

<https://www.rooba.finance/>



Whitepaper
V1.0



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ABSTRACT

Blockchain and cryptocurrencies have revolutionized the financial industry with Bitcoin and Ethereum having played a significant role in it. Bitcoin removed the need for intermediaries and once and for all addressed the problem of double-spend. Ethereum introduced smart contracts that enabled complex financial transactions without the need for centralized intermediaries.

On top of it, various innovative protocols have built applications for intermediary-less finance which we call Decentralized Finance or DeFi. This technology has cemented its importance in the financial industry. Today various financial activities like tokenization, custody, trading of spot and derivatives in cryptocurrencies, and high-frequency trading are being enabled by blockchain technology.

Cryptocurrencies may be problematic, some have juvenile use cases, and some enable entities to bypass KYC, AML, and other vital checks, which allows proceeds of crime like corruption to flow unchecked if the source cannot be attributed.

However, there are many challenges faced when trying to integrate traditional finance with blockchain technology, including scalability, costs, and security concerns. But at the same time, traditional finance systems can be opaque and expensive and modern technology like blockchain could be used to improve and update the financial system. Rooba.Finance's vision is to enable a secured, verifiable and trustworthy market ecosystem to ensure the trade of real-world assets with audited and tangible data in a peer-to-peer manner.

ROOBA.FINANCE

Rooba. finance is a full-stack blockchain and smart contract-based neo-financial infrastructure. We focus on tokenizing real-world assets on the blockchain and enabling access to new markets for financial institutions while unlocking new financial opportunities through our on-chain real-world asset De-fi ecosystem.

So, look no further if you want to plug into an efficient, inclusive, and transparent financial market. At Rooba.Finance we believe that modern finance has a tremendous potential to transform lives, but not in its current form.

INTRODUCTION

To build a city, one must first formulate a solid plan. Then lay a solid foundation on which future infrastructure can be constructed. The development of blockchain-based solutions is also similar to this. After being in this space as contributors, lawyers, coders, and product managers we have observed the rise, fall, and rise of this technology and that it has been stress-tested. Despite some initial issues, the ability of blockchain technology to eliminate the need for financial intermediaries is clear.

Financial markets used to be cohesive and centralized and it was plagued by corruption and manipulation. The 2008 financial crisis resulted in the fragmentation of the industry. Many regulations were enabled and aimed at protecting investors and preventing malpractice and systemic risk. However, over time, this fragmentation has resulted in inefficiencies, intermediaries, higher costs, longer settlements, information asymmetry, and opaque markets.

Advancements in technology like Distributed Ledger Technologies (DLT) such as blockchain have evolved to close these gaps in market safety and financial freedom. DLT enables all participants to manage the issuance, pre-trade & post-trade processes while providing transparency, reducing intermediaries, and allowing for instant settlement at significantly lower costs.

In addition, there are many benefits of a transparent distributed ledger in the financial market. Such a ledger would provide real-time oversight, information, and clarity to all participants, including regulators. This would lead to higher market participation, liquidity, less manipulation, and better regulatory management and enforcement. A semi-permissioned and decentralized architecture for the future would balance regulatory challenges while protecting investors and unlocking the potential of the financial markets.

We want to change this.

Rooba.finance believes in the power of the financial markets to be equitable despite its zero-sum nature. The zero-sum nature of the financial markets effectively necessitates the importance of having equitable systems in place for all market participants.

In judicial circles, justice should be done and seen to be done. Similarly, in financial markets, equity should not just be seen as being there but should exist. If markets by design are not equitable, it creates situations like cryptocurrencies which would force the shift to more equitable and open markets.

Ask any average market participant if he feels that the financial system is equitable, transparent, and efficient, and the answer in most cases is a resounding, no!

- Then why is it yet to be done?
- Why isn't a global financial infrastructure in place that works towards the common objectives of creating efficient, transparent, equitable, and profitable capital and financial markets?
- Why are capital markets efficient for the larger players rather than for the smaller ones?

WHY NOW

Rooba's ecosystem standardizes processes and solutions for real-time trades processing, from initiation to settlement, and uses blockchain for transparent reference data to improve counterparty creditworthiness.

Rooba's ecosystem allows for transparent data sharing with regulators, enabling them to actively monitor and evaluate transactions, assess systemic risk, and prevent market crises. Regulators, intermediaries and all participating players will have real-time access to on-chain analysis on request. Regardless, increased transparency can lead to self-regulation by market participants.

The change in trade-fi imagined by Rooba would increase efficiency and revolutionise the market, much like how the internet first changed the financial world.

For simplification, we can divide the nature of transactions in the capital markets into four categories: Pre-Trade, Trade, Post Trade, Custody, and security servicing.



Pre-Trade

We ensure that counterparties, regulators, and market researchers have complete transparency and verification of holdings. Pre-trade compliance on the Rooba platform includes verification of asset holdings, value, legality, encumbrances, transferability, etc. thus ensuring that even without a regulator or law enforcement agency verifying the same, counter-party risks involved in rug-pulls or underfunded trades are excised from the platform. Extremely easy and streamlined KYC/KYB and AML checks can be implemented seamlessly.

 **Trade**

Transaction mapping is done securely in real-time and ensures immediate and irrevocable settlement along with the immutability of records. As a result, constant reporting and supervision of the entire market becomes much simpler and can be automated.

Higher AML standards can be implemented and achieved by using a transparent network. Moreover, there is no counterparty risk through anonymity as all customers are on-boarded by Rooba.finance only after all regulatory checks and compliances like KYC/KYB/AML and CFT compliance.

 **Post-Trade**

Our infrastructure removes the need for a central clearing house and multiple post-trade intermediaries. As transparency in the market is increased, it eliminates many of the counterparty risks involved in trade, enabling reduced margins and collateral requirements to open up the market to more participants. Faster novation can be enabled along with significantly improved post-trade processing.

Other assets on the blockchain could also be used as collateral in the future to hedge risk more effectively.



Custody and Security Servicing

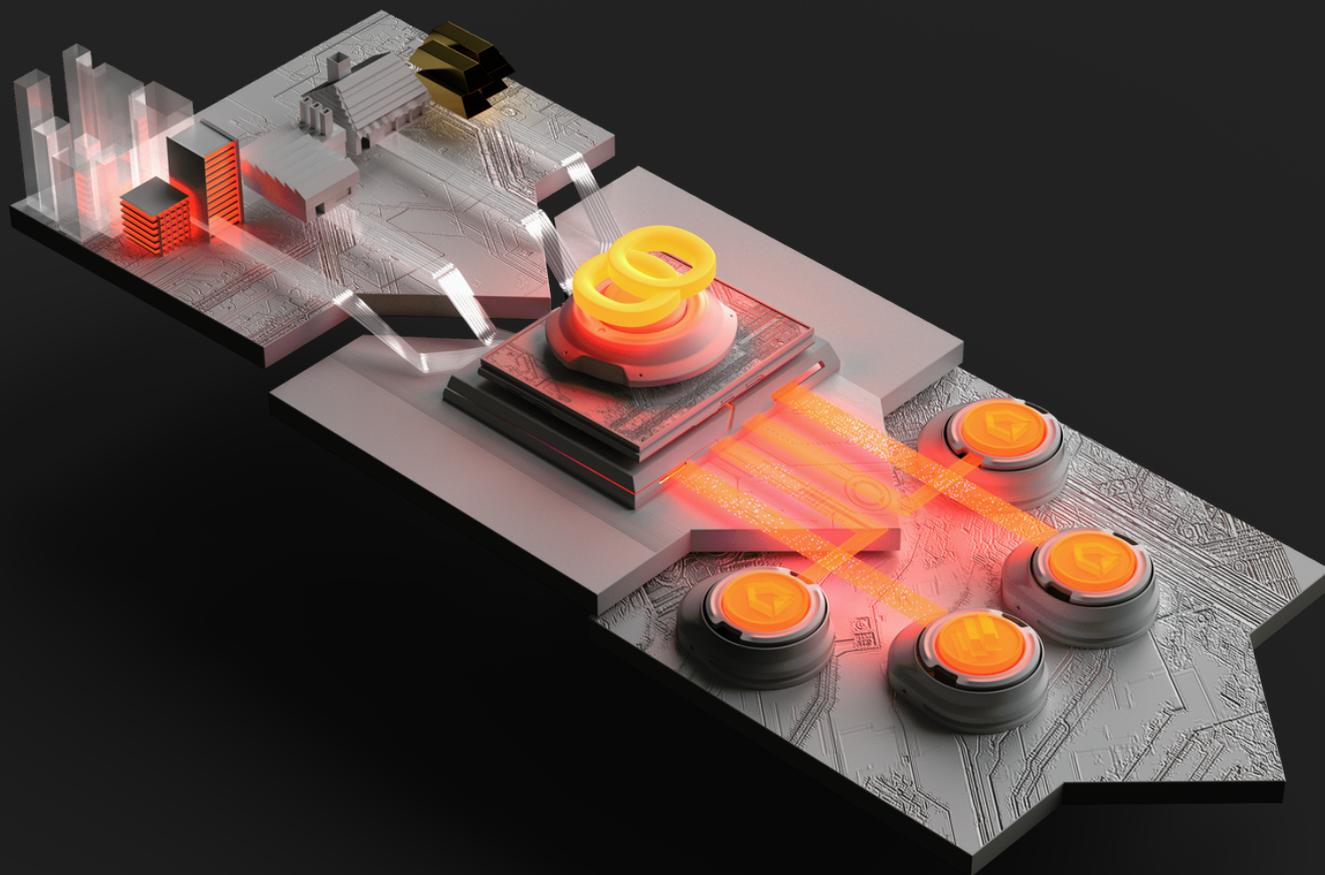
Rooba allows financial institutions to tokenize assets and automate servicing processes, streamlining the chain of custody and improving security coordination. Richer central datasets with flat accounting hierarchies enable more clarity for people wanting to enter a trade or even tokenize. An unadulterated common reference data that all can access is an excellent equalizer and prevents scenarios of contagion risk and market manipulation.

Rooba platform enables the automatic processing of fund subscriptions and redemptions, making them faster and more efficient while catering to a global audience. It also simplifies fund servicing, accounting, allocations, and administration by preventing overlapping claims to assets. For example, in our system, no two people would have any overlapping claims to an underlying asset which today has become a big worry in the commodities space due to a lack of transparency.



