



Gold DAO

Whitepaper

November 2023

Version 1.0

Executive summary - TL;DR

The Gold DAO whitepaper outlines an innovative approach to integrate physical gold with blockchain technology, creating a stable and decentralized financial ecosystem. The project's core revolves around the creation and management of three primary products: Gold NFT (GLD NFT), Gold Token (GLDT), and a USD-pegged stablecoin (USDG), each representing different phases of the project.

1. **Gold NFT (GLD NFT):** This product represents direct ownership of physical gold bars stored in secure vaults in Switzerland. The GLD NFT is audited independently and offers redemption options for physical gold, providing a tangible and reliable investment.
2. **Gold Token (GLDT):** Acting as a bridge between physical gold and the digital ecosystem, GLDT is a fungible token backed by GLD NFT. GLDT are minted through swapping GLD NFT at a ratio of 1g for 100 GLDT. It fractionalizes gold ownership, offering increased liquidity and the ability to transfer micro amounts of gold.
3. **USD-pegged Stablecoin (USDG):** This stablecoin aims to address the inflation risks associated with fiat-backed stablecoins. Backed by GLDT, and hence by physical gold, USDG provides a robust collateral option, offering a more stable and reliable alternative to other forms of stablecoins.

The project utilizes the Internet Computer Protocol (ICP) and the ORIGYN protocol, ensuring decentralized governance and secure, transparent transactions. It introduces a decentralized autonomous organization (DAO), Gold DAO, running through a Service Nervous System (SNS) on ICP and governed by the Gold Governance token (GLDGov), which allows stakeholders to participate in decision-making and benefit from the ecosystem's growth.

The whitepaper also covers the tokenomics, technology standards, and the roadmap for the project. It emphasizes the benefits of integrating physical gold with blockchain technology, including increased security, transparency, and efficiency, while mitigating risks associated with traditional gold investments and fiat currencies.

In summary, the Gold DAO project represents a significant step forward in the digital and decentralized financial world, offering a unique solution that combines the reliability of physical gold with the flexibility and innovation of blockchain technology.

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1 Introduction

Gold is a precious metal considered a safe value, particularly appreciated during times of uncertainty. Its value has grown over the years, with its purchasing power becoming increasingly stronger compared to the USD. However, traditional methods of buying and possessing gold come with disadvantages, such as a lack of transferability. To address these constraints, this project innovatively tackles the strategic challenges of fractionalization, fungibility, and collateralization in a gold-backed stablecoin.

One of the key benefits of the Gold project is the direct ownership of gold it offers to token holders. Unlike traditional gold investments, the tokens allow for immediate and direct ownership without the need for intermediaries like banks. This direct ownership model is enhanced by the physical storage of gold in secure vaults in Switzerland, ensuring safety and reliability. Furthermore, the token is redeemable, meaning that holders can easily convert their digital assets back into physical gold, offering a tangible and trustworthy investment option.

Blockchain technology has gained significant interest and success in recent years, thanks to its transaction speed, transparency, and, in some cases, decentralization. It enables the ownership and exchange of information or tokens without intermediaries. Leveraging the potential of this innovative technology, and in symbiosis with the Internet Computer Protocol (ICP) and ORIGYN protocol, the Gold project was launched. This initiative introduces a stablecoin fully backed by physical gold and directly addresses skepticism in traditional finance and banking sectors. The project has successfully shown that the challenges of transferring and consistently redeeming a gold-linked currency, once deemed unfeasible, can indeed be overcome.

The Gold project consists of different phases executed sequentially, with products coupled to each phase, as illustrated in Figure 1. The first phase involves the initiation of the project and the release of technology to certify physical gold stored in vaults and issue NFTs that grant ownership rights to the physical gold - GLD NFT. The second phase consists of a fungible token that is issued at a ratio of 100:1g upon locking GLD NFT into a smart contract - GLDT, starting on ICP and then bridged to other blockchains. The third phase brings ultimate utility to the broad ecosystem by issuing a **USD-pegged stablecoin that is fully backed by physical gold** through the chain of tokens mentioned before - USDC. These tokens will first be introduced on ICP, bringing their value to the ecosystem, and then bridged to other chains using the ICP infrastructure to release their full potential.

This whitepaper will shed light on the details of the Gold project and how each individual component contributes to the overall goal of revolutionizing the stablecoin industry.

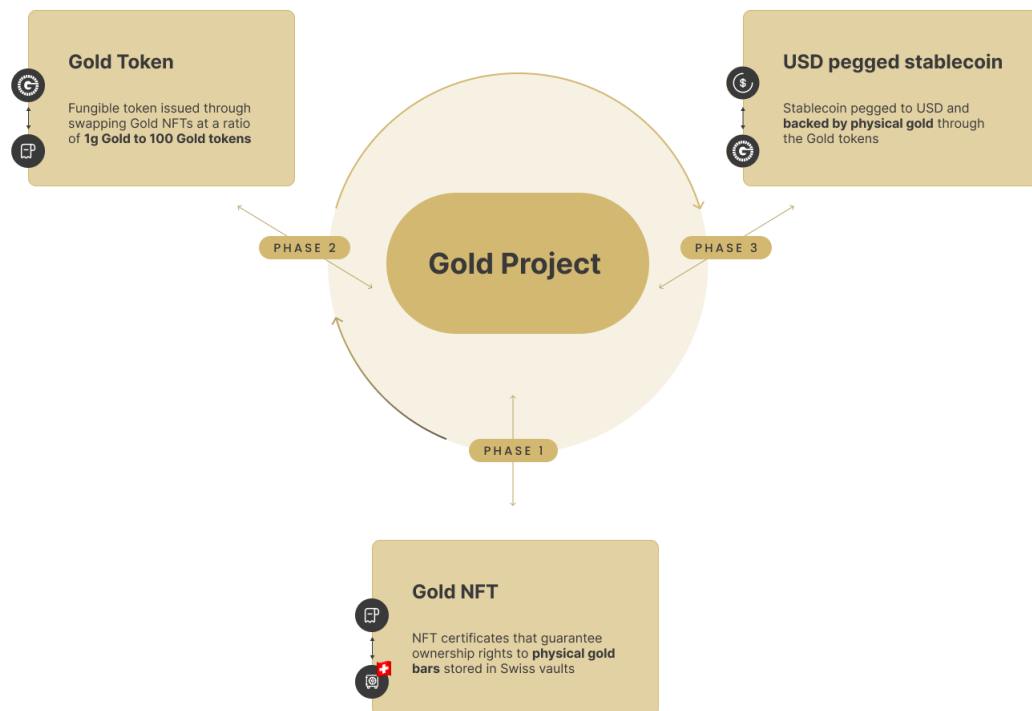


Figure 1: Sequential Phases of the Gold Project: Phase 1 introduces Gold NFTs tied to Swiss-stored gold, Phase 2 allows exchanging these NFTs for Gold Tokens, and Phase 3 establishes a USD-pegged stablecoin backed by these tokens. Each phase strategically builds upon the previous, illustrating the project’s methodical approach to integrating gold with blockchain technology to create a stable and transferable digital asset.

