets. By enabling 24/7 foreign exchange settlement directly on-chain, KiiChain eliminates the dependency on legacy FX desks and restricted banking hours, drastically reduces costs and barriers to global economic transactions. Unlike monolithic blockchain layers, KiiChain focuses on the "last mile" — connecting global liquidity to local stablecoins and real-world assets — breathing life into liquidity-constrained sectors that historically could not financially communicate with the rest of the world.

At its core, KiiChain aggregates liquidity from USD stablecoins, global issuers, and locally denominated fiat-stablecoins, transforming fragmented markets into a single, chain-agnostic liquidity layer. The result is tighter spreads, instant settlement, and transparent pricing for both businesses and institutions across borders.

The blockchain rides on the back of the CometBFT consensus mechanism built with the Cosmos SDK — a testament to decentralization, lightning-fast finality, and near-zero fees. Validators produce blocks in seconds, allowing for instantaneous cross-chain swaps and FX settlement with transaction costs less than one peso, making it viable for high-frequency payment finance, trade settlement, and retail use cases alike.

The Kii ecosystem expands far beyond the chain itself, incorporating custom on-chain protocols and modules to unify liquidity for FX and RWA. Its flagship app, The KiiChain App, is a hybrid CEX-DEX exchange built to stream institutional liquidity via market making into local markets and provide on-chain finality for stablecoin FX swaps. KiiChain's modular design provides interoperability across Ethereum, Solana, Cosmos, and other major ecosystems, ensuring unified access to tradeable assets and liquidity pools across networks.

Through this infrastructure, KiiChain delivers a scalable on-chain FX market, enabling importers, exporters, remitters, and financial institutions to engage in 24/7 FX transactions where legally permitted, while simultaneously unlocking tokenized real-world assets for broader access. Built with full EVM compatibility and CosmWasm support, KiiChain provides the foundations for developers across both Web2 and Web3 to build the next generation of financial applications directly on top of the FX settlement layer.

The Problems We Solve

While a myriad of other layer 1 and layer 2 options exist in the market, none address the specific pain points that exist in emerging markets. Furthermore, none focus on the "last mile delivery" of blockchain technology and finality among the popular use cases. Following are some of the biggest issues that KiiChain is solving for:

On-Chain FX: Solving the Core Inefficiencies in Global Settlement

The global FX and payments industry remains one of the most centralized and inefficient systems in finance, especially for emerging markets. Despite advancements in blockchain, the critical infrastructure behind settlement, liquidity, and payouts has not evolved to meet the needs of global commerce. KiiChain directly addresses these challenges by introducing the On-Chain FX Layer — a unified liquidity network to bring transparency, efficiency, and instant settlement to stablecoins and real-world assets.

The problems KiiChain solves include:

1. Limited Banking Hours – Traditional FX desks operate within narrow windows (for example, 8am–pm local time), leaving businesses and remitters unable to transact outside of banking hours.
2. Slow Settlement & Rebalancing – Centralized FX desks and P2P providers must rebalance through banks, often waiting hours or even days for execution.
3. Lack of On-Chain Finality – Existing solutions lack true on-chain settlement, relying on off-chain confirmations.
4. Inefficient Pay-ins & Payouts – Current payment rails for cash-in and cash-out are fragmented, costly, and technologically outdated.
5. Sequential Settlement Processes – In legacy systems, FX swaps, pay-ins, and payouts are executed sequentially, creating bottlenecks.

How we solve this:

1. Limited Banking Hours: FX swaps and payments run 24/7/365 on-chain, available to settle instantly to any wallet internationally.
2. Slow Settlement & Rebalancing: Liquidity pools rebalance instantly across multiple chains through KiiChain's unified liquidity layer.
3. No On-Chain Finality: All swaps, pay-ins, and payouts achieve verifiable on-chain finality, not delayed off-chain confirmations.
4. Inefficient Pay-in/Pay-out Technology: Direct integration with stablecoins and local rails simplifies cash-in/cash-out, with verifiable data.
5. Sequential Settlement Bottlenecks: Pay-ins, payouts, and swaps run independently and in parallel, eliminating slow sequential processes.

6. Liquidity Fragmentation: Aggregates liquidity from multiple blockchains and stablecoin issuers into a unified, chain-agnostic layer.
7. Poor Liquidity Depth: Institutional market-making + cross-chain aggregation ensures deep, efficient liquidity even for exotic/local fiat pairs.
8. High Spreads & Slippage: Tightens spreads and reduces slippage by tapping global and local stablecoin liquidity pools simultaneously.
9. Lack of Access to Local non-dollar Stablecoins: Connects USD stablecoins (USDT, USDC) with local fiat stablecoins (COPM, BBRL, MXNe, ARZ, cNGN, etc.), making emerging markets fully interoperable with global liquidity.

Tokenization of Real World Assets: Opening Avenues for businesses and users to interact directly with desired financial and physical assets.

Emerging markets historically suffer from high inflation, high interest rates, and less access to institutional lending. RWA powers builders and users, providing access to traditional financial products otherwise not attainable with traditional finance rails. Tokenization of RWA is focused on solving traditional and emerging use cases:

1. Accessibility via Fractional Ownership: Emerging markets often lack the infrastructure for widespread investment opportunities. Tokenization enables fractional ownership, allowing investors to buy small portions of high-value assets. This makes investing accessible to a broader range of individuals who may not have the capital to buy entire assets.
2. Liquidity: Traditional real estate and other asset investments in emerging markets can be illiquid, with long holding periods. Tokenization allows for easier trading of these assets on secondary markets, enhancing liquidity and increasing yield from said assets.
3. Asset Fractionalization: In emerging markets where large assets such as real estate or infrastructure projects are typically owned by the wealthy. Tokenization enables these assets to be divided into smaller, more manageable units that can democratize access and stimulate economic growth by broadening ownership to individuals who cannot afford to purchase an entire asset or property.
4. Lower Costs: Exportation of commodities suffers from saturated intermediaries that leave the producers with low margins. Tokenization can streamline the purchase and/or investment process, reducing transaction, origination and trade costs.
5. Global Access: Tokenized assets can be traded globally, allowing investors from anywhere in the world to participate in emerging market opportunities. RWA dApps seek access to Latin America markets but don't have the resources to bridge to reputable parties in the region.
6. Transparency: tokenizing assets on the public ledger can help mitigate certain risks around unclaimed or disputed land.
7. Compliance and Regulation: Tokenization platforms can integrate compliance mechanisms directly into smart contracts, ensuring that transactions adhere to relevant regulations, and protect investor rights.

8. Current Limitations: RWA tokens often lack cross-chain functionality and bridging. KiiChain aims to support IBC-enabled RWA tokens. This is a stated objective, not a commitment or prediction, and depends on factors outside the issuer's control.

While global payments is a multi-billion dollar industry, KiiChain's RWA infrastructure proposes the question: Instead of remitting money to purchase a product, what if we can remit the product itself? This is the center of our RWA thesis and encompasses our mission of improving globalization between emerging and developed markets.

The EM Credit gap: Access to Institutional Liquidity & Credit
The total credit gap in emerging markets accounts for over $3 trillion USD. Roughly half of individuals in emerging markets are underbanked, with extremely limited access to credit. The rest struggle with high banking costs and interest rates. KiiChain provides infrastructure on which third-party lending protocols may be deployed. Such protocols are operated by their respective developers and, where lending is a licensed activity, are delivered only by licensed parties. KiiGlobal S.A.S. does not operate a lending business, does not solicit or receive funds, and does not extend credit.

Ecosystem Product Line-Up

Kii Global is building an ecosystem to support the next generation of tokenization across emerging markets.

KiiChain
KiiChain is a layer 1 AppChain built with the Cosmos SDK. It blends EVM compatibility with multi-chain connectivity to create a network that is highly interoperable, scalable and easy to use. Its design purpose is to onboard the next generation of developers in emerging markets who are building the best use-cases for real-world users.

