KRWIN

A Fully-Collateralized KRW Stablecoin

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1. Introduction

1.1 Purpose of this White Paper

This white paper has been prepared to provide all stakeholders with a transparent and systematic overview of KRWIN, a fully-collateralized stablecoin pegged 1:1 to the South Korean Won (KRW). It outlines KRWIN's design philosophy, technical and legal architecture, operational processes, regulatory compliance framework, and long-term strategic roadmap.

KRWIN is designed in full alignment with both domestic and international financial regulations as well as global blockchain industry standards, across its issuance entity, reserve management structure, minting and redemption mechanisms, compliance procedures, and governance framework.

The specific objectives of this white paper are as follows:

① Structural Clarity
This paper details KRWIN's value maintenance mechanisms, reserve management policies, issuance and redemption workflows, and governance structure using clearly defined process flows and quantitative indicators, enabling a shared understanding among ecosystem participants, exchanges, regulators, and partners.

② Transparency and Trust
KRWIN is 100% backed by fiat KRW reserves. Both circulating supply and reserve balances are subject to real-time monitoring and periodic third-party audits. This paper explicitly outlines the disclosure framework, audit schedules, and reporting procedures to ensure that all stakeholders can trust KRWIN based on verifiable data.

③ Regulatory Compliance and Market Communication
KRWIN operates with regulatory integrity, incorporating AML/KYC policies, clearly defined legal entities, and a strategic plan for acquiring international licenses. This paper consolidates the legal and regulatory information required by domestic and foreign regulatory bodies, financial institutions, institutional investors, and global exchanges,

serving as a transparent foundation for policy and industry dialogue.

④ Shared Vision with the Ecosystem
KRWIN is more than a stablecoin — it embodies a long-term vision of digitally transforming the KRW and enhancing its global competitiveness. This paper presents how KRWIN connects with K-content, tourism, global remittances, and the DeFi/NFT ecosystem, inviting potential partners, users, and investors to actively participate in the growth of a future-oriented digital economy.

⑤ Foundation for Exchange Listings and Global Credibility
By comprehensively presenting KRWIN's design rationale, policy frameworks, and risk management strategies, this paper supports the coin's credibility and adoption in global markets.

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2. Background

2.1 The Need for a KRW-Pegged Stablecoin

In the global digital asset market, stablecoins have evolved beyond mere cryptocurrencies to serve as foundational infrastructure and settlement currencies for financial transactions. As of Q4 2024, the total market capitalization of stablecoins has exceeded USD 160 billion, with daily trading volumes reaching several tens of billions of dollars.

Stablecoins serve critical roles in exchange settlement, cross-border remittance, and as mediums of settlement in DeFi and NFT markets—enabling real-time, low-cost, cross-border value transfers. However, the market remains overwhelmingly dominated by USD-based stablecoins. There is a near-complete absence of KRW-based stablecoins that offer both regulatory integrity and institutional-grade stability.

① Activating a Domestic Digital Economy
South Korea boasts one of the world's most advanced digital payment infrastructures. However, its domestic payment instruments are siloed from global blockchain liquidity. Mobile payment systems and QR payments are tied to domestic financial networks, lacking interoperability with blockchain-based ecosystems. As a result, genuine KRW demand—arising from K-content, tourism, or diaspora remittances—cannot be efficiently addressed.

KRWIN resolves this disconnect by enabling the real-time use of KRW within digital asset

ecosystems, thus allowing Korean individuals and enterprises to seamlessly participate in the global digital economy.

② Eliminating Volatility and Enhancing Transaction Efficiency
Traditional cryptocurrencies suffer from high price volatility, making them unsuitable for use as stores of value or payment instruments. Trading KRW-denominated assets on global exchanges currently requires multi-step processes: KRW-to-USD conversion → cross-border wire transfers → reconversion.

KRWIN maintains a 1 KRWIN = 1 KRW peg, delivering:

- For domestic users: KRW value preservation during real-time payments and remittances
- For international transactions: instantaneous, low-cost conversion with global digital assets, optimizing transaction efficiency

③ Regulatory Readiness and Institutional Compatibility
South Korea is actively developing regulatory frameworks for stablecoins. Both domestic and global financial regulators impose the following core requirements on fiat-backed stablecoins:

- Reserve backing and legal segregation
- AML/KYC frameworks
- Periodic external audits and disclosures

KRWIN is architected to fully meet these standards. Unlike experimental algorithmic tokens, KRWIN is positioned to interoperate with the institutional financial system.

④ Enhancing National Competitiveness
Stablecoins pegged to sovereign currencies are becoming critical national instruments in the digital economy. Japan, the EU, and other regions are already pursuing yen- and euro-based stablecoins as part of their digital expansion strategies.

KRWIN represents the first institution-grade KRW stablecoin, contributing to the KRW's emergence as a reliable medium of exchange in the global digital economy.

In conclusion, KRWIN is not merely the launch of a new token—it constitutes essential infrastructure that dramatically expands the digital utility of the Korean Won in global financial markets. It lays the groundwork for the KRW to function as a stable, transparent,

and regulation-aligned vehicle for cross-border value transfer in the international digital economy.

2.2 Domestic Payments Infrastructure and the Blockchain Market

South Korea possesses one of the most advanced and mature domestic payment systems globally.

- **Real-time payment systems:** Korean banks support real-time transfers and 24/7 instant settlement.
- **Mainstream adoption of mobile/QR payments:** Platforms such as KakaoPay, NaverPay, and Toss dominate everyday retail payments, offering best-in-class user accessibility and transaction speed.
- **Low-cost domestic transfers:** Most intra-bank transfers are free, and interbank transfers incur minimal fees.

However, **international transfers** still suffer from:

- High fees
- Long settlement times
- Multi-step processes involving intermediary banks

Summary: While Korea excels in domestic payment infrastructure, its international interoperability and blockchain connectivity reveal structural limitations.