2 The ecosystem

The Gold project is a dynamic ecosystem comprising multiple products and contributors. Each product fulfills a specific purpose, and every contributor adds unique value to their respective areas. The entire ecosystem is governed in a completely decentralized manner through a Service Nervous System (SNS), a DAO (Decentralized Autonomous Organization) on the Internet Computer Protocol (ICP).

A high-level overview of all products and contributors is depicted in Figure 2.

The following sections will delve into the details of the products and their respective contributors, illuminating the driving forces behind this ambitious and innovative project.

2.1 Contributors

The Gold project is a collaboration between various entities and contributors, some in active roles and others in passive roles providing services for the success of the project. The list below highlights the active contributors and is in alphabetical order, as there is no single entity who is in control of this project.

Community and individuals are encouraged to contribute to the project. Since the entire Gold project is governed by the decentralised SNS, everyone with a stake in the governance is able to make valuable contributions. Contributors can either make active contributions via code or product additions or take part in the governance and be rewarded in OGY or other tokens from future revenues of the stablecoin or other projects within the SNS.

DAO-link is the decentralised entity that issues the Gold DAO.

Gold issuer are the entities who are using the ORIGYN NFT protocol to issue the GLD NFT. They need to be FINMA regulated, act as a custodian to the physical gold and provide the necessary means for holders of GLD NFT to redeem their physical gold from the vaults.

ORIGYN Foundation is the foundation behind the ORIGYN protocol. It is the main contributor to the ORIGYN NFT standard that is running the perpetual marketplace of the GLD NFT. In addition, ORIGYN has donated 500m OGY to the Gold SNS in form of an ORIGYN neuron to increase adoption of the ORIGYN Protocol as a real-world-asset (RWA) certification platform. Participants of the Gold SNS will receive the staking rewards of this neuron.

YUMI is the NFT marketplace that provides the frontend to the GLD NFT. It also supplies the technology to facilitate continuous buying and selling of GLD NFT from and to

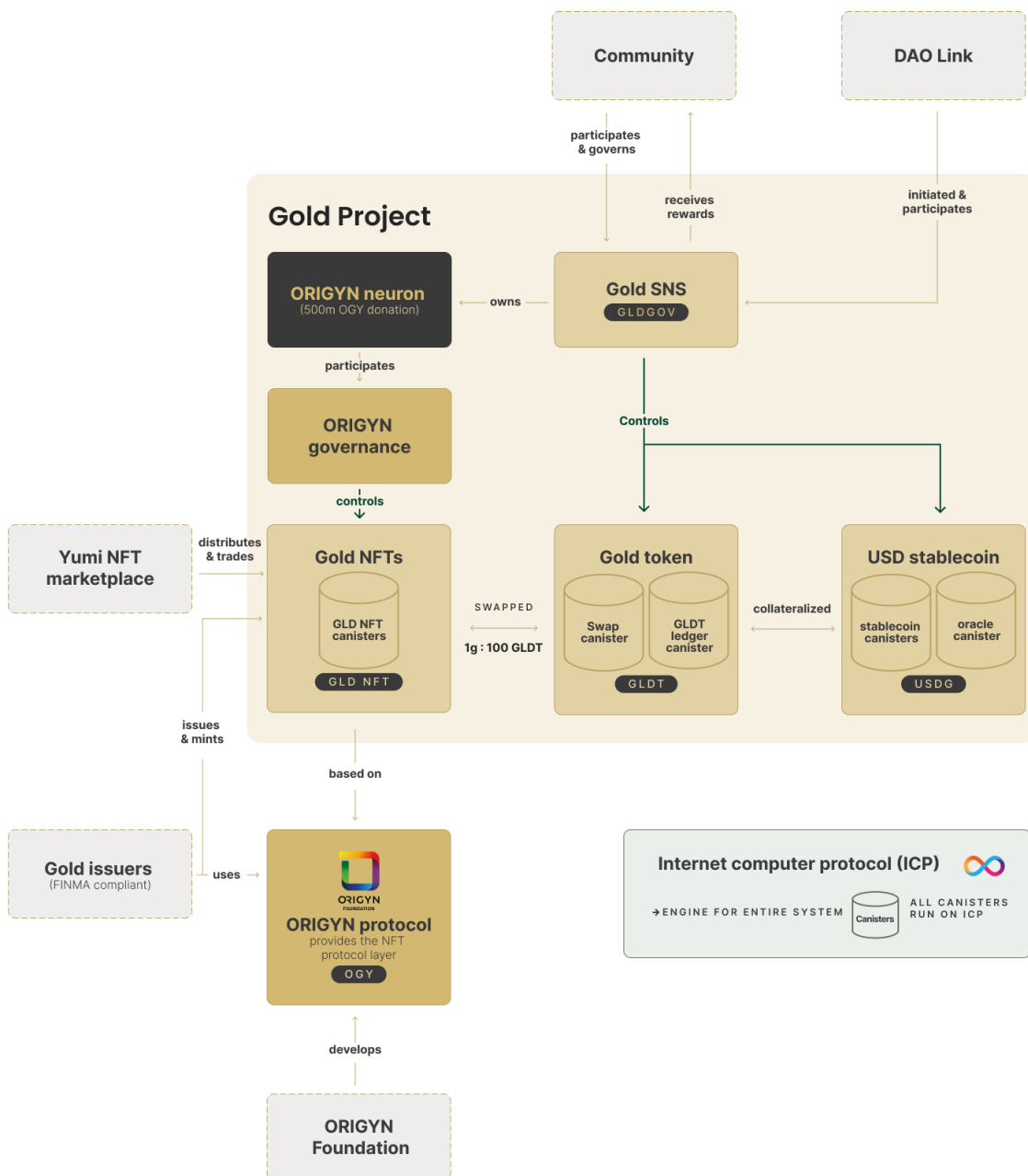


Figure 2: High-level overview of the Gold ecosystem, featuring various parties and components of the Gold project.

YUMI. With the ever changing regulatory landscape, YUMI also provides the necessary framework to perform KYC (Know-Your-Customer) procedures on traders of the GLD NFT.

2.2 Products

The core features of this project consist of three phases and three respective products associated with each phase. Each of these three products are described in more detail in the paragraphs below.

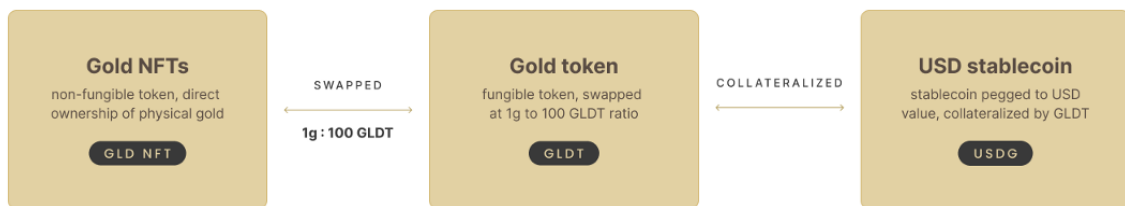


Figure 3: Overview of the products involved in the Gold ecosystem.