KiiChain marks a particular focus with on-chain FX powering a suite of use cases, including payments, tokenization of real world assets, payment finance and credit finance. Although KiiChain is EVM compatible, it is part of the Cosmos Ecosystem, often referred to as the "internet of blockchain". It is powered by IBC (Inter-blockchain communication protocol) which adopts the scaling philosophy of vertical sharding (as opposed to horizontal sharding) which primes KiiChain to communicate with over 100 other blockchain ecosystems.

The result is a unified liquidity and utility layer that can interact with assets on any chain, and allow for cross-chain swaps without the direct need for bridging. It can source any type of stablecoin or RWA liquidity pool or asset on any chain, and be integrated into Apps and dApps for product offering in any country.

EVM Module
The Cosmos EVM Module brings full Ethereum Virtual Machine (EVM) compatibility to KiiChain, enabling

developers to deploy existing Ethereum smart contracts written in Solidity or Vyper directly onto the chain. This integration combines Ethereum's smart contract capabilities with the scalability, modularity, and interoperability of the Cosmos SDK, allowing builders to access both ecosystems in a seamless environment. Developers can use familiar Ethereum tools such as MetaMask, Hardhat, Remix, and Foundry while benefiting from the performance and flexibility of a Cosmos-based architecture.

The module also implements a configurable gas and fee system that mirrors Ethereum's mechanics. The Cosmos EVM Module supports EIP-1559-style logic, including a base fee and priority tip structure. All fees are paid in the native KII token, and the collected fees are distributed among validators and their delegators in proportion to stake. This fee structure aligns incentives across the network while maintaining compatibility with Ethereum-based applications.

ERC20

To ensure token usability across both the Cosmos and Ethereum environments, the EVM module supports native ERC-20 interoperability. Tokens originating from the Cosmos SDK, including those created with the TokenFactory module, can be wrapped into ERC-20 representations. Likewise, ERC-20 tokens deployed on KiiChain can be unwrapped back into native Cosmos assets. This bidirectional conversion allows tokens to move freely between EVM and IBC-compatible modules, enabling broader integration with wallets, DeFi protocols, and other blockchains in the Cosmos ecosystem.

CosmWasm Module

KiiChain also supports smart contract development through the **CosmWasm module**, enabling developers to write secure, lightweight, and upgradeable contracts in Rust. The Wasm module provides a high-performance execution environment tightly integrated with the Cosmos SDK, allowing contracts to interact natively with on-chain modules and IBC-connected chains. Contracts deployed through CosmWasm benefit from permissioned control, versioned code management, and access to cross-chain communication. This allows KiiChain to support a diverse range of decentralized applications—from DAOs and on-chain governance to custom tokens and oracles—while maintaining predictable resource usage and secure execution. Developers can leverage both EVM and Wasm environments, choosing the right tool for their specific use case within a unified chain.

EVM and CosmWasm Interoperability

KiiChain offers developers the flexibility to build in both EVM and Wasm environments, enabling them to choose the most suitable platform for their specific application needs—whether it's Ethereum compatibility or tight integration with Cosmos-native modules. Beyond coexistence, KiiChain also supports interoperability between the two execution layers. Smart contracts on the EVM can invoke CosmWasm contracts, enabling cross-runtime interactions. CosmWasm contracts can query EVM state, allowing them to read data from Ethereum-compatible applications deployed on-chain. This hybrid design makes KiiChain a versatile platform where Ethereum dApps and Cosmos-native applications can coexist and interact within a single, unified blockchain.

Kii RWA Protocol

The Kii RWA Protocol sets standardization of Real World Asset (RWA) tokenization through the T-REX (Token for Regulated Exchanges, also referred to by the token standard ERC3643) protocol using CosmWasm smart contracts on KiiChain that are simultaneously mirrored to ERC tokens. The T-REX protocol is designed for compliant issuance and management of tokens on blockchain networks. Identity verification is performed off-chain by licensed providers; only revocable cryptographic attestations—never personal data—are anchored on-chain. The Kii RWA protocol on KiiChain is creating an interoperable unified liquidity layer for RWA tokens.

Kii Oracle Module

The Kii Oracle is a decentralized price feed system that provides secure and reliable real-world market data (primarily cryptocurrency prices and tokenized assets) to the KiiChain blockchain. Unlike simple data oracles, it implements a robust validator-based consensus mechanism where:

- Trusted validators independently fetch prices from multiple exchanges.
- Submitted prices are aggregated using a weighted median (where voting power corresponds to a validator's stake).
- Votes that deviate beyond predefined standard deviation thresholds are automatically rejected, reducing the risk of price manipulation.
- The final agreed-upon price is recorded on-chain through on-chain Oracle module.

This dual-layer system (off-chain data collection + on-chain consensus) ensures DeFi applications like stablecoins and lending protocols receive tamper-resistant price data while maintaining full decentralization.

TokenFactory Module

The Token Factory module provides a lightweight way to mint, manage, and control tokens that are native to the Cosmos SDK chain, meaning they benefit from:

- Full IBC support (can be transferred across other Cosmos chains).
- Low gas fees.
- Protocol-level security (no smart contract attack surface).

Utility Rewards Module

The Utility Rewards Module allows any party to voluntarily contribute pre-existing KII to the validator fee pool for linear distribution as additional consideration for consensus services performed. Contributions are voluntary, unscheduled, non-binding and may never occur. They are made from pre-existing balances, are not funded from the revenue or profits of any entity, and no party is under any obligation to fund the module. Holders should form no expectation of such funding. Any such funding is voluntary and non-binding, is not a distribution of any company's revenue or profits, and confers no dividend, profit-sharing, or repurchase rights on KII holders.

Once funded, the module distributes tokens linearly over time, supplementing the base staking fee without impacting token supply.

These additional fees are allocated proportionally based on validator stake, ensuring alignment with network security and long-term participation.

The KiiChain App

The KiiChain App is a hybrid centralized-decentralized exchange platform bringing institutional liquidity and immediate settlement to places that need it the most. Apart from operating as a traditional trading platform, KiiChain is market-making the most popular crypto/fiat instruments in the region.

More than just a trading or payment platform, KiiChain is solving for liquidity imbalances in emerging markets that often exist. In developing countries with massive remittance and cross-border payment demand, flows of major pairs are often highly unbalanced. This creates a low liquidity environment for trading or payments, and puts high pressure on third-party dispersion payment models. The result is an expensive and slow service that is liquidity constrained, and therefore, user constrained.

KiiChain solves this by pricing all FX swaps in stablecoins allowing for on-chain payment finality. When liquidity pools need to be rebalanced, they can be sourced from any pool on any chain. Additionally, Kiichain's centralized counterparties can run internal rebalancing directly with the stablecoin asset issuers to ensure constant liquidity in specific pairs. The result is a better designed system for businesses and users in emerging markets, where trade finality can still be on-chain while attending to the major liquidity pain-points of the emerging markets.

Operator and Regulatory Disclosure: The KiIChain App (formerly KIIEX, now app.kiichain.io) is operated by KiiGlobal S.A.S., a company incorporated in Colombia that applies SAGRILAFT KYC/AML policies and reports to the UIAF (an anti-money-laundering compliance regime and not a virtual asset service provider authorisation) and a wholly-owned subsidiary of EMF Group SA de CV (El Salvador). Application development is performed by Aegis Technologies SA de CV (El Salvador) and its wholly-owned subsidiary Aegis Technologies SAS (Colombia). KiiChain applies KYC and AML requirements and does not onboard residents of jurisdictions that require local virtual asset service provider (VASP) registration, including the Republic of Korea, or any country absent such registration.