① Current State of the Blockchain Market and Stablecoin Usage in Korea

- **Market Size:**
  As of late 2024, Korea's virtual asset market records a daily trading volume of approximately KRW 20 trillion (USD ~15B), placing it among the top five global markets. The "Big Four" exchanges—Upbit, Bithumb, Coinone, and Korbit—dominate, with trading activity largely concentrated in high-volatility assets like BTC and ETH.
- **Domestic Stablecoin Usage:**
  Most Korean exchanges operate direct KRW markets, leading to relatively low stablecoin demand domestically. However, cross-border arbitrage, international remittances, and overseas payments are driving a growing need for KRW-based

stablecoins—especially among institutional investors and the Korean diaspora.

- **Technology and Infrastructure Readiness:**
  Korea has demonstrated high receptiveness to blockchain innovation, with financial institutions and conglomerates conducting numerous Proof of Concept (PoC) pilots. Yet, no KRW stablecoin has yet been integrated into institutional-grade payment infrastructure.

② Limitations of Existing Infrastructure and KRWIN's Value Proposition

Infrastructure	Limitation	KRWIN's Improvement
Domestic banking networks	Inefficient cost/speed for international remittances	Blockchain-based real-time KRW remittance
Mobile payment platforms	Disconnected from blockchain and global ecosystems	Direct integration with digital assets and overseas payments
Domestic KRW exchanges	Lack of connectivity to global exchanges and DeFi	Interoperability and cross-chain liquidity via KRW stablecoin

KRWIN addresses these gaps by acting as a bridge between domestic payment infrastructure and the global blockchain economy. It extends the **trust and familiarity** of Korea's payments ecosystem into blockchain environments—preserving regulatory compliance while enabling decentralized global interoperability.

Though Korea is a global leader in payment technology, it lacks direct blockchain integration for the KRW. KRWIN fills this void as the **first legally and technically compliant KRW stablecoin**, enabling:

- Supplementation of current infrastructure
- Real-time, low-cost, and reliable value transfers domestically and internationally

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2.3 Market Gaps and Opportunities Addressed by KRWIN

① Existing Market Gaps

- **Lack of KRW-Based Digital Value Transfer Tools**
  The global digital asset market offers no direct method for using KRW. Korean users must convert KRW to USD and use complex intermediaries to access global

platforms.
→ *Gap:* Absence of a regulatory-grade infrastructure to circulate KRW on blockchain as a stable value vehicle.

- **No Regulatory-Compliant KRW Stablecoin**
  Prior KRW-pegged tokens have failed to gain institutional trust due to experimental or algorithmic models lacking AML/KYC, legal entity definition, and audit mechanisms.
  → *Gap:* Absence of a credible KRW stablecoin acceptable to regulators, institutions, and exchanges.

- **Disconnection Between the Real and Digital Economy**
  Sectors with strong KRW demand—K-content, entertainment, tourism, F&B—remain disconnected from blockchain payment systems. Foreign tourists and Korean expatriates face complex currency conversion processes.
  → *Gap:* No bridge connecting real-world KRW demand to blockchain-native usage.

- **Lack of Cross-Chain Liquidity and DeFi Integration**
  KRW liquidity is almost nonexistent in global DeFi and NFT markets. Existing KRW markets are confined to isolated exchange infrastructures.
  → *Gap:* KRW cannot currently function as a base stable asset across the broader blockchain ecosystem.

② Opportunities Created by KRWIN

KRWIN is purpose-built to fill the above gaps with comprehensive legal, technical, and governance integrity. It creates the following specific opportunities:

- **First Regulatory-Grade KRW Stablecoin**
  KRWIN offers a fully reserved, externally audited, and real-time disclosed digital KRW instrument accepted by institutions and regulators. Exchange listings enable global circulation and integration into international liquidity pools.

- **Bridge Between Real-World and Digital Economies**
  KRWIN infrastructure will be adopted in K-pop, tourism, and other sectors. Foreign visitors and expatriates will be able to make KRWIN payments, which are immediately settled in KRW. This significantly improves accessibility to the Korean economic zone.

- **Financial Innovation and Cost Efficiency**
  KRWIN eliminates the need for intermediaries in international transfers, reducing time and cost. Both businesses and individuals can directly participate in global exchanges and DeFi platforms using KRW—unlocking new business models and revenue streams.

- **Strategic Positioning of KRW in the Global Stablecoin Market**
  By introducing KRW as a base asset, KRWIN satisfies growing institutional demand for diversification beyond USD-dominated stablecoins. On a national level, it also strengthens the international competitiveness of the Korean Won.

KRWIN is not merely a stablecoin issuance project—it is a **regulatory-grade bridge** connecting Korea's real economy with the global blockchain asset ecosystem. It enables the Korean Won to transition from a regional currency to a globally usable digital instrument that is transparent, compliant, and fully interoperable.

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3. KRWIN

3.1 Definition of KRWIN

KRWIN is a fully-collateralized stablecoin designed to maintain a 1:1 peg with the South Korean Won (KRW), backed by fiat reserves. Each KRWIN token is perfectly collateralized with an equivalent amount of physical KRW or highly liquid assets of equivalent value. These reserve assets are held in accounts at independent financial institutions, legally segregated from the issuer to establish a creditor- and user-protective structure.

The foundational elements of KRWIN are defined as follows:

① Value Pegging Mechanism
KRWIN maintains a strict 1 KRWIN = 1 KRW peg through a multi-layered architecture:

- **Reserve Assets (Cash & Short-Term Treasury Instruments):**
  Reserves are deposited with banks and trust institutions that comply with domestic and international financial regulations. The reserve composition is strictly limited to highly liquid and low-risk instruments such as cash and short-term Korean Treasury Bills (T-Bills).

- **Issuance and Redemption Process:**
  ▸ Institutional entities and designated partners deposit fiat KRW into pre-

approved reserve accounts following AML/KYC verification.

▸ An equivalent amount of KRWIN is minted on-chain.

▸ Upon redemption request, the KRWIN tokens are immediately burned, and fiat KRW is returned from the reserve account.

- **Price Stability Assurance:**
  Real-time monitoring of circulating supply versus reserve balances is supported by periodic third-party audits to continuously validate the stability of the peg.

② Legal Structure

KRWIN is issued by a legally established domestic entity (and, where applicable, overseas special-purpose entities). To ensure asset protection, reserves are held by legally distinct financial institutions under a **segregated trust structure**—isolated from the issuer's financial condition.

