



# REAL ESTATE TRANSFORMED<sup>SM</sup>

The Business Case and Proposed Design  
for a Commercial Real Estate-Backed  
Digital Asset Security Exchange

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# The Business Case and Proposed Design for a Commercial Real Estate-Backed Digital Asset Security Exchange

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# The Business Case and Proposed Design for a Commercial Real Estate-Backed Digital Asset Security Exchange

## Introduction

As a thought leader in blockchain-enabled data applications in the real estate industry, CryptoProperties LLC (CPROP) develops and deploys proprietary and white-labeled software applications across the real estate value chain, using blockchain where appropriate, to help its industry partners and clients reduce business risk, address pain points and capture new revenue opportunities.

Blockchain is a platform technology with a unique value proposition for authenticating and timestamping data. As such, a blockchain “layer”, when applied to multi-user databases, can reduce the risk and associated costs of unvalidated data.

Another significant application of blockchain lies in its ability to enable the creation and trading of digital currencies and tokens. The first time most people ever heard of blockchain was during the cryptocurrency boom market of 2016 – 2017. But since then, it has become widely recognized in government and industry circles that blockchain enables digitization of securities markets – an application entirely unrelated to cryptocurrencies.

In order for digital securities to gain meaningful market traction, vibrant secondary markets where such digital securities can trade are necessary. CPROP has prepared this whitepaper to provide market context and a strategy for creating an exchange platform specifically for commercial real estate-backed digital securities in full compliance with the securities laws and regulations of the country in which the platform is legally domiciled. The US is the obvious focus because it is the single largest capital market in the world. In addition, the US remains at the forefront of the development of blockchain products for real estate, followed by the UK, Switzerland, Germany and Australia.

## Why Digital Securities?

Traditional securities have been around for centuries in an analog form. Digital securities are simply traditional securities that have been digitally formatted so they can be issued, traded, and tracked much more efficiently. Digital securities formatted using blockchain technology can go by many names, including security tokens, digital asset securities, digital asset tokens and tokenized digital securities.

Blockchain technology facilitates the issuance, management and trading of both cryptocurrency (e.g. Bitcoin, Ethereum, etc.) and digital securities, but the similarities end there.

With a proper exchange platform design, market participants do not have to be crypto-savvy to issue, buy or sell digital securities, and they also should not expect the boom (and ensuing bust) commonly associated with the crypto market. Because these securities are simply digital representations of traditional securities and fully regulated, the growth of the digital security provider ecosystem and market volume will be more deliberate and steadier.

In essence, ***digital securities are merely a format update to a massive, long-established, but traditionally inefficient segment of the regulated securities market.*** Digital securities are most often digital representations of private and non-listed securities backed by real estate, venture capital and private equity funds and other alternative asset classes. They are not a new asset class, and they are most definitely not cryptocurrencies.

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The move from legacy private securities to digital securities does not change the outcome of the transaction, only how easily it is executed and managed. Digital securities bring automation, transparency and blockchain-based efficiencies to a marketplace that has been heretofore virtually untouched by innovation.

While current cryptocurrency discourse has created confusion about the role of digital securities, the conversation has shifted. Instead of being seen as a novelty or the next iteration of crypto offerings, digital securities are seen as the natural next step in the evolution of private and non-listed security markets.

**Table 1. How Markets Go Digital**

Phase	Music Industry	Securities Industry
<u>Phase 1:</u> <b>Analog</b>	Music is recorded on vinyl records. You can only buy the records your local shop has in the store.	Most private transactions are local, are paper-based and require face-to-face interaction for “wet” signatures.
<u>Phase 2:</u> <b>Digital Format</b>	Music is recorded on CDs. It is now more portable, but not fundamentally changed.	We use Excel sheets, cap table management software, etc. to manage transactions and our portfolio.
<u>Phase 3:</u> <b>Innovation</b>	Hackers discover they can send music files around – underground P2P platforms, illegal file sharing, music execs trying desperately to protect the old order, Napster, legal action ...	ICOs proliferate as developers realize the potential of tokens to connect people directly and change the rules of fundraising. Similarly, it only took authorities two years to fight back and enforce regulations.
<u>Phase 4:</u> <b>Digital Commercialization</b>	The market embraces the new digital format with legal and commercial solutions and new business models operating on fast networks. Applications like Spotify emerge. Even better, algorithms and AI can create combinations and personalized discovery lists, new artists can get to market faster and cheaper, funded by new business models.	Security token offerings on fully regulated ATS’s become the norm democratizing access to capital (sell side) and