Service Availability. Services are provided through interfaces operated by KiiGlobal S.A.S. and its affiliates. The absence of a KYC requirement does not place a service outside applicable regulation. Services requiring KYC: FX swaps; fiat on-ramp and off-ramp; account opening with banking partners; RWA issuance, distribution and transfer; and any future banking-style product. Services not requiring KYC: bridging assets to and from other networks; swaps of non-fiat assets in permissionless liquidity pools; KII staking and delegation; governance voting; and smart contract deployment. All services requiring KYC are geo-blocked to Korean IP addresses. Bridging, swaps, staking, delegation, governance

voting and smart contract deployment remain available to Korean users. In each case the user signs with keys the user controls, no asset is held or transferred by any KiiGlobal entity, and no fee accrues to any KiiGlobal entity from a Korean user. Assets originating on other networks, including BTC, ETH and USDT, are represented on KiiChain through a bridge. Bridging is non-custodial: the user signs with keys the user controls, and no KiiGlobal entity or affiliate holds a key in the bridge custody arrangement, participates in it, or has any ability to move a user's assets. These restrictions apply to KiiGlobal-operated interfaces and not to the KiiChain protocol. Gas, staking, governance and interaction with any permissionless contract remain available to any person in any jurisdiction through third-party wallets and public RPC endpoints. Enforcement is by IP filtering, applied per service endpoint.

Use Cases

Stablecoin FX powerhouse
Traditional FX operations are hindered by TradFi banking hours (often times 8am to 1pm local). Essentially, only 25% of the day, on business banking days, can businesses or users engage in FX operations. FX-related functionality is available only where permitted by applicable law and, where required, is delivered through locally licensed partners. Availability differs by jurisdiction, and certain jurisdictions are excluded.

Unified Liquidity for Trading and Payments
Liquidity is often fragmented among several different blockchain ecosystems. This causes headaches for users who need to manage different balances and wallets among different ecosystems. Direct bridging from each network can be slow, costly and difficult for users who don’t understand web3 architecture. KiiChain partners with protocols to create an interoperable liquidity layer that can deliver seamless cross-chain experiences to users of all types.

Tokenization of Commodities (RWA)
Commodities are among the most valuable and traded goods in the world with major reserves being mined and developed in emerging countries. Local companies can tokenise commodities and contracts under the Kii RWA Protocol and settle them in the stablecoin or asset denomination chosen by the issuer of that instrument. KII is used only to pay network gas and protocol usage fees and does not represent, reference or track the value of any tokenised asset. RWA functionality is available only where permitted by applicable law and, where required, is delivered through licensed issuers and distributors. Availability differs by jurisdiction, and certain jurisdictions — absent local licensing — are excluded.

Tokenization of Products (RWA)
Imported and exported goods are one of the major drivers of GDP within Latin America and emerging economies. Many multinational companies in the region struggle to process funds and manage liquidity reserves. These products can be tokenized and transacted on the blockchain for users to

transact with these goods, and for companies to better manage their reserves. RWA functionality is available only where permitted by applicable law and, where required, is delivered through licensed issuers and distributors. Availability differs by jurisdiction, and certain jurisdictions — absent local licensing — are excluded.

Tokenization of Real Estate (RWA)
Asset fractionalization and ownership is becoming more imperative than ever before in markets with wealth fragmentation, high inflation and high interest rates. Real estate and asset infrastructure fractionalization allows users to own assets that cannot be owned by these users in whole. By democratizing the ownership process, liquidity can extend to other markets and users who would not otherwise have access prior. RWA functionality is available only where permitted by applicable law and, where required, is delivered through licensed issuers and distributors. Availability differs by jurisdiction, and certain jurisdictions — absent local licensing — are excluded.

Tokenization of Debt and Equities (RWA)
Tokenization of regulated financial instruments will occur only through licensed issuers and distributors, geo-restricted and KYC-restricted to jurisdictions where lawful, and will not be offered to residents of the Republic of Korea absent local licensing.

DeFi Lending and Borrowing for Open Credit System
Credit is a huge issue in developing countries with strict underwriting standards, toxic level interest rates and lack of available capital. Third-party protocols may deploy lending and financing applications on KiiChain. Such applications are operated by their respective developers and, where lending or financing is a licensed activity, are delivered only by licensed parties. KiiGlobal S.A.S. does not operate a lending business, does not solicit or receive funds, does not extend credit, and promises no rate of return to any lender or holder. These functions are not available in the Republic of Korea. Credit functionality is available only where permitted by applicable law and, where required, is delivered through licensed issuers and distributors. Availability differs by jurisdiction, and certain jurisdictions — absent local licensing — are excluded.

Payment Finance
Businesses and users in developing countries lack formal communication with payment processors abroad. Payment finance is a model that allows local businesses to bring their economic activity on-chain and receive financing that supports their core businesses, primary payment services activities. Financing under this model is provided by third parties licensed to do so in the relevant jurisdiction. KiiGlobal S.A.S. does not provide financing. This functionality is not available in the Republic of Korea.

Credit Finance
Emerging markets suffer from a multi-trillion dollar credit gap. When businesses can bring their economic activity on-chain, they open themselves up to the world of lending and competitive interest rates. Businesses or users who could not previously receive credit from local institutions, can now

communicate with lenders abroad. Credit functionality is available only where permitted by applicable law and, where required, is delivered through licensed issuers and distributors. Availability differs by jurisdiction, and certain jurisdictions — absent local licensing — are excluded.

Spot and Forward Settlement
The B2B remittance market transacts over hundreds of billions USD annually. These importers and exporters either win or lose on spot or forward contract settlements. Counterparties may post collateral to a smart contract to settle agreed FX terms on-chain. Such arrangements do not eliminate FX risk and may result in loss. Where they constitute regulated derivatives in a given jurisdiction they are made available only through licensed counterparties and only where lawful; they are not available in the Republic of Korea. KII is not a counterparty to, and confers no exposure to, any such arrangement.

Business Model and Revenue Streams

Kii Global's activity will be driven through the suite of revenue generating products:

KiiChain Trading and Payment Fees
KiiChain is a hybrid centralized-decentralized exchange built on KiiChain, powered by a hybrid matching engine. Trading and payment fees are earned by KiiGlobal S.A.S. and its affiliates as operators of the KiiChain App. These fees are corporate revenue of those entities. They are not distributed to KII holders, are not used to fund any buy-back, burn or distribution of KII, and confer no claim of any kind on KII holders.

DeFi Liquidity Rebalancing - AMM fees
The Kii ecosystem may provide liquidity to selected pools supporting stablecoin and FX settlement and earns AMM fees where it does so. No liquidity is provided to, and no fee is earned from, any pool routable by residents of the Republic of Korea from KiiGlobal-operated interfaces.

KiiGlobal S.A.S. and its affiliates do not act as counterparty, market maker, liquidity provider, matching engine operator or order router for any service, pool or interface accessible to residents of the Republic of Korea, and earn no fee from any such service. KiiGlobal S.A.S. and its affiliates do not conduct market making, liquidity provision or proprietary trading in KII in any jurisdiction.

Secondary Suite of Products
Kii Global may explore additional products (e.g., card programs) in partnership with licensed financial institutions, subject to required regulatory authorizations in each market.

Blockchain Features

Introduction to KiiChain: *Leveraging the Superiority of Tendermint and CometBFT in Blockchain Architecture For Economic Development in Emerging Markets.*

Technical information provided by Cosmos.

Cosmos is a network of independent parallel blockchains that are each powered by classical BFT consensus algorithms like Tendermint 1. KiiChain is its own independent layer 1 Blockchain that will connect to the Cosmos Hub to take advantage of its benefits.

The Cosmos Hub is the inaugural blockchain in this network and serves as a pivotal connection point to various other blockchains (referred herein as *Zones*), including KiiChain, through the novel and innovative Inter-Blockchain Communication (IBC) protocol. It maintains a record of multiple token types and their quantities across all linked Zones. Thanks to this system, tokens can be transferred swiftly and securely between Zones without requiring a direct exchange, as all transfers between zones are channeled through the Cosmos Hub.