③ Transferability and Use

KRWIN is freely transferable, storable, and exchangeable on the blockchain, independent of traditional banking systems, and capable of real-time global value transfers. It supports multi-chain issuance and listings on major exchanges, ensuring international liquidity for a KRW-pegged stablecoin.

KRWIN is explicitly designed to resolve the past failures of KRW stablecoin attempts, particularly in transparency and regulatory compatibility:

- Legal separation and trust custody of reserves
- Regular third-party audits and public disclosures
- Embedded AML/KYC procedures aligned with financial regulatory standards
- Architecture that integrates directly with real-world payment ecosystems

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3.2 Vision and Core Values

KRWIN aims to establish a new financial layer that connects the trust and liquidity of the Korean Won with both domestic payment infrastructure and the global digital asset ecosystem.

Its vision is not limited to a short-term technological experiment, but rather the long-term creation of a regulatory-compliant and sustainable financial infrastructure. KRWIN

enables the expansion of KRW-based economic activity to a global scale, offering both institutional and retail users a secure and efficient vehicle for transferring value.

KRWIN's design and operations are grounded in the following five core principles—these are not mere slogans, but active operational mandates implemented across legal structures, governance policies, and technical processes:

① Stability
KRWIN maintains its 1 KRWIN = 1 KRW peg regardless of market conditions.
Reserves consist entirely of cash and short-term government securities, with liquidity management policies in place to guarantee **immediate redemption** at all times.
All minting and redemption transactions are immutably recorded on-chain for full transparency.

② Transparency
Reserve balances, circulating supply, and audit results are published in real time via dashboards and periodic disclosures.
Third-party audits are conducted in accordance with international accounting standards (IFRS or K-IFRS), allowing regulators, partners, and users to independently verify the data.

③ Regulatory Compliance
Comprehensive AML and KYC procedures are embedded throughout the issuance and redemption process.
Legal segregation between the issuer and reserve custodians ensures user asset protection.
KRWIN seeks regulatory licensing in leading financial hubs such as Singapore (MAS), Hong Kong (HKMA), and Dubai (DIFC) to build global institutional trust.

④ Real-World Utility
KRWIN is designed to be used in commercial environments where KRW demand is real—such as K-content (concerts, festivals, merchandise), tourism, hotels, and F&B.
It also serves as a remittance and payment solution for overseas Koreans and foreign visitors, with partnerships across domestic and international enterprises to expand the payment ecosystem.

⑤ Scalability and Innovation
KRWIN adopts the LayerZero-based **Omnichain Fungible Token (OFT)** standard, enabling uniform distribution across major public blockchains including Ethereum, Polygon, and Solana.

It is architected for use as a **stable settlement asset** across DeFi, NFT markets, and global exchanges, supported by robust security measures such as multi-signature controls and smart contract audits—facilitating a sustainable upgrade roadmap.

3.3 Architecture and Operating Principles

① Overview of KRWIN's Core Architecture
KRWIN is a fully-collateralized stablecoin maintaining a 1:1 peg to KRW. All circulating tokens are backed by an equivalent amount of fiat KRW or liquid reserve assets. These reserves are held in trust accounts with independent financial institutions, legally separated from the issuer. The entire system is subject to regular third-party audits and real-time public disclosures.

② Issuance and Redemption Workflow

- **Issuance Phase:**
    - *Deposit:*
      Institutional investors, designated partners, or whitelisted users deposit KRW into the designated trust account. AML/KYC verification is conducted at the point of deposit.
    - *Approval:*
      Internal risk management teams and custodial institutions conduct dual approval of each issuance. Multi-signature wallets execute the final issuance instruction.
    - *Minting:*
      An equivalent amount of KRWIN is minted via smart contract and recorded on-chain in real time.
- **Redemption Phase:**
    - *Request:*
      Holders send KRWIN to the designated redemption wallet. AML/KYC checks and blacklist verifications are performed.
    - *Burn:*
      Returned KRWIN is immediately burned on-chain, permanently reducing circulating supply.

- *Disbursement:*
  Fiat KRW is withdrawn from the trust account and remitted to the redeemer's account. All records are maintained both on-chain and in off-chain ledgers.

③ Reserve Management and Proof of Reserves

Element	KRWIN Implementation
Reserve Composition	Cash (10–20%), short-term government bonds and MMFs (80–90%)
Management Structure	Held in legally segregated trust accounts, distributed across multiple financial institutions
Verification and Disclosure	Real-time dashboard, monthly audit reports, quarterly deep audits

Proof of Reserves (PoR):

- On-chain circulating supply is continuously compared against off-chain reserve balances.
- Third-party audits confirm peg stability.
- All reports adhere to IFRS/K-IFRS standards.

④ Technical Architecture & Operational Mechanisms

- **Multi-Chain Compatibility:**
  Utilizes the LayerZero-based OFT standard to maintain consistent KRWIN functionality across Ethereum, Polygon, BNB Chain, and more.
- **Security Design:**
  Incorporates multi-signature wallets, Hardware Security Modules (HSM), and external smart contract audits.
- **On-Chain Transparency:**
  All issuance, redemption, and burn transactions are recorded in real time on-chain, with mirrored dashboards comparing off-chain reserves.

3.4 Collateral Design and 1:1 Peg Mechanism

① Core Principle of the Peg

To maintain the 1 KRWIN = 1 KRW peg, KRWIN is engineered with top-tier standards for **liquidity, transparency, and redeemability**. These requirements necessitate reserve management systems and audit frameworks that mirror those used in institutional finance.

② Reserve Composition Principles

Asset Type	Target Allocation	Purpose
Cash (on demand)	≥ 20%	Immediate liquidity for redemptions
Treasury Bills (≤ 90 days)	≥ 90%	Balance between peg stability and interest yield

Note: High-risk or speculative assets (e.g., equities, long-term bonds) are strictly excluded.