2.2.1 Gold NFT: GLD NFT

The first product in the gold project is the Gold NFT - GLD NFT. It represents direct ownership of physical gold bars stored in secured vaults in Switzerland and independently audited (KPMG). Owners of the GLD NFT can redeem their gold bars at any time and are directly exposed to the gold market. A more detailed description of all relevant aspects around GLD NFT can be found in the respective whitepaper dedicated to GLD NFT (downloadable on yumi.io/gold/about). The concept is described in the following paragraphs and an overview of the ecosystem is depicted in figure 4.

The base layer for GLD NFT is the ORIGYN protocol which provides the technology infrastructure to run the NFTs. The ORIGYN protocol provides a novel NFT standard that fully integrates marketplace features and governance, setting the basis for a perpetual ecosystem, independent of any central entity. Any upgrades to the NFT canisters¹ need to go through the ORIGYN governance and the Gold SNS has a vote on that with its 500m OGY tokens staked. Here's a comprehensive explanation of the technical process involved:

¹A canister on ICP is the equivalent of a smart contract that functions as a self-contained unit for running decentralized applications. It's designed for secure, isolated operation, enabling a variety of web and business applications on a distributed network and can host and run the entire code of any application.

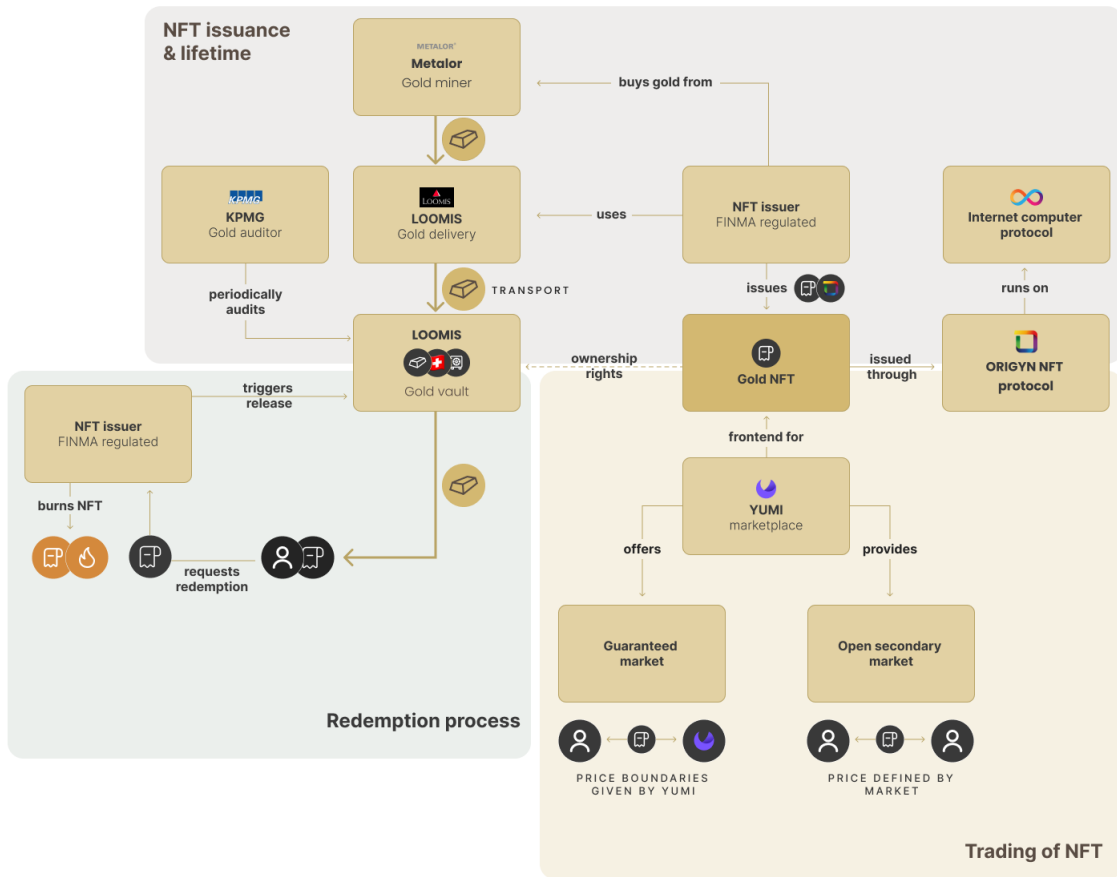


Figure 4: Overview of the GLD NFT ecosystem and the different actors within. Three core parts are highlighted, i.e. "NFT issuance & lifetime", "Trading of NFT" and "Redemption process".

Secure Escrow: The Gold project begins with the establishment of a secure escrow system to hold the physical gold bars. A trusted custodian securely stores the gold bars in a designated vault, ensuring its physical integrity and preventing unauthorized access.

Asset Digitization: Once the gold bars are securely stored, the next step involves the digitization of the asset. The ORIGYN Protocol issues a digital certificate that represents the ownership of a specific gold bar. This digital certificate is minted as an NFT, providing a unique identifier linked to the physical gold asset held in escrow.

Escrow Verification: To maintain authenticity and trust, an escrow verification mechanism is implemented. This entails regular audits and verification processes to ensure that the physical gold bars held in escrow align with the digital certificates issued on the protocol. This verification process can involve independent third-party audits, ensuring transparency and accuracy.

Market Integration: The Gold Project integrates with the ORIGYN Protocol's perpetual marketplace, enabling users to trade, buy, and sell the gold-backed NFTs. This integration ensures that the technical infrastructure supports market transactions, securely tracks ownership, and facilitates the settlement of trades. Yumi provides the frontend to the integrated marketplace of the GLD NFT, offering the users a guaranteed market to always purchase and sell their NFTs, and also provide a secondary market where users can trade with other users at secondary market conditions.

Security and Verifiability: To ensure the security and verifiability of the gold-backed assets and tokens, the technical process incorporates robust smart contract mechanisms. This includes using the ORIGYN NFT platform to guarantee the digital certificates are immutably linked to the physical assets in escrow. Additionally, the transparency of blockchain technology allows users to independently verify and validate the authenticity and ownership of the gold-backed assets.

Through this technical process, the Gold project powered by the ORIGYN Protocol ensures the secure and transparent integration of physical gold assets with digital certificates and tokens. The combination of robust custody measures, asset digitization, tokenization, smart contract automation, market integration, and blockchain-based security provides users with a reliable and efficient pathway to participate in the gold-backed ecosystem.