This design addresses several challenges currently facing the blockchain sector, including application interoperability, scalability, and easy upgradability. The Cosmos Hub is compatible with diverse blockchain systems like Bitcoin, Go-Ethereum, CryptoNote, and BNB, facilitating infinite scalability to meet worldwide transaction demands. Additionally, its architecture is well-suited for cross-sector uses like decentralized exchanges.

Cosmos extends beyond a solitary distributed ledger, and the Cosmos Hub is not an isolated ecosystem or its focal point. Instead, it's part of a broader vision to create an open network of distributed ledgers, laying the groundwork for new financial systems built on cryptography, robust economic principles, consensus theory, transparency, and accountability.

Key Technical Highlights

Unmatched Transaction Speed

Forget the agonizing wait of sluggish transaction confirmations. CometBFT's Byzantine Fault Tolerant (BFT) consensus algorithm churns out rapid results. Speed is a priority, and CometBFT doesn't disappoint.

Block speed: 3 seconds
Transactions per second: up to 10,000

Security

CometBFT preserves safety while less than one-third of total voting power is Byzantine.

Seamless Chain-to-Chain Interactions
In today's digitized landscape, working in silos is a formula for stagnation. CometBFT's architecture thrives on interoperability, allowing for smooth interactions between disparate blockchains. KiiChain harnesses this feature to pave the way for limitless cross-chain operations.

Sustainability in Focus
As global awareness around climate change intensifies, CometBFT offers an eco-friendly alternative to energy-guzzling consensus mechanisms. This aligns seamlessly with Kii Global Blockchain's own sustainability goals. In a nutshell, CometBFT isn't just a mechanism; it's a blueprint for the future of blockchain technology. By integrating CometBFT into our architecture, KiiChain is not just keeping pace with advancements; we are setting the pace.

Technical Underpinnings of CometBFT: An Advanced Consensus Algorithm Distinguished in Efficacy
The efficacy of a blockchain architecture is, to a large extent, contingent on the robustness of its underlying consensus algorithm. CometBFT distinguishes itself as an exemplar in this arena, and it's instructive to delve into its operational intricacies to understand its superiority.

Sequential Consensus Rounds: A Tripartite Paradigm
CometBFT's consensus model operates through a tripartite sequence comprising Prevote, Precommit, and Commit phases. This algorithmic construct engenders an organized and deterministic approach to decision-making.

Prevote**:** In this phase, validators engage in a preliminary voting round to weigh the validity of a proposed block.

*Precommit***:** Conditional upon attaining a quorum of affirmative prevotes—specifically a two-thirds majority—the algorithm transitions to a more formalized commitment to the proposed block.

*Commit***:** A subsequent affirmation in this phase culminates in the irrevocable acceptance of the block into the blockchain.This sequential arrangement ensures procedural integrity and minimizes the potential for erroneous or malicious insertions.

Deterministic Finality: A Benchmark in Transaction Integrity
While various blockchain platforms employ probabilistic finality, CometBFT assures deterministic finality. Once a transaction attains consensus approval, it is irrevocably committed to the ledger, thereby eliminating any subsequent ambiguities or vulnerabilities.

Byzantine Fault Tolerance: Mitigating Systemic Risks
One of the most salient features of CometBFT is its capability to mitigate the Byzantine Generals Problem, a classical quandary in distributed computing. Comet's Byzantine Fault Tolerance ensures that

the network sustains its functional integrity even when up to one-third of its nodes are compromised or malfunctioning.

Proof-of-Stake Economy: An Eco-conscious Approach
In juxtaposition to energy-intensive Proof-of-Work algorithms, CometBFT employs a Proof-of-Stake model. This renders the consensus process not only more efficient but also congruent with sustainable energy utilization protocols.

Tendermint and CometBFT Means Business
Launched in 2014, the Tendermint open-source project aimed to overcome the limitations of Bitcoin's proof-of-work consensus algorithm, particularly in terms of speed, scalability, and environmental impact. Leveraging and enhancing the Byzantine Fault Tolerance (BFT) algorithms originally developed at MIT in 1988, the Tendermint team pioneered the conceptual development of a proof-of-stake cryptocurrency. This innovation successfully tackled the "nothing-at-stake" issue, a problem prevalent in early proof-of-stake cryptocurrencies like NXT and BitShares1.0. CometBFT is the Tendermint upgrade.

Today, most Bitcoin mobile wallets rely on trusted servers for transaction verification due to the need for multiple confirmations in proof-of-work to ensure a transaction is irreversibly committed. Reliance on low confirmation counts has historically enabled double-spend attempts against some custodial services.

In contrast, CometBFT's blockchain consensus system enables secure and immediate verification for mobile-client payments. Designed to minimize forking, CometBFT allows mobile wallets to confirm transactions instantly, facilitating trustless and practical payments on smartphones, which is also beneficial for Internet of Things applications.

Kii's validators function similarly to Bitcoin miners but use cryptographic signatures for voting. These validators, operating on dedicated, secure machines, are responsible for block commitment. Non-validators can delegate their Kii tokens to validators, earning a share of block fees and Kii fees. However, there's a risk of penalty (slashing) if their chosen validator is compromised or breaches protocol rules. The proven reliability of CometBFT’s consensus and the collateral deposits from both validators and delegators provide a measurable and dependable level of security for all network nodes and light clients.

Governance
Every distributed public ledger should include a constitution and a governance mechanism. Bitcoin, for instance, depends on the Bitcoin Foundation and its mining community to manage updates, a process that tends to be sluggish. Ethereum experienced a split into ETH and ETC following a hard fork to rectify TheDAO hack, primarily due to the absence of an established social contract or decision-making process.

On KiiChain, both validators and delegators have the power to vote on proposals. Proposals may modify network parameters, adjust the active validator set size, and implement protocol upgrades. Governance has no power over the business, assets, revenue or management of KiiGlobal S.A.S. or any affiliate, and confers no shareholder, membership or management right.

KiiChain network, with its commitment to interoperability among different policy zones, offers users unparalleled freedom and opportunities for unrestricted experimentation. On-chain governance is active from the genesis block of KiiChain mainnet. Mainnet launched on December 12th, 2025 with chain ID "kiichain_1783-1". Staking and governance have been live since that date.

Validators

In classical Byzantine fault-tolerant (BFT) algorithms, each node has the same weight. In CometBFT, nodes have a non-negative amount of voting power, and nodes that have positive voting power are called validators. Validators participate in the consensus protocol by broadcasting cryptographic signatures, or votes, to agree upon the next block.

Validators' voting powers are determined at genesis, or are changed deterministically by the blockchain, depending on the application. For example, in a proof-of-stake application such as KiiChain, the voting power may be determined by the amount of staking tokens bonded as collateral.

NOTE: Fractions like ⅔ and ⅓ refer to fractions of the total voting power, never the total number of validators, unless all the validators have equal weight. >⅔ means "more than ⅔", ≥⅓ means "at least ⅓".

