

VITAKING WHITE PAPER

GLOBAL GOLD RWA VALUE CHAIN PLAN





I Project Summary

VITAKING is an innovative project that bridges global mining capital with blockchain infrastructure. Through its Real World Asset (RWA) mechanism, it maps the actual reserves and production capacity of over 200 gold mines worldwide onto the blockchain, creating a decentralized a decentralized on-chain financial system anchored by tokenized physical gold. Each VTAU token represents the equity of one gram of auditable physical gold, enabling users to earn dividends, trade, and exchange globally.



VITAKING's core mission is to breathe digital life into buried gold and integrate physical assets into the global decentralized value ecosystem. Through strategic partnerships with Resource Capital Funds (RCF) and PT. SINAR CELEBES INDONESIA, the project has established robust physical asset foundations. By implementing cutting-edge technologies including multi-dimensional smart auditing, zero-knowledge verification, dynamic anchoring controls, and cross-chain interoperability, it enables gold assets to achieve a complete digital lifecycle encompassing ownership confirmation, circulation, settlement, and value appreciation.



VITAKING's mission is to build an open platform centered on a "digital gold ecosystem," which consists of five core modules:

Mining Digitalization Module:

Realize on-chain confirmation and dynamic update of mining rights, reserves and production capacity data;

◆ DeFi module:

Provide functions such as pledge, mining, cross-chain settlement and income compound, so that gold asset tokens can participate in decentralized finance;

→ Payment and Settlement Module:

Establish a global gold payment and cross-border clearing network through VTAU;

Ecosystem Governance Module:

The DAO community governance system enables global co-governance and equitable distribution.

A Public welfare and ESG modules:

Promote green mining and sustainable development with the open and transparent characteristics of blockchain.

By integrating physical assets, digital finance, and global governance, Vitas Gold has pioneered a complete digital ecosystem that connects gold from mining to crypto finance and real-world applications, establishing itself as a trailblazer in the new global digital gold order.



II Macro Background A thousand years of bull market for gold and digital opportunities

1. Gold: The oldest consensus asset

Gold is the only asset in human history that has been trusted by the world at the same time for more than 5,000 years. From the gold balance system of ancient Babylon, to the Aureus gold coin of the Roman Empire, to the central bank reserves of the present day, gold has always played the role of "the underlying anchor of the global value order".

It does not require government credit endorsement, does not rely on central institutions to maintain credibility, but is a natural global consensus formed by scarcity, verifiability and imtamability.

This makes gold the most solid "firewall of value" in the human financial system--when the monetary system is in turmoil, it always comes back to the center of the stage.



Looking at the economic cycle of the past half century:

- In 1971, the dollar was decoupled from gold, and the price of gold rose from \$35 an ounce to \$800 in 1980;
- After the 2008 financial crisis, gold doubled in just three years to \$1,900;



- In 2020, amid the pandemic and the era of quantitative easing, gold prices once again surpassed \$2,000;
- By 2025, the international gold price will break through \$4,000 / ounce, a 5,000-year high.

The long-term trend of gold reveals an iron law:

"When money is overissued and trust collapses, only gold stands without speaking."

2. Half a century after decoupling: currency flooding and credit overdraft

After the collapse of the Bretton Woods system, the world entered the "era of anchorless currencies". Central banks stimulated growth through quantitative easing (QE), and the money supply expanded at an exponential rate.

In the United States, for example, M2 increased by 3,000% from \$700 billion to more than \$21 trillion between 1971 and 2024. In the same period, gold production increased by less than 30%, and supply was extremely limited.

The disappearance of this value anchor and the structural imbalance of excessive money issuance make gold once again the only consensus asset for safe haven and value preservation.

At the same time, gold is back in strategic position in central bank reserves around the world.

Central banks bought 1,200 tonnes of gold in 2024, the most in nearly 60 years;

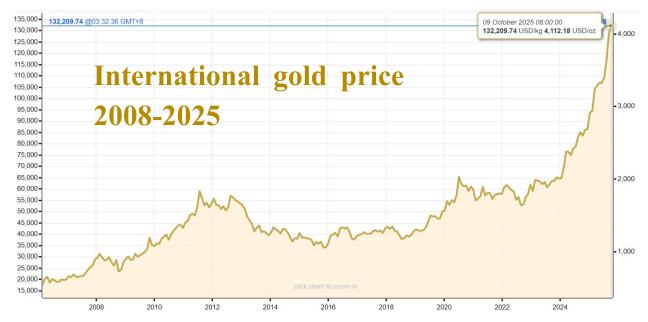
Emerging economies such as Russia, China and India are accelerating "de-dollarization", using gold as the underlying collateral for their foreign exchange reserves;

According to IMF data, gold's share of global reserve assets has rebounded to 18%, the highest level in two decades.

This return means that gold is once again the ultimate underwriting of the international credit system.



3. Gold's 2025 Price Surge: The Financial System's Repricing



The gold price's breakthrough of \$4,000 per ounce in 2025 is not the result of a single event, but rather driven by five long-term forces:

Inflationary inertia and the debt spiral

The debt-to-GDP ratio of the world's major economies has generally exceeded 120%, and the total amount of US Treasury bonds is approaching 40 trillion US dollars. The central bank's policy of continuous balance sheet expansion has kept the real interest rate negative for a long time, and gold has become the only hedge tool without debt and default risk.

Geopolitical fragmentation

The Ukraine war, the Red Sea shipping crisis, the Middle East oil price game and the Asian security situation have jointly driven the re-pricing of global safe-haven assets. Gold has regained its status as 'global sovereign insurance' in the war and inflation resonance cycle.

The entry of institutional funds

Financial giants including BlackRock, Fidelity, and Goldman Sachs have been steadily increasing their gold holdings through ETFs and reserve funds.

Since 2022, the total ETF holdings have grown at a compound annual rate of over 40%, establishing a new paradigm centered on institutional pricing.



Emerging market currency crisis

The currencies of Argentina, Nigeria, Turkey and other countries have depreciated by more than 90%, and gold has become the "alternative currency" for local residents. The surge of on-chain gold and digital gold products has created a user base for the popularization of gold RWA.

The combined effect of computing power economy and energy inflation

AI and chip manufacturing consume large amounts of precious metals, strengthening both gold's industrial and reserve properties, creating a triple driving force of "technology × inflation × scarcity".

The essence of this bull market in gold is a process of revaluing the global credit system.

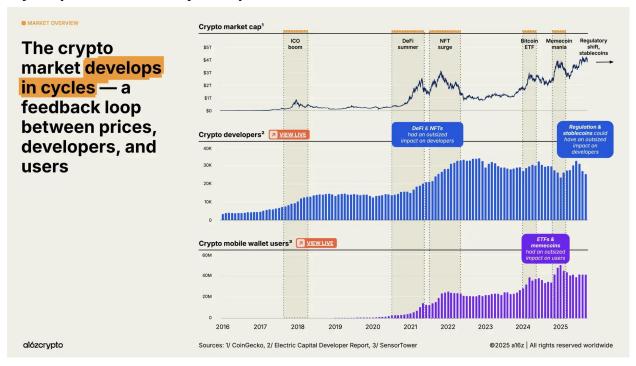
As fiat currency becomes synonymous with "unlimited liability", gold is consolidating its position as "limited supply, unlimited trust".



III. The First Year of Global Asset Blockchain 4 trillion yuan in total crypto market capitalization hits new record, gold RWA's golden window

1. Structural transition of global crypto market

2025 is widely recognized as the 'Year of Global Asset Tokenization'. According to a16z's latest State of Crypto 2025 report, the total market capitalization of cryptocurrencies surpassed the \$4 trillion mark for the first time in 2025, reflecting the industry's overall growth. The number of crypto mobile wallet users surged by 20% year-on-year, reaching a record high. The dramatic shift from regulatory resistance to policy support, coupled with the accelerated adoption of technologies like stablecoins and tokenization of traditional financial assets, will define the trajectory of the next development cycle.



Financial institutions fully adopt:

Traditional financial and tech giants like Visa, BlackRock, Fidelity, JPMorgan Chase, PayPal, and Stripe have all launched crypto products or payment interfaces, blurring the line between online and offline transactions.

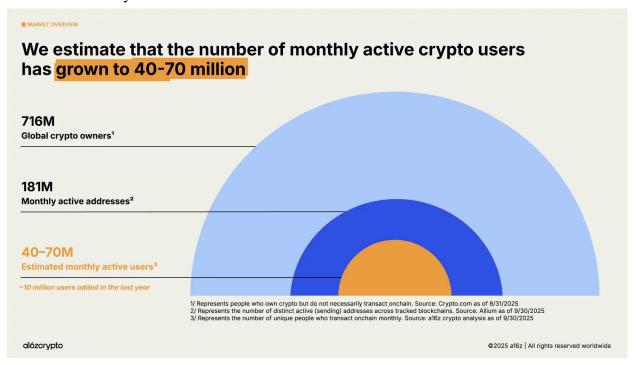


User influx accelerates:

There are currently between 40 and 70 million active crypto users worldwide, an increase of about 10 million from 2024.

This number represents a small percentage of the global 716 million crypto asset holders (up 16% year on year), and is far below the number of on-chain monthly active addresses, which is about 181 million (down 18% year on year).

The gap between passive holders (who own crypto assets but do not trade on the chain) and active users (who regularly trade on the chain) reveals an important opportunity for crypto builders: how to reach potential users who already own crypto assets but have not yet participated in on-chain activity.



Infrastructure matures:

Blockchain TPS exceeds 3,400 transactions per second, with costs reduced by a hundredfold, and network stability and transaction experience approaching traditional payment networks.

Stablecoins become the new settlement layer:

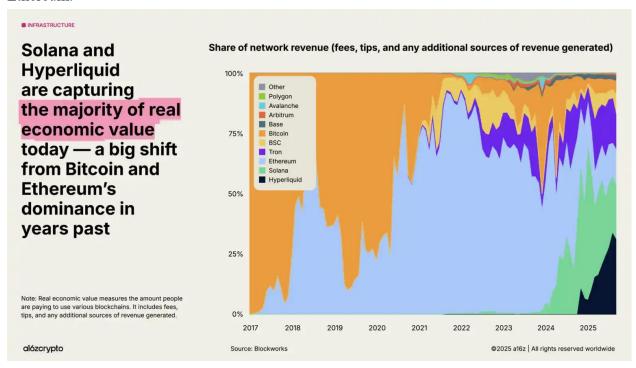
Stablecoins have reached an annual transaction volume of \$46 trillion (adjusted real value approximately \$9 trillion), matching the transaction scale of Visa and PayPal, and have become



the world's fastest and most cost-effective underlying system for dollar settlements.

Real economic value surges:

As blockchain networks continue to expand, the fee market matures, and new applications emerge, the "real economic value" metric is gaining increasing importance—it measures the actual payment users make for blockchain services and the potential growth rate of Real World Assets (RWA). Currently, Hyperliquid and Solana account for 53% of revenue-generating economic activities, marking a significant shift from the previous dominance of Bitcoin and Ethereum.



Accelerating inflow of institutional funds:

The combined market value of Bitcoin and Ethereum ETF/ETP products has surpassed \$175 billion, enabling compliant funds to directly allocate assets to blockchain-based assets for the first time. Institutional adoption is accelerating rapidly. Major financial institutions including Citigroup, Fidelity, JPMorgan Chase, Mastercard, Morgan Stanley, and Visa have either launched or plan to offer crypto products directly to consumers, allowing them to trade and hold digital assets alongside traditional instruments like stocks and exchange-traded products. Meanwhile, platforms such as PayPal and Shopify are doubling down on payment solutions, building infrastructure to facilitate daily transactions between merchants and consumers.