A key element of the price stability of GLD NFT is the fact that users are always able to buy from and sell to YUMI marketplace at any point in time. The price is constantly determined by the LBMA² spot price and buying and selling prices on YUMI are defined as

²The London Bullion Market Association (LBMA) is a trade association that represents the wholesale over-

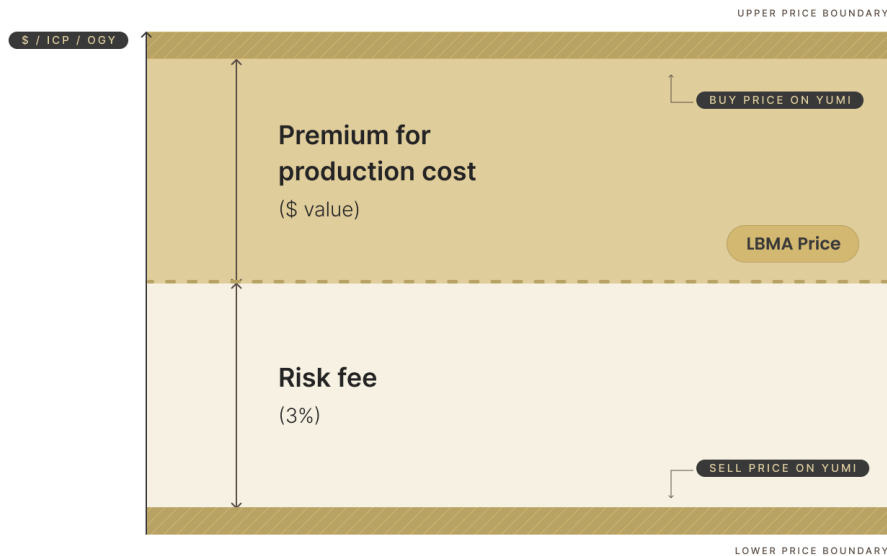


Figure 5: Pricing boundaries of the GLD NFT on YUMI marketplace guaranteed by YUMI.

follows. The buying price on YUMI, i.e. the price at which users can purchase GLD NFT from YUMI, is defined as the LBMA spot price plus a fixed premium to cover the production costs of the physical gold bars. This combination yields a price that is similar, even competitively lower, to traditional platforms to purchase physical gold bars. The selling price on YUMI, i.e. the price at which the users can always sell back to YUMI, is defined as the LBMA spot price minus 3%. This fee is applied to cover the financial risk that YUMI undertakes to always offer the option to sell GLD NFT back to them. These two price boundaries, a ceiling and a floor, ensure that the GLD NFT are always traded within those, see figure 5. Users can trade on the secondary market with other market participants at any price they wish. YUMI solely guarantees that there are always GLD NFT to buy and sell within the boundaries directly from and to YUMI.

the-counter market for gold and silver in London. The LBMA is responsible for setting and maintaining standards for the quality of gold and silver bars that are traded in the market. It also works with regulators and other industry stakeholders to promote transparency and integrity in the bullion market. The LBMA sets the price of gold twice per business day which are used as global benchmark prices.

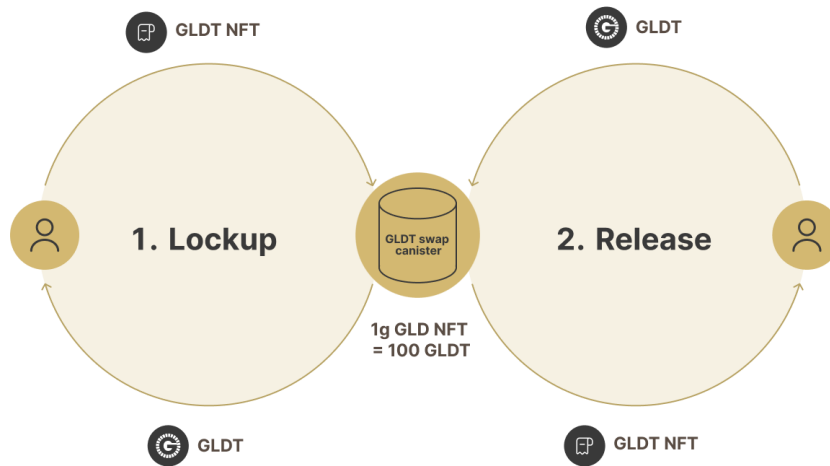


Figure 6: Concept of locking and releasing GLD NFT to issue or burn GLDT.

2.2.2 Gold token: GLDT

As a bridge between physical gold and the digital ecosystem, the Gold project introduces the Gold token - GLDT. GLDT is a fungible token, fractionalizing the GLD NFT, bound to the *value* of gold. Each GLDT represents a fraction of a gram of gold, exactly 1/100th of a gram. These tokens are created through a minting process that swaps the GLD NFT with the equivalent amount of GLDT issued on the blockchain.

The GLDT are designed to be swappable with the GLD NFT representing the physical gold bars. Holders of GLDT can initiate a swap to convert their tokens back into the corresponding GLD NFT. This process is facilitated through a smart contract, ensuring a seamless and verifiable exchange between the digital and physical assets.

The process is as follows. Owners of GLD NFT can use the GLDT swap canister to swap their GLD NFT for minting GLDT at a ratio of 100 GLDT per 1 g of GLD NFT. Similarly, holders of GLDT can initiate a reverse swap of GLD NFT by triggering the swap canister to burn the GLDT and releasing the equivalent amount of GLD NFT to be returned. In general, there is a 1% fee on swapping from GLD NFT to GLDT and vice versa, which is allocated to the ORIGYN protocol and the gold issuer. However, this fee for swapping

from GLD NFT to GLDT is waived for the first 100 million GLDT swapped. The elegance of this system lies in its inherent assurance of a fixed exchange rate, maintaining a consistent ratio of exactly 100 GLDT for every 1g of GLD NFT within the total supply of GLDT. Consequently, the value of GLDT is intrinsically linked to the value of gold, with 1 GLDT invariably equivalent to 0.01g of gold.

As the bridging of the physical gold asset to the digital world takes place through the GLD NFT certificates, GLDT is a purely digital smart contract that fractionalizes the non-fungible GLD NFT. This process brings various benefits, such as increased liquidity of the gold stablecoin and the option to send micro amounts of gold between peers. With 8 decimals for the token, fractions of a cent's value of gold can be transferred at minimal costs.

2.2.3 USD-pegged stablecoin: USDC

The value of fiat-backed stable coins, such as USDT and USDC, is linked to the USD bank deposits, which are susceptible to bank runs and inflation risk due to the steady loss of purchasing power as the Federal Reserve targets a 2% annual inflation rate. Moreover, the realized inflation rate has been higher than this target in recent years. In contrast, gold-backed stable coins address these issues by using gold-backed GLDT tokens as collateral to mint USD-pegged stable coins. This approach offers inflation protection for the collateral since the gold price has tripled in the last two decades, making gold bars a more robust collateral option for minting stable coins.

On the other hand, crypto asset-backed stable coins like Dai rely on cryptocurrencies such as ether as collateral, leading to a high liquidation risk due to the volatile nature of ether's price. Comparatively, GLDT price is relatively more stable, making gold-backed stable coins a more appealing option in terms of financial stability.

To illustrate, 1 GLDT represents the tokenized ownership of 0.01 gram physical gold. When the price of GLDT exceeds the cost of 0.01g of gold, arbitrageurs can purchase GLD NFT, convert them to GLDT, and sell them for profit. Conversely, if the GLDT price falls below the cost of 0.01g of gold, arbitrageurs can buy GLDT, convert it to GLD NFT, and sell them to profit from the discrepancy. Consequently, market forces work to align the price of GLDT with that of physical gold.