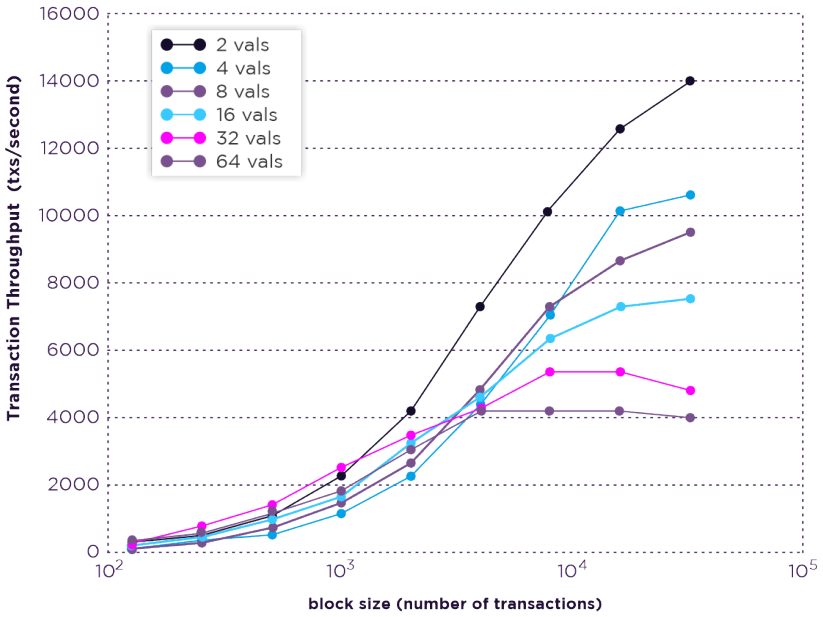
Consensus

CometBFT is a partially synchronous BFT consensus protocol derived from the DLS consensus algorithm. CometBFT is notable for its simplicity, performance, and fork-accountability. The protocol requires a fixed known set of validators, where each validator is identified by their public key. Validators attempt to come to consensus on one block at a time, where a block is a list of transactions. Voting for consensus on a block proceeds in rounds. Each round has a round-leader, or proposer, who proposes a block. The validators then vote, in stages, on whether to accept the proposed block or move on to the next round. The proposer for a round is chosen deterministically from the ordered list of validators, in proportion to their voting power.

CometBFT's security derives from its use of optimal Byzantine fault-tolerance via super-majority (>⅔) voting and a locking mechanism. Together, they ensure that:

- ≥⅓ voting power must be Byzantine to cause a violation of safety, where more than two values are committed.
- If any set of validators ever succeeds in violating safety, or even attempts to do so, they can be identified by the protocol. This includes both voting for conflicting blocks and broadcasting unjustified votes.

Despite its strong guarantees, CometBFT provides exceptional performance. In benchmarks of 64 nodes distributed across 7 datacenters on 5 continents, on commodity cloud instances, CometBFT consensus can process thousands of transactions per second, with commit latencies on the order of one to two seconds. Notably, performance of well over a thousand transactions per second is maintained even in harsh adversarial conditions, with validators crashing or broadcasting maliciously crafted votes. See the figure below for details.



Light Clients

A major benefit of CometBFT's consensus algorithm is simplified light client security, making it an ideal candidate for mobile and internet-of-things use cases. While a Bitcoin light client must sync chains of block headers and find the one with the most proof of work, CometBFT light clients need only to keep up with changes to the validator set, and then verify the >⅔ PreCommits in the latest block to determine the latest state.

Succinct light client proofs also enable inter-blockchain communication.

Preventing Attacks

CometBFT has protective measures for preventing certain notable attacks, like long-range-nothing-at-stake double spends and censorship.

ABCI

The CometBFT consensus algorithm is implemented in a program called CometBFT's Core. CometBFT is an application-agnostic "consensus engine" that can turn any deterministic blackbox application into a distributed replicated blockchain. CometBFT BFT connects to blockchain applications via the Application Blockchain Interface (ABCI). ABCI is an interface that defines the boundary between the

replication engine (the blockchain), and the state machine (the application). By using a socket protocol, we enable a consensus engine running in one process to manage an application state running in another. Thus, the ABCI allows for blockchain applications to be programmed in any language, not just the programming language that the consensus engine is written in. Additionally, the ABCI makes it possible to easily swap out the consensus layer of any existing blockchain stack.

We draw an analogy with the well-known cryptocurrency Bitcoin. Bitcoin is a cryptocurrency blockchain where each node maintains a fully audited Unspent Transaction Output (UTXO) database. If one wanted to create a Bitcoin-like system on top of ABCI, Tendermint would be responsible for

- Sharing blocks and transactions between nodes
- Establishing a canonical/immutable order of transactions (the blockchain)

Meanwhile, the ABCI application would be responsible for

- Maintaining the UTXO database
- Validating cryptographic signatures of transactions
- Preventing transactions from spending non-existent funds
- Allowing clients to query the UTXO database

CometBFT is able to decompose the blockchain design by offering a very simple API between the application process and consensus process.

ABCI consists of 3 primary message types that get delivered from the core to the application. The application replies with corresponding response messages.

The *AppendTx* message is the workhorse of the application. Each transaction in the blockchain is delivered with this message. The application needs to validate each transaction received with the AppendTx message against the current state, application protocol, and the cryptographic credentials of the transaction. A validated transaction then needs to update the application state — by binding a value into a key values store, or by updating the UTXO database.

The *CheckTx* message is similar to AppendTx, but it's only for validating transactions. CometBFT's mempool first checks the validity of a transaction with CheckTx, and only relays valid transactions to its peers. Applications may check an incrementing nonce in the transaction and return an error upon CheckTx if the nonce is old.

The *Commit* message is used to compute a cryptographic commitment to the current application state, to be placed into the next block header. This has some handy properties. Inconsistencies in updating that state will now appear as blockchain forks which catches a whole class of programming errors. This also simplifies the development of secure lightweight clients, as Merkle-hash proofs can be

verified by checking against the block-hash, and the block-hash is signed by a quorum of validators (by voting power).

Additional ABCI messages allow the application to keep track of and change the validator set, and for the application to receive the block information, such as the height and the commit votes.

ABCI requests/responses are simple Protobuf messages. Check out the schema file.

AppendTx

- Arguments:
    - Data ([]byte): The request transaction bytes
- Returns:
    - Code (uint32): Response code
    - Data ([]byte): Result bytes, if any
    - Log (string): Debug or error message
- Usage:
  Append and run a transaction. If the transaction is valid, returns CodeType.OK

CheckTx

- Arguments:
    - Data ([]byte): The request transaction bytes
- Returns:
    - Code (uint32): Response code
    - Data ([]byte): Result bytes, if any
    - Log (string): Debug or error message
- Usage:
  Validate a transaction. This message should not mutate the state. Transactions are first run through CheckTx before broadcast to peers in the mempool layer. You can make CheckTx semi-stateful and clear the state upon Commit or BeginBlock, to allow for dependent sequences of transactions in the same block.

Commit

- Returns:
    - Data ([]byte): The Merkle root hash
    - Log (string): Debug or error message
- Usage:
  Return a Merkle root hash of the application state.

Query

- Arguments:
    - Data ([]byte): The query request bytes
- Returns:
    - Code (uint32): Response code
    - Data ([]byte): The query response bytes
    - Log (string): Debug or error message

Flush

- Usage:
  Flush the response queue. Applications that implement types.Application need not implement this message – it's handled by the project.

Info

- Returns:
    - Data ([]byte): The info bytes
- Usage:
  Return information about the application state. Application specific.

SetOption

- Arguments:
    - Key (string): Key to set
    - Value (string): Value to set for key
- Returns:
    - Log (string): Debug or error message
- Usage:
  Set application options. E.g. Key="mode", Value="mempool" for a mempool connection, or Key="mode", Value="consensus" for a consensus connection. Other options are application specific.

InitChain

- Arguments:
    - Validators ([]Validator): Initial genesis-validators
- Usage:
  Called once upon genesis

BeginBlock

- Arguments:
    - Height (uint64): The block height that is starting
- Usage:
  Signals the beginning of a new block. Called prior to any AppendTxs.