Some of the largest financial institutions are embracing crypto robinhood (C) CIRCLE Fidelity 1 **BlackRock** Went public in June 2025, reaching a Offered tokenized U.S. stocks in the Launched BUIDL, its first tokenized Rolled out its tokenized money-market EU; announced its own Arbitrum-based layer 2 blockchain fund on Ethereum; started testing its own USD-pegged stablecoin market cap of more than \$50 billion **PayPal** stripe VISA mastercard Launched Visa Tokenized Asset Platform Launched "Pay with Crypto" to Partnered with Circle to enable Acquired stablecoin platform Bridge and stablecoin settlement; created Crypto Credential for secure onchain transfers wallet infrastructure company Privy; simplify cross-border commerce for announced a new payments-focused merchants blockchain called Tempo **S** shopify Revolut J.P.Morgan Morgan Stanley Launched Revolut X, a standalone Launched support for stablecoins via Announced a partnership with Announced the offering of crypto trading crypto mobile app for retail traders Coinbase, enabling crypto purchases via credit cards on E*TRADE, meeting retail demand and pushing crypto further into mass market Shopify Payments and Shop Pay across Europe alózcrypto Source: a16z crypto analysis @2025 a16z | All rights reserved worldwide

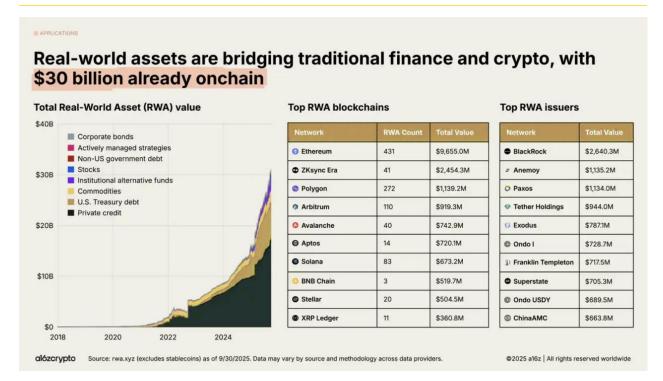
Beyond direct product offerings, major fintech players like Circle, Robinhood, and Stripe are actively developing or have announced plans to create new blockchains focused on payments, real-world assets, and stablecoins. These initiatives could drive more payment flows to the blockchain, boost enterprise adoption, and ultimately build a more robust, faster, and globally connected financial ecosystem.

Together, these indicators point to one conclusion: the global financial sector is entering the age of programmability.

2. Chain-based expansion: Scaling from crypto assets to real-world assets

Over the past decade, the crypto market's growth has primarily stemmed from virtual assets and stablecoins. However, after 2025, the narrative will shift toward Real World Assets (RWA) tokenization. Traditional assets like U.S. Treasury bonds, money market funds, private credit, and real estate, now tokenized on the blockchain, are bridging crypto and traditional finance. The tokenized RWA market, valued at \$30 billion, has nearly quadrupled in size over the past two years.





The a16z report indicates that RWA has become a focal point for institutions, due to the following reasons:

Policy environment softening: The United States has enacted landmark legislation including the GENIUS Act and CLARITY Act, establishing the first clear regulatory framework for stablecoins, digital assets, and Real World Assets (RWA).

Financial convergence trends: Events like Circle's IPO and Stripe's acquisition of stablecoin infrastructure provider Bridge demonstrate how traditional financial firms are embracing blockchain-based settlement systems.

Institutionalized data and disclosure: Institutional investors require on-chain projects to provide Proof of Reserve (PoR) and visual dashboards, ensuring Real World Asset (RWA) has genuine compliance and audit value.

At the same time, emerging markets are becoming the main battleground for blockchain: Argentina's currency crisis lasted three years, and mobile wallet usage increased 16-fold; Cryptocurrency users in countries such as Nigeria, India and Colombia are growing much faster than the global average;

The number of active crypto users worldwide has reached 40-70 million, and the total number of crypto holders has reached 716 million.



3. RWA: The Core Engine of Financial System Redesign



RWA is not a technology gimmick, but a key to the restructuring of the financial system. It turns 'assets' from immovable ledger records into digital atoms that can be circulated, mortgaged and settled automatically.

Its essential value is reflected in three points:

Asset partitioning and programmability:

Fragment and globalize the trading of assets that are otherwise difficult to trade (such as bonds, real estate, and commodities);

Cross-border compliance settlement:

Cooperate with multi-country regulatory policies, so that institutions can legally mortgage, lend and distribute profits on the chain;

Increased liquidity and transparency:

Asset holders and regulators can verify the status of reserves and transactions in real time.

As a result, RWA has emerged as a bridge between DeFi and TradFi, representing the next trillion-dollar sector following stablecoins.



4. Gold RWA: The digital gateway to natural consensus assets

Gold stands out as the most standardized and widely recognized asset among all Real-World Assets (RWA).



It is a reserve asset across civilizations and borders in human history;

Have a clear value assessment system and mature certification standards (weight, purity, reserve place);

There is already stable demand from central banks, sovereign funds and individual investors around the world.

When gold is converted into RWA, it signifies a transition from 'static reserves' to 'dynamic circulation':

Gold can be used as an on-chain stability anchor for cross-border payments and clearing;

Tokenized gold can be used in DeFi systems for staking, market making, and liquidity mining.

Its physical reserves can be audited periodically and recorded on the blockchain via Merkle hashing, thereby addressing trust and transparency issues.

Given the macroeconomic backdrop of gold prices surpassing \$4,000 per ounce by 2025, the Gold RWA (Real World Asset) represents not only technological innovation but also the starting point for reconstructing the monetary system.



5. From 4 trillion to the future

The crypto market in 2025 marks the beginning of an era--the full chain from virtual assets to real assets.



As global assets gradually enter the blockchain, the underlying logic of finance also changes: Values are no longer dependent on central institutions to issue, but are supported by verifiable assets;

Transactions no longer need clearing centers, but are completed in real time through smart contracts;

Trust no longer comes from authority, but from mathematics and transparent data.

The rise of Real-World Assets (RWA) will reshape the global financial order. Among all assets, gold RWA, with its inherent scarcity and consensus value, is destined to become the value anchor of the new era.



IV. About VITAKING From physical mining to digital gold innovation

1. Corporate background: The Golden Contract across the ocean

VITAKING (VITAKING) was born from a cross-continental industrial collaboration. The project was co-founded by Resource Capital Funds (RCF), a leading U.S. mining private equity firm, and PT. Sinar Celebes Indonesia (Indonesia's Sinar Celebes Mining), an Indonesian integrated mining group. The two parties formally signed a strategic cooperation agreement in October 2025 to jointly advance the digitalization, securitization, and blockchain-based rights confirmation of global gold assets.



RCF and PT.SINAR have partnered across resource-rich regions including Indonesia, Africa, and South America, jointly controlling over 200 gold mines with total potential resources valued at more than \$200 billion. This collaboration has not only laid a solid foundation for VITAKING's gold RWA ecosystem but also marked the first deep integration between traditional mining capital



and digital financial capital.

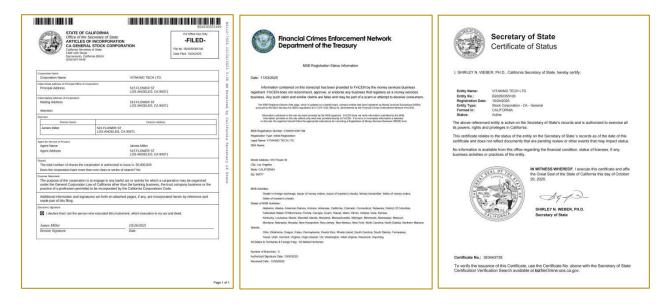
Company Name: VITAKING TECH LTD.

Entity No.: B20250355100

Incorporation Date: October 24, 2025

Registered Address: 515 Flower St, Los Angeles, CA 90071

VITAKING License, U.S. MSB & Good Standing Certificate:



2. The original purpose: to accelerate the flow of real wealth

VITAKING was founded on a simple yet ambitious vision:

"Let the gold that has been sleeping under the ground return to the stage of value circulation."

For the past half-century, gold has served as a globally trusted reserve asset, yet its liquidity, divisibility, and financialization have remained challenging. The founding team recognized that the Real World Assets (RWA) mechanism would be the pivotal breakthrough to redefine gold's financial attributes.

VITAKING is positioned as a digital financial ecosystem centered on gold mining and powered



by blockchain technology. By establishing blockchain-based ownership for gold reserves, production capacity, and output, it achieves:

- · Digital ownership and liquidity of gold assets;
- · Mining equity tokenization dividends and global financing;
- · A mechanism for investors and cash holders to share real productivity gains.
- · Expanding the Golden RWA's ecosystem applications and philanthropic initiatives

VITAKING aims to establish a global value chain from ore veins to blockchain veins, endowing every gram of gold with digital life and transforming blockchain into a golden bridge connecting the real economy with the digital world.

3. Establishment process: global strategic deployment from investigation to signing

In August 2024, RCF is seeking globally gold mining companies with reserve potential and modern management capabilities to deploy the digital gold industry.

During their fieldwork in Sulawesi, Indonesia, they met the head of PT.SINAR Group—a mining entrepreneur with over a decade of experience. The two sides shared a strong alignment of vision: RCF brought international capital and technological expertise, while PT.SINAR offered premium mining assets and a well-established local operations network.

In early 2025, RCF dispatched a joint evaluation team to conduct a three-month due diligence on PT.SINAR's mine reserves, mining process, environmental protection system and team capabilities, confirming that it meets the international gold reserve assessment standards (JORC Code).

In August of the same year, both parties signed a letter of intent in Jakarta and launched a tokenization model lab. In October, they formally signed the Global Digital Gold Strategic Cooperation Agreement in Indonesia, announcing the establishment of the VITAKING



ecosystem.



4. Investor strength: capital and mining as the twin engines

Resource Capital Funds (RCF)

Founded in 1998

Headquarters: Denver, USA

Official website: https://resourcecapitalfunds.com

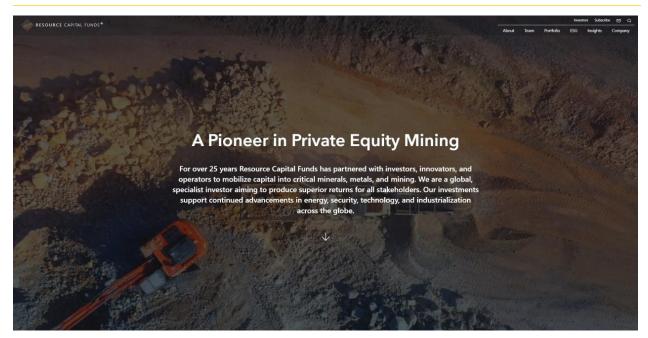
Asset size: With more than \$7 billion in assets under management, it is one of the world's leading mining private equity funds.

Global layout: There are four offices in Perth, Vancouver, London and Toronto.

Investment areas: gold, copper, silver, lithium, nickel, rare earth, zinc and other key minerals and energy metals.

Investment style: technology-driven and capital deepening as the core, covering the whole life cycle of mining--from exploration, development to production.





RCF is renowned for its flexible equity-debt portfolio, rigorous due diligence framework, and deeply engaged management approach.

Notable success stories include the Thacker Pass lithium project by Lithium Americas (LAC) and Mincor Resources' nickel mine restart initiative.

In recent years, RCF has significantly increased its allocation to gold assets, believing that gold will once again become the core of global reserves during the inflation cycle and the era of AI energy.

PT. Sinar Celebes Indonesia

Founded in 2012

Headquarters: Parigi Moutong, Central Sulawesi, Indonesia.

Main business: gold, copper, nickel and other metal exploration, mining, smelting and export trade.