As the market price of GLDT closely mirrors that of physical gold, reflecting its relatively stable value. Consequently, GLDT is an ideal collateral asset. This stability allows us to utilize GLDT to mint a USD-pegged stablecoin, akin to the mechanism employed by Liquity.

The process of creating a Collateralized Debt Position (CDP) and using GLDT as collateral

is characterized by instant opening and closing, with a zero fee for CDP initiation and a 1% fee for its closure. The minimum deposit amount of a CDP is 100 GLDT. It is important to note that the parameters pertaining to the fee structure and minimum deposit amount are subject to potential revisions by the Gold DAO.

The governance token of the Gold DAO is denoted as GLDGov, with detailed elucidation provided in the subsequent chapter.

CDP owners, i.e. those who stake GLDT, are privileged with the ability to mint the USD-pegged stable coin USDG against the GLDT collateral within their CDP. The minimum Collateral Ratio (CR) at inception is established at 150%, subject to alteration by the governance DAO. Should the CR decline below 150% but remain above 110%, the CDP owner is precluded from minting additional USDG but may augment their margin or reduce their USDG position.

To preserve the price stability of USDG, a stability pool is instituted where users can stake USDG. Upon a CDP's CR falling below 110%, the stability pool automatically incinerates an equivalent amount of USDG and seizes the GLDT in the CDP. The distribution of the burned USDG and confiscated GLDT is conducted in a proportional manner.

In a bid to further encourage users to stake USDG in the stability pool, a certain amount of GLDGov tokens are distributed to the stability pool once it is operational.

An additional mechanism to uphold the lower threshold of USDG price is the redemption channel, which allows arbitrageurs to redeem 1 USDG for GLDT equivalent to \$1 from the CDPs with the lowest CR. A redemption fee of 0.5% is levied for this service.

3 Tokenomics

The Gold project will be entirely decentralized and governed by a DAO on the Internet Computer Protocol (ICP). DAOs on ICP are commonly known as SNS (Service Nervous Systems), which is an integrated DAO platform within ICP that enables complete management and governance of smart contracts in a decentralized fashion.

Users have various incentives to participate in the SNS and can benefit in different ways:

- Actively engage in the Gold project's evolution by participating in governance, proposing initiatives, voting on proposals, and guiding the project towards a successful future.
- Earn rewards for participating in governance.

The funds raised through the SNS will be allocated to various activities to ensure the project's successful advancement:

- Remunerate developers for maintaining current projects and advancing future phases.
- Invest in marketing and product growth.
- Cover payments for third-party services such as token listings, future code audits, etc.

3.1 Ecosystem tokens

Various tokens are involved in this project, each serving a specific purpose—whether utility or governance—and contributing value to the ecosystem.

Beyond the three inherent tokens derived from the core products of the Gold project outlined earlier in Chapter 2—namely GLD NFT, GLDT, and USDG—two additional tokens, OGY and GLDGov, play roles within this ecosystem. The interplay between these tokens is as follows.

The overview of flow between the different components in the Gold ecosystem is illustrated in figure 8.

3.1.1 GLDGov

The project is governed by the GLDGov token - Gold governance token. This token is issued upon the SNS launch of the project and gives the governance rights for users to participate.

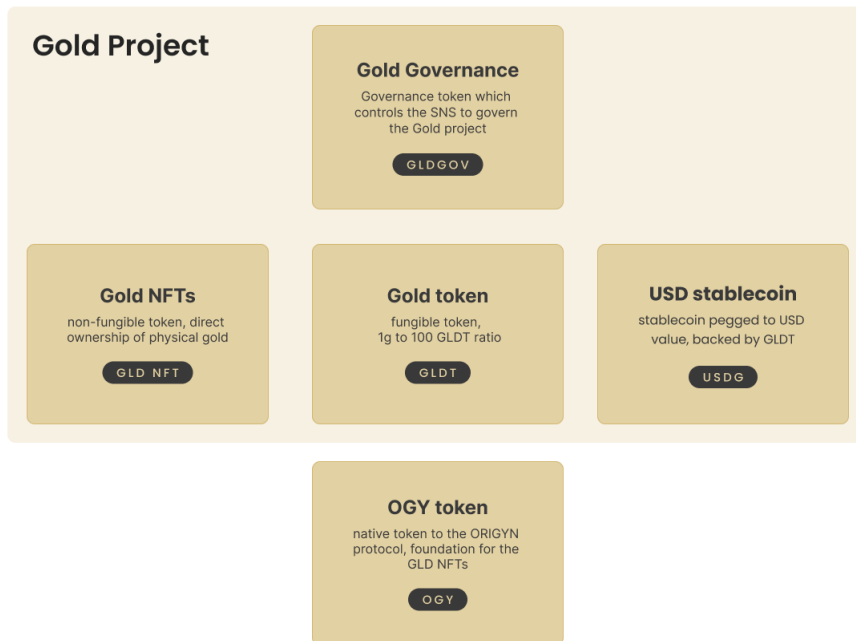


Figure 7: The tokens of the ecosystem and their roles.

Details about the SNS are described in the next section but there are various utilities for participants in the SNS

1. Decide about the direction of the Gold project
2. Govern any upgrades to the canisters
3. Receive staking rewards from governance participation

The total supply of GLDGov token is capped at 1 billion.

3.1.2 GLD NFT

GLD NFT are non-fungible tokens that grant the holder ownership rights to physical gold bars stored in vaults in Switzerland. Details about the GLD NFT can be found in chapter 2.2.1.

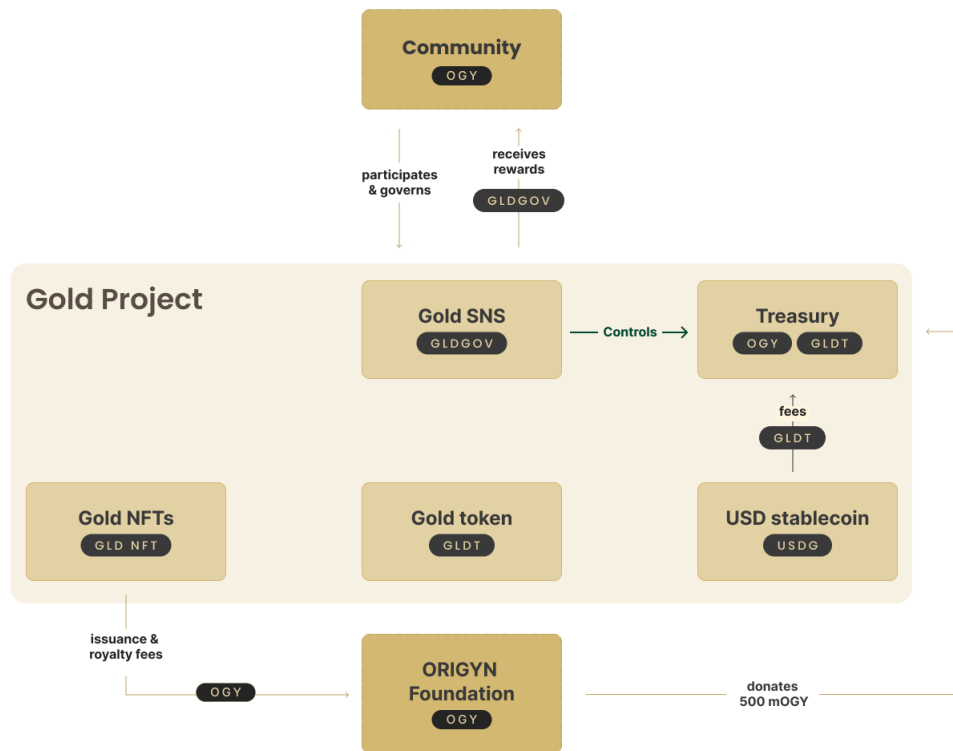


Figure 8: The flow of tokens in the gold ecosystem and their specific roles.