EndBlock

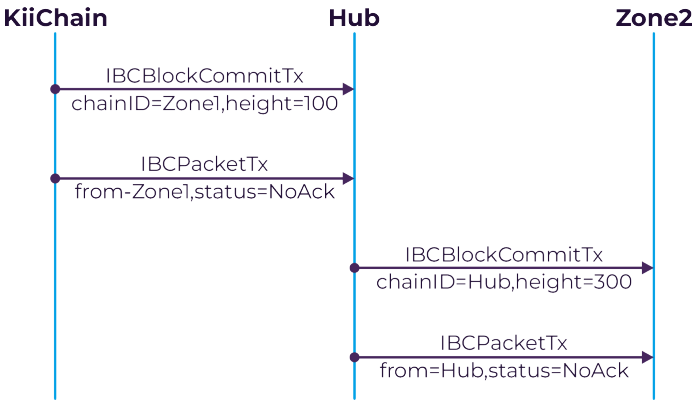
- Arguments:
    - Height (uint64): The block height that ended
- Returns:
    - Validators ([]Validator): Changed validators with new voting powers (0 to remove)
- Usage:
  Signals the end of a block. Called prior to each Commit after all transactions

IBC: Inter-Blockchain Communication

Now we look at how the Hub and zones communicate with each other. For example, if there are three blockchains, “Zone1”, “Zone2”, and “Hub”, and we wish for “Zone1” to produce a packet destined for “Zone2” going through “Hub”. To move a packet from one blockchain to another, a proof is posted on the receiving chain. The proof states that the sending chain published a packet for the alleged destination. For the receiving chain to check this proof, it must be able to keep up with the sender’s block headers. This mechanism is similar to that used by sidechains, which requires two interacting chains to be aware of one another via a bidirectional stream of proof-of-existence datagrams (transactions). This is how KiiChain connects to the Cosmos Hub.

The IBC protocol can naturally be defined using two types of transactions: an IBCBlockCommitTx transaction, which allows a blockchain to prove to any observer of its most recent block-hash, and an IBCPacketTx transaction, which allows a blockchain to prove to any observer that the given packet was indeed published by the sender’s application, via a Merkle-proof to the recent block-hash.

By splitting the IBC mechanics into two separate transactions, we allow the native fee market-mechanism of the receiving chain to determine which packets get committed (i.e. acknowledged), while allowing for complete freedom on the sending chain as to how many outbound packets are allowed.



In the example above, in order to update the block-hash of “Zone1” on “Hub” (or of “Hub” on “Zone2”), an IBCBlockCommitTx transaction must be posted on “Hub” with the block-hash of “Zone1” (or on “Zone2” with the block-hash of “Hub”).

Benefits

The IBC protocol is designed to facilitate secure and reliable communication between different blockchain networks. It is a critical component for interoperability in the blockchain space. The IBC allows the transfer of data (tokens or other information, shared in packets) between independent blockchains. It establishes a standardized way for blockchains to read and write data to each other when transacting assets on another specific blockchain. The main benefits of IBC are:

1. Interoperability: Allows different blockchains to interact and share information, breaking down silos in the blockchain ecosystem.
2. Scalability: Enhances the scalability of networks by distributing workloads across multiple chains.
3. Enhanced Functionality: Different chains can specialize in various functions (e.g., privacy, speed, storage), and IBC enables them to leverage each other's strengths.
4. Decentralization: Promotes a more decentralized blockchain ecosystem by enabling a network of various blockchains rather than relying on a single chain.
5. Token Transfer: Facilitates the transfer of tokens and assets across different blockchain networks, expanding the utility and reach of digital assets.
6. Increased Innovation: The ability to connect different blockchains can lead to new types of applications and use cases that were not possible within a single blockchain system.
7. Security: Maintains high security standards, as blockchains can communicate while preserving their own internal consensus mechanisms and security protocols.
8. Community and Ecosystem Growth: Contributes to the growth of the Cosmos ecosystem by allowing new and existing blockchains to connect and interact.

Transaction Types - How Kii Interacts with the Cosmos Hub

In the standard implementation, transactions are transmitted to the Cosmos hub application through the ABCI (Application Blockchain Interface).

The Cosmos Hub will accept a number of primary transaction types from KiiChain, including SendTx, BondTx, UnbondTx, ReportHackTx, SlashTx, ProposalCreateTx, and ProposalVoteTx, which are fairly self-explanatory and will be documented in a future revision of this paper. Here we document the two primary transaction types for IBC: IBCBlockCommitTx and IBCPacketTx.

IBCBlockCommitTx

An IBCBlockCommitTx transaction is composed of:

- ChainID (string): The ID of the blockchain
- BlockHash ([]byte): The block-hash bytes, the Merkle root which includes the app-hash
- BlockPartsHeader (PartSetHeader): The block part-set header bytes, only needed to verify vote signatures
- BlockHeight (int): The height of the commit
- BlockRound (int): The round of the commit
- Commit ([]Vote): The >⅔ Tendermint Precommit votes that comprise a block commit
- ValidatorsHash ([]byte): A Merkle-tree root hash of the new validator set
- ValidatorsHashProof (SimpleProof): A SimpleTree Merkle-proof for proving the ValidatorsHash against the BlockHash
- AppHash ([]byte): A IAVLTree Merkle-tree root hash of the application state
- AppHashProof (SimpleProof): A SimpleTree Merkle-proof for proving the AppHash against the BlockHash

IBCPacketTx

An IBCPacket is composed of:

- Header (IBCPacketHeader): The packet header
- Payload ([]byte): The bytes of the packet payload. *Optional*
- PayloadHash ([]byte): The hash for the bytes of the packet. *Optional*

Either one of Payload or PayloadHash must be present. The hash of an IBCPacket is a simple Merkle root of the two items, Header and Payload. An IBCPacket without the full payload is called an *abbreviated packet*.

An IBCPacketHeader is composed of:

- SrcChainID (string): The source blockchain ID
- DstChainID (string): The destination blockchain ID
- Number (int): A unique number for all packets
- Status (enum): Can be one of AckPending, AckSent, AckReceived, NoAck, or Timeout
- Type (string): The types are application-dependent. Cosmos reserves the “coin” packet type
- MaxHeight (int): If status is not NoAckWanted or AckReceived by this height, status becomes Timeout. *Optional*

An IBCPacketTx transaction is composed of:

- FromChainID (string): The ID of the blockchain which is providing this packet; not necessarily the source

- FromBlockHeight (int): The blockchain height in which the following packet is included (Merkle-ized) in the block-hash of the source chain
- Packet (IBCPacket): A packet of data, whose status may be one of AckPending, AckSent, AckReceived, NoAck, or Timeout
- PacketProof (IAVLProof): A IAVLTree Merkle-proof for proving the packet's hash against the AppHash of the source chain at given height

The sequence for sending a packet from "Zone1" to "Zone2" through the "Hub" is depicted in {Figure X}. First, an IBCPacketTx proves to "Hub" that the packet is included in the app-state of "Zone1". Then, another IBCPacketTx proves to "Zone2" that the packet is included in the app-state of "Hub". During this procedure, the IBCPacket fields are identical: the SrcChainID is always "Zone1", and the DstChainID is always "Zone2".

The PacketProof must have the correct Merkle-proof path, as follows:

IBC/<SrcChainID>/<DstChainID>/<Number>

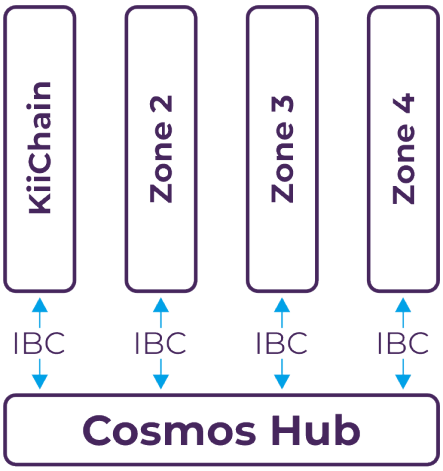
When "Zone1" wants to send a packet to "Zone2" through "Hub", the IBCPacket data are identical whether the packet is Merkle-ized on "Zone1", the "Hub", or "Zone2". The only mutable field is Status for tracking delivery.

The Hub and Zones - How KiiChain Connects to the Cosmos Hub

The Hub and Zones, powered by IBC, is an innovative model for growth and scalability in the decentralized blockchain ledger world. As we've discussed before, Cosmos is a network of multiple blockchains powered by CometBFT, and KiiChain is one of those blockchains. While existing proposals aim to create a "stand alone blockchain" with transaction processing dependent on their own network, or layer 2s that build under them, Cosmos permits many layer 1 blockchains to run concurrently with one another while retaining interoperability.