Vision

Rooba is building a comprehensive financial infrastructure that is transparent, interoperable, liquid, and efficient for all. We are doing this by using our three pillars of tokenization, self-custody, and trade. These pillars will help us reimagine, recreate and redefine how modern-day finance operates.



➔ THE ARCHITECTURE OF ROOBA'S PLATFORM

The Rooba platform consists of the following components:



ROOBA GUILD



ROOBA MINT



ROOBA VAULT



ROOBA TRADE CENTER



ROOBA GUILD

The digitization of public markets in the 90s caused significant changes in transparency, pricing, and access to information across multiple industries. However, private markets have largely been ignored by this change. However, this is beginning to change with increased fundraising activities for private markets worldwide.

The growth of online private market investment is also driven by the increase in investor comfort with technology and their willingness to take risks on new investments with higher returns but also higher perceived risks. This has led to an influx of capital from institutional and individual investors into private markets seeking new opportunities with potentially attractive returns.

Private markets are a valuable tool for entrepreneurs to raise capital, but they can be risky for investors due to a lack of infrastructure around trusted data. Specifically, there is no single oracle for such data as the EDGAR database in public markets, meaning there is likely asymmetry between investors and investee entities, leading to less price discovery. Thus, assets in private markets tend to become much more illiquid, and dislocations occur in prices at a higher rate than they would in public ones. Therefore, investors should be aware of the risks associated with the lack of infrastructure in private securities before investing.

Another problem with private markets is their need for more liquidity. A liquid market allows investors to convert their assets into cash or cash equivalents without drastically reducing their value. Alternatively, less liquid investments may need help reaching a fair price at the intended time frame due to the limited number of buyers and sellers.

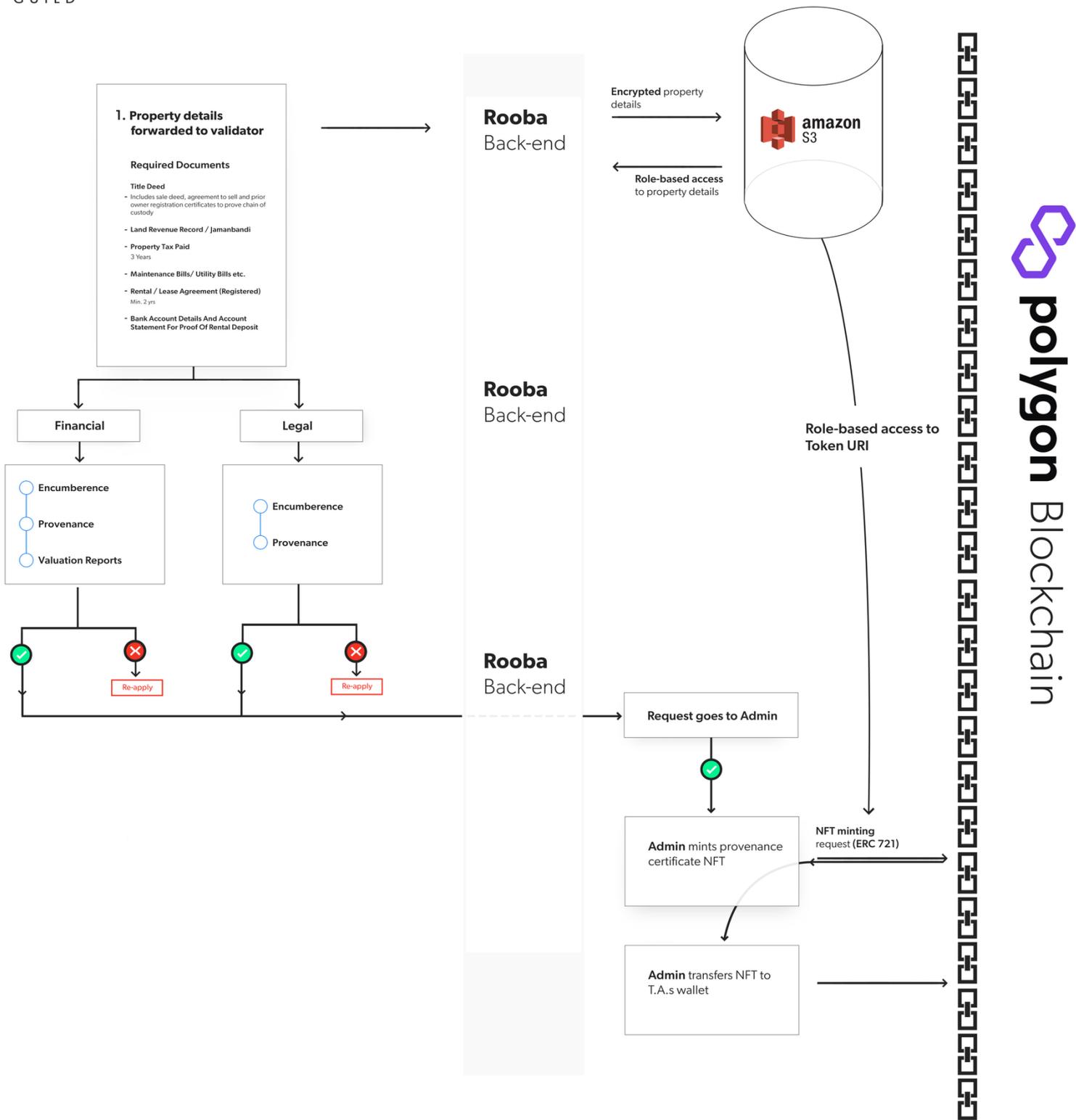
As a result, investors need to be more cautious when considering private market investments since it can take weeks or even months for them to exit an investment. This can create an undesired financial situation if investors need ready access to their funds.

Enter the Rooba Guild

Rooba Guild is a decentralized marketplace for service providers that do title checks, provenance checks, encumbrance checks, and valuation reports. This non-exhaustive due diligence performed by the Guild ensures that assets brought on-chain are thoroughly vetted to avoid the quintessential pitfalls of the private markets - lack of information and perceived risk.



Rooba Guild



The process of buying or selling a property can be complex and time-consuming, with many important checks that must be performed to ensure a successful transaction. The same applies to investing in companies through equity or debt. To ensure that the investment is safe and compliant, due diligence services are essential. Rooba Guild is a decentralized marketplace that connects service providers, such as lawyers, valuers, and auditors, with issuers of tokenized assets to provide thorough due diligence and ensure that the tokenized asset is a safe investment with proper documentation and disclosures in place.

This includes secondary checks of the underlying asset, such as real estate valuations and title checks, to ensure compliance with legal and commercial standards. By using Rooba Guild, investors can have peace of mind that all necessary checks have been performed and the investment is safe.

Only once this verification is complete do we allow an issuer to tokenize an asset. Plus, with Rooba Guild, the service providers are automatically and algorithmically chosen based on the location, size of the deal, and various other parameters, thus removing that real-world collision.



A non-exhaustive list of due diligence and services provided by the Guild on an asset basis follows:



Equity

Private placement of shares (voting or non-voting)

- Independent valuation of the company by an authorized valuer to ensure an independent check on the fair value of the equity being offered.
- Legal due diligence including but not limited to the necessary corporate paperwork and allied documentation surrounding a private placement of shares, i.e., regulatory compliance, PAS-4, AoA, MoA, SSHA, MGT-14, PAS-3, PAS-5, MGT-7, etc. (these are examples for the Indian legal system, however, this is a scalable process for other countries as well)



Debt

Private placement of convertible or non-convertible debt with varying investment terms.

- Independent financial valuation of the bonds being offered for investment, including but not limited to providing a credit rating, audit of the issuer, etc.
- Legal due diligence, including but not limited to the tasks described above for private equity issuance.



Commodities

Precious Metals & Gems, Tradable commodities (not restricted by law, art on an OTC marketplace).

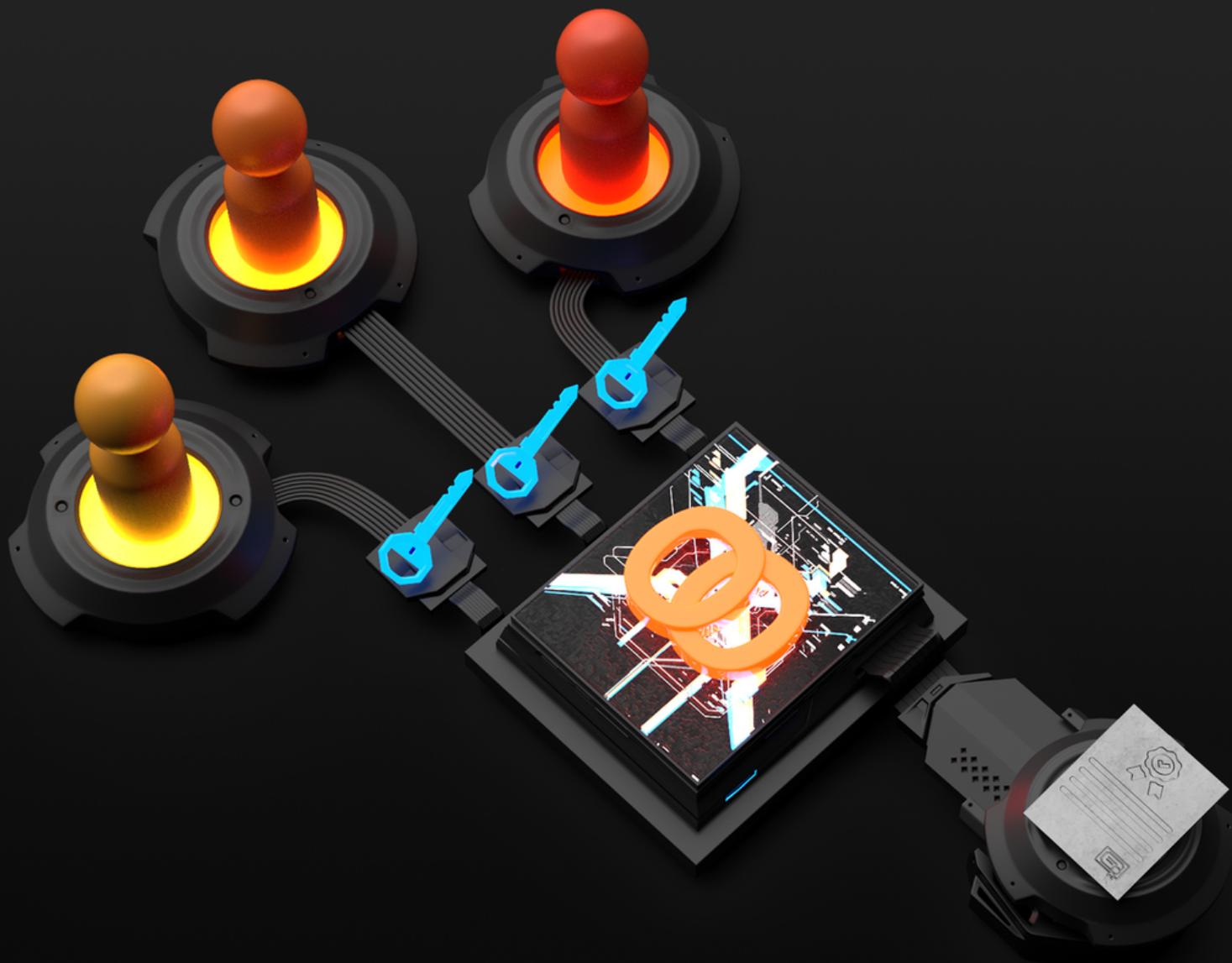
- Independent valuation of the commodity, including but not limited to hallmarking, weight / volumetric analysis, lot size, etc.
- Legal due diligence includes but is not limited to title and possession checks, safe custody / vaulting of the asset and allied paperwork, legality of commodity trade, creation of template trade agreements, etc.