3.1.3 GLDT

GLDT (Gold token) is a fungible token which is backed by the GLD NFT and issued at a rate of 100 GLDT to 1 g GLD NFT. The tokenomics of the GLDT is inherited by its design and described in more details in chapter 2.2.2.

3.1.4 USDG

USDG is the USD-pegged stablecoin that is backed by the GLDT and, hence, physical gold in vaults. The mechanism design of USDG is described in more details in chapter 2.2.3.

3.1.5 Peripheral tokens

There are two additional third-party tokens involved in the Gold project, OGY and ICP.

OGY is the native token to the ORIGYN protocol. It is used to pay for any issuance fees

of the GLD NFT and also used to trade NFTs on marketplaces like Yumi.

ICP is the native token to the Internet Computer Protocol (ICP). It is also one of the tokens available to trade GLD NFT and fuels the entire ICP ecosystem.

3.2 SNS of GLDGov

3.2.1 Token Dynamics

The token supply of GLDGov is capped at 1 billion at genesis, with no additional tokens being minted but rather burned over time. This reduction in the token count primarily stems from several factors. Firstly, a transaction fee of 0.001 GLDGov per transaction contributes to the decrease in the token supply. Additionally, there is a cost associated with submitting a proposal that is not adopted, which necessitates the burning of 1,000 GLDGov tokens in case the proposal is rejected. Furthermore, a portion of the protocol's revenue is allocated to reducing the circulating supply of GLDGov tokens. These dynamics collectively contribute to the finite nature of the token supply and underscore the economic mechanisms at play within the GLDGov ecosystem.

3.2.2 SNS Fundraising Configuration

The fundraising model entails a targeted range of 200,000 ICP to 1,000,000 ICP. Furthermore, the SNS fundraising initiative sets a minimum participant threshold of 100 individuals. Within this framework, each participant is permitted to contribute a minimum of 8 ICP and a maximum of 200,000 ICP. These specifications outline the parameters governing the fundraising target, investment commitments, and participant engagement, thus delineating the parameters and boundaries of ICP fundraising activities within the Neuron Fund and SNS initiatives.

3.2.3 GLDGov Token Distribution at Genesis

The allocation of GLDGov tokens unfolds across various stakeholders and purposes.

- SNS fundraising contributors: 200 million GLDGov released at month 0 with dissolving delay of 0, 3, 6, 9, ..., 24 months in 9 installments.
- Founding team: 180 million GLDGov released at month 0, 3, 6, 9, ..., 24 in 9 installments with dissolving delay of 3 months.
- Treasury: 620 million reserved for later usage.

Figure 9 shows the initial allocation of 20% to the SNS Swap via both direct participation and community fund, 18% to the founding team and 62% to the treasury.

SNS Token Distribution

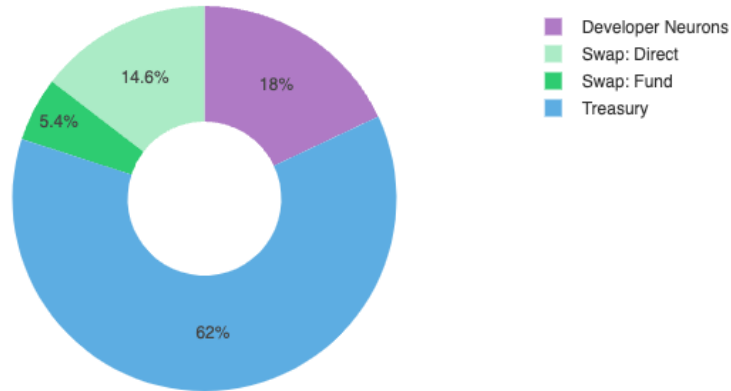


Figure 9: The GLDGov token distribution at genesis.

Usage of Treasury Funds The disbursement strategy for the allocated reserve of 620 million GLDGov is delineated as follows: 75 million will be directed toward marketing, business development, strategic partnerships, and market making of the trading pairs, e.g. GLDGov/GLDT, GLDT/USDG, USDG/USDT etc, on decentralized and centralized exchanges among other purposes. The 25 million dedicated to economic advisors will serve to incentivize and engage influential economists, economic professors, and stable coin practitioners. The 320 million community share allotted to the treasury is intended to incentivize the community for staking GLDGov. The 320 million is earmarked for distribution, with a yearly incentive of 40 million over the initial 4 years and halving every four years. Furthermore, 200 million will be reserved as ecosystem fund for cross-chain strategies and massive adoption of GLDT by DeFi applications on the major blockchains.

The staking reward of the 500 million OGY and a portion of the revenue generated by the protocol will be used to swap for GLDGov and refill the treasury.

This comprehensive breakdown elucidates the planned token allocation, release schedules, and intended usage of reserved token supplies, underscoring the strategic objectives guiding the distribution and utilization of GLDGov tokens across various facets of the ecosystem. The structure of the GLDGov tokenomics facilitates universal participation in governance, devoid of singular ownership, and enables community control through democratic and proportionate means.

3.2.4 Voting Power

The governance model for neurons³ within the system stipulates that a minimum of 100 GLDGov tokens is required for a neuron to actively participate. Additionally, a neuron must possess a minimum dissolve delay⁴ of 3 months to be eligible to vote, with the maximum allowable dissolve delay being 2 years. Neurons with longer dissolve delays are eligible for a bonus multiplier of up to 2, with the multiplier increasing linearly from 1 to 2 for dissolve delays ranging from 3 months to 2 years. Moreover, neurons accrue an age bonus multiplier ranging from 1 to 1.5 for ages spanning from 0 to 2 years. For instance, a neuron with a dissolve delay set at 2 years and an age of 2 years would yield a multiplier of $2 * 1.5$, resulting in a total multiplier of 3. This intricately designed gover-

SNS Voting Power Distribution

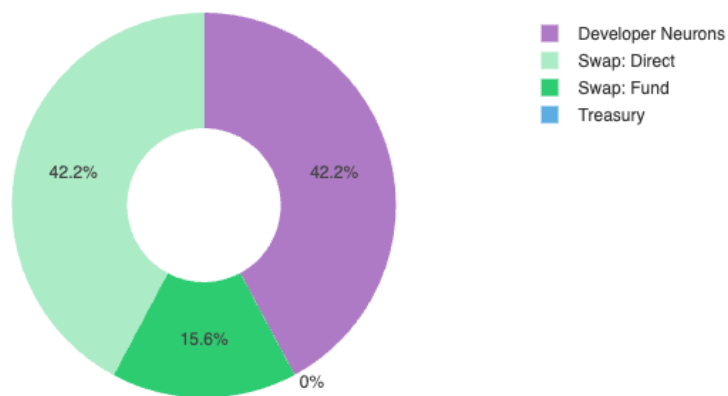


Figure 10: The voting power distribution at genesis.

nance framework underscores the nuanced mechanisms governing the voting power and multipliers associated with neurons, thereby ensuring a balanced and weighted participatory structure within the ecosystem. Figure 10 shows that the community owns more voting power than the developer team and thereby ensures a decentralization governance.