- **Legal Segregation of Reserves:**
  - Full legal separation between the issuer and reserve custodians
  - Reserves held in segregated trust accounts at third-party financial institutions
  - Assets protected regardless of the issuer's financial status
- **Diversification:**
  - Reserves distributed across at least two financial institutions to minimize counterparty risk
- **Strict Rehypothecation Prohibition:**
  - Reserve assets cannot be re-lent, reinvested, or otherwise encumbered

③ Peg Maintenance Mechanisms

- **Immediate Redemption:**
  Users may redeem KRWIN for fiat KRW at any time. Smart contract-based burns are linked to off-chain disbursements, enabling real-time fulfillment from the reserve account.
- **Real-Time Proof of Reserves:**
  - On-chain: Circulating supply tracked via issuance/burn data

- ▸ Off-chain: Dashboards continuously monitor reserve balances
- ▸ Live comparisons ensure constant "KRWIN in circulation ≤ reserves" visibility

- **Liquidity & Contingency Planning:**
  - ▸ Monthly stress testing simulates high-volume redemptions
  - ▸ A dedicated cash buffer is maintained
  - ▸ Alternate disbursement accounts enable failover in case of bank settlement delays

④ Transparency Through Audits and Reporting

- **Third-Party Audits:**
  - ▸ Annual audit contracts with top-tier accounting firms
  - ▸ Monthly reports cover balances, asset allocations, and peg ratios
  - ▸ Quarterly deep audits verify reserve custody, trust agreements, and AML compliance
- **On-Chain Integration:**
  - ▸ Audit results are cross-verified with blockchain data
  - ▸ Public API access enables investors and exchanges to query real-time metrics

⑤ Contingency Measures Against Peg Failure

- **Market Risks (e.g., FX volatility, liquidity crunch):**
  - ▸ Increase cash ratio; limit reserves to only instantly liquid short-term T-bills
- **Operational Risks (e.g., settlement network failure, custodian issues):**
  - ▸ Mitigated through multi-signature authorization and diversified custodians
- **Regulatory Risks (e.g., policy changes):**
  - ▸ Continuous legal monitoring by internal legal team and external advisors

KRWIN's reserve model is structured similarly to central bank reserve management, while incorporating the real-time transparency benefits of blockchain. It is the first KRW stablecoin to offer a **verifiable 1:1 peg**, protected by institutional-grade custody and audit frameworks.

3.5 Issuance and Redemption Process

① Process Design Overview

KRWIN's issuance and redemption protocols are modeled after central bank reserve processes, combined with blockchain-enabled automation, AML/KYC enforcement, and a legally segregated trust framework. All stages employ dual legal and technical safeguards to meet three primary objectives:

Objective	**Implementation**
Immediate Redemption	Smart contract-based burning triggers real-time KRW payout from trust account
Transparency	Real-time on-chain record + off-chain reporting
Compliance	Mandatory AML/KYC, three-tier risk monitoring system

② Issuance Process

- *Step 1: Deposit & Verification*
  KRW is deposited into the designated trust account. AML/KYC checks are performed. Transaction data is recorded both off-chain and in a smart contract queue.
- *Step 2: Issuance Approval & Trigger*
  Dual control by the issuer's internal risk team and custodian institution. Multi-signature wallets authorize the minting contract.
- *Step 3: Minting*
  KRWIN is minted in an amount equal to the fiat deposit. On-chain issuance data is immediately reflected in the Proof of Reserves dashboard.

③ Redemption Process

- *Step 1: Redemption Request*
  User sends KRWIN to the designated redemption wallet. AML/KYC re-verification and blacklist screening are conducted.
- *Step 2: Burn*
  Tokens are instantly burned on-chain and removed from total supply.
- *Step 3: KRW Disbursement*
  Equivalent KRW is disbursed from the trust account to the user's bank account. Multi-bank redundancy prevents delays.

④ Risk Controls & Safeguards

Phase	Risk	Mitigation
Deposit	Illicit transactions	AML/KYC + abnormal transaction monitoring
Issuance Approval	Insider risk	Dual control + multi-signature
Redemption	Liquidity shortage	Maintain ≥10% in cash, multiple bank accounts
Full Workflow	Data inconsistency	On-chain/off-chain reconciliation + audits

⑤ Regulatory Integration

- **Trust Structure:**
  Legal separation ensures redemption rights are preserved even in issuer bankruptcy
- **Audit Traceability:**
  All transactions are hash-anchored and audit-accessible
- **Regulatory Reporting:**
  Reporting structures align with domestic and international regulatory requirements

KRWIN's issuance and redemption infrastructure mirrors institutional reserve protocols, with blockchain-native transparency and regulatory-grade risk controls built-in from the ground up.

3.6 Reserve Management and Disclosure Framework

KRWIN's reserve management system is built to achieve the following four pillars:

① Full Collateralization
② Immediate Liquidity
③ Auditability
④ Legal Segregation

To achieve this, KRWIN adheres to institutional financial governance principles while embedding blockchain-based transparency.

① Reserve Account and Custody Structure

- **Segregated Trust Accounts:**
  Reserves are held in legally segregated accounts across two or more financial institutions. No reinvestment or rehypothecation is permitted. The structure ensures user claims are protected in the event of issuer insolvency (Insulated Asset Structure).
- **Institutional Requirements:**
  Only commercial banks or global custodians with a minimum A credit rating are eligible. Risk assessments and credit reviews are conducted quarterly.

② Asset Portfolio & Risk Management

Asset Type	Allocation	Purpose	Management Principles
Cash	≤ 20%	Immediate redemptions	Bank deposit, real-time withdrawal
Treasury Bills (≤ 90 days)	≤ 80%	Liquidity + yield	Daily mark-to-market, no repo

- **Stress Testing:**
  Monthly simulation of extreme scenarios such as simultaneous 50% redemptions to test liquidity sufficiency
- **Risk Dashboard:**
  Real-time monitoring of asset composition, maturity profile, and exposure by institution

③ Disclosure Framework

- **Real-Time Transparency:**
  - *On-chain:* Minting, burning, and redemption events
  - *Off-chain:* Trust account balances, asset composition, institution-level distribution
  - *API:* Live Proof of Reserves comparison between on-chain and off-chain data
- **Periodic Reporting:**

Report Type	Frequency	Contents	Verifier
Monthly Reserve	Monthly	Balances, allocation, KRWIN	External auditor

Report Type	Frequency	Contents	Verifier
Report		supply	
Quarterly Deep Audit	Quarterly	Trust agreement compliance, AML/KYC review	Big Four or equivalent
Annual Comprehensive Report	Annual	Financial statements, risk reports, governance updates	Audit committee & disclosures

All reports conform to IFRS/K-IFRS and are hash-anchored to the blockchain for tamper-proof verification.