From left to right and bottom to top:

- · SK KEMENKUMHAM (Legal Approval Document for Company Establishment)
- · Indonesian Celeb Sinar Certificate: "Sugang Mining Social Security Registration Certificate"
- · Notarial Certificate: "Notarial Documents for the Establishment of Su Guang Mining Co., Ltd. in Indonesia"









PENDIRIAN PERSEROAN TERBATAS "P.T. SINAR CELEBES INDONESIA"

Nomor: 49.

Pada hari ini, Jumat, tanggal 19-09-2025 (sembilan belas September dua ribu dua puluh lima), pukul 16:40 (enam belas lewat empat puluh menit) Waktu Indonesia Tengah.

Berhadapan dengan saya, WAHDA SYAHRIL, Sarjana Hukum, Magister Kenotariatan, Notaris di Kabupaten Parigi Moutong, dengan dihadiri oleh saksi-saksi yang saya, Notaris kenal, dan yang nama-namanya akan disebutkan pada bagian akta iri:

- Tuan AHMAD YANI, lahir di Parigi, pada tanggal 06-03-1974 (enam Maret seribu sembilan ratus tujuh puluh empat), Warga Negara Indonesia, Pekerjaan Petani/Pekebun, bertempat tinggal di Desa Bambalemo, Kecamatan Parigi, Kabupaten Parigi Moutong, Provinsi Sulawesi Tengah, Pemegang Kartu Tanda Penduduk (KTP) dengan Nomor Induk Kependudukan (NIK): 7208010306740002;
- 2. Tuan MUHTAR, lahir di Tolole, pada tanggal 03-01-1980 (tiga Januari sentiu sembilan ratus delapan puluh), Warga Negara Indonesia, Pekerjaan Wiraswasta, bertempat tinggal -di Jalian Sis Aljufri, Rukun Tetangga 001, Rukun Warga 006, Kelurahan/Desa Masigi, Kecamatan Parigi, Kabupaten Parigi Moutong, Provinsi Sulawesi Tengah, Pemegang Karfu Tanda Penduduk (KTP) dengan Nomor Induk Kependukikan (NIK) 7:2007/0301800001:





Honorary Awards of PT.SINAR Indonesia:

Outstanding Contribution Award in Gold Trade of Indonesia in 2016;

2020 Green Global Environmental Protection Enterprise Award;

2022 Green Planet Sustainable Development Pioneer Award.



Core-competitiveness:

- · High purity, low cost gold refining technology;
- · Implement intelligent and eco-friendly mining systems (EHS standards);
- · A number of large mining rights projects in Indonesia, Africa and South America.

PT.SINAR's evolution mirrors Indonesia's mining modernization: evolving from local explorers to global mining conglomerates, and transitioning from resource extraction to digital and intelligent mining development with sustainable branding.



5. VITAKING's Corporate Vision and Positioning

VITAKING is not only a gold-standard RWA enterprise, but also a groundbreaking system that integrates physical economy with digital finance.

Mission: To reshape the logic of global digital wealth flow with real assets as the cornerstone of trust.

Vision: To become the global gold standard for RWA and a trusted hub in the industry.



Strategic objective:

Complete blockchain-based ownership confirmation for over 200 gold mines between 2025 and 2030.

Launch VTAU tokens pegged to gold value, achieving a long-term anchor of '1 VTAU = 1 gram of gold';

Promote the widespread application of gold assets in DeFi, payment, and reserve systems, and build a globally tradable 'gold internet'.

VITAKING believes that when trust returns to tangible assets, financial civilization will be revitalized.



V VITAKING's

exclusive RWA solution

The digital transformation of gold assets is achieved through RWA mechanisms, blockchain-based ownership verification, asset mapping, and on-chain dividend distribution. VITAKING's gold RWA solution is not a "static gold standard replication," but rather a dynamic value anchoring system centered on Proof of Reserve (PoR) + Oracle + DeFi Protocol (DPC) + dividend + deflation. Under the premise of ensuring authentic reserves and verifiable liquidity, it transforms gold from a "static reserve" into a "programmable, dividendable, and liquid" digital asset. When reserve coverage and ecosystem KPIs mature, the system will progressively converge toward the long-term goal of 1VTAU ≈ 1 gram of gold.

*VTAU is VitasGold's ecosystem governance token and equity anchor token, which will be elaborated in Chapter 6.

*PoR — Proof of Reserve

Reserve proof mechanism to verify real gold reserves

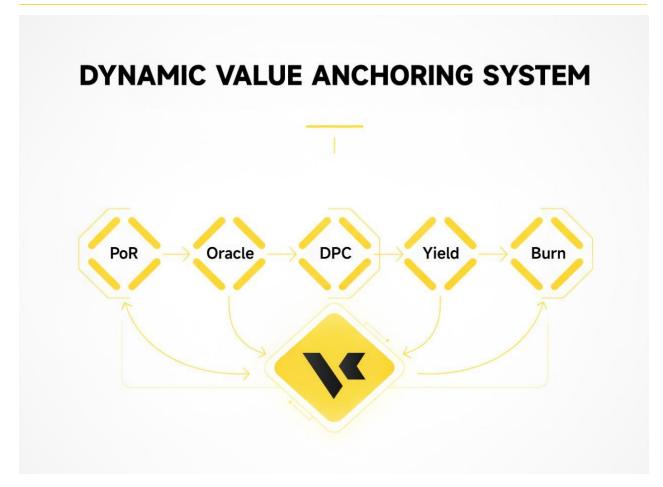
*Oracle — Price & Data Oracle

A multi-source oracle network that connects real-world and blockchain data

*DPC — Dynamic Peg Controller

Dynamic anchor controller, maintaining dynamic balance between VTAU and gold value.





1. Design principles

Authenticity:

All mining rights, reserves, production capacity, refining and inventory data must be auditable, traceable and verifiable.

Programmability:

The "gold rights after confirmation" can be converted into on-chain combinable assets, which can be mortgaged, liquidated, divided and circulated across chains.

Robustness:

Adopting a "dynamic value anchor" rather than a static 1:1 gold standard ensures system stability in the face of changes in reserves, capacity, demand and market conditions.

Transmission:

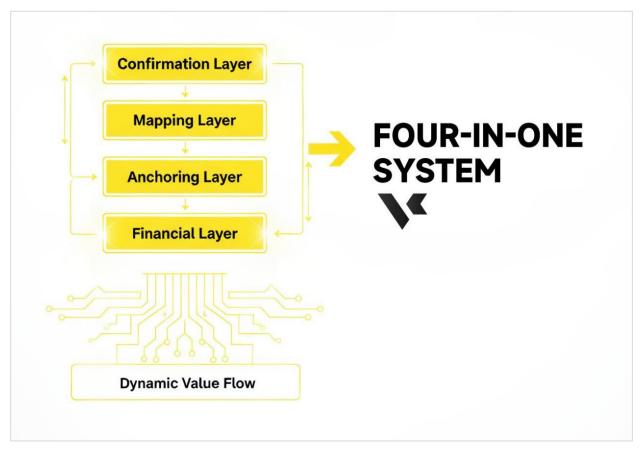
Proof of Reserves (PoR), minting/destruction, dividend/rebuy, parameter adjustments, and governance processes are all publicly recorded on the blockchain.



Modular compliance:

Integrate compliance, KYC/AML, sanctions screening, audit disclosure, and contingency plans into contract governance through modularization.

2. Overall plan (four layers in one)



Ownership layer:

Mineral rights and reserve ownership confirmation, custody and warehouse receipt management, production capacity and output verification → generate on-chain hash records.

Mapping layer:

Map the verified gold value to on-chain positions, triggering minting/destruction and ledger updates.

Anchor layer:

The PoR+multi-source oracle+dynamic anchor controller mechanism regulates supply, buyback, and destruction, establishing a 'dynamic value anchor'.

Financial layer:

Pledge, market making, mortgage lending, cross-chain clearing, dividends, buybacks, deflation.



The current phase adopts 'Dynamic Value Anchoring' (VTAU), where the intrinsic value is determined by five verifiable dimensions. The long-term goal is to gradually converge to 1VTAU ≈1 gram of gold once reserve coverage, ecosystem utilization, and settlement network maturity are achieved.

3. Asset ownership confirmation process (off-chain facts \rightarrow on-chain certificates)

Process: Mining rights/reserve due diligence → third-party audit → custody and warehouse receipt → data package generation → hashing and signing → on-chain writing.

main points:

Reserves are calculated using international mining evaluation standards (such as JORC);
The escrow vault and smelter provide numbered inventory/inbound/outbound documents;
Each change (new reserves, daily/weekly output, purification loss, transfer) is recorded as an increment on the chain;

Package composition: mining area ID, reserve range, average grade, gold recovery rate, production plan, entrusted inventory, audit date, signer, notarized timestamp.

4. Proof of Reserve (PoR) (PoR) and Merkle Proof

PoR: The custodian and auditor regularly issue reserve/inventory/production capacity reports, generating summaries and multi-party signatures.

Merkle Root: Packages sub-item data into a Merkle tree, with the Root and commitment values of sensitive fields stored on the blockchain, ensuring both verifiability and privacy.

Consistency check: The contract automatically compares PoR coverage with token supply S(t); if coverage is insufficient or data is delayed, it suspends new issuance and triggers alerts/governance.

5. Multi-source oracle and exponential system



Data source:

London Gold, COMEX, Shanghai Gold, key market maker quotes, custody and smelting receipts, market depth, TVL and trading volume, etc.

Signature mechanism:

Threshold multi-signature + bias-free aggregation (e.g., median or weighted median) to resist outliers.

Index number:

V-Gold: A standardized benchmark for international gold prices;

V-Market: Market making depth, TWAP/TVAP of trading volume, and volatility penalty term.

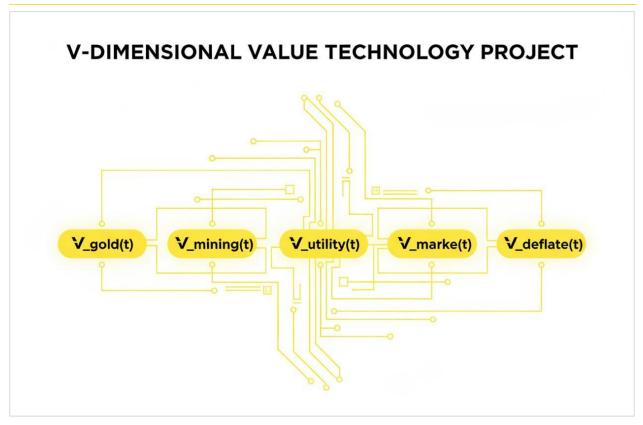
V-Utility: DeFi staking ratio, payment/settlement transactions, cross-chain net traffic

V-Supply: Supply elasticity, deflation destruction rate, and lock-up ratio.

6. Dynamic Value Anchoring (DPC Controller)

VTAU's holistic value model employs a multi-source RWA weighting algorithm, constructing an anchored framework through five verifiable dimensions. This framework establishes a composite value system where token prices are not solely dependent on gold reserves, but rather formed by physical backing, production capacity empowerment, ecosystem amplification, market discovery, and deflationary scarcity.





$$V_{\text{VTAU}}(t) = \alpha V_{\text{gold}}(t) + \beta V_{\text{mining}}(t) + \gamma V_{\text{utility}}(t) + \delta V_{\text{market}}(t) + \varepsilon V_{\text{deflate}}(t)$$

Value decomposition (5D model):

V gold(t): Reserve Gold Value (PoR coverage \times V-Gold Index);

V mining(t): Production capacity realization (including MapRate, Util, Recovery, etc.);

V utility(t): Ecosystem metrics (TVL, Stake Rate, Payment/Clearing Use Cases);

V_Market(t): Liquidity quality metrics (market depth, trading volume Vol_TWAP, and volatility penalty VolPenalty);

V_deflate(t): Deflationary scarcity (accumulated destruction, aggressive buybacks, and declining circulating supply S(t)).