At its core the Cosmos Hub manages many independent blockchains called "Zones" (sometimes referred to as "shards" , in reference to the database scaling technique known as "sharding"). A constant stream of recent block information (commits) from Zones are posted on the Cosmos Hub, which allows the Cosmos Hub to keep up with the state of each Zone. Likewise, each Zone keeps up with the state of the Hub (however, Zones do not keep up with each other except indirectly through the Hub). "Packets" of information are then communicated from one zone to another by posting Merkle-proofs as evidence that the information was sent and received. This mechanism is called inter-blockchain communication, or IBC for short.

Any of the zones can themselves be hubs to form an acyclic graph, but for the sake of clarity we will only describe the simple configuration where there is only one hub, and many non-hub zones.



The Hub

The Cosmos Hub is a blockchain that hosts a multi-asset distributed ledger, where tokens can be held by individual users or by zones themselves. These tokens can be moved from one zone to another in a special IBC packet called a "coin packet" – this is how the information is communicated between the zone and the hub. The hub is responsible for preserving the global invariance of the total amount of each token across the zones. IBC coin packet transactions must be committed by the sender, hub, and receiver blockchains.

Since the Cosmos Hub acts as the central ledger for the whole system, the security of the Hub is of paramount importance. While each zone may be a CometBFT blockchain that is secured by as few as 4 validators (or even less if BFT consensus is not needed), the Hub must be secured by a globally decentralized set of validators that can withstand the most severe attack scenarios, such as a continental network partition or a nation-state sponsored attack.

The Zones

A Cosmos zone is an independent blockchain that exchanges IBC messages with the Hub and in this particular case, the zone is KiiChain. From the Hub's perspective, KiiChain is a *multi-asset dynamic-membership multi-signature account* that can send and receive tokens using IBC packets. Like a cryptocurrency account, KiiChain cannot transfer more tokens than it has, but can receive tokens from others who have them.

KII may be staked by validators on KiiChain while connected to the Hub. While double-spend attacks on these zones would result in the slashing of Kii with CometBFT's fork-accountability, a zone where >⅔ of the voting power are Byzantine can commit invalid state. The Cosmos Hub does not verify or execute transactions committed on KiiChain, so it is the responsibility of users to send tokens to zones that they trust.

Enabling Smart Contracts

The Cosmos EVM module allows Ethereum-compatible smart contracts to run on a Cosmos blockchain, emulating the EVM environment. This module ensures compatibility with existing Ethereum tools and dApps, allowing developers to deploy Ethereum smart contracts written in Solidity on KiiChain.

The module processes and executes smart contracts written in Solidity similarly to how they would run on Ethereum's blockchain. Transactions intended for the EVM module are identified and processed. These can include contract deployment, contract interaction, or other EVM-specific operations. A benefit of the Cosmos EVM module is that it is integrated within the Cosmos SDK, therefore the module can coexist with other modules, providing flexibility and functionality to the blockchain.

By supporting Ethereum smart contracts, KiiChain can tap into the vast ecosystem of Ethereum developers and existing dApps, fostering greater collaboration among developers in emerging markets. The EVM module operates within its own execution environment, ensuring that issues within the EVM do not affect other parts of the blockchain, and opens the door for these contracts to interact with other IBC-enabled blockchains within the Cosmos network. This level of interoperability is a significant advancement in the blockchain space. The module manages Ethereum state separately from the Cosmos state. This segregation ensures that the EVM's state transitions and account models do not conflict with the Cosmos chain's state.

When integrating the EVM module, developers can configure it to suit their specific needs. This includes setting gas prices, enabling specific EVM functionalities, or defining how Ethereum transactions and smart contracts are handled within KiiChain. The module exposes APIs and RPC endpoints that are compatible with Ethereum's, allowing tools and applications built for Ethereum (like wallets and dApps) to interact with KiiChain chain without significant modifications. Developers can use standard development tools like Node.js applications and environments like Truffle or Hardhat are popular for Solidity development.

The KII token

While KiiChain operates within the Cosmos ecosystem, it runs its native asset, KII as a non-inflationary cryptocurrency. The token economics are vital for how the ecosystem will interact with the blockchain and will detail the use of the native token, KII. KII is used to pay gas, to bond as validator or delegator stake, and to vote in on-chain protocol governance. The model is designed to compensate validators and delegators for consensus work performed over the long term. Nothing in this document is a representation regarding the price or future price of KII. The point of this section is to explain that value within the ecosystem, the distribution of the tokenomics, the release and circulation expectations, and its general utility.

Tokenomics

KiiChain's maximum cap is set at 1,800,000,000 KII. At the genesis block, all 1,800,000,000 tokens are released into specified wallets, each with their purpose in the ecosystem. Kii has a fixed supply meaning extra tokens cannot be minted or created.

Token Vesting and Distribution

Token distribution and vesting was developed collectively between the founders and developers and is a result of many years of collective experience as users, investors, stakers and developers in other projects and blockchains. The collective result is a product from taking multiple points of views and considerations in account to protect the blockchain and community as a whole. It is strategically designed to prevent sudden fluctuations in token supply and to prevent any single group or individual from gaining an unfair advantage. Vesting is structured over an extended period to align contributor incentives with the long-term operation of the network and to make unlock events predictable and verifiable on-chain.

There was a particular emphasis on the long cliff and vesting for team members behind the project, to show commitment to the longevity of the ecosystem and its community. Presale participation was limited to purchasers who satisfied the eligibility and jurisdictional criteria applied by the issuer, subject to KYC/AML screening; residents of restricted jurisdictions, including the Republic of Korea, were excluded. Additionally, all vest/release schedules are emitted daily. Unlocks are emitted daily rather than in periodic tranches, so that circulating supply on any given date is precisely determinable from the published schedule. By seeding the company with internal investment, the economics were designed with the community users interests as the top priority. Once the final tokenomic distribution is finalized, it will be detailed below.

Token Circulation

The token circulation is an anticipated guide of how the tokens will be released and distributed. In any event, it is highly *unlikely* that all tokens will be available to trade in the market during these exact times and should be used more as a reference for token release rather than market availability.

Once Tokenomics is finalized, the complete release schedule will be disclosed with the following information:

- Token percentage distribution
- Token release by category
- Token dispersion trending line
- Token vesting terms
- Token distribution calculation for fees
- Airdrop information

The KII Token Utility

KII is the native gas and utility token of KiiChain, a sovereign proof of stake Layer 1. Total supply is fixed at 1,800,000,000 KII. The minting function is disabled at protocol level and cannot be changed by governance, so no further tokens can be created.

Gas, staking and governance are protocol level functions, available to holders in any jurisdiction, and do not require interaction with any KiiGlobal operated service.