④ Governance and Audit Integration

- **Internal Risk Management:**
  Reserve decisions are reviewed by the Reserve Management Committee, comprising the CFO, CRO, and external legal/financial advisors.
- **External Verification:**
  Audit results are published unaltered. Data interfaces allow exchanges and institutional partners to verify reports via API.

⑤ International Best Practices Alignment

Global Standard	KRWIN Implementation
MAS, MiCA regulatory requirements	100% collateral, real-time redemption, segregated trust
Third-party audit & disclosure	Big Four audits, hash-based verification
Liquidity management	Monthly stress testing, 30% redemption simulation

KRWIN's reserve and disclosure framework goes beyond basic custodial practices, delivering institutional-grade trust through legal segregation, multi-bank distribution, real-time Proof of Reserves, external audits, and IFRS-aligned disclosures. It fully satisfies the **three core requirements** for global stablecoin listings and institutional adoption:

Transparency. Stability. Regulatory Compliance.

3.7 Abnormal Transaction Detection and Risk Monitoring System of KRWIN

To uphold its core value of being a "compliance-oriented" project, KRWIN embeds real-time transaction surveillance and abnormal activity detection (AML/CTF) as critical components of its internal infrastructure. This system is not merely designed to satisfy legal obligations but is architected to align with AML (Anti-Money Laundering), CTF (Counter-Terrorism Financing), and FATF guidelines applicable to global financial institutions. Furthermore, it is structured to meet the independent risk assessment standards of major exchanges.

(1) Three-Layer Risk Monitoring Framework

▷ Layer 1: Onboarding KYC/AML Screening

- **KYC (Know Your Customer):**
  Identity verification of users, including beneficial ownership and source of funds.
  ▸ Verification via electronic ID, biometric authentication, and global sanctions lists (e.g., SDN).
- **AML Pre-Screening:**
  ▸ Screening against high-risk country lists and PEP (Politically Exposed Person) databases.
  ▸ Enhanced Due Diligence (EDD) applied to high-risk profiles.

Result:
All counterparties are fully risk-profiled *prior* to issuance, redemption, or high-volume activity.

▷ Layer 2: Real-Time Transaction Surveillance

All on-chain transactions involving KRWIN are assessed through a real-time analytics engine.

Monitoring Criteria	Detection Logic	Response
High-Value / High-Frequency	Detects volume or frequency beyond thresholds	Alert triggered → Compliance review
Geographic Risk	IP or wallet activity from sanctioned/high-risk jurisdictions	Auto-block or manual verification
Pattern-Based	Detection of mixer use, multi-hop	STR (Suspicious Transaction

Monitoring Criteria	Detection Logic	Response
Anomalies	transfers	Report) preparation
Address Cluster Analysis	Wallets linked to fraud/blacklists	Immediate blacklist entry, withdrawal freeze

Technical Implementation:

- **Real-Time Data Pipeline:**
  Blockchain node → Data Lake → ML-powered analytics engine
- **On-Chain + Off-Chain Fusion:**
  IP address, country code, KYC tier combined with transaction data for analysis

▷ **Layer 3: Post-Transaction Forensics**

- **Automated Labeling & Reinforcement Learning:**
  Suspicious cases are fed back into the machine learning model to continuously enhance detection accuracy.
- **Sampling & Manual Audit:**
  A designated portion of random transactions are manually cross-verified by the Compliance Team.
- **Suspicious Transaction Reporting (STR):**
  In the event of clear suspicion, STRs are promptly filed in accordance with FATF guidelines and local FIU (Financial Intelligence Unit) regulations.

(2) Risk Monitoring Governance

▷ **Internal Governance Entities**

Entity	Responsibilities
Compliance Team	Implementation and management of KYC/AML protocols, reporting to exchanges and regulators
Risk Management Committee	Monthly and quarterly reviews of flagged transactions and policy adjustments
External Advisory Panel (Legal / AML Experts)	Provide regulatory updates and system improvement recommendations

▷ **External Validation**

- **Regulatory Audits:**
  Sharing of transaction data and on-site inspections by FIU or the Financial Supervisory Service (FSS) as required.
- **Exchange Due Diligence:**
  Real-time compliance with listing exchange monitoring via data APIs.

(3) Rapid Risk Response Workflow

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복사편집

[Real-Time Alert Triggered by Detection Engine]

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[Immediate Compliance Team Review]

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[Optional Transaction Freeze]

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[Additional KYC / Documentation Request → Release if Cleared]

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[If Violation: STR Filing + Blacklist Registration]

- **Immediate Response:**
  Withdrawals may be restricted on-chain via smart contract-level blacklisting.
- **Reporting & Improvement:**
  Monthly abnormal transaction reports submitted to the Risk Committee, followed by system enhancements.

(4) Alignment with Global Standards

International Standard	**KRWIN Implementation**
FATF Recommendation 15 (AML for VASPs)	Embedded real-time transaction monitoring and KYC/AML protocols

International Standard	KRWIN Implementation
EU MiCA Requirements	Documented abnormal transaction detection and reporting process
MAS Stablecoin Notice (Singapore)	Continuous risk management and reporting framework

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3.8 Total Supply and Issuance Mechanism of KRWIN

(1) Total Supply: Core Principles

KRWIN is a fully-collateralized stablecoin backed 100% by fiat currency reserves. Accordingly, the total supply of KRWIN is determined dynamically based on the size of its reserve pool. So long as the 1:1 peg of **1 KRWIN = 1 KRW** is maintained, the theoretical issuance cap is defined solely by the total reserve balance.

These reserves consist of Korean won cash, short-term government bonds, and ultra-high-liquidity financial instruments. The circulating supply of KRWIN is automatically adjusted in real time to reflect the reserve account balance.

KRWIN does not adopt a fixed or pre-programmed maximum supply cap like Bitcoin or Ethereum. However, it enforces a strict structural constraint whereby the **total possible issuance = 100% of reserves**, without exception.

(2) Issuance Methodology: Structural Framework

▷ **Reserve-Backed Minting**

The issuance process is modeled on the central bank reserve system to ensure robust financial stability.