³Neurons on the Internet Computer Protocol (ICP) are specialized accounts that enable users to participate in network governance. By locking tokens in a neuron, users gain the ability to vote on proposals that influence the development and operation of the network or application. This mechanism not only provides a way for token holders to shape the network's or application's future but also rewards them for active participation in its governance.

⁴Dissolve delays refer to the duration required to transition the token status from staked to liquid subsequent to the initiation of the unlock process.

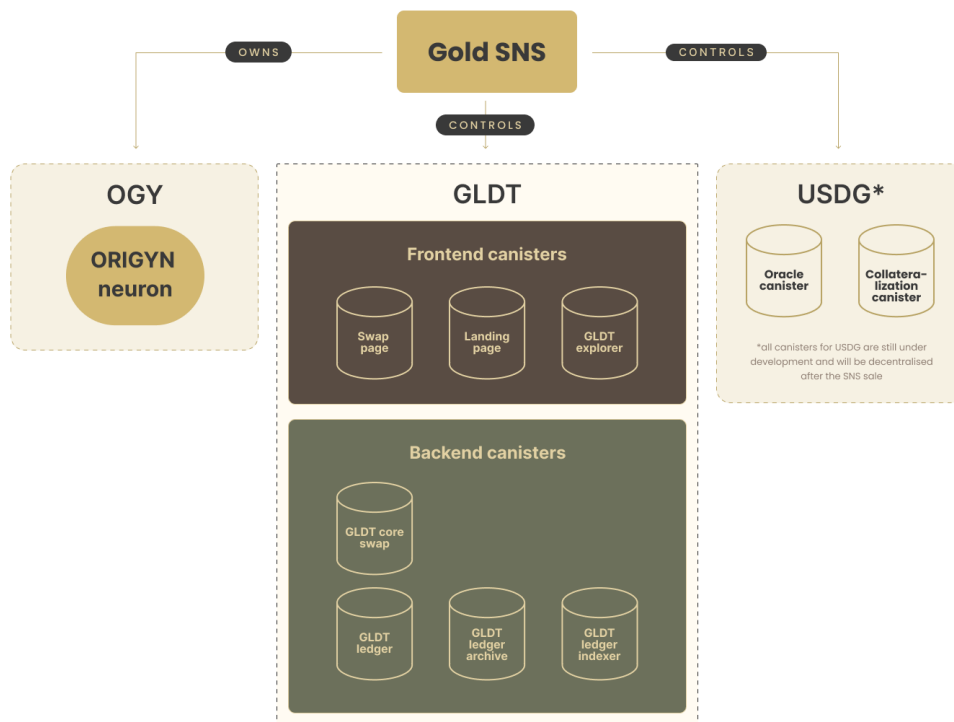


Figure 11: Overview of canisters under control of or owned by the SNS after the sale.

3.3 Ownership

Figure 11 gives an overview of the canisters which the Gold SNS will actually be controlling.

GLDT: The SNS will be sole **controller** of the canisters related to GLDT. This includes backend canisters like the "swap canister" and the "ledger canisters" and also all the related frontend canisters for the "swap page", the "GLDT explorer" and the "landing page". Technical details about the role of each canister are described in chapter 4. At the time of the SNS sale, development work on the GLDT swap is still ongoing and therefore not all canisters will be given to the SNS directly in the beginning. For details about which canisters shall be added to the SNS from the start, refer to the `sns_init.yml` file on the project's Github.

USDG: The SNS will be sole **controller** of the canisters related to USDG. This includes the required oracle canisters and the canisters involved in the pegging of the USDG. These canisters don't exist yet at the time of writing the whitepaper and will be added in the future.

OGY: The SNS will be the owner of an OGY neuron in the ORIGYN governance. This neuron will have 500m OGY and the staking rewards of this neuron are distributed to the Gold DAO treasury.

4 Technology

This section covers the technical details of the Gold project and describes the high-level interaction between different backend canisters and entry-points to the ecosystem through the various frontend canisters. All components directly related to the Gold project are running 100% on the Internet Computer Protocol.

For a more detailed documentation or verification of the architecture, refer to the open-sourced code repository of the Gold project on github.com/GoldDAO/gldt-swap. Further, this section only includes the parts of the phases 1 and 2 as the third phase of USDG is defined on a conceptual level but not yet implemented at the time of writing of this whitepaper.

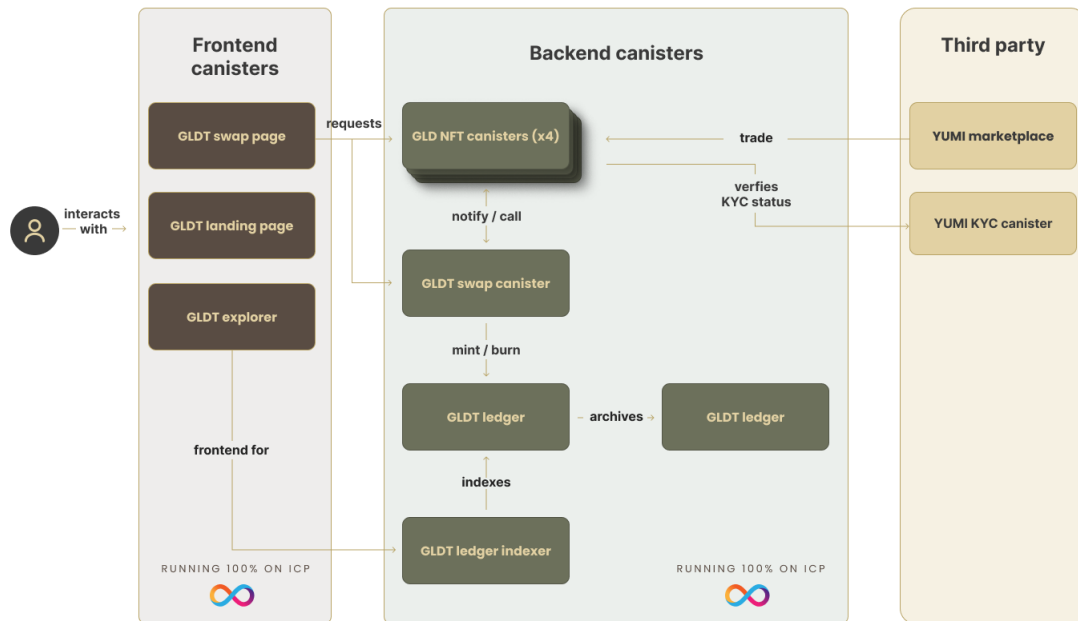


Figure 12: High-level overview of technical components of the Gold project and the interaction thereof.