RWA implements the five-dimensional component algorithm

Gold reserves (hard asset anchor)

$$[V_{\text{gold}}(t) = w_g \cdot P_g(t) \cdot \frac{R_g^{\text{mapped}}(t)}{S(t)}]$$



The base support value per token is calculated using the international gold price $Pg(t)P_g(t)Pg(t)$ as the benchmark, combined with the mapped gold reserve $Rgmapped(t)R_g^{mapped}(t)Rgmapped(t)$ and the token's circulating supply S(t)S(t)S(t). The weighting factor wgw_gwg reflects gold's inclusion in the calculation, approaching 1 when fully anchored.

Mining process (capacity realization)

$$[V_{\text{mining}}(t) = \kappa_1 \eta_m(t) + \kappa_2 \operatorname{Util}(t) + \kappa_3 \operatorname{MapRate}(t)]$$

Key metrics including mine production efficiency η_m , equipment utilization rate Util, and reserve mapping rate MapRate measure actual production capacity, reflecting both gold production capabilities and the speed of asset realization on the blockchain.

Ecological Application Value (Token Utility)

$$[V_{\text{utility}}(t) = u_1 \log(1 + \text{TVL}(t)) + u_2 \text{StakeRate}(t) + u_3 \#\text{UseCases}(t)]$$

It is determined by the total ecosystem vault volume (TVL), token stake rate (StakeRate), and the number of real-world use cases within the ecosystem, reflecting the token's practicality and actual demand in DeFi, payments, and clearing.

Market liquidity (quality of price discovery)

$$[V_{\text{market}}(t) = m_1 \text{ Depth}(t) + m_2 \text{ Vol}_{\text{TWAP}}(t) - m_3 \text{ VolPenalty}(t)]$$

By evaluating market activity through Market Maker Depth (Depth) and Time-Weighted Average Volume (Vol_TWAP), and applying a VolPenalty to mitigate short-term volatility, we assess the token's liquidity and its ability to accurately reflect market conditions.

Deflation destroys value (V deflate)

$$[V_{\text{deflate}}(t) = d_1 \frac{B_{\text{eco}}(t) + B_{\text{fee}}(t) + B_{\text{redeem}}(t)}{S(t)} + d_2 \frac{1}{S(t)}]$$

Reflects a decrease in the total token supply due to ecological burn, fee burn, and physical redemption. Circulating supply



The lower the S(t), the scarcer the individual token becomes, creating a long-term upward value momentum.

Internal value function (example weights, for governance parameterization only):

 $VTAU_intrinsic(t) = 0.40 \cdot V_gold + 0.20 \cdot V_mining + 0.15 \cdot V_utility + 0.15 \cdot V_market + 0.10 \cdot V_deflate$

Supply adjustment (illustrative):

Supply_
$$\{t+1\}$$
=Supply_ $t \times [1+\alpha \cdot \Delta V/V - \beta \cdot RiskPenalty]$

The parameters α and β are governed by the system. When PoR coverage declines or shows abnormal volatility spikes, the RiskPenalty escalates, curbing new issuance and steering toward buybacks or destruction.

Target convergence mechanism:

Set the equivalent anchor target range: $1VTAU \approx 1g \pm \epsilon$;

When the deviation between the intrinsic value and the target is greater than δ :

Positive deviation (VTAU exceeding the target band's upper limit): Prioritize releasing the casting quota or reducing repo intensity.

Negative deviation (VTAU <target band lower limit): triggers repurchase/destroy priority or boosts collateral annualized incentive.

The convergence mechanism activates only when PoR coverage meets or exceeds the threshold and the ecosystem KPIs are satisfied, preventing the occurrence of "empty anchor" values.

7. Asset Mapping and Casting/Destruction

Mapping rules:

The reserve of confirmed rights yields a mapped quota M; ecological and risk parameters determine the available quota $m \le M$.

Cast constraints:

m is closely tied to PoR coverage, MapRate, lock-up ratio, and market-making depth.



Destroy trigger:

Gold redemption, fee destruction, buyback plan, cross-chain fee net destruction, public welfare and ecological consumption;

Accounting consistency:

Align the three ledgers: mapping ledger, inventory ledger, and contract ledger.

8. Cross-chain interoperability and settlement networks

VTAU is originally issued on BSC(Pending) and securely transferred via cross-chain bridges to Avalanche, Polygon, OKTC, and other platforms.

Cross-chain assets maintain equivalence through a unified Proof of Reserve (PoR) (PoR) and anchored parameters.

By integrating with payment gateways and merchant-side clearing SDKs, it establishes a 'gold-standard digital settlement framework' to serve B2B/B2C scenarios such as wholesale trade, cross-border remittances, and mining supply chain settlements.

9. Chain-based dividends and buyback mechanisms

Revenue source:

Mining net profit, collateral and market making income, settlement and cross-chain fees, ecosystem cooperation sharing, dedicated bonus pool.

Allocation model (example):

X% distributes dividends based on the holding period and weight (period: weekly/monthly/quarterly);

Y% injects ecological incentives (annualized staking rewards, market-making subsidies, node rewards);

Z% buyback and destruction (dynamically adjusted according to market conditions and PoR status).

Automatic performance:

The contract aggregates data periodically, calculates, and distributes it to addresses; dividends, buybacks, and destruction are fully traceable across the entire blockchain.



10. Public disclosure and compliance framework

Disclosure period:

Quarterly reports of the Board of Directors and annual comprehensive audit;

Panel-based disclosure:

Reserve coverage, mapping rate, repo and destruction, market making depth, K-line and volatility, payment and clearing transactions, redemption waiting time, etc.;

Compliance points:

Legal compliance, KYC/AML, list screening, audit traceability, risk control, segregated accounts, and emergency pause/unpause.

11. Risk and emergency

Market risk:

Extreme volatility → increase RiskPenalty, tighten minting quotas, intensify

buybacks/destruction, and temporarily boost collateral yields to stabilize positions.

Operating risk:

If the predictor encounters an exception or data is out of sync, switch to fault-tolerant aggregation, enable backup pricing, and enter anchored protection mode.

Hosting risk:

Warehouse receipt errors or emergencies trigger emergency audits, freeze related mapping quotas and issuance permissions, and prioritize redemption and dividends.

Compliance risk:

Blockchain addresses carry risks. The blacklisting module works in tandem with DAO review processes to restrict their participation in profit-sharing and governance.

12. KPIs and Monitoring Metrics

PoR coverage: reserve/circulating supply

MapRate: Reserve mapping rate for blockchain;

StakeRate/TVL: Staking ratio and locked position volume

Depth/Slippage: Market depth and slippage threshold

Payment&Settlement: Number of payment/settlement transactions, merchant count, and average



clearing latency.

BurnRate/Buyback: Destruction volume and buyback intensity

VolPenalty: The intensity and duration of the volatility penalty term.

When the KPI meets the target and sustains for several observation periods, the system enters the "Target Convergence Phase", progressively achieving 1VTAU≈1g GOLD.

13. Goal path: From dynamic anchoring to "1VTAU≈1 gram of gold"

Phase A (Dynamic Anchor Period):

PoR, oracles, and DPC are running stably, with multi-chain and settlement systems now operational, while StakeRate and Depth are being enhanced.

Stage B (convergence transition period):

When PoR coverage and ecosystem KPIs reach the governance threshold, the Target Zone Control mechanism is activated to achieve coordinated convergence through buybacks, destruction, incentives, and supply elasticity.

Stage C (steady state equivalent period):

Maintain the target range of 1VTAU≈1g±ε; continue to use auditing and data disclosure to ensure stability and compliance.

14. User and organization interaction path (summary)

Investor/Node:

Subscription → Holding/Pledge → Dividend/Repurchase Benefits → Redemption

(Gold/USDT) → Governance Participation

Business:

Access the settlement SDK → Complete cross-border payments via VTAU → Future flash exchange with stablecoins/central bank currencies

institution:



Access PoR/Disclosure panels and reports through compliance accounts and audit interfaces, and participate in market making and custody collaborations.

VI Tokenomics VITAKING's VTAU Token Economics

1. Token positioning and design logic

VTAU serves as the lifeblood and core value of the VITAKING ecosystem, with each token representing a dynamic claim on the underlying gold assets.

It is neither a stablecoin in the traditional sense nor a pure governance token, but rather an RWA-type equity certificate (Asset-backed Token).

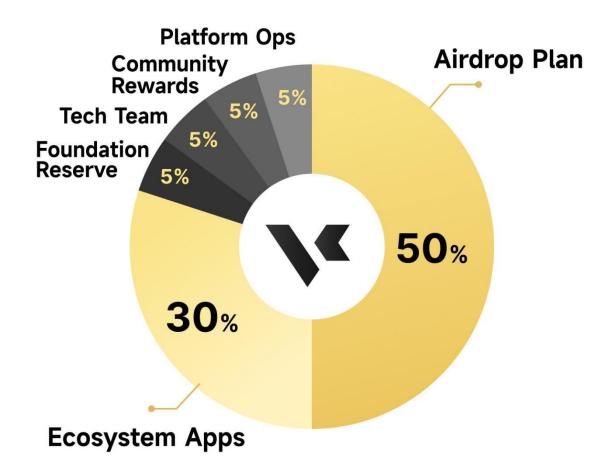
VTAU has a total circulation of 400 million units, with 40 million units destroyed through deflation. The coin is priced at 0.001 USDT.

Token Distribution Mechanisms:

50% airdrop plan
Ecological application 30%
Funds reserve 5%
5% technical team
Community Incentives 5%
Platform Operations 5%







The key features are as follows:

Gold anchor:

Each VTAU is pegged to the gold value of VITAKING's certified reserves, with the anchor ratio dynamically adjusted based on reserve volume, production capacity, ecosystem circulation, and market depth.

Rights mapping credential:

Representing investors 'rights to dividends and recourse for VITAKING's physical mining operations and ecological benefits.

Compound value system:

VTAU's price is determined by a five-dimensional model comprising gold reserves, production capacity realization, ecosystem applications, market liquidity, and deflationary scarcity.

Long-term goal anchor:

With the expansion of reserves and the maturation of the ecosystem, VTAU will gradually converge toward the long-term target of 1 VTAU =1 gram of gold.



2. Essential parameter

Project	Content Description	
Token Name	VTAU	
Total issued	400 million (gradually deflating to 40 million)	
Initial offering price	0.001 USDT	
Publish a public chain	BNB Chain (Pending)	
Distribution format	Decentralized issuance and DAO governance are dynamically released	
Destroy target	By the multi-dimensional combustion mechanism, the total amount will be reduced by 90%, and the long-term maintenance of the scarcity inflation rate will be lower than 0.5%/ year	
Ecological support	Gold reserves, mining capacity, Payment circulation, and DeFi applications	

The VTAU token economy model is designed through three progressive phases: deflation first, anchored progression, and value compounding.

Deflation first phase (2025-2026):

Primarily through destruction, warehouse lock-up, and PoR reserves to cultivate scarcity;

Anchored progressive phase (2026-2028):

Reserves and market value grow simultaneously, forming a compound anchor dominated by gold value;

Value steady state phase (2028-2030):

The ultimate goal is to achieve 1VTAU≈1 gram of gold equivalent by 2030, establishing it as the global digital gold standard asset.

3. Deflation and combustion mechanism

VITAKING achieves long-term scarcity and value stability of its coin through its 'Tenfold Deflation Strategy'.



The main destruction paths include:

Gold redemption and destruction: When users exchange VTAU for physical gold, the equivalent tokens are automatically burned.