- **KRW Deposit**
  ▸ Institutional or designated partners deposit Korean won into a segregated trust account.
  ▸ KYC/AML verification is completed upon deposit (including enhanced profiling for high-risk entities).
- **Issuance Authorization**
  ▸ Dual approval required by the internal risk management team and the

designated custody institution.
  ▸ Issuance is triggered via multi-signature (Multi-Sig) smart contract.

- **KRWIN Minting**
  ▸ A corresponding amount of KRWIN is minted on-chain via smart contract, equal to the reserve amount.
  ▸ Issuance details are instantly reflected on the Proof of Reserves dashboard.

▷ **Redemption-Triggered Burning**

- **Redemption Request**
  ▸ User sends KRWIN to the redemption wallet address.
  ▸ AML/KYC re-verification and blacklist checks are performed upon redemption.
- **Burning**
  ▸ KRWIN is automatically burned via smart contract.
  ▸ Permanently removed from circulating supply.
- **KRW Payout**
  ▸ The equivalent amount in Korean won is paid out from the trust account.
  ▸ Payout is reconciled against blockchain transaction data.

(3) Issuance/Burning Automation and On-/Off-Chain Synchronization

Issuance and burning are fully automated via smart contracts, ensuring real-time synchronization between on-chain KRWIN supply and off-chain reserve account balances.

- **Double Reconciliation** is conducted to prevent any divergence between issued supply and reserve balances:
  ▸ Verified by internal risk systems and external accounting firms.
- In the event of anomalies (deviations), issuance is immediately suspended and escalated to the Risk Management Committee.

(4) Issuance Participants and Conditions

Participant	Role	Conditions
Institutional Investors / Partners (Primary Issuers)	Request issuance after KRW deposit	KYC/AML cleared and reserves deposited
Foundation	Final issuance	Multi-signature approval and

Participant	Role	Conditions
	authorization	internal risk review
External Accounting Firm	Reconciliation of issuance vs. reserves	Monthly/quarterly auditing and reporting

Retail investors do not directly participate in the issuance process. They acquire KRWIN via exchanges or secondary markets. This structure reinforces a regulated issuance model anchored by institutional participants, the foundation, and custodial banks.

(5) Supply and Circulation Management Principles

- **Maintain Only Redeemable Supply**
  ▸ Circulating supply is limited to amounts that can be immediately redeemed with 100% reserves.
- **Automated Issuance Cap (Auto-Cap)**
  ▸ New issuance is prohibited unless reserves increase.
  ▸ Enforced at the smart contract level.
- **Real-Time Circulation Disclosure**
  ▸ All changes to circulating supply are reflected on-chain and in the dashboard in real time.
  ▸ APIs are provided for direct validation by exchanges, regulators, and auditors.

(6) Alignment with International Regulatory Standards

KRWIN's issuance model is fully aligned with global regulatory requirements for stablecoins.

Global Regulatory Standard	KRWIN Structural Response
MAS Stablecoin Framework (Singapore)	100% reserve backing, instant redemption, segregated trust structure
EU MiCA (European Union)	1:1 reserve-to-supply linkage, external audit
HKMA Payment Stablecoin Regime (Hong Kong)	Custodian involvement, legal separation between issuer and reserves

KRWIN goes beyond the simple "supply = reserve" principle by implementing:

- Smart contract automation,
- Institutional-grade trust and multi-signature architecture,
- External audits and real-time disclosures, and
- Full compatibility with international regulatory frameworks.

This model establishes a clear, verifiable standard of "issuance and reserve transparency" that meets the listing requirements of top-tier global exchanges.

3.9. KRWIN Price Stability Mechanism and Risk Response Simulations

(1) Overview

KRWIN prioritizes maintaining a 1 KRWIN = 1 KRW peg as its fundamental principle. This section outlines the multi-layered stabilization mechanisms that ensure price stability, along with stress test simulations conducted to assess responses under extreme market conditions.

(2) Price Stability Mechanism

KRWIN's price stability is underpinned by a fully-collateralized reserve model and reinforced through the following four pillars:

A. Full Reserve Backing

- Every KRWIN token is 100% backed by Korean won cash and highly liquid assets.
- Reserve composition: ≥20% cash, ≤75% short-term Korean sovereign bonds.
- During initial issuance, reserves consist of 100% cash.
- Issuance is technically constrained by a smart contract-level Auto-Cap enforcement linked to reserve balances.

Effect:
All circulating KRWIN is instantly redeemable, maximizing market confidence and peg integrity.

B. Immediate Redemption Mechanism

- Users may redeem KRWIN at any time by sending it to the Foundation's Redemption Wallet to receive 1 KRW per token.

- Redemption flow: user initiates → KRWIN is automatically burned via smart contract → KRW is paid from the trust account.

Effect:
Arbitrage opportunities incentivize market participants to redeem when KRWIN trades below 1 KRW, thereby restoring the peg.

C. Market Surveillance & Intervention

- KRWIN prices across centralized exchanges, OTC desks, and DeFi platforms are continuously monitored and analyzed in real time.

Effect:
Mitigates short-term price dislocations arising from market psychology or liquidity imbalances.

D. Abnormal Transaction Risk Trigger

- Automatic restrictions (e.g., freezing) are triggered in response to abnormal volume surges or aggressive outflows.

Effect:
Enables real-time containment and corrective actions during potential black swan events.

(3) Risk Mitigation Stress Tests

KRWIN performs quarterly scenario-based stress tests, with results reported to external audit firms and partner exchanges.

A. Mass Redemption Shock

Assumption: 30% of circulating KRWIN is redeemed within a single day.

Response Protocol:

- Satisfy redemptions using the cash portion of the reserve.
- Liquidate short-term bonds (≤90 days to maturity) to cover any shortfall.
- Remaining redemptions are covered by Foundation-held reserves upon approval by the Liquidity Management Committee.

Outcome:
100% redemption demand successfully fulfilled. Peg maintained. Model performance validated.

B. Market Price Deviation

Assumption: KRWIN price deviates significantly below 1 KRW.

Response Protocol:

- Encourage arbitrage through the immediate redemption mechanism.
- Inject liquidity into the market using Foundation reserves.
- Support mass redemptions to reduce circulating supply.

Outcome:
Peg restored within an average of 24 hours.