Real Estate

Fractional ownership of the real estate and the allied bundle of rights associated with the title.

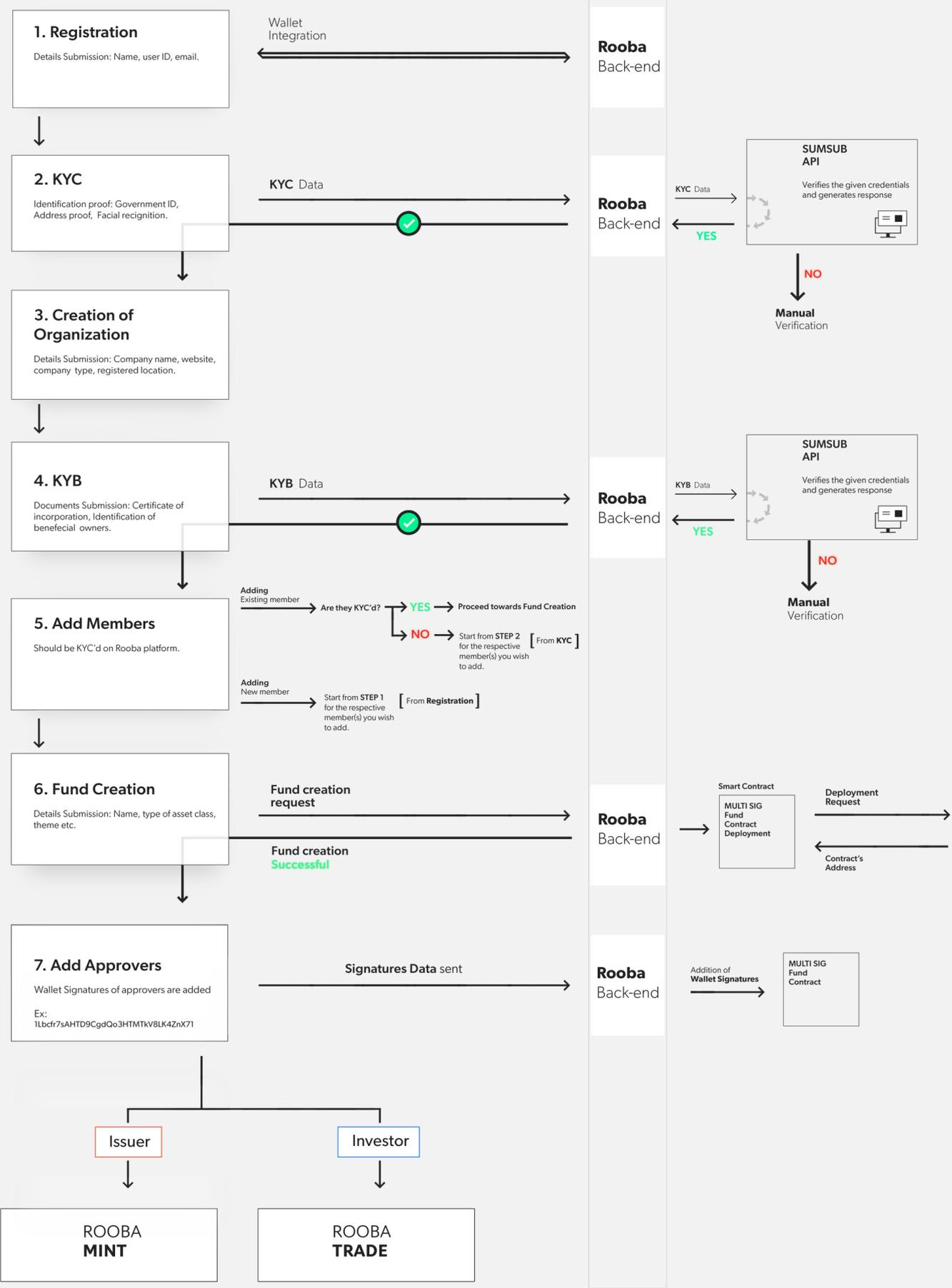
- Legal due diligence including but not limited to title, provenance & encumbrance checks, the legal validity of conveyance (i.e., regulatory restrictions), the validity of Special Power of Attorney executed on behalf of the trading parties, nature of the property, mutation application, etc.
- Financial due diligence, including an independent valuation of the property based on best practices such as referencing circle rate with the last three sales of properties of similar or comparable nature executed within the same area or within a specified radius to the property, sought to be tokenized.



➔ ROOBA VAULT

Rooba Vault is the first point of entry for all actors on the Rooba Platform. The Rooba Vault consists of the following:

- ➔ User Onboarding
- ➔ Organization Creation
- ➔ KYC/KYB/AML Checks
- ➔ Creating a Multi Sig Fund
- ➔ Depositing and sending tokens
- ➔ Initiate the Rooba Mint process



polygon Blockchain

➤ **User Registration and Verification**

Users will come to the platform and sign-up using their email id, name & password, and they will need to accept the terms & conditions.

➤ **Wallet Integration**

After logging in to the platform, the user needs to complete the MetaMask wallet integration, in which he will connect one of his MetaMask accounts on the polygon network (on polygon testnet currently) to the Rooba platform.

Note: Users can only register one wallet address under their Rooba account.

➤ **KYC Approval**

After successfully connecting to the MetaMask account, the user must complete the KYC. To complete the KYC user needs to submit one of his government IDs. The Compliance Provider will approve that.

Compliance Provider is an all-in-one- verification platform designed to catch fraudsters and aid businesses in meeting compliance regulations worldwide

➤ **Creating Organization**

Once a user's KYC gets approved, the next step will be creating an organization. From the profile section, the user can develop the organization. Submitting details like organization, name, domain, address, country & zip type- registered, unregistered. After submitting all the details, users can invite/add members to the same organization who are KYC verified.

➤ **KYB Approval**

After creating the organization, the user must complete the KYB for the organization they created. Again, Sumsb will take care of the KYB. Once KYB is completed for the organization. Users can see all the organization members in the members' option. Members can be added later, also.

➤ **Creation of the fund**

After that user needs to create a fund contract for an organization to hold the tokens. It is like a wallet that could have multiple owners or only one owner. It can also be used to transfer tokens from one address to another. Users need to fill in all the details required, and the next step will be to add approvers of the fund. In addition to adding multiple users to an organisation, users can create customised transaction approval policies involving a minimum of one and a maximum of three approvers per transaction for a given fund.

➤ **Custody of the tokens**

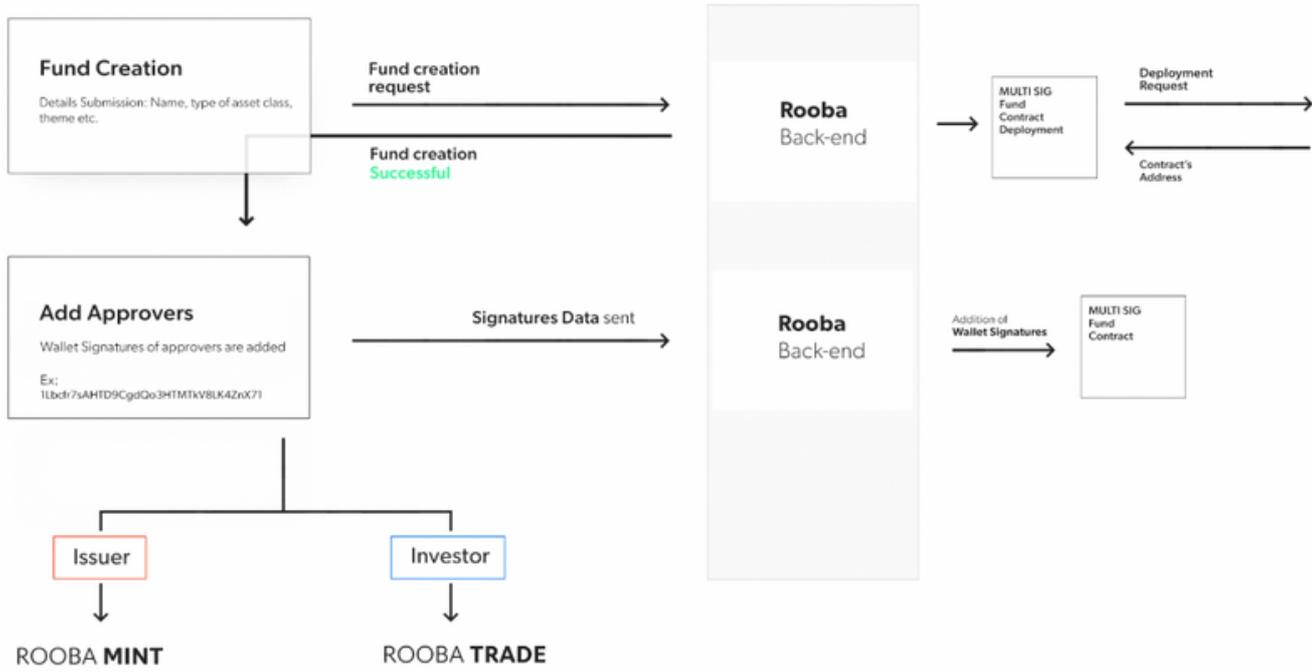
Tokens will be self-custodied by the user in his multi-sig contract. A MultiSig contract is a digital wallet that operates with multi-signature addresses. This means it requires more than one private key to sign and authorize asset transactions.