Ecological consumption: Chain games, NFTs, payment settlements, and staking redemption all trigger micro-destruction.

For public welfare and ESG projects, each VTAU donation and corresponding expenditure from the ecological fund will be permanently destroyed.

Service fee burning: Withdrawals, cross-chain transactions, and governance proposals will have their fees burned proportionally.

The buyback and destruction mechanism: The DAO Foundation periodically repurchases VTAU and destroys it based on the ecosystem's revenue cycle.

long-term objectives:

From 400 million deflationary coins to 40 million;

Backed by structural scarcity and solid asset reserves, VTAU delivers a dual value proposition of 'gold and scarcity'.

The deflation process is algorithmically controlled to ensure that the pace of destruction does not cause short-term liquidity depletion.

4. Dynamic value anchoring mechanism

VTAU isn't directly pegged to gold at a 1:1 ratio, but instead employs a Dynamic Peg Mechanism to ensure its value grows alongside the ecosystem.

Core algorithm formula:

VTAU(t) =
$$\alpha \cdot V_{gold}(t) + \beta \cdot V_{mining}(t) + \gamma \cdot V_{utility}(t) + \delta \cdot V_{market}(t) + \epsilon \cdot V_{deflate}(t)$$

where $\alpha + \beta + \gamma + \delta + \epsilon = 1$ (see Chapter 5 for details)

VTAU not only serves as a store of value, but also represents on-chain equity dividend rights for mining capacity and ecological benefits.

Value source:



Output income from physical gold mines;

Mining asset package (equity product) dividend;

On-chain staking and DeFi liquidity yields

Ecological transaction service fee and cooperation profit sharing;

DAO bonus pool released annually.

5. Value growth mechanism

VTAU's long-term value growth stems from its' three engines of compound growth':

Reserve expansion engine:

Each additional ton of gold reserves corresponds to a simultaneous increase in both the PoR support and intrinsic value of VTAU.

Eco Engine:

VTAU is widely used in payment, collateral, pledge, settlement, and ecosystem consumption scenarios, creating genuine transaction demand.

Deflationary scarcity engine:

Each exchange, destruction and service charge burn continues to reduce the circulation.

The three work together to create a positive cycle: increased reserves \rightarrow increased anchoring \rightarrow increased demand \rightarrow accelerated destruction \rightarrow increased value.

6. DAO governance and token functionality expansion

VTAU serves three key functions: governance, dividend distribution, and ecosystem token.

Governance functions:

In the future, token holders will be able to initiate or vote on governance proposals, including PoR audit cycles, buyback plans, destruction strategies, and ecosystem fund allocation.

Mortgage function:

Serving as collateral in the DeFi ecosystem, these assets are utilized for lending, market-making, and stablecoin issuance.

Payment function:

VTAU will integrate with merchant-side clearing SDK by 2026, enabling cross-border gold



settlement and P2P payments.

Bridge function:

The interoperability of stablecoins and traditional financial RWA assets has become a value channel between the real economy and the blockchain economy.

7. Long-term goals and economic balance

Short-term goals (2025-2026):

Complete the 400 million issuance and initial deflation mechanism, establishing the Proof of Reserve (PoR) (PoR) and oracle system;

*PoR stands for Proof of Reserve (Proof of Reserve)

Medium-term Goals (2026-2028):

Achieve synchronized expansion of reserves and VTAU circulation, with a PoR coverage rate exceeding 95%;

Long-term Goals (2028–2030):

Establishing a stable 1VTAU≈1 gram gold dynamic anchor closed loop, it has become the global digital gold standard token.

VTAU's economic system operates as a closed-loop mechanism following the' anchoring-deflation-compounding' cycle.

Based on the real gold reserve as the underlying trust, the dynamic anchor algorithm as the price logic, and the deflation mechanism as the support of scarcity, the final realization is:

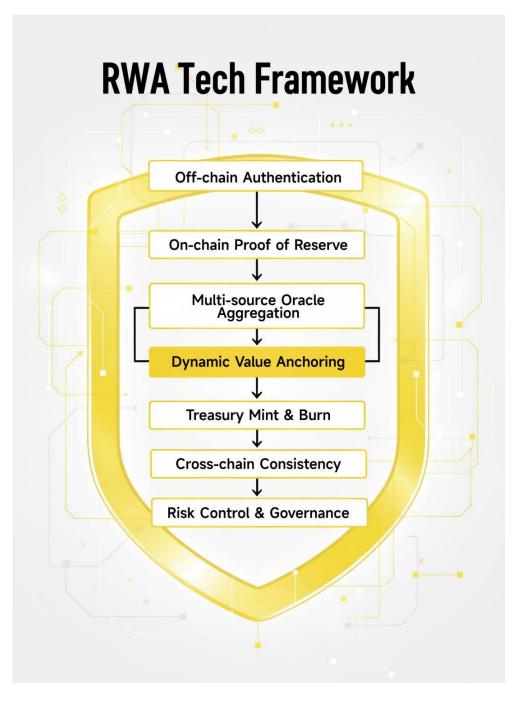
The digitalization of gold value, the distribution of gold income, and the decentralization of gold trust.

VTAU serves as both the financial engine of the Gold RWA ecosystem and the value hub of the global digital gold settlement network.



VII RWA Technical Analysis

VITAKING Gold RWA implements a full-stack solution for risk control and governance, featuring: off-chain ownership verification \rightarrow on-chain Proof of Reserve (PoR) \rightarrow multi-source oracle aggregation \rightarrow dynamic price anchoring (DPC) \rightarrow treasury minting \rightarrow cross-chain consensus \rightarrow end-to-end implementation. The solution includes executable core contract fragments. For audit and integration convenience, the example primarily uses Solidity 0.8.x.





1. Overall Architecture and Data Flow

Data source/audit: Treasury custody and third-party audit, production/reserve reporting, gold price and market data predictor.

Core Contract Layer: Proof of Reserve (PoR), Dynamic Anchor Controller (DPC), Treasury (Casting/Destruction Gatekeeper), Ledger (Issuance and Destruction Accounting).

Market and Governance: AMM/DEX/CEX market making, DeFi staking and settlement, merchant-side clearing SDK, DAO parameter governance and security audit.

Key invariant:

Issuance at any time ≤ PoR reserve × anchor coefficient

Dynamic anchoring activates when both PoR coverage threshold and ecosystem KPIs are met, initiating convergence toward the target band (long-term goal: 1 VTAU ≈ 1 g).

2. On-chain Data Model (Core Data Structure)

```
# Code snippet example:
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.20;
/// @notice Snapshot of off-chain reserve aggregated and committed on-chain
struct ReserveSnapshot {
     bytes32 merkleRoot;
                               // Merkle root of custody, refinery tickets, stock & mining records
     uint256 goldGrams;
                                // Total gold (grams) covered by this snapshot
     uint256 timestamp;
                               // Audit timestamp (unix)
     uint256 auditorId;
                              // Off-chain auditor identity index
}
/// @notice Parameters for Dynamic Peg Controller (DPC)
struct PegParams {
     uint256 targetMg;
                               // target mg per VTAU (1000 mg = 1 g) - long-term convergence goal
     uint256 bandBps;
                                // allowed band around target (basis points)
     uint256 alphaBps;
                               // supply elasticity coefficient \alpha (bps)
     uint256 betaBps;
                               // risk penalty coefficient \beta (bps)
     uint256 minPoRBps;
                                // minimal PoR coverage threshold (e.g., 9500 => 95%)
}
```



```
/// @notice Aggregated oracle pack for peg decisions
struct OraclePack {
    int256 pxGoldUsd;
                                // gold price index (TWAP, USD/gram)
                                                                                               //
    uint256 pxTs;
                               // price timestamp
                                                                    uint256 pxTs;
price timestamp
     uint256 tvl;
                               // TVL or stake amount in ecosystem
                                                                                       uint256 tvl;
// TVL or stake amount in ecosystem
    uint256 depth;
                               // AMM depth snapshot
                                                                        uint256 depth;
                                                                                                   //
AMM depth snapshot
     uint256 volTwap;
                                // volume TWAP for stability/penalty
}
/// @notice Supply state mirror for quick reads
struct SupplyState {
    uint256 total;
                              // total circulating supply
                                                                        uint256 total;
                                                                                                  //
total circulating supply
                               // life-time minted
                                                                 uint256 minted;
                                                                                            //
    uint256 minted;
life-time minted
                                                                 uint256 burnt;
    uint256 burnt;
                               // life-time burnt
                                                                                           // life-time
burnt
}
```

3. Proof of Reserve (PoR) Contract

Responsibilities: Maintain blockchain root storage, calculate coverage rates, and freeze new issuance during anomalies. Minting authority is controlled by dual gatekeepers: Proof of Root (PoR) and Data Protection Committee (DPC).

```
# Code snippet example:

// SPDX-License-Identifier: MIT

pragma solidity ^0.8.20;

import {AccessControl} from "@openzeppelin/contracts/access/AccessControl.sol";

contract ProofOfReserve is AccessControl {
    bytes32 public constant AUDITOR = keccak256("AUDITOR");

ReserveSnapshot public last; // last valid reserve snapshot
    bool public frozen; // circuit breaker for mint bool public frozen;

// circuit breaker for mint
```



4. Oracle Aggregator (Multi-source Aggregator)

Responsibilities: Aggregate metal prices, liquidity, trading volume, and TVL data, perform bias correction, and feed it to DPC for processing.

```
# Code snippet example:

// SPDX-License-Identifier: MIT

pragma solidity ^0.8.20;

interface IOracleAdapter {
    function read() external view returns (OraclePack memory);
}

contract OracleAggregator {
    IOracleAdapter[] public feeds;

    constructor(IOracleAdapter[] memory _feeds) { feeds = _feeds; }

/// @notice aggregate and de-bias feeds (median-of-medians / weighted median)

function read() external view returns (OraclePack memory out) {
```



```
// NOTE: omitted: collect from adapters, compute robust median TWAP,
// combine AMM depth & volume penalties to produce final pack.
// Always ensure timestamps and staleness checks.
return out;
}
```

5. Treasury (National Treasury) and Controlled Minting

Responsibilities: The only entry/exit point. Accessible only to DPC roles, and PoR can trigger a pause.

Code snippet example:

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.20;
import {AccessControl} from "@openzeppelin/contracts/access/AccessControl.sol";
import {Pausable} from "@openzeppelin/contracts/security/Pausable.sol";
interface IVTAU {
    function mint(address to, uint256 amt) external;
    function burn(uint256 amt) external;
    function totalSupply() external view returns (uint256);
}
contract Treasury is AccessControl, Pausable {
    bytes32 public constant DPC ROLE = keccak256("DPC ROLE");
    IVTAU public token;
    event Minted(address to, uint256 amt);
    event Burnt(uint256 amt);
    constructor(address admin, address vtau) {
                  grantRole(DEFAULT ADMIN ROLE, admin);
                  _grantRole(DPC_ROLE, admin);
                  token = IVTAU(vtau);
    }
    function mint(address to, uint256 amt) external whenNotPaused onlyRole(DPC ROLE) {
                   token.mint(to, amt);
                   emit Minted(to, amt);
```



6. Dynamic Peg Controller (DPC Dynamic Value Anchoring)

Responsibilities: Calculate supply adjustments to maintain 'dynamic value anchoring'. The system only enters target zone convergence when PoR coverage and ecosystem KPIs meet targets (long-term goal 1: VTAU≈1 g).