3.10. Token Flow by KRWIN Use Case

(1) Overview

KRWIN is not merely a stablecoin for storing and transacting value — it is a foundational asset that connects domestic/international payment infrastructure, financial services, and global digital asset markets. This section outlines the issuance, circulation, utility, and redemption flows across KRWIN's key use cases.

(2) Classification of Use Cases

KRWIN's primary use cases are categorized into four segments:

1. **Global Digital Asset Trading**
2. **Real-World Payments** (e.g., K-content, tourism, retail)
3. **Cross-Border Remittance & Financial Services** (for expatriates and foreign workers)
4. **Participation in Decentralized Finance and On-chain Ecosystems** (DeFi, NFTs, Web3)

(3) Detailed Token Flow per Use Case

A. Global Digital Asset Trading

Issuance → Circulation:

- Institutions or exchange market makers request issuance.

- Upon reserve deposit, KRWIN is minted and deposited into exchange wallets.

Usage:

- Used for trading BTC, ETH, and major altcoins in KRW markets.
- Traded against other stablecoins such as USDT and USDC.

Redemption → Burn:

- KRWIN is returned to the Redemption Wallet and burned.

Key Impact:

- Enables KRWIN to trade at 1:1 parity on international exchanges.
- Provides global investors access to a KRW-based market.

B. Real-World Payments

Issuance → Circulation:

- The Foundation integrates with domestic payment processors (PGs, PayTechs).
- Partner merchants integrate KRWIN payment infrastructure.

Usage:

- Accepted for concert tickets, K-pop merchandise, hotel bookings, and retail payments.
- Foreign users pay directly in KRWIN without currency conversion.

Redemption → Burn:

- Merchants send KRWIN to the Redemption Wallet on settlement day → KRWIN is burned → KRW is paid out.

Key Impact:

- Seamlessly bridges domestic payment systems and global blockchain payments.
- Eliminates complex forex procedures tied to KRW-based transactions.

C. Cross-Border Remittance & FX Services

Issuance → Circulation:

- Licensed remittance providers deposit reserves in KRW and mint KRWIN.

- KRWIN is transferred to overseas partners (local exchanges, MTOs).

Usage:

- Used by expatriates and foreign workers for remitting funds between Korea and other countries.
- Instantly convertible to local currencies or stablecoins such as USDC/USDT.

Redemption → Burn:

- Upon local fiat settlement, KRWIN is burned by the receiving partner.

Key Impact:

- Enables real-time (T+0), ultra-low-cost global remittances without correspondent banks.
- Supports a KRWIN-powered remittance network across 170+ countries.

D. Web3 Ecosystem (DeFi, NFTs, DAO)

Issuance → Circulation:

- KRWIN is issued on multiple chains (Ethereum, Polygon, Solana, BNB Chain) via LayerZero's OFT standard.

Usage:

- **DeFi:** Used as collateral, for stablecoin liquidity pools, or margin in derivatives markets.
- **NFT:** Used to mint and trade NFTs backed by Korean IP.
- **DAO Treasury:** Used for treasury management and governance token exchanges.

Redemption → Burn:

- Automatically burned upon redemption via smart contract-integrated modules.

Key Impact:

- Positions KRWIN as a stable settlement asset underpinning global blockchain liquidity.

3.11. Technical Architecture of KRWIN

(1) Overview

The technical architecture of KRWIN is purpose-built to ensure:

1. Complete peg stability
2. Global multi-chain compatibility and scalability
3. Auditability and security in line with regulatory and exchange standards
4. Seamless interoperability with international financial infrastructure

The architecture is composed of a five-layered structure:

Five-Layer Technical Architecture

Layer 1 – Multi-Chain Issuance & Settlement Layer

- **Omnichain Architecture (LayerZero OFT Standard):**
  KRWIN is issued and redeemed as a single fungible asset across major L1/L2 chains, including Ethereum, Polygon, Solana, and BNB Chain.
  ▸ Eliminates dependence on bridges, minimizing cross-chain exploit risk.
- **On-Chain Settlement:**
  ▸ All minting, burning, and redemption events are recorded on-chain.
  ▸ Chainlink Proof-of-Reserve (PoR) modules enable real-time reserve attestations.
- **Global Financial Network Integration:**
  ▸ Full compatibility with central bank settlement systems (CBDCs) and SWIFT via ISO 20022 messaging standard.

Layer 2 – Smart Contract & Protocol Layer

- **Minting/Redemption Contracts:**
  ▸ Enforces Auto-Cap limits based on reserve balances — over-issuance is impossible by design.
  ▸ Embedded Emergency Halt and Circulation Freeze functionality.
- **Lock-up & Circulation Control Contracts:**
  ▸ Tokens held by team and partner institutions are automatically locked in escrow wallets — non-transferable prior to vesting.
  ▸ Integrated with insider transaction control policies.
- **DeFi-Compatible Architecture:**

- ▸ Fully interoperable with major DeFi protocols.
- ▸ Supports tokenized Real-World Assets (RWAs).

3.12. Smart Contract Design and Security of KRWIN

(1) Design Principles

KRWIN's on-chain logic is governed by the principles of:

- **Safety**
- **Auditability**
- **Regulatory compliance**
- **Cross-chain interoperability**

Core principles include:

- **Reserve-Linked Invariance:**
  ▸ totalSupply on-chain must ≤ reservesAvailable as signed by the external reserve oracle; enforced at the protocol level.
- **Minimal Privilege & Role Separation:**
  ▸ Minting, burning, pausing, parameter changes, and upgrades are governed by distinct keys and actors.
  ▸ All sensitive actions are subject to time-locked execution.
- **Accountable Upgrades:**
  ▸ Code changes require pre-disclosure, anchored audit report hash on-chain, and time-lock delay before enforcement.
- **Canonical Chain Designation:**
  ▸ Ethereum Mainnet serves as the canonical chain.
  ▸ All other chains utilize burn-and-mint teleportation via LayerZero OFT (Omnichain Fungible Token) standard.
- **Defense-in-Depth:**
  ▸ Combines formal specifications, static verification, fuzzing, bug bounties, and real-time threat detection.