From a security perspective, tokens must be stored to eliminate the risk associated with a single vulnerable point that can compromise the entire wallet. If only one private key is necessary to sign a transaction, this presents a significant risk to your assets in case of theft or loss. To mitigate this problem, it is best to use a wallet with more than one private key to authorize transactions.

➤ **Transaction Processing**

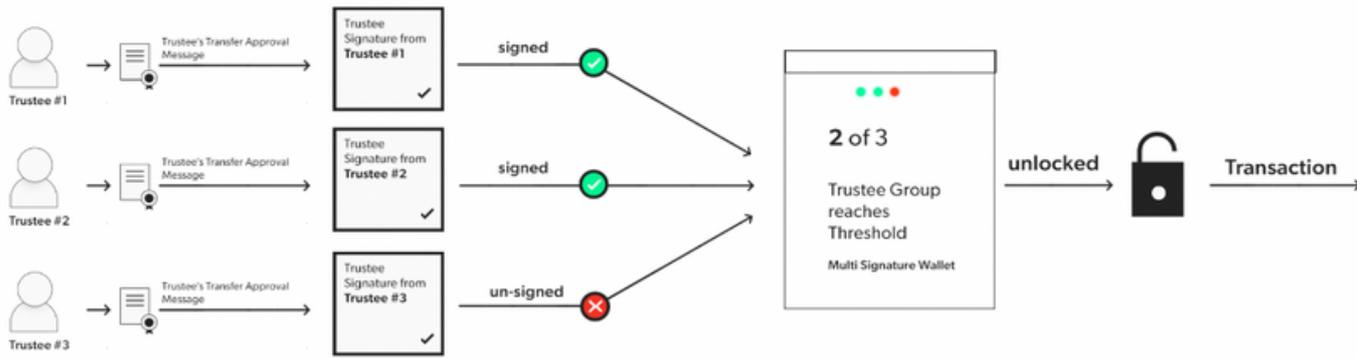
Then, to make a transaction, it is necessary to get the members' approval (signatures) as per the policy. After submitting all the details, a transaction will take place on Polygon Blockchain to create a fund contract on the chain. Once the Transaction is executed on Polygon Blockchain, you can see your created fund in the fund's section.

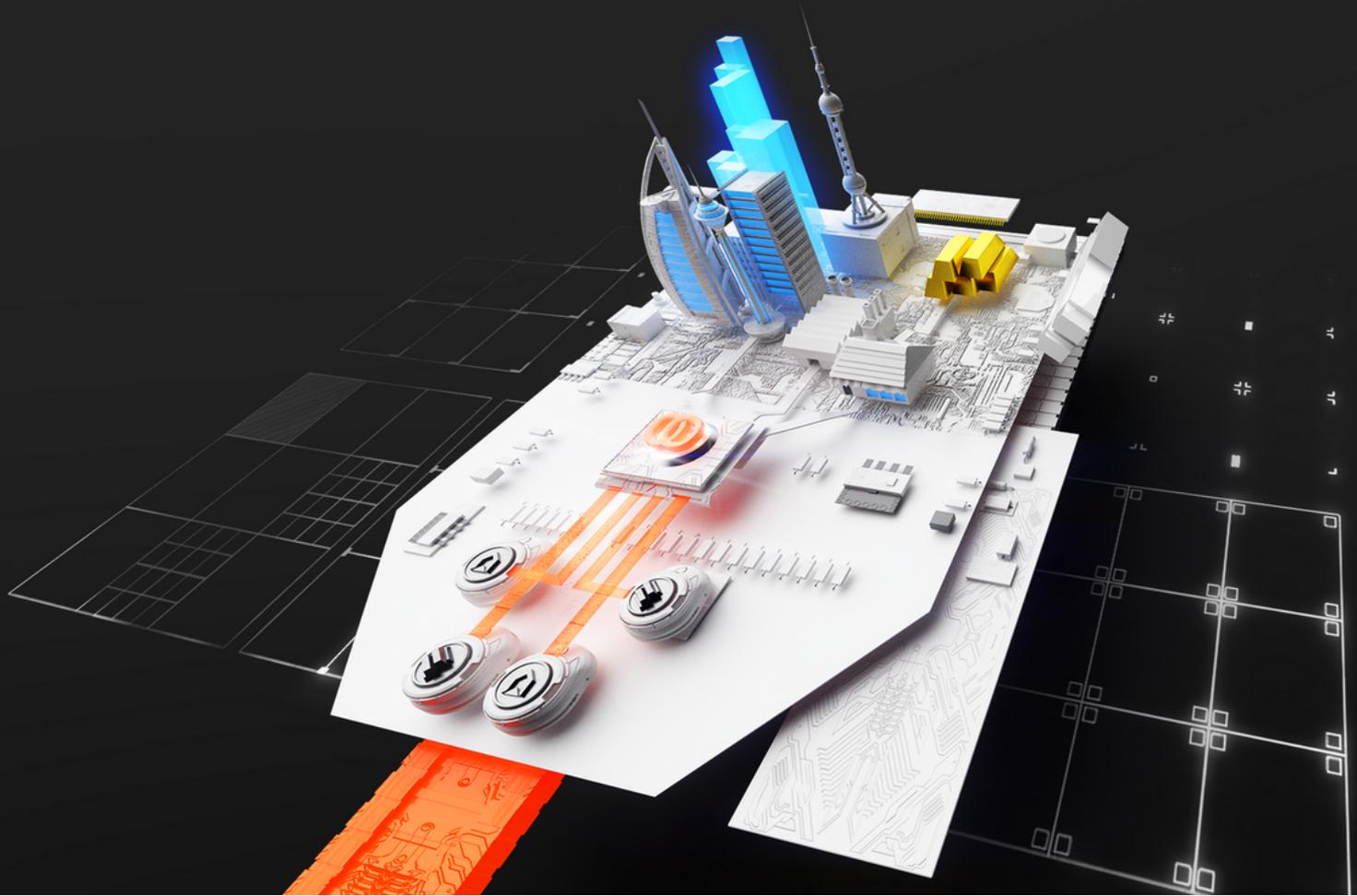
Rooba Vault



polygon Blockchain

Transfer Approval Messages





ROOBA MINT

Rooba Mint is Rooba's tokenization engine built around ERC 3643, ensuring regulatory compliance geographically and complete control over security issuance.

The ERC 3643 is an open-source suite of smart contracts that enables the issuance, management, and transfer of permissioned tokens. The standard has seen tremendous adoption since its launch. In addition, more than 180+ jurisdictions enforcement is available through this standard.

The four key features that benefit Rooba's tokenization system is

- **Encoded Compliance**

All transfer rules like KYC, KYB, AML local restrictions like LRS, cross-border payment rules, etc., are encoded into the token.

- **Control Securities**

Even with direct ownership by the investors, the issuers/agents control the tokens to ensure regulatory compliance in case of bad actors. Control mechanisms include force transfer, freeze and locking.

- **Reduction of Costs**

Rooba's platform will be able to offer highly reduced fees with T+0 instant on-chain settlements and reduced trade facilitating parties.

- **Increase Transferability**

Rooba's clients can unlock assets that were otherwise locked as illiquid assets, making them high-functioning and improving liquidity.

With valuation, validation, and provenance coming from the Rooba Guild, the tokenization incorporates the parameters



**ROOBA
MINT**

Selection of asset classes

Real Estate

Submission of
Property Details

**Rooba
Back-end**

Data
Request



**Rooba
Back-end**

Request sent

Admin
Approval
Request

**Rooba
Back-end**

Minting of Provenance certificate as NFT
NFT Minted and transferred to Transfer Agent



polymon
Blockchain

Custodian API
Verification of auth code

Request

Admin

Approval Request
sent

**Admin assigns
Transfer Agent**

Address

**Rooba
Back-end**

Request sent

Commodities

Submission of
Authorization
Code

**Rooba
Back-end**

Details sent

Token Supply
Details

Admin deploys **ERC3643 Standard Contract** on chain for tokens

Token gets **listed on Marketplace**

HOW DOES ROOBA MINT WORK?

Issuers/Agents bring the provenance certificate from Rooba Guild. Additional parameters must be added depending on the asset class (Gold, for example, would require the auth token from the physical custodian).

The Mint works through these steps:

- **Required Documents and input**

This includes all external and physical world contracts required to establish the unbroken chain of custody from off-chain to on-chain. Additionally, the issuer must upload all other collaterals necessary for issuances, like marketing documentation and other investor-related documents.

ROOBA FINANCE

0xd9...f31 | abhishek

Proof Of Custody

Authentication (✓) | Assets Details (●) | General | Token Supply | Review

Details

Custody Verification Code: GLD-1404-SBI-100001

Authentication Token ID: weq115ysv64s2scyeeeeegakjcr0taa

Assets details from: SBI Holdings

Type :	GOLD	Purity	99.3
Serial No.	GLD-100001	Vault Location :	Dubai
Created Date :	Oct 28, 2022 11:27 AM	QTY/GM	100000

Download Electronic Receipt [Download]

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- **General**

Asset Class: The type of the asset is defined here. Currently, Rooba supports real estate and commodities, though we aim to scale the platform to include private securities.

Net Asset Value: This is an auto-populated field derived from the Rooba Guild.

Blockchain: The blockchain on which the tokens are to be minted (Rooba currently supports only Polygon).

Jurisdiction: The jurisdiction(s) where this asset class can be serviced. Compliance policies will automatically apply to the asset token depending on the jurisdiction selected.

Smart Contract: The factory contract used for tokenization is displayed here. It's automatically created (One factory contract per issuance).

Digital Asset Name: The issuer decides on the name of the asset being issued.

Digital Asset Symbol: The issuer decides on the Symbol of the asset to be used in the marketplace and exchanges. (Note: Once decided and input, the Symbol, and name cannot be changed).