```
# Code snippet example:
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.20;
// --- Minimal structs ---
struct ReserveSnapshot { bytes32 root; uint256 grams; uint256 ts; }
struct OraclePack { int256 pxGoldUsd; uint256 tvl; uint256 depth; uint256 volTwap; }
struct PegParams { uint256 minPoRBps; uint256 alphaBps; uint256 betaBps; }
// --- Minimal interfaces ---
interface IPoR { function frozen() external view returns (bool); function last() external view returns
(ReserveSnapshot memory); }
interface IOracle { function read() external view returns (OraclePack memory); }
interface ITreasury { function mint(address to, uint256 amt) external; function burn(uint256 amt)
external; function totalSupply() external view returns (uint256); }
contract DPC {
     IPoR public por; IOracle public oracle; ITreasury public treasury; PegParams public P;
     event Rebalanced(int256 delta, uint256 newSupply);
     constructor(address por, address oracle, address treasury, PegParams memory p) {
                   por = IPoR( por); oracle = IOracle( oracle); treasury = ITreasury( treasury); P =
```



```
_p;
     }
     function rebalance() external {
                   require(!por.frozen(), "frozen");
                   ReserveSnapshot memory r = por.last();
                   OraclePack memory o = oracle.read();
                    uint256 sup = treasury.totalSupply();
                   uint256 cover = coverageBps(r.grams, sup, o.pxGoldUsd);
                                                        uint256 cover = _coverageBps(r.grams, sup,
reserveValue / tokenValue (bps)
o.pxGoldUsd);
                             // reserveValue / tokenValue (bps)
                   int256
                            d
                                    = _deltaSupply(cover, o);
alpha * signal - beta * risk
                                                                         int256 d
_deltaSupply(cover, o);
                                                            // alpha * signal - beta * risk
                   if (d > 0) treasury.mint(address(this), uint256(d));
                   if (d < 0) treasury.burn(uint256(-d));
                   emit Rebalanced(d, treasury.totalSupply());
     }
     function coverageBps(uint256 grams, uint256 supply, int256 /*pxUsdPerGram*/) internal pure
returns (uint256) {
                   if (supply == 0) return type(uint256).max; return 10000; // placeholder for brevity
     function deltaSupply(uint256 coverBps, OraclePack memory o) internal view returns (int256 d)
{
                   if (coverBps < P.minPoRBps) { uint256 gap = P.minPoRBps - coverBps; return
-int256(gap * 1e18 / 10000); }
                   int256 \text{ risk} = o.volTwap > 0 ? int256(o.volTwap) : int256(0);
                   int256 elastic = int256(P.alphaBps) - int256(P.betaBps) * risk / 1e9;
                   return elastic > 0 ? elastic * 1e15 : int256(0);
}
```

7. ZK-Reserve Adapter (Zero-Knowledge Verification Adapter)

Responsibility: Verify that the reserve meets the threshold without disclosing warehouse receipt details, then include it in the PoR.

```
# Code snippet example:
```



```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.20;

interface IZKVerifier { function verifyProof(bytes calldata proof, uint256[] calldata pubSignals)
external view returns (bool); }

contract ZKPoRAdapter {
    IZKVerifier public verifier;
    ProofOfReserve public por;

    constructor(address _verifier, address _por) { verifier = IZKVerifier(_verifier); por =
    ProofOfReserve(_por); }

    /// @notice submit zk-proof to attest reserve >= threshold, then update PoR snapshot on success
    function submit(bytes calldata proof, uint256[] calldata pub, ReserveSnapshot calldata s) external {
        require(verifier.verifyProof(proof, pub), "zk-invalid");
        por.updatePoR(s);
    }
}
```

8. Cross-Chain Consistency

Responsibilities: Synchronize root/anchor parameters in a multi-chain environment. The destination chain performs corresponding casting and parameter updates after successful signature verification.

```
# Code snippet example:

// SPDX-License-Identifier: MIT

pragma solidity ^0.8.20;

interface IMessageBus { function send(bytes calldata payload) external; }
```



```
contract CrossChainHub {
     bytes32 public lastStateRoot;
     uint256 public nonce;
     event StateBroadcast(bytes32 root, uint256 nonce);
    /// @notice broadcast latest state root (por root + peg params digest) to spokes
     function broadcast(bytes32 root) external {
                   lastStateRoot = root;
                   emit StateBroadcast(root, ++nonce);
                   // integration with LayerZero / Wormhole / Axelar adapters goes here
contract CrossChainSpoke {
     bytes32 public lastAcceptedRoot;
    /// @notice message handler on destination chain
     function onMessage(bytes calldata payload) external {
                    (bytes32 root, uint256 n, bytes calldata sig) =
abi.decode(payload,(bytes32,uint256,bytes));
                   // verify relayer signature & nonce, then accept root and apply peg/treasury actions
                   lastAcceptedRoot = root;
```

9. Risk & Audit (Risk Control and Audit)

Parameter guardrails: minPoRBps, bandBps, alphaBps, betaBps, maxMintPerEpoch, volPenaltyFloor.

Event response: PoR anomaly → freeze(); low coverage → prioritize buyback/destruction;



oracle distortion → switch to backup source and increase penalties; insufficient market depth

→ restrict new issuance and raise collateral APR.

Disclosure and Compliance: Monthly PoR snapshots, quarterly and annual audits; black/white lists and geographic compliance are jointly maintained by DAO and contract blocks; all operations are traceable on-chain.

10. Key Events and Indicators