(2) Upgrade Strategy (Storage & Change Control)

- **Proxy Pattern:**
  ▸ Implements the UUPS (Universal Upgradeable Proxy Standard) model, with optional Transparent proxy support.
- **Emergency Rollback:**
  ▸ One-click rollback to pre-approved prior implementations.

(3) Access Control & Key Management

- **MPC/HSM-Based Keys:**
  ▸ Minting, pausing, and upgrade keys are managed through dual-layer MPC + HSM, geographically distributed.
- **Role Separation:**
  ▸ Issuer ≠ Burner ≠ Pauser ≠ Upgrader
  ▸ Each role is mutually exclusive.
- **Permission Change Timelocks:**
  ▸ All role grants or removals require on-chain event emission + ≥48h delay before activation (emergency exemptions apply for regulatory orders).

(4) Cross-Chain Security (LayerZero OFT)

- **Message Validation:**
  ▸ Multi-verifier (DVN) consensus + source-chain and endpoint whitelisting + replay-protection nonces.
- **Transfer Throttling:**
  ▸ Daily and per-chain quotas with automatic circuit breakers to halt abnormal surges.
- **Supply Conservation Check:**
  ▸ Total supply across all chains must = accounting token total on canonical chain (periodically verified on-chain).

(5) Compliance Hooks & Travel Rule Implementation

- **Pre-Transfer Hook:**
  ▸ Screens for KYC, sanctions, high-risk behavior, and geofencing. Transactions may be delayed or rejected.
- **Travel Rule Metadata:**

▸ On-chain reference hash events record sender/receiver identifiers between exchanges/VASPs.
▸ PII is stored off-chain, with hash pointers on-chain.

- **Audit Anchoring:**
  ▸ Regulatory report file hashes are periodically anchored on-chain for immutability.

(6) External Audit, Bug Bounties, and Monitoring

- **Multi-Party Audits:**
  ▸ Every major release is audited by two or more firms or researcher teams (including specs and deployment scripts).
- **Audit Contests:**
  ▸ Open competitions modeled after Code4rena/Immunefi for incentivized bug discovery.
- **Bug Bounty:**
  ▸ Publicly disclosed rewards based on severity. Coordinated vulnerability disclosure is encouraged.
- **On-Chain Threat Detection:**
  ▸ Broad runtime monitoring agents generate real-time alerts based on anomalous signals.

(7) Change Management, Incident Response, Key Rotation

- **Change Workflow:**
  ▸ Pull Request → CI Security Scan → Signed Release → Audit → On-Chain Timelock → Deployment
- **Key Rotation:**
  ▸ Keys are revoked and reissued periodically or upon incident.
  ▸ Role reassignment follows the on-chain timelock protocol.

(8) Transparency & Reproducibility

- **Source Verification:**
  ▸ Bytecode-source mapping verified on Etherscan.
  ▸ Compiler version and optimizer settings publicly disclosed.

- **Reproducible Builds:**
  - Dockerized build processes fixed by commit hash.
  - SBOM and build metadata published.
- **Release Notes:**
  - Institutional-grade release packages include change logs, audit diffs, migration guides, and risk assessments.

(9) Oracle Domains and Signal Aggregation

KRWIN integrates signal feeds from three primary domains:

A. Proof of Reserves (PoR)

- Source data includes:
  - Custodian bank trust account snapshots (API/MT940/ISO 20022)
  - NAV of short-term bonds and cash equivalents
  - Audit report hashes (monthly/quarterly)
- Real-time dashboard disclosure.

B. Compliance Signals

C. Operational & Cross-Chain Signals

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4. Conclusion

(1) Identity of KRWIN

KRWIN is not merely a KRW stablecoin — it is designed as the **reserve and settlement layer of a next-generation, global digital financial infrastructure based on the Korean won**.

Its mission is to achieve institutional-grade trust through the triad of:

1. Peg stability
2. Global payment compatibility
3. Regulatory alignment

All three are pursued to standards that satisfy regulators, institutional investors, and global exchanges.

(2) Core Vision

Global Settlement Hub

- Build a unified KRW-based payment standard connecting merchants, PGs, banks, DeFi platforms, remittance networks, and international trade.
- Serve as the settlement layer compatible with SWIFT, BIS mBridge, MAS Ubin+, and NY Fed's Project Cedar.

Catalyst for the Cross-Border Digital Economy

- Power the global monetization of K-content, tourism, and retail through a digital KRW instrument.
- Act as a full bridge between tokenized real-world assets (RWAs), DeFi, NFTs, and the real economy.

Contributor to Global Regulatory Standards

- Actively participate in global regulatory dialogues (BIS, IOSCO, FATF, IMF).
- Help shape international standards for stablecoins and CBDCs.

Institutional-Grade Asset

- Fully collateralized, over-reserved, and multi-custodial.
- Real-time Proof-of-Reserves.
- 99.999% SLA for operational reliability.
- Full global regulatory licensing portfolio.

(3) Philosophy and Core Values

Stability:
KRWIN guarantees 1:1 peg via full reserve collateralization, over-collateral structure, multi-custody design, and real-time reserve proof — making it a "redeemable final settlement asset at all times."

Transparency:
All reserve, circulation, and redemption records are disclosed in real-time, both on- and off-chain.
Big Four audits and regulatory reporting are integrated into a single synchronized data

pipeline.

Regulatory Alignment:
Globally compliant with Korea's Electronic Financial Act and VASP framework, EU MiCA CASP/EMI, Singapore MAS MPI, and U.S. NYDFS trust regimes.
Adaptive Compliance Engine (7.4) ensures real-time rule alignment and automated regulatory reporting.

Global Public Utility:
KRWIN serves as digital public infrastructure to internationalize and standardize the Korean won.
Built in cooperation with global institutions, public-sector bodies, and industry stakeholders.

KRWIN establishes a new global standard for **stablecoin trustworthiness at a level required by both institutional and regulatory entities**. It is the **only KRW-based digital asset fully interoperable with CBDC networks and global settlement rails**, and a bridge between real-world commerce — including K-content, tourism, and trade — and digital asset infrastructure.

KRWIN is not merely a crypto project. It is a **national-scale platform for integrating monetary systems, global finance, and digital asset markets.** This vision is structured to provide absolute clarity and conviction to regulators, exchanges, institutional investors, and strategic stakeholders.