- **Token Supply**

- Number of Tokens

The maximum number of tokens that can be issued based on the limitations of the physical asset

- Price per Token

Depending on the asset class, this would be fetched from the Rooba Guild (For ex: Real Estate) or a Market Oracle (for ex: Gold Prices from Chainlink)

- **Fractionalization Ratio**

The ratio of how much each physical asset unit is fractionalized through tokens.

- **Minimum Supply**

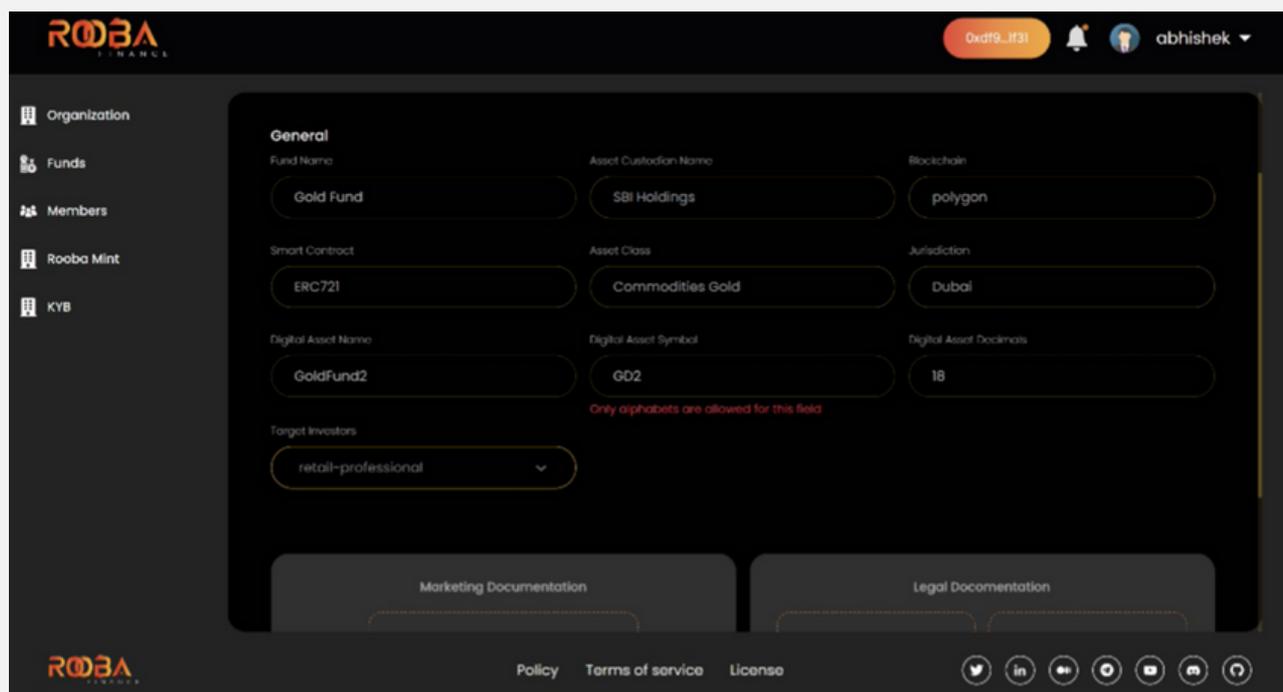
the minimum supply that needs to be considered when issuing. This takes into account the physical and regulatory constraints as well.

- **Maximum Supply**

Similarly, the maximum number of tokens that can be minted for the corresponding physical asset .

- **Custom Supply**

A custom number of tokens that can be minted as required by the issuer (this is a number between the Minimum and Maximum supply)



The screenshot displays the Rooba Finance dashboard with a sidebar on the left containing navigation options: Organization, Funds, Members, Rooba Mint, and KYB. The main content area is titled 'General' and contains the following fields:

- Fund Name: Gold Fund
- Asset Custodian Name: SBI Holdings
- Blockchain: polygon
- Smart Contract: ERC721
- Asset Class: Commodities Gold
- Jurisdiction: Dubai
- Digital Asset Name: GoldFund2
- Digital Asset Symbol: GD2
- Digital Asset Decimals: 18
- Target Investors: retail-professional (dropdown menu)

Below the form, there are two buttons: 'Marketing Documentation' and 'Legal Documentation'. At the bottom of the dashboard, there are links for 'Policy', 'Terms of service', and 'License', along with social media icons for Twitter, LinkedIn, Facebook, YouTube, and Instagram.

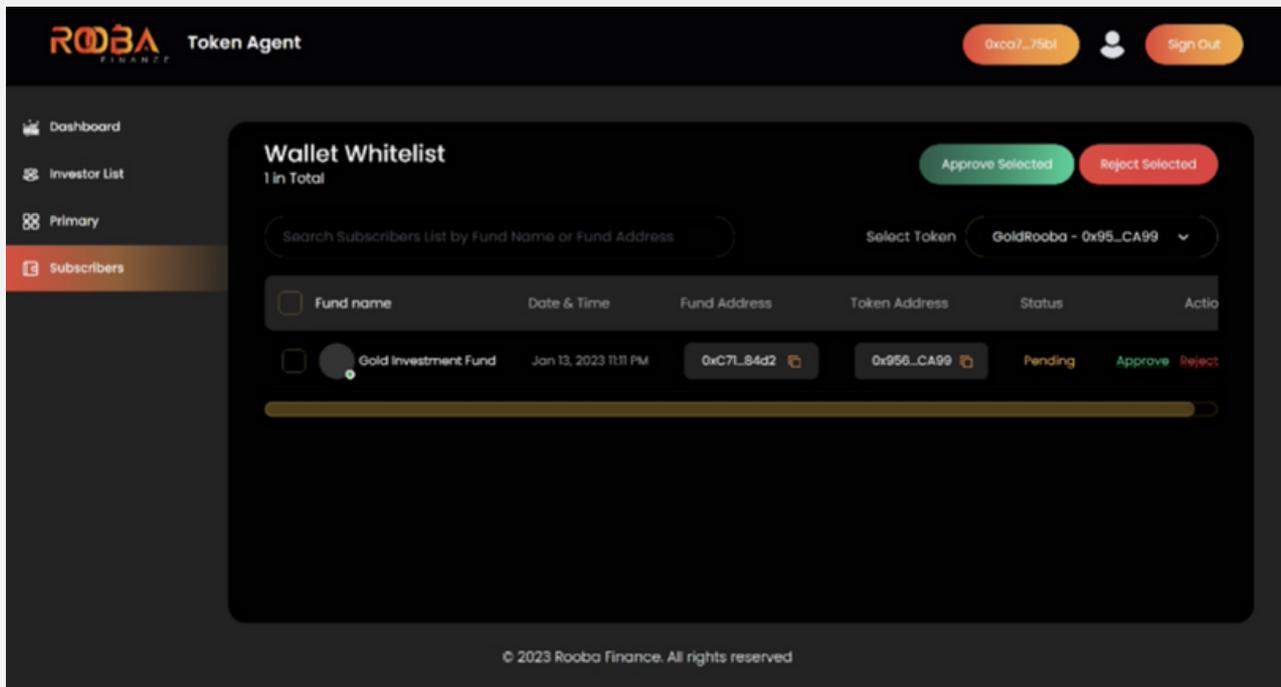
- **Trade Setup**

- Secondary Trading

Should secondary trading be allowed for this token? (Depending on asset classes - E.g., Allowed in Gold Tokens but not Private Equity Tokens considering the shares may not be freely tradeable as per the MoA / AoA / SSHA.)

- Whitelisting

Should these tokens be issued only to whitelisted wallets/buyers. Whitelisting shall be explained in detail subsequently, but in a nutshell, whitelisting ensures that the recipient wallet is regulatory compliant for the token and underlying asset issuance/trade in question.



The screenshot displays the 'Token Agent' interface for Rooba Finance. The top navigation bar includes the logo, 'Token Agent', a user profile icon with the address '0x0a7...75ba', and a 'Sign Out' button. The left sidebar contains navigation options: Dashboard, Investor List, Primary, and Subscribers (highlighted in orange). The main content area is titled 'Wallet Whitelist' and shows '1 in Total' entries. At the top right of this section are 'Approve Selected' and 'Reject Selected' buttons. Below is a search bar for 'Search Subscribers List by Fund Name or Fund Address' and a 'Select Token' dropdown menu currently set to 'GoldRooba - 0x95...CA99'. A table lists the whitelisted entry:

<input type="checkbox"/>	Fund name	Date & Time	Fund Address	Token Address	Status	Action
<input type="checkbox"/>	Gold Investment Fund	Jan 13, 2023 11:11 PM	0xC7L_84d2	0x956...CA99	Pending	Approve Reject

At the bottom of the interface, a copyright notice reads: '© 2023 Rooba Finance. All rights reserved.'

- **Review & finalize**

Once all the above configurations have been completed, the issuer can see everything in one place and make any changes if required. Once finalized, the issuer submits the form for the issuance of tokens.

- **Tokenization and Verification**

The user will select which commodity they want to tokenize. The commodity's price will be reflected upon the token on that selection. The tokenization process starts with authentication. Authentication requires a verification code from a regulated custodian (using our secure communication channel to prevent misuse) who would receive the physical commodity (for example, gold), which will be given to the user by the custodian.