```
Blockchain event:
```

```
event PoRUpdated(bytes32 root, uint256 grams, uint256 ts, uint256 auditorId);
event Rebalanced(int256 dSupply, uint256 newSupply);
event Minted(address to, uint256 amt);
event Burnt(uint256 amt);
event Frozen(bool status);
event ParamsUpdated(PegParams p);
```

11. End-to-end execution flow (E2E)

Off-chain: Generate custody, smelting, and mining details → Audit aggregation → Merkle root or ZK proof → Submit to the blockchain.

PoR: Update the snapshot. If an exception occurs, freeze the additional issuance.

Oracle Pack: Aggregates gold price, depth, volume, and TVL data.

DPC: Calculate coverage and 5D value function \rightarrow determine \triangle Supply (mint or burn).

Treasury: Implement simultaneous minting and cancellation accounting; record events on the blockchain.

Cross-Chain: Broadcast the state root to other chains; the destination chain verifies and executes the transaction.

Risk & DAO: Abnormal triggers emergency procedures; DAO periodically conducts audits and governance reviews.



12. Safety points

Minimized permissions: Only DPC can schedule Treasury; PoR and DAO hold the freezing and parameter rights respectively.

Failure safety: Oracle distortion → protection zone entry; insufficient Proof of Reserve (PoR)

 $(PoR) \rightarrow frozen$ issuance; only high-trust channels accepted.

Formal verification and scalability: Conduct model checking on the DPC state machine and supply cap; perform unit and property testing on coverageBps and target bandwidth convergence strategy. Implement transparent proxy or UUPS, upgrade governance to multi-signature + time-lock mechanism; retain parameter rollback and circuit breaker functionality.

^{*} This chapter lists all contract fragments as the minimum verifiable skeleton



VIII Public Service

1. Philosophy: Let real assets give back to the real world

VITAKING adheres to the philosophy that 'value creation must be accompanied by value giving back,' believing that gold should not only symbolize wealth but also serve as a driving force for social development.

When each VTAU is minted, it not only signifies the official recognition of gold reserves, but also extends a social responsibility.

Therefore, VITAKING has established the Golden Philanthropic System to give back to society, which will inject part of the ecological benefits into education, ecology, community and disaster relief in a transparent way on the chain in the future, realizing the two-way symbiosis between digital wealth and human well-being.



2. VITAKING Philanthropic Fund

The fund, independently established by the VITAKING TECH LTD., operates under strict compliance management. Once the blockchain-based philanthropy technology system matures, the fund will utilize smart contracts to track the flow, purpose, and audit reports of charitable funds. These records will be publicly accessible through the Fund Dashboard, ensuring every act



of kindness is visible to the world.

Sources of funding include:

Eco-Sharing Injection: Mining output and DeFi portion of earnings are automatically transferred to the fund contract address in each cycle.

Voluntary donations:

Holders can directly donate via VTAU, with the system automatically recording and destroying equivalent tokens, creating a deflationary virtuous cycle.

Partner donation:

RCF, PT.SINAR Ecological cooperation enterprises shall make public welfare donations according to the annual profit proportion;

NFT Charity Series:

Issue NFTs with collectible and charitable attributes, with 100% of proceeds going to the fund.

3. Public fund allocation model

Domain	Expected Allocation proportion	Primary coverage
Education Support Education Support	25%	Funding scholarships, grants, and remote education center construction for students in underdeveloped regions; establishing the "Golden Future Scholarship" program;
Ecological protection Environmental Protection	25%	Promote green mining, ecological restoration of mining areas and reforestation projects to reduce carbon emissions and tailings pollution;
Sustainable Mining Sustainable Mining	20%	Support low-carbon mining equipment research and development, automated mine upgrading, and renewable energy mining experiment projects;
Community development Community Development	20%	Construction of infrastructure around the mining area (schools, hospitals, roads, electricity) to improve the employment and living environment;
dibaster assistance Disaster Relief	10%	Emergency supplies, reconstruction assistance and medical support for natural disaster areas;

4. Public service projects



• Education and Future Talent Program

VITAKING has launched the 'Golden Future Initiative' in Indonesia and Africa, providing financial support for impoverished children to complete compulsory education and digital skills training.

The fund partners with universities worldwide to establish "Mining × Blockchain Joint Labs," supporting youth in green mining and smart contract development.

• Green mining and environmental restoration

All partner mines comply with EHS international environmental standards and utilize clean energy to power mining equipment.

The fund will invest in renewable energy projects and partner with global carbon credit agencies, positioning the VTAU ecosystem as a pioneer in 'carbon-neutral blockchain mining'.

· Community building and public health

In Indonesia, Mali and Ghana, the fund has funded the construction of medical centers and clean drinking water systems to ensure that the benefits of industrial development are shared by the people living in the mines.

• Global disaster emergency response

Establish a fast-track mechanism for the VTAU Rescue Fund, utilizing smart contracts to automate emergency aid disbursements, ensuring initial support is disbursed within 24 hours.

5. Future on-chain transparency mechanism

Development objectives of the blockchain public welfare technology system:

Smart contract supervision: All fund flows are managed by smart contracts, with multiple signatures and approval delays;

Merkle donation proof: Each donation generates a unique Merkle leaf node, which can be publicly verified on the blockchain browser.

DAO governance voting: Community members can participate in project proposals, budget



approval, and execution supervision.

Quarterly audit report: Third-party auditors issue on-chain audit hashes and PDF reports, which are permanently retained.

Real-time visualization dashboard: displays fund balance, expenditure ratio, regional distribution, and KPI completion rate.

6. Closed-loop public welfare economy

VITAKING seamlessly integrates social responsibility with economic value, creating a virtuous cycle of 'kindness—circulation—giving back—value-added':

Each public welfare expenditure will trigger the destruction of equivalent tokens, reducing the supply in circulation;

Public welfare initiatives strengthen brand influence and user trust, thereby boosting VTAU's demand for ownership.

Users who participate in public welfare can get community credit points and future airdrop rewards;

Ecosystem partners may receive additional governance rights or tax incentives as a result of improved ESG performance.

Public welfare itself has become an engine of "soft deflation" in the ecosystem, making the economic system more stable.

7. Vision: Let the flow of wealth become light

VITAKING believes that true financial civilization lies not only in wealth creation, but more importantly in the return of value.

The existence of each VTAU serves as both a digital proof of gold and a symbol of social trust. When a portion of mining revenues goes to education, the environment and community building, Gold is no longer cold, but a light that illuminates the future.

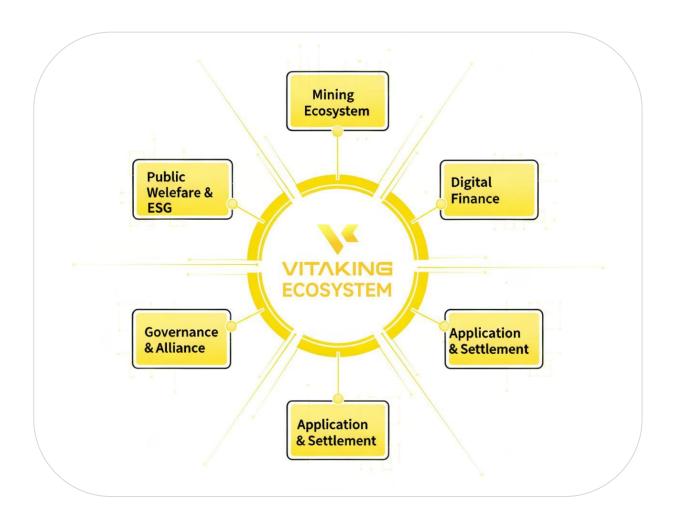


IX. Eco-Layout and VGOLD Public Chain Strategy

1. Ecological layout overview: A gold-driven digital financial system

VITAKING's ecosystem is built on the core principle of Golden RWA, forming a three-tier collaborative framework that integrates physical mining, blockchain technology, and a global settlement network.

The evolution of the ecosystem is to transform gold from a "static reserve asset" into a "dynamic productivity unit", forming a self-evolving cycle of real value circulation, social responsibility and technological innovation.





The overall ecological framework consists of six parts:

Ecosystem Module	Core Features	Strategic Value
1. Mining Ecosystem	Over 200 gold mining clusters, spearheaded by PT.SINAR and RCF, form a robust reserve infrastructure spanning exploration, mining, smelting, storage, and regulatory compliance.	The RWA (Real World Assets) that provides VTAU form the physical foundation for 'gold on-chain', establishing the basis for physical ownership confirmation and returns.
2. Digital Finance Ecosystem Digital Finance Ecosystem	The RWA+DeFi architecture enables modules for gold staking, lending, market making, yield compounding, and cross-chain settlement.	Link on-chain finance with the traditional gold investment market, so that gold can be financialized and portfolioable.
3. Payment & Settlement Ecosystem	Establish a Global Gold Settlement Network (GGS) to integrate with payment systems including Visa Crypto, Alchemy Pay, and Payoneer.	Let gold become a cross-border payment medium again, and achieve the settlement efficiency of "value Internet".
4. Application Extension Ecosystem Application & Expansion Ecosystem	Develop a digital culture and consumption ecosystem centered on innovative applications including NFTs, blockchain-based games, metaverse, and brand-derived assets.	Infuse VTAU with cultural, entertainment, collectible, and status attributes to expand its community and brand influence.
5. Governance and alliance ecology Governance & Alliance Ecosystem	With DAO as the core governance mechanism, we collaborate with mining, financial, payment and auditing giants to establish the Global RWA Alliance.	Establish a multinational collaboration mechanism to formulate technical and audit standards for the Gold RWA.
6. Ecological benefits and social impact Public Welfare & ESG Ecosystem	The VITAKING Public Welfare Foundation (VPWF) channels 2% of ecological revenue into long-term investments in education, green mining, community development, and disaster relief.	Let every gram of gold have social warmth, and realize a virtuous circle of "value creation is social feedback".

2. From Ecology to Infrastructure: The Genesis of the VGOLD Public Chain



With the expansion of the ecosystem, a single BSC-based token can no longer meet the demands of high-speed RWA confirmation, cross-border settlement, and multi-asset mapping for Gold.

VITAKING is therefore preparing to launch the VGOLD public chain (VITAKING Global On-chain Ledger of Decentralization) initiative.

VGOLD aims to become the first industry-grade public chain natively designed for RWA tokenization.

VGOLD will not only serve gold Real-World Assets (RWA), but also become the infrastructure for digitizing real assets such as future energy, carbon credits, precious metals, and land.

3. VGOLD Public Chain Core Architecture

Top class	Module Name	technical description
Consensus Layer Consensus Layer	Hybrid PoA + PoS consensus	Dual governance of mining and validation nodes enables high performance and decentralization; TPS 20,000+;
Reserve Layer Reserve Layer	Native PoR+ZK reserve verification	Built-in proof-of-stake contracts and zero-knowledge verification circuits enable the principle of "how many coins on-chain equals how much gold offline".
Asset layer RWA Layer	Dynamic Peg Engine (DPE)	The dynamic anchor engine adjusts the asset anchor ratio in real time to maintain the equivalent range of gold;
Financial layer Finance Layer	DeFi / Settlement / Lending / Derivatives	Support gold collateral, income certificates, contract trading, stablecoin derivatives;
Governance DAO Layer	DAO + Multi-sign Compliance Framework	DAO governance handles parameter updates, PoR threshold adjustments, and cross-chain strategies.

Native PoR reserve verification module

Support AI predictor and dynamic anchoring algorithm;

Cross-chain compatibility with IBC standard (Cosmos SDK);

Native stablecoins and the settlement layer's smart gateway (GGS);

Provide SDK/API for RWA secondary development.



4. Hierarchical relationship between VGOLD and VTAU

VGOLD serves as the underlying operating system for the 'Golden Internet,' while VTAU is its first native asset application.

Contrast	VTAU (Application Layer)	VGOLD (Base Layer)
Role Position	Gold RWA Token	Gold RWA Infrastructure
Chain Deployment	BNB Chain (Pending	VGOLD main chain (RWA native)
Feature Properties	Value storage, dividends, payments	Ownership, anchoring, settlement, governance
auditing verification	External Proof of Resilience (PoR) and Merkle verification	Built-in PoR+ZK-Proof automatic verification
Cross-chain capability	Bridge multi-chain ecosystem	Native IBC cross-chain protocol
performance index	TPS≈1500	TPS≥20000, confirmation <1s
Convergence Goal	Dynamic Anchor Gold	All assets anchored and multi-asset mapped

5. Detailed Explanation of VGOLD Public Chain Core Module

RWA-PoR Layer (Proof of Reserve Layer)

- · Reserve data is uploaded simultaneously by mining, vault, and audit parties;
- · ZK verification module ensures privacy;
- · If the reserve ratio falls below the threshold, the automatic issuance freeze mechanism will be triggered.

Dynamic Peg Engine (Dynamic Anchoring Engine)

· Analyze gold price fluctuations and reserve status with AI predictor;



- · Automatically calculate adjustment coefficients α and β to maintain the anchoring interval;
- · Scalable to silver, nickel, copper, and carbon assets.

RWA Bridge Protocol (cross-chain protocol)

- · Implement heterogeneous chain asset mapping using the Cosmos IBC standard;
- Each cross-chain transaction triggers both PoR validation and anchor update simultaneously.

RWA-DID identity system

- · Generate a unique identity identifier (DID) for each mining site, audit agency, and vault;
- · Track changes in each physical reserve through a signature mechanism.

Data Chain

- · Independently store off-chain reserve reports, mining production logs, and audit hashes;
- · Ensures verifiability with an encrypted Merkle structure.

6. Strategic synergy between public welfare and ESG ecosystems

Public welfare is not merely an appendage of the VITAKING ecosystem, but rather its sixth enduring evolutionary engine.

VITAKING Public Welfare Foundation (VPWF) has established native integration with VGOLD's main chain.

Public welfare donations and fund expenditures are executed through VGOLD's on-chain contracts.

Each charitable donation triggers VTAU destruction, creating a virtuous cycle of 'donation-induced deflation'.

Data from public welfare initiatives (including education, green mining, and rescue operations) are stored as verifiable records on VGOLD.



The public welfare DAO module enables users to participate in budget voting and track social impact.

The ESG credit system will be rolled out in the future, providing on-chain verifiable social credit credentials for both enterprises and individuals.

The public welfare ecology forms a positive cycle of "value creation, social feedback and value sublimation" in a trinity.

7. Global Alliance and Cooperation Map

Mining Partners

RCF, PT. Sinar Celebes Indonesia, African Mining Union, Glencore PLC, Newmont Corporation, Barrick Gold Corporation, AngloGold Ashanti, Freeport-McMoRan, Rio Tinto Group...

Blockchain Partners

Binance Smart Chain, Avalanche, Polygon, OKTC, Arbitrum, Ethereum Foundation, Chainlink Labs, Cosmos Network, Solana Foundation...