The basis for the project is set by the GLD NFT canisters. These are providing the NFTs and respective certificates that guarantee the ownership rights to the physical gold. The NFTs are based on and powered by the ORIGYN protocol and an elaborate documenta-

tion of those can be found in the respective ORIGYN whitepaper. Owners of GLD NFT or GLDT interact through the GLDT swap page frontend with the GLD NFT and GLDT swap canister to swap in between GLD NFT and GLDT. As the GLD NFT are subject to KYC regulations, any trading thereof needs to be approved through a KYC provider, at the time of writing being run through the YUMI KYC canister⁵. The GLDT swap canister has the minting rights to GLDT ledger, allowing to mint new GLDT when GLD NFT are locked up. The GLDT ledger is a copy of the standard SNS tokens of ICP and fully supports ICRC1 and ICRC2. Two peripheral canisters, the GLDT ledger canister and the GLDT ledger indexer, are ensuring scalability and easily accessible transparency of the GLDT ledger.

The frontends giving a face to the Gold project are also completely run on ICP and part of the SNS. The core is given by the GLDT swap page, that gives users the interface to swap between their GLD NFT and GLDT. An explorer is provided for the GLDT to easily follow and verify transactions on the GLDT ledger.

4.1 Token standards

The tokens of the ecosystem follow the respective standards of ICP.

GLD NFT The NFTs are running on the ORIGYN NFT protocol which also going to support the ICRC-7 NFT standard released by the DFINITY foundation. The supply of GLD NFT is variable and directly linked to the amount of gold stored in the Swiss vaults.

GLDT The gold token is running on the ICRC⁶-1 & ICRC-2 standard of ICP, thereby fully compatible with any other tokens and exchanges on ICP. The supply of GLDT is directly linked to the amount of GLD NFT swapped and locked in the swap canister.

USDG The stablecoin USDG also runs on the ICRC-1 & ICRC-2 standards of ICP. The supply of USDG is variable and depends on the amount of collateral provided.

4.2 Advantages of Using Internet Computer Protocol (ICP)

The choice to run the Gold project entirely on the Internet Computer Protocol (ICP) is strategic and offers several significant benefits:

Decentralization and Security ICP provides a highly decentralized infrastructure, ensuring that the Gold project operates on a platform that is not controlled by any

⁵Note that KYC is only required when GLD NFT are involved, i.e. when trading GLD NFT or swapping between GLD NFT and GLDT, but any interactions with basic GLDT don't require KYC.

⁶ICRC stands for "Internet Computer Request for Comment" and is the equivalent of ERC on Ethereum, describing standard proposals and implementations.

single entity. This decentralization enhances the security of the system, as it mitigates the risks associated with centralized control and potential points of failure.

Scalability ICP's unique architecture allows for scalability without compromising on speed or security. This is crucial for the Gold project as it requires the capacity to handle a large number of transactions and interactions, especially considering the minting and swapping of GLDT and GLDNFT.

Interoperability and Cross-Chain Functionality ICP facilitates seamless interoperability with other blockchain networks. This feature is particularly beneficial for GLDT, since it is designed to be cross-chain, enabling broader access and liquidity across different blockchain ecosystems.

Reduced Costs and Efficiency Running on ICP can significantly reduce transaction costs compared to traditional blockchain platforms. This efficiency is vital for maintaining the viability of micro-transactions in the gold trading ecosystem.

Transparency and Trust The open and transparent nature of ICP aligns with the Gold project's objective of providing a transparent and trustworthy platform. Users can verify transactions and the authenticity of their investments, reinforcing trust in the system.

By leveraging the strengths of ICP, the Gold project is positioned to offer a robust, scalable, and secure platform for integrating physical gold with the digital financial ecosystem, while ensuring transparency, efficiency, and compliance with regulatory standards.

5 Roadmap

The project roadmap outlines the key milestones and phases for the Gold project, starting in Q1 2023 with the inception of the Gold project. Progressing to Q2 2023, a significant achievement was reached with the release of GLD NFT on the YUMI NFT marketplace, marking the first phase of the project.

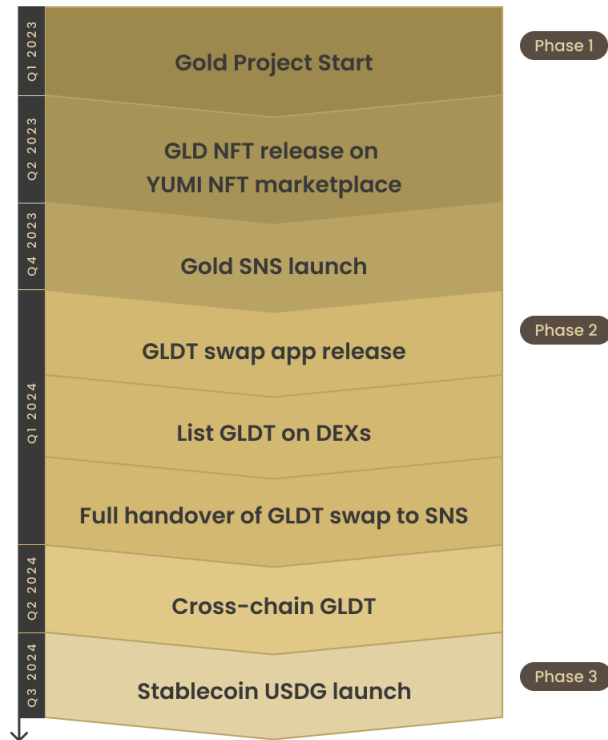


Figure 13: Roadmap of the Gold project focusing on the key milestones of the three phases.

Transitioning into the project's second phase at the close of 2023, December marks the initiation with the Gold SNS introduction. This momentum propels the project forward into 2024, where the first quarter is abuzz with activity: the debut of the GLDT swap app, the inclusion of GLDT on various trading platforms, and the expansion of network communications. This period also sees the strategic transfer of the GLDT swap app operations to the SNS. Following this, efforts will concentrate on enabling GLDT's functionality across different blockchain networks, with the aim to implement the first of these in Q2 2024. This sets a robust stage for the introduction of the stablecoin USDG in Q3 2024,

which signifies the commencement of the third and culminating phase of the project's preliminary development roadmap.

This timeline encapsulates the strategic progression of the Gold project from its conceptualization through to its full-fledged operational status.

6 Credits

This project is a joint venture between various contributors. Each of them have contributed in one way or another and shall be thanked. This section gives credit to the people who have actively contributed to the writing of this whitepaper.

Authors & Contributors:

Dustin Becker, Yulin Liu, Austin Fatheree, DAO.Link, Quantum Agency, ORIGYN Foundation, YUMI Marketplace

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