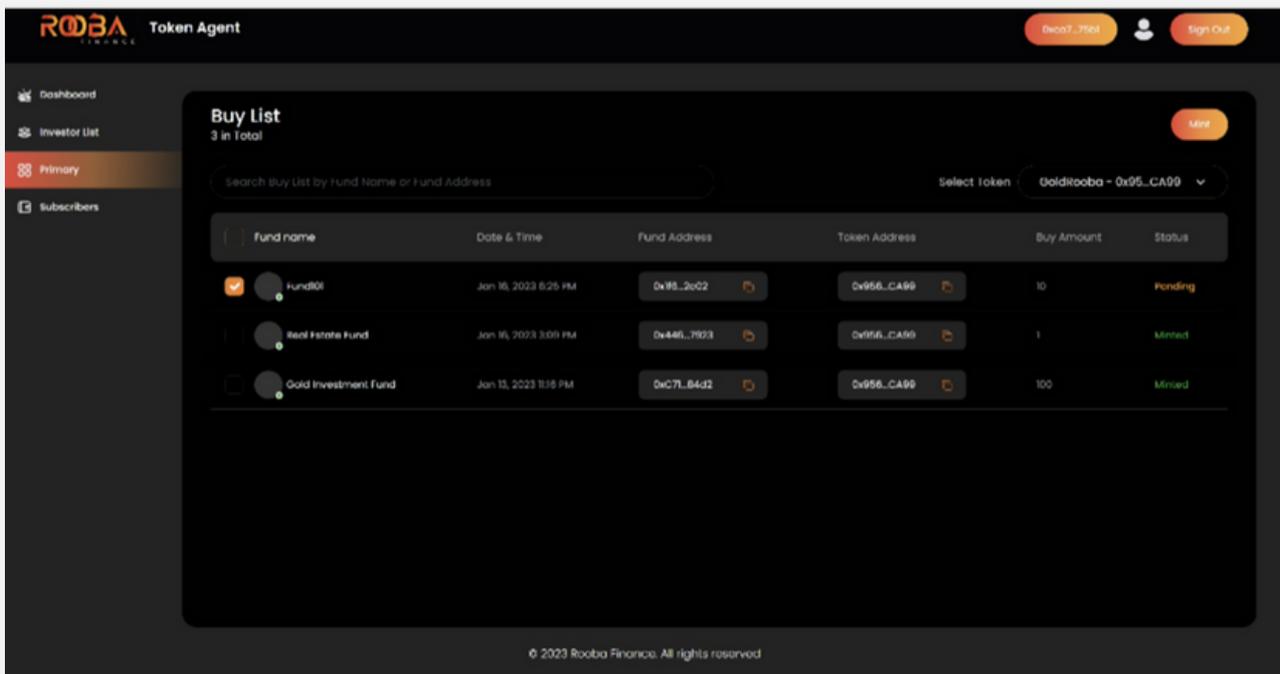
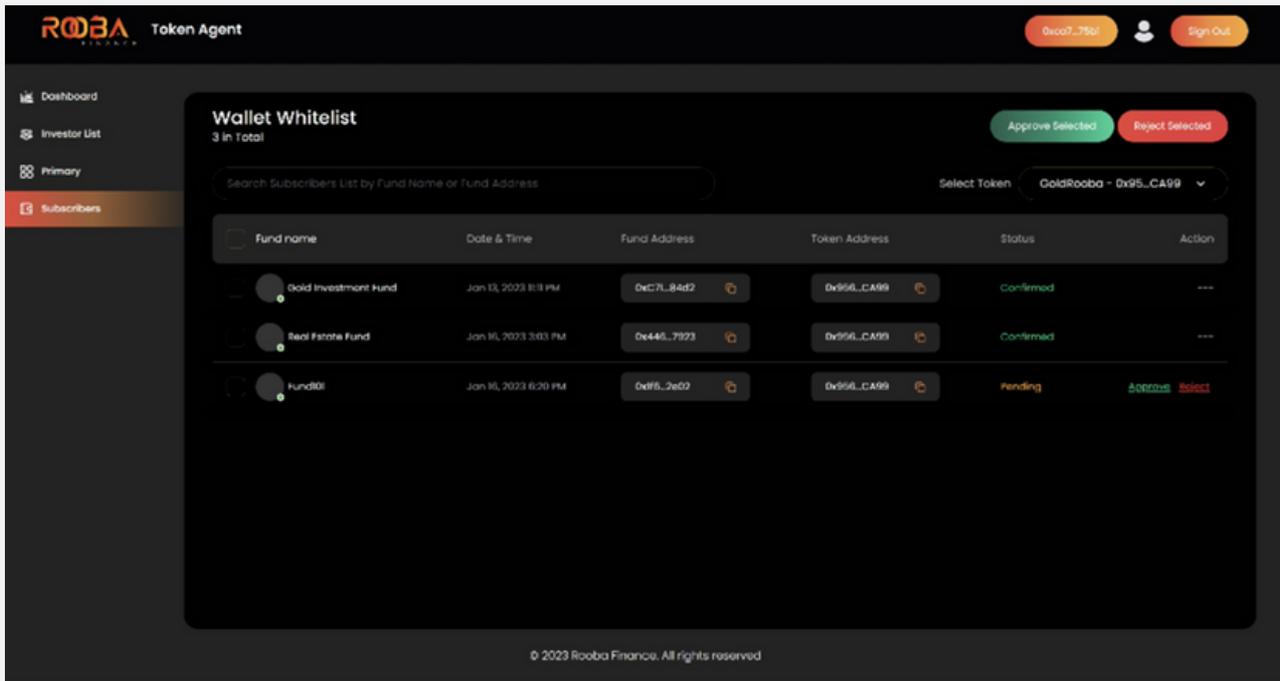
The custodian will verify the custody verification code through the API connected to our platform, which will return all the details from the custodian about the custody.

- **Creation of token**

Now that the fund is created, we will move on to the creation of the token. A token standard that Rooba uses is called an ERC-3643 contract used by the fund as its commodity.

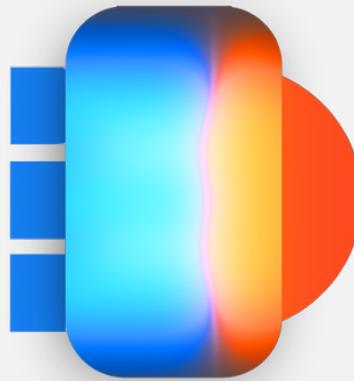
- **Subscription & Transfer Agent**

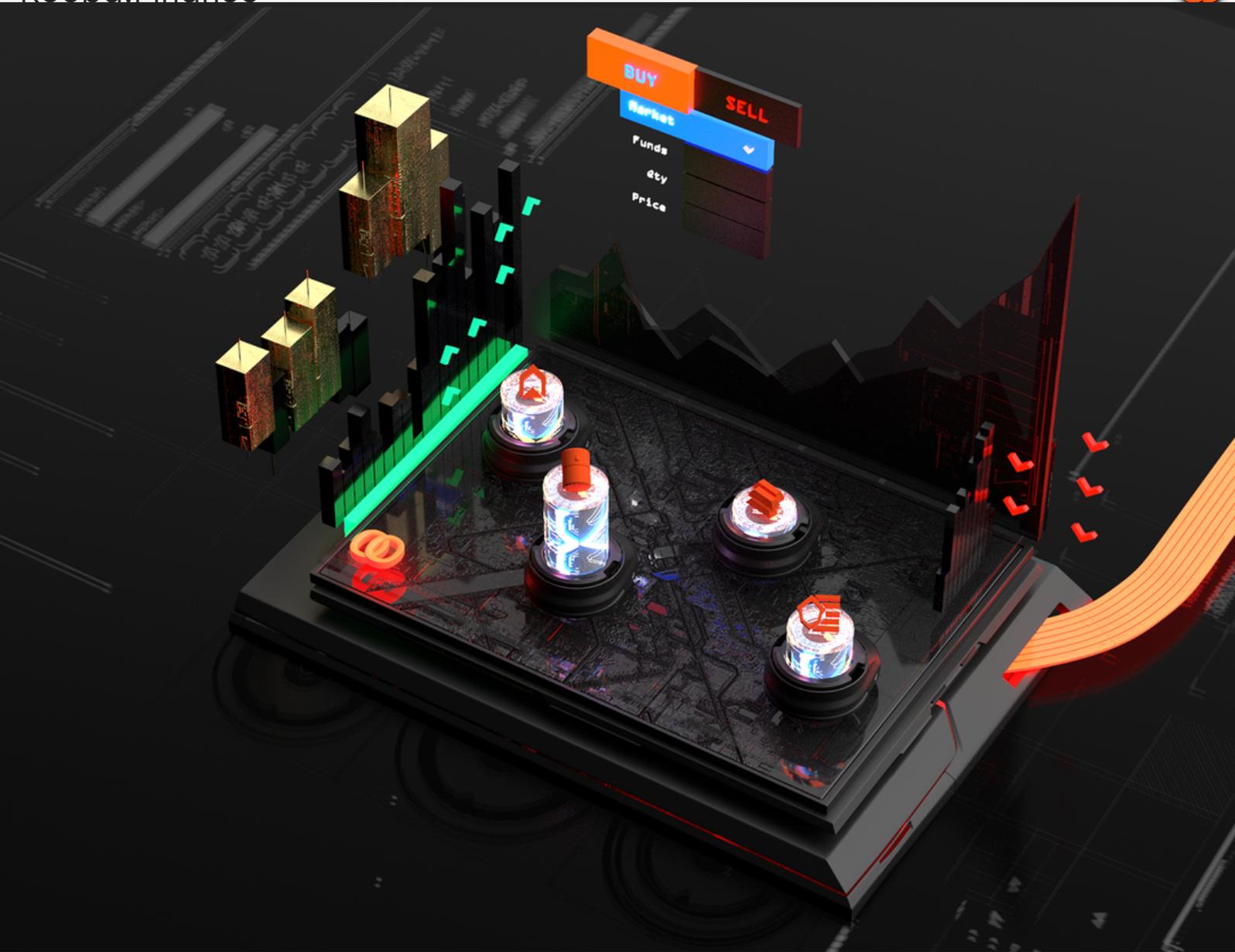
The Transfer Agent receives the form for the issuance of tokens. The Transfer Agent is a compliance officer in charge of minting the tokens and issuing them to Rooba trade users who wish to invest in a token. The transfer agent ensures that wallets which are requesting issuance are legally compliant.



Accepting subscription orders for primary issuance is one of the roles of the Transfer Agent. Once the transpiration translation receives a 10% token for the primary issuances, it makes the final call for money, mints the token, and transfers it to the user's wallet. The Mint and transfer are done only on confirmation of receipt of the total funds into the escrow account maintained on behalf of the issuer for this transaction issuer's wallet. At no point does the TA receive funds in his wallet and then transfer them to the issuer

In instances where the wallet and its user are updated onto AML / CFT lists or in the example of an illegal transaction qua the local jurisdictions, the TA can force transfer the tokens out of the wallet. The TA can also freeze trade of the tokens if the Local Law Enforcement Agencies/Regulators require so.