Payment & Settlement Partners

Alipay Global, Payoneer, Stripe, Revolut, Flutterwave, Mastercard Web3 Division, Visa Crypto Team, MoonPay, Alchemy Pay...

DeFi Partners

PancakeSwap, Uniswap, Curve, Lido, AAVE Protocol, Balancer, SushiSwap, Compound Finance, Yearn Finance...

Application & Metaverse Partners

Animoca Brands, StepN, Immutable, The Sandbox, Decentraland, Gala Games, Yuga Labs, Enjin, Roblox Metaverse Initiative...



Strategic Advisory & Institutional Partners

Deloitte Mining Advisory, BCG Web3 Group, PwC Blockchain Division, KPMG Global FinTech Advisory, Bain Capital Tech Fund, Ernst & Young (EY) Blockchain Lab, McKinsey Digital, Accenture Web3 Innovation Hub...

8. Global Alliance and Cooperation Map

Five-Phase Synergy Development Plan for VITAKING Gold RWA and

VGOLD Public Chain

Core thread:

From gold ownership confirmation \rightarrow dynamic anchoring \rightarrow cross-chain settlement \rightarrow

VGOLD mainnet public beta → global settlement standardization



Phase 1: Startup Stage of the Ecosystem (August 2024 - August 2025)

Key words: foundation, start, confirmation of rights

RCF and PT.SINAR have signed a strategic agreement to jointly establish the VITAKING Digital Gold Ecosystem.



Complete the exploration, reserve ownership confirmation and basic data chain of the first batch of mining areas;

Develop the first-generation RWA asset mapping model and Proof of Reserve (PoR) framework; The R&D team was established to launch the VGOLD public chain pre-research project, completing the underlying architecture design and the PoR validation engine prototype. Launch VTAU White Paper v1.0 to establish a global early-stage community and collaborative hub.

Phase 2: Golden Seed Program and Public Chain Development (September

2025 - January 2026)

Keywords: entity verification, code implementation

The first batch of 22 gold mines put into production, realizing the chain income dividend and asset repurchase mechanism;

Officially launched the share subscription and node plan, with more than 3,000 community members;

The development phase of VGOLD public chain has officially commenced.

Implement a hybrid consensus engine (Hybrid PoA+PoS);

Integrate the RWA reserve proof (PoR) module with the ZK privacy verification circuit.

Collaborated with partners including Chainlink, Cosmos, and Polygon to complete cross-chain standardization research.

Phase III: Global Expansion and Ecosystem Fission (February 2026 -

December 2026)

Keywords: multi-chain deployment, ecosystem linkage

The global community has exceeded 1,000,000 users;

Establish a global payment cooperation framework, integrating payment channels including Visa Crypto, Alchemy Pay, and Payoneer.

Successfully deployed VTAU across multiple blockchains (BNB, Avalanche, Polygon, OKTC);

Launch the VGOLD public chain's Alpha testnet (Testnet α) to conduct the first cross-chain



Proof of Retrievability (PoR) validation experiment.

Launched the VTAU Mining 2.0 online ecosystem incentive program to boost DeFi staking and lending modules.

Launch the DApp SDK test program to provide data interfaces for mining institutions and developers.

Phase IV: Public Testing and International Launch of VGOLD Public Chain

(**January 2027 – December 2027**)

Keywords: open beta, integration, standardization

The public beta launch of VGOLD's mainnet is now live, with verification nodes and cross-chain testing now available.

The RWA Cross-Chain Bridge (RWA Bridge Protocol) and Dynamic Peg Engine have been fully launched.

VTAU has migrated to the VGOLD mainnet for trial operation, achieving native anchoring of gold assets and smart contracts.

Launch international exchanges including Binance and OKX, and establish a global trading and settlement system;

The 'RWA Gold Public Chain Standard 1.0 White Paper' was released, establishing VGOLD as an industry-standard public chain for gold ownership verification and settlement.

During the open beta phase, the PoR coverage rate remained consistently above 95%, with over 200 ecosystem partners joining the initiative.

Phase 5: Global Vision and Golden Standard (2028–2030)

Key words: convergence, standards, co-governance

To achieve the long-term dynamic anchor target of 1 VTAU ≈ 1 gram of gold;

VGOLD's mainnet has officially launched version 1.0, establishing itself as the industry standard for RWA public chains.

Establish the Global Gold Settlement System (GGS) to connect with payment and clearing institutions in over 20 countries;

The public blockchain ecosystem is fully open, attracting third-party RWA assets (carbon credits, energy, land) for deployment.



The VGOLD Layer2 solution supports high-frequency financial transactions and micropayments. The VGOLD Public Chain Foundation and the Global Audit Alliance have been established, achieving a dual-track system of compliance and open governance.

X Technology References

Asset Tokenization in Financial Markets: The Next Generation of Value Exchange

https://reports.weforum.org/docs/WEF Asset Tokenization in Financial Markets 2025.pdf

An Investment Perspective on Tokenization — Part I: A Primer on the Use of DLT to Tokenize Real-World and Financial Assets

https://rpc.cfainstitute.org/sites/default/files/docs/research-reports/tokenization_part-i_online-1.pdf

Tokenisation of Real-World Assets (RWAs) - Guidance Note

 $\underline{https://www.jerseyfsc.org/media/7728/tokenisation-of-real-world-assets-guidance-note.pdf}$

Tokenizing Real-World Assets - Informational Paper by The Tokenizer for Maker Foundation

https://thetokenizer.io/wp-content/uploads/2019/06/Informational-Paper-by-The-Tokenizer-prepared-for-Maker.pdf

Economic Impact Potential of Real-World Asset Tokenization

https://www.macroeconomics.lv/sites/default/files/2024-06/06_Baltais%20%26%20Sondore_0.pdf

Rise of Real-World Assets: RWA Report 2024

 $\underline{https://assets.coingecko.com/reports/Research/RWA-Report-2024-Rise-of-Real-World-Assets-in-Crypto.pdf}$

Secure Cross-Chain Interaction Solution in Multi-Blockchain Environment

https://www.ncbi.nlm.nih.gov/articles/PMC11004751/pdf/

An Architecture That Enables Cross-Chain Interoperability for Next-Gen Blockchain Systems

https://research.cec.sc.edu/files/cyberinfra/files/an_architecture_that_enables_cross-chain_interoperability_for_next-gen_blockchain_systems.pdf



Cross-Chain Interoperability: Enhancing Blockchain Connectivity https://arxiv.org/pdf/2505.04934.pdf
Cross-Chain Interoperability: A Comprehensive Survey on Approaches, Mechanisms and Challenges https://www.ijnrd.org/papers/IJNRD2401341.pdf
Digital Asset Tokenization - DTCC Perspective https://www.dtcc.com/-/media/Files/Downloads/digital-assets/DTCC-Digital-Asset-Tokenization.pdf
The Tokenization of Assets Is Disrupting the Financial Industry https://www.wyoleg.gov/InterimCommittee/2019/S3-20190506TokenizationArticle.pdf
Exploration on Real World Assets and Tokenization https://arxiv.org/pdf/2503.01111.pdf
Cosmos: A Network of Distributed Ledgers — Whitepaper https://vl.cosmos.network/resources/whitepaper.pdf
Tendermint — The Latest Gossip on BFT Consensus https://arxiv.org/pdf/1807.04938.pdf
HotStuff: BFT Consensus in the Lens of Blockchain https://arxiv.org/pdf/1803.05069.pdf
Snowflake to Avalanche: A Novel Metastable Consensus Protocol Family https://arxiv.org/pdf/1906.08936.pdf
Ouroboros: A Provably Secure Proof-of-Stake Blockchain Protocol https://eprint.iacr.org/2016/889.pdf

Casper the Friendly Finality Gadget https://arxiv.org/pdf/1710.09437.pdf



Sok: Communication Across Distributed Ledge	ers
---	-----

https://arxiv.org/pdf/2006.12051.pdf

SoK: Blockchain Interoperability - Past, Present, and Future

https://arxiv.org/pdf/2005.14282.pdf

A Survey on Blockchain Interoperability (IEEE Access)

 $\underline{https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=\&arnumber=9081466}$

Vitalik Buterin - Why Cross-Chain Bridges Are Risky

https://vitalik.ca/files/crosschain.pdf

LayerZero Cross-Chain Messaging Protocol - Technical Overview

https://layerzero.network/pdf/LayerZero_Whitepaper.pdf

Axelar Cross-Chain Communication - Whitepaper

 $\underline{https://axelar.network/resources/Axelar_Whitepaper.pdf}$

Chainlink - Cross-Chain Interoperability Protocol (CCIP)

 $\underline{https://research.chain.link/CCIP_technical_whitepaper.pdf}$

Chainlink - Proof of Reserve Framework

 $\underline{https://research.chain.link/Proof_of_Reserve.pdf}$

Polkadot - Vision for a Heterogeneous Multi-Chain Framework

https://polkadot.network/Polkadot-Whitepaper.pdf

Interledger Protocol - Architecture RFC

 $\underline{https://interledger.org/pdfs/interledger-protocol-architecture.pdf}$

Centrifuge - Real-World Assets on Chain (Technical Paper)

 $\underline{https://centrifuge_io/assets/documents/Centrifuge_RWA_Tech_Paper.pdf}$

MakerDAO - Real-World Assets Integration Guide



https://makerdao.com/en/whitepaper/makerdao-rwa-guide.pdf

BIS Innovation Hub - Asset Tokenisation and the Future of FMIs (Annual Report 2023 Ch.3)

https://www.bis.org/publ/arpdf/ar2023e3.pdf

Project mBridge - Cross-Border Payments Technical Pilot Report

https://www.bis.org/publ/othp66.pdf

MAS - Project Guardian Phase 2 Technical Report

https://www.mas.gov.sg/-/media/ProjectGuardian_Phase2_Technical_Report.pdf

Tokeny - RWA Tokenization Playbook

https://www.tokeny.com/wp-content/uploads/2024/04/Tokeny-RWA-Playbook.pdf

WEF - Tokenization of Real-World Assets (Insight Report 2023)

https://www3.weforum.org/docs/WEF_Tokenization_of_Real_World_Assets_2023.pdf

IBM & DTCC - Tokenization of Financial Assets (Industry Paper)

https://www.ibm.com/downloads/cas/5VGJQ7MB

FATF - Guidance for Virtual Assets and VASPs

https://www.fatf-gafi.org/media/fatf/documents/recommendations/Updated-Guidance-RBA-Virtual-Assets-VASPs.pdf

The VITAKING TECH LTD. extends its deepest respect and gratitude to the pioneers and trailblazers in the global blockchain and fintech research community.

The project's technical architecture, cross-chain interoperability framework, and RWA (Real World Assets) ownership verification mechanism are built upon the outstanding achievements of countless scholars, engineers, and innovators.

It is their constant pushing of the theoretical boundaries and engineering limits of decentralized systems that allows us to build on a higher technological foundation.

We draw inspiration from cutting-edge research worldwide on real asset blockchain, cross-chain interoperability, consensus algorithm design, zero-knowledge proof, and digital asset compliance



mechanisms.

The concepts and methodologies from these studies have profoundly shaped the design principles and technical implementation of both the VGOLD public chain and the VTAU ecosystem.

Through academic research, open source code and institutional white papers, they have laid a solid knowledge base for the new era of digital financial civilization.

The VITAKING TECH LTD. sincerely thanks the outstanding achievements listed in the references of this white paper

It is the convergence of these ideas that builds our global mission to connect real assets, transparent finance and algorithmic trust.

XI. Legal and Risk Notes

1. Register and legal entity

VITAKING TECH LTD. (hereinafter referred to as "VITAKING") is a digital asset and mining investment company formally registered under the laws of the State of California, United States.

Headquartered at 515 Flower St, Los Angeles, California 90071, United States, the company operates and discloses information in accordance with U.S. corporate law and international compliance standards.

The company has legal mining investment and digital asset development qualifications, and its business scope includes:

Real-world assets (RWA) digitization and blockchain mapping services;

Exploration, development and management of gold, minerals and other precious metals;

Development of digital financial products and decentralized settlement systems;

Development and ecosystem management of the public chain VGOLD that complies with international regulatory requirements.



VITAKING complies with the U.S. FinCEN (Financial Crimes Enforcement Network) framework for digital asset custody and KYC compliance, and will conduct necessary filings and legal opinion submissions under the guidance of the SEC (Securities and Exchange Commission) and CFTC (Commodity Futures Trading Commission) as required.

2. Compliance Statement

(1) Non-securities Statement

The VTAU token is a functional token within the VITAKING ecosystem, serving purposes such as on-chain reserve proof, dividend settlement, payments, and governance voting.

It does not constitute an offering of securities under the U.S. Securities Act of 1933 or any other jurisdiction, and does not have legal equity, debt, or profit distribution rights.

(2) Non-investment commitment statement

VITAKING makes no guarantees regarding token prices, market liquidity, or future appreciation.

VTAU's value is determined by market supply and demand, ecosystem development, Proof of Reserve (PoR), and DAO governance mechanisms.

(3) User Compliance Obligations

All users of VITAKING services must comply with local laws and regulations and pass KYC/AML verification.

VITAKING will refuse to provide services to sanctioned countries or regions, including but not limited to Iran, North Korea, Syria, Cuba, and others.

(4) Data and privacy protection

All user information is processed and protected in accordance with the California Consumer Privacy Act (CCPA) and the General Data Protection Regulation (GDPR).

3. Risk Warning



There are significant risks associated with digital asset investment and participation in the blockchain ecosystem.

Please fully understand and accept the following risks before joining the VITAKING ecosystem:

(1) Market risk

The price of digital currency and RWA token may be affected by market volatility, lack of liquidity, changes in transaction depth and other factors, and the price may fluctuate violently or even return to zero.

(2) Regulatory risk

Governments continue to adjust their policies, taxes and transaction regulations on digital assets.

If VTAU is classified as securities, payment instruments, or commodity derivatives by certain countries, it may face additional regulatory requirements or even restrictions.

(3) Technical risks

Including but not limited to:

Smart contract vulnerability or attack risk;

Network congestion or public chain fork;

Risk of data delay or manipulation by the prophet;

Private key leakage, account loss, or hacking.

(4) Legal and compliance risks

VITAKING will continue to refine its global compliance framework, though users in certain jurisdictions may encounter restrictions or legal uncertainties due to varying regulatory standards.

(5) Project execution risk

The project may be affected by force majeure, technical delays, partner changes, international trade policies and other factors, resulting in plan delays or deviations.

(6) Macro-economic risks

Global inflation, currency fluctuations, geopolitical conflicts or sudden economic events may have a systemic impact on the price of gold and the value of the token.



4. Investor Notice

Users joining the VITAKING ecosystem must demonstrate risk assessment capabilities and the ability to make independent decisions.

This document does not constitute any form of investment advice, securities sales or fundraising invitation;

The purchase, transaction or use of tokens is voluntary and the risks are borne by the user; VITAKING shall not be held jointly and severally liable for any violations of laws and regulations in the user's jurisdiction.

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