1. Gas All network transactions, including transfers, account creation and contract deployment, are paid in KII. Fees accrue to validators. Gas use is permissionless.
2. Staking KII is the only asset eligible for validator bonding and delegation, securing network consensus. Validators, and delegators bonded to them, are paid a validation fee for the consensus service performed. Fees are assessed at protocol level and disbursed automatically by consensus, in proportion to bonded stake.
   Validation fees are paid from two sources: transaction fees borne by users submitting transactions; and a pre-allocated on-chain fee pool, which is finite, was fully allocated at genesis, and depletes according to a public schedule after which validation fees derive from transaction fees alone. Distribution from both sources is automatic and determined by consensus rules. Neither source involves new issuance. Validation fees are not funded by and do not depend on the revenue, profits or discretionary decisions of KiiGlobal S.A.S. or any affiliate. The fee is consideration for work performed, not a return on capital, and no rate of return is promised or projected.
   Bonding carries risk of loss through slashing, and an unbonding period during which bonded KII cannot be transferred.
3. Governance KII is the voting asset for on chain protocol governance, which is live from genesis. Governance covers technical protocol matters only: network parameters, active validator set size, and protocol upgrades. Governance has no power over the business, assets, revenue or management of KiiGlobal S.A.S. or any affiliate, and confers no shareholder, membership or management right in any company and no right to direct the business of any company.
4. Protocol Usage Fees Applications using the KiiChain RWA protocol pay usage fees in KII. The protocol is permissioned software, available only through issuers and distributors authorized in their own jurisdictions, and is geo restricted. KII confers no interest in, claim on or economic exposure to any asset tokenized through the protocol, and holders receive no share of protocol revenue.
5. Ecosystem Incentives KII may be allocated from pre allocated reserves as development grants to third party developers and infrastructure operators building on KiiChain. Grants are discretionary and are not available to holders by virtue of holding KII. They are not a deposit, a yield product or a promised return.
6. Users of the KiiChain App who settle service fees in KII receive a flat fee discount. The discount is identical for all eligible users, does not scale with the amount held, is a commercial promotion that may be modified or withdrawn at any time, and is available only where the App lawfully operates. The App is geo-blocked in the Republic of Korea and this discount is not available to Korean residents. The protocol functions of KII do not depend on it. The discount is the same for every eligible holder and does not increase with the amount held. It is a commercial promotion, not a distribution of revenue or profit, and may be modified or withdrawn at any time. The App is available only in jurisdictions where its operation is legally permitted. KII's function as a network asset does not depend on it.

7. Rights not Conferred KII carries no dividend, profit sharing, interest, redemption, buy back or repurchase rights; no claim on the revenue, profits or assets of KiiGlobal S.A.S. or any affiliate; no equity or debt interest; and no contractual right to share in the profits or losses of any common enterprise. No token burn or buy back is funded from the revenue or profits of KiiGlobal S.A.S. or any affiliate.

Disclosure KiiGlobal will publicly disclose in advance any change to the protocol functions described in this section, together with the effective date.

Validator Limitations and Requirements

Unlike Bitcoin, Dash or other proof-of-work blockchains, the CometBFT consensus mechanism gets slower with more validators due to the increased communication complexity. Fortunately, the speed of KiiChain is still 300x faster than its proof-of-work counterparts. That being said, the blockchain can still easily support enough validators in order to keep the network completely decentralized.

At genesis the active validator set is capped at 25 and the minimum self-bond for set entry is 50,000 KII. The minimum commission rate is 5%. Validators are ranked by total KII staked. The set size is adjustable by passed on-chain proposal. Validation fees are allocated in proportion to voting power, which reflects the volume of consensus work attributable to each validator. Validators bear operating costs, downtime penalties and slashing risk, and net outcomes may be negative. The total number of validators in the open set will be adjusted based on open governance votes. The number of validators in the open set can be scaled to 300 validators without losing significant performance metrics. However, with 100 validators the network should still have a healthy ratio of decentralization to network performance. The number will scale to provide greater decentralization for when the blockchain grows the open validator set.

Becoming a Validator After Genesis Day

Kii holders who are yet to become validators can do so by signing and submitting a Create Validator transaction. The amount of KII provided as self-bonded collateral must be at least 50,000 KII. Anyone can become a validator at any time, except when the size of the current validator set is greater than the maximum number of validators allowed. In that case, the transaction is only valid if the amount of Kii is greater than the amount of effective Kii held by the smallest validator, where effective Kii include delegated Kiis'. When a new validator replaces an existing validator in such a way, the existing validator becomes inactive and all the Kii and delegated Kii enter the unbonding state.

Penalties for Validators

To ensure protocol adherence, validators face penalties for any deviations, whether deliberate or accidental. Clear infractions include dual signatures at the same block height and round, or breaking the CometBFT consensus protocol's "prevote-the-lock" rule. Such violations lead to the forfeiture of the validator's status and the seizure of part of their bonded Kii, along with their share of the reserve pool's tokens, known collectively as their "stake".

There are instances when validators may become unavailable due to issues like network interruptions or power outages. If a validator fails to commit a vote to the blockchain more than a specified maximum number of times within a certain number of past blocks, they will be deemed inactive and lose a default penalty of 1% of their stake.

Some harmful activities may not leave clear traces on the blockchain. In these cases, validators can collaborate externally to enforce timeouts on these harmful validators, provided there's overwhelming consensus.

In scenarios where more than one-third of KiiChain's voting power is offline, causing a halt, or if a similar coalition prevents evidence of malicious acts from being recorded on the blockchain, a recovery is initiated through a hard-fork reorganization proposal.

Transaction Fees
Validators on KiiChain earn KII tokens as fees for processing transactions. They have the freedom to set their own exchange rates and select the transactions they process, as long as they don't exceed the BlockGasLimit. The fees collected are shared with stakeholders who have bonded their Kii, distributed proportionally to their stake.

Kii token holders who entrust their voting power to other validators have to pay a commission to these validators. The rate of this commission is determined by each individual validator.

Governance Specifications
On-chain governance is live from genesis; validator-set size and system parameters change only via passed on-chain proposals. This includes adjusting system parameters and implementing protocol upgrades.

All validators must vote on each proposal. If a validator doesn't vote within the set time, they are automatically deactivated for the AbsenteeismPenaltyPeriod (default is one week).

Bonded KII carries voting rights. A delegator's voting power defaults to the vote of its chosen validator and may be overridden by the delegator during the voting period. KII that is not bonded carries no voting rights. Bonding is subject to slashing risk. Delegation is self-custodial; no KiiGlobal entity or affiliate operates a custodial, pooled or managed staking service.

Proposals require a deposit of 20,000 KII. Only KII may be deposited. Deposits on proposals rejected with NoWithVeto are burned; deposits on proposals that fail for any other reason are refunded. Burned deposits and slashed stake are the only mechanisms that reduce KII supply. Both are automatic consequences of consensus rules applied to tokens already in circulation, are not funded from and not related to the revenue or profits of KiiGlobal S.A.S. or any affiliate, and no buy-back or discretionary burn

of KII is conducted by any entity.

Voting options for each proposal include:

- *Yes*
- *No*
- *NoWithVeto*
- *Abstain*

A proposal enters the voting period once deposits reach the minimum deposit of 20,000 KII within the 14-day deposit period. The proposer must contribute at least 25% of the minimum deposit at submission. Voting runs for 7 days. A proposal passes if quorum of 40% of total bonded stake participates, Yes votes exceed 50% of votes cast excluding Abstain, and NoWithVeto is below 33.4% of votes cast. Abstain counts toward quorum only. Expedited proposals require a deposit of 30,000 KII, a 24-hour voting period and a 66.7% Yes threshold. All thresholds are expressed as percentages of bonded voting power, not of validator headcount. The voting period is shorter than the 21-day unbonding period. All parameters in this section are amendable only by a passed proposal.

Parameter Change Proposal
Any of the parameters defined here can be changed with the passing of a param change proposal..

Test Proposal
All other proposals, such as a proposal to upgrade the protocol, will be coordinated via the generic TextProposal.

Summary

In summation, CometBFT's technical architecture offers a comprehensive suite of advantages that make it the consensus algorithm of choice for high-stakes applications, including those deployed by KiiChain. It is the epitome of speed, security, and sustainability, effectively setting a new industry standard for blockchain consensus mechanisms. Combined with Kii Global's ecosystem of products and real-world business infrastructure, the entire Kii team is dedicated to building a better future for our close counterparts in Latin America, and everyone else in emerging markets.

Citations

Cosmos: https://github.com/cosmos/cosmos/blob/master/WHITEPAPER.md
Tendermint: https://github.com/tendermint/tendermint
CometBFT: https://github.com/cometbft/cometbft
ABCI: https://github.com/tendermint/abci
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Bitcoin: https://bitcoin.org/bitcoin.pdf
ZeroCash: http://zerocash-project.org/paper
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Ethereum 2.0 Mauve Paper: http://vitalik.ca/files/mauve_paper.html