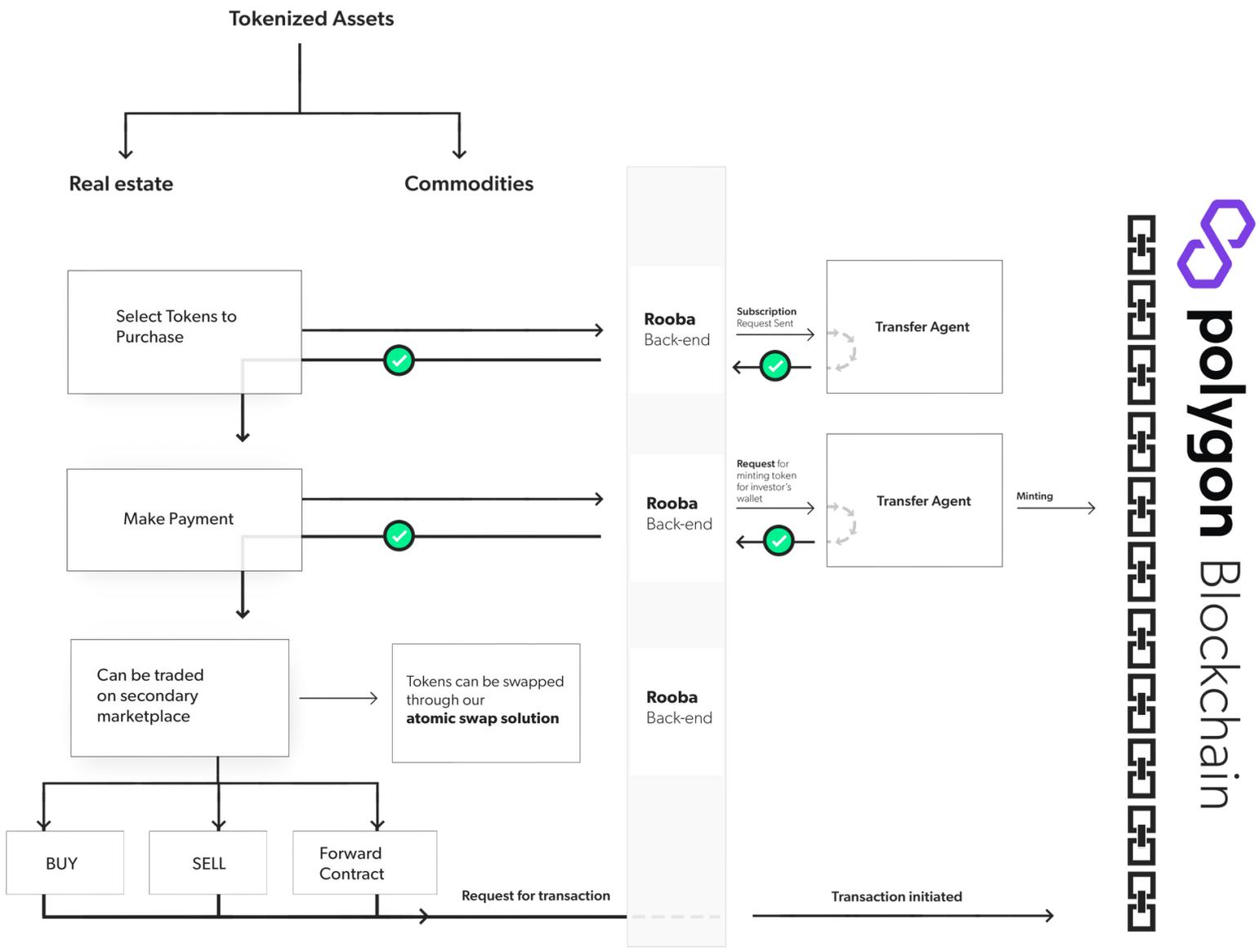


ROOBA TRADE CENTRE

Decentralized finance mainly uses cryptocurrencies, staking, and yield farming to automate processes and remove the need for middlemen involved in the validation, settlement, and clearing for the sale and purchase of securities using smart contracts and Tokenomics.

This results in reduced friction and inefficiency in markets and allows for the creation of new economies with transparent, immutable, and shared databases for all transactions on decentralized applications and blockchains.

Rooba Trade



Cryptocurrencies are known for their volatility due to a high volume of trading often with leverage, which leads to large price movements and frequent liquidations.

Additionally, the unregulated and anonymous nature of trading in the ecosystem leads to issues such as wash trading, insider trading, and market manipulation. This volatility also affects the stability of De-fi, which is built on these cryptocurrencies, due to a lack of regulation, poor Tokenomics, and unstable incentive structures.

Despite the volatility in the crypto market, De-fi and blockchain technology have brought tangible benefits to the financial industry by providing a safe, transparent, and efficient way to access structured financial products, illiquid assets, securities, and commodities for a wider audience. Through this we intend to avoid the pitfalls of the crypto markets and its murkiness by bringing audited, verifiable and tangible assets on the blockchain which is secured by the custody of the underlying asset or capital market instrument.

With Rooba.finance's tokenization, self-custody, and dynamic trade station, we bring real-world assets onto a public ledger in a safe and compliant manner to enable the tokenization of real-world assets and plug them into our protocol to allow a world of new possibilities around the private markets or as we like to call it, Private markets 2.0.

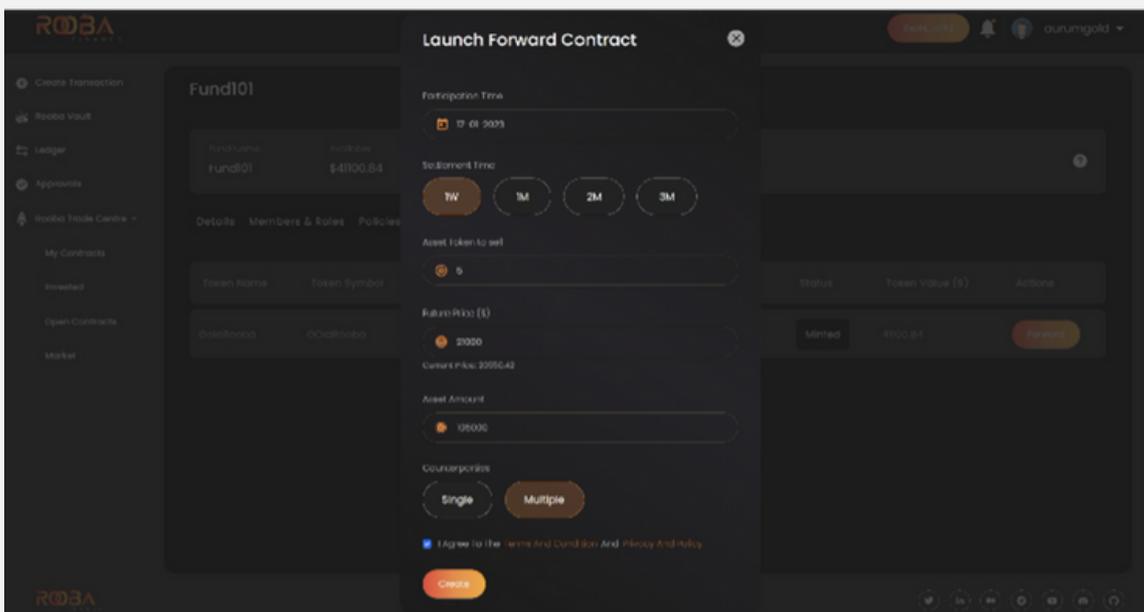
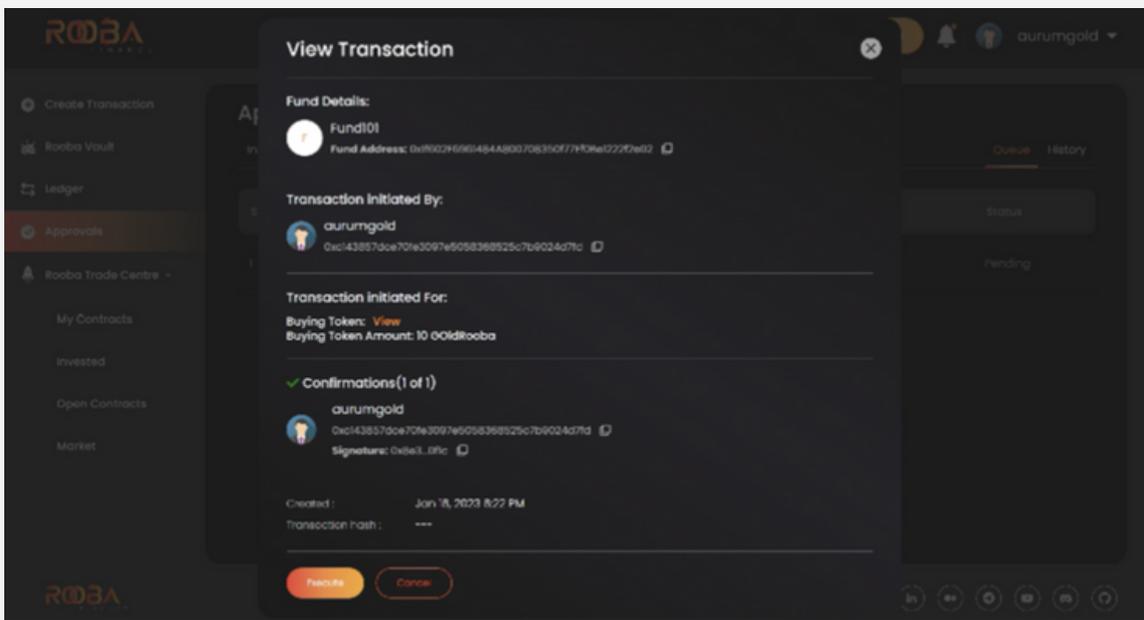
One of the key advantages of Rooba.finance is that assets are always in the custody of the user or a delegated custodian, giving the user full control over their assets and the ability to access all the yield generated by those assets. This is different from traditional finance where the user may not have the same level of control or visibility over their assets.

Additionally, users can decide how much of their assets they want to lend out or borrow against and have greater control over the risk associated with their portfolio, without the risk of losing assets as with traditional players.

• **Trading of Tokens**

Once the tokens are issued and minted to the primary investor, you can trade them in the secondary marketplace by creating a trading contract.

This is where Rooba brings together Real world Assets with De-fi using our Rooba trade platform



On our platform, investors get access to the following

- **Fractional investing**

Tokenization on the platform enables issuers to fractionalize illiquid assets such as real estate, bonds, funds, private market securities, and commodities. This allows for reduced illiquidity discount and faster liquidity, as well as dispersing some risks. Additionally, it opens up access to these asset classes for a new investor base who previously had no access.

- **Single Asset Collateralized borrowing**

Today, access to credit is more widely available but still has its issues such as being expensive, inefficient, and exclusionary. Decentralized finance allows borrowing against cryptocurrencies, but it has been traditionally overcollateralized and risky due to the volatility of cryptocurrencies. Our platform allows borrowers to have more options through its collateralized borrowing feature.

Rooba's borrowing protocol is where people deposit USDC into a liquidity pool that is used to supply USDC against real-world asset tokens, given below is an overview of our process:

- Users deposit USDC into the liquidity pool, which increases the pool's total value. The pool's total value is the sum of all USDC deposits.
- Prospective borrowers deposit their real-world asset tokens into the smart contract as collateral. These tokens are valued and the value is recorded on the smart contract. The total value of the collateral is the sum of the values of all deposited real-world assets.

- Borrowers can then borrow USDC from the liquidity pool by specifying the amount they wish to borrow and the type of collateral they will use. The amount of USDC that can be borrowed is determined by the value of the collateral and the loan-to-value (LTV) ratio.
- **Loan-to-Value (LTV) Ratio:** This formula calculates the maximum amount of a loan that can be taken out against a given amount of collateral. It is typically expressed as a percentage.

The formula is:

$$\text{Loan Amount} / \text{Collateral Value} = \text{LTV Ratio}$$

For example, if the LTV ratio is 60% and a borrower has \$10,000 in tokenized gold collateral, they can borrow up to \$6,000.

- **Interest Rate Calculation:** The interest rate for the loan is typically calculated based on the current market interest rate and the risk profile of the borrower. The formula for calculating the interest rate is simple:

$$\text{Interest Rate} = \text{Base Interest Rate} + \text{Risk Premium}(\text{supplied by Rooba Guild})$$

- **Repayment Schedule:** The smart contract would need to calculate the repayment schedule for the borrower based on the loan amount, interest rate, and the rental yield generated by the real estate tokens. This is done using the following formula:

$$\text{Repayment} = (\text{Loan Amount} * \text{Interest Rate}) / (1 - (1 + \text{Interest Rate})^{-\text{Loan Term}})$$

- **Liquidation Process:** The smart contract would need to calculate the liquidation price of the tokenized gold collateral in case of default. This could be done by multiplying the current market price of gold by the total number of tokenized gold. Additionally, the smart contract would have to check the liquidation ratio, which is typically lower than the LTV ratio, to trigger the liquidation process.

- The interest rate for the loan is also specified, for example 7%. The interest is paid by the borrower on regular intervals, for example monthly or weekly.
- If a borrower fails to repay the loan, their collateral is liquidated to repay the loan. The liquidation process is typically triggered when the value of the collateral falls below a certain threshold, called the liquidation ratio, which is usually lower than the LTV ratio.
- The liquidation process may involve selling the collateral and repaying the loan with the proceeds, or finding another lender to take over the loan.
- E.g., By tokenizing my \$10 million home in Tribeca, I have the option to supply a percentage of my tokens to the borrower pool in order to gain temporary liquidity against my property. In this example, I have chosen to supply 75% of my tokens, equivalent to \$7.5 million, to the borrower pool.

Our platform's protocol then releases \$5.625 million, which is provided by liquidity providers such as banks, funds, or individual investors seeking a stable return on the platform. The borrower would receive \$5,568,750 after 1% is deducted as a fee to cover expenses such as guild and other expenses. The collateral of \$7.5 million is met by the liquidity providers who provide \$5.625 million.

This loan would be offered competitively concerning the rest of the market facilitated by traditional financial institutions.

- **Multi-Asset collateralized borrowing**

As the platform enables the tokenization of various tangible world assets, multiple assets are also utilized in a particular borrowing pool.

For example, a person wishing to borrow from against some of his gold and real estate could be enabled on our platform where a person deposits tokenized gold and real estate into a borrowing pool which would then calculate a rate of interest vis a vis the collateral which has been supplied and its utilization ratio, as different asset classes have a different utilization ratio.

Here a borrower and a lender would be secure while also having the ability to generate liquidity from various asset classes which have been tokenized on the platform.

- **Ecosystem-automated structured finance**

On the Rooba platform, investors can buy various tokenized assets, some interest bearing some purely for appreciation. We asked ourselves why not make them interoperable? Our platform uses the smart contract-based implementation of essential financial functions, which automates several manual processes, at the same time transactions are maintained on an immutable ledger with strict and automated rule-based compliance, liquidation, and risk management.

Given below are the step by step process our automated interoperable structured finance offering which our platform enables :-

- Let's take the earlier example explaining the framework of an investor collateralizing his tokens. Let us use the example an Investor who purchases tokenized gold on the platform by buying gold tokens that are backed by physical gold. These tokens can be collateralized on the platform's marketplace to borrow USDC from the borrower pool
- Once the borrower has received the stable currency, they can use it to purchase real estate tokens on the platform's marketplace.
- If the real estate tokens are rent bearing, the borrower can link their repayment to the rental yield generated. The smart contract would automatically track the rental yield and adjust the borrower's repayment schedule accordingly.
- If there is a difference between the interest rate and the rental yield, the smart contract would automatically deduct the difference from the borrower's repayment schedule.
- If the borrower fails to repay the loan, the smart contract will automatically trigger the liquidation process to sell the tokenized gold collateral and repay the loan.
- The smart contract would also enforce strict compliance and risk management rules to ensure that all transactions are compliant with regulations and that the platform's overall risk is managed

• Atomic swaps for tangible world assets

An atomic swap is a type of trade that allows two parties to exchange one cryptocurrency for another without the need for a trusted third party. On a blockchain, this is typically done using smart contracts.

To perform an atomic swap between real-world asset tokens, such as gold and real estate, both assets would first need to be tokenized and represented on the blockchain which our platform seamlessly enables.

Once the tokens are created, a smart contract can be deployed on chain that allows for the atomic swap to take place. The smart contract would hold the assets in escrow and release them to the appropriate parties once the trade is completed.

The process would involve the following steps:

- The two parties, the gold token holder and the real estate token holder, agree on the terms of the trade and the exchange rate.
- The two parties, the gold token holder and the real estate token holder, agree on the terms of the trade and the exchange rate.
- The smart contract verifies that the gold tokens have been received and holds them in escrow.
- The real estate token holder sends their real estate tokens to the smart contract.
- The smart contract verifies that the real estate tokens have been received and releases the gold tokens to the real estate token holder and the real estate tokens to the gold token holder.

The trade is atomic, meaning that it is either completed in full or not completed at all, and the assets are transferred simultaneously, so neither party must worry about the other party not following through on the trade.

BENEFITS OF ROOBA FINANCE

Transactions with Transparency and Low Costs

The use of a distributed ledger to store real estate tokens offers a solution to the problem of ownership and market transparency. Through digitization, assets are protected and transparency is improved.

Every aspect of the asset, including contract conditions, transaction details, preferences, and interest payment deadlines, is encoded into a secure digital token. This provides both the investor and the seller with increased transparency. Additionally, the cost of buying and selling a home is reduced through the elimination of intermediaries and reduced administrative work.

Proof of Ownership

Digital Provenance and Deposit Certificates. Rooba with its custodian and vault partners will provide you a transferable digital deposit receipt against the custody / deposit of your assets pre-tokenization. Through these legal documents demonstrate an investor's ownership rights while tokenization uses a distributed ledger that is voluntarily shared, synchronized across multiple locations, and made available to multiple users. Transactions are verified to address any issues of ownership claims. The information recorded in blockchain ledgers can't be altered, allowing for easy evaluation of previous or present transactions once ownership or partial ownership is stated.

Increases Liquidity and Market Access

Tokenization addresses the issue of liquidity in real estate by simplifying buying and selling properties by eliminating intermediaries and allowing for a direct transfer of ownership from the investor to the investor.

This opens up real estate investing to a wider audience and enables anyone with enough money and internet access to sell, acquire or hold real estate assets from anywhere globally. Additionally, tokenization also allows for fractional ownership of assets.

Fundamentally Improved Operational Efficiency

Tokenized assets improve the efficiency of the market by reducing transaction costs and streamlining IT systems, by sharing infrastructure among participants and minimizing the use of a central third party for transaction validation. Blockchain technology provides a single IT layer of trust, enabling diverse stakeholders to interact with the digital representation of an asset, increasing efficiency across the value chain or industry, and facilitating new forms of collaboration.

For example, in the trade finance industry, smart contracts are used to automate and streamline large-volume trading by enabling companies to communicate information about assets being transferred globally.

Efficiency can be improved by digitizing and automating manual tasks and reducing reconciliation and compliance labor. Transactions can be settled and approved quickly by automating simple send/receive transactions, allowing for transactions to be completed in seconds rather than hours or days.

Using DLT/Blockchain, diverse firms can collaborate to generate a digital token, consolidating previously fragmented data into a single digital token, and allowing all parties to seamlessly update and verify the information.

Blockchain technology also eliminates intermediaries from the supply chain and market, enabling digital channels to handle distribution without intermediaries, and making everything peer-to-peer. Tokenizing commodities utilizing smart contracts is the most innovative aspect.

Smart contracts are agreements between parties that are programmed on the Blockchain as decentralized software that executes itself and can act as a guarantee for payment of the price once the commodities have been delivered, making costly intermediaries in international transactions between untrusting parties unnecessary.

Fraud-Proofless and Technical Security

Blockchains are well-known for their security. Because digital assets cannot be faked, market participants may be confident that each unit is genuine. Before storing actual assets, Blockchain Mercantile Company meticulously inspects them with the support of numerous third parties, ensuring that each digital unit is backed by what it is supposed to provide ownership to.

CONCLUSION

Using Rooba.Finance's full stack solution real world assets can be brought on chain along with real time value, compliance and legal rights being brought on chain as well. This opens up an opportunity whereby the vision that Rooba finance is working towards i.e. Rooba is building a comprehensive financial infrastructure that is transparent, interoperable, liquid, and efficient for all.

We are doing this by using our three pillars of tokenization, self-custody, and trade. These pillars will help us reimagine, recreate and redefine how modern-day finance operates. would be enabled through the symphony that our customers would be able to create using our technology and change modern day finance from its very foundations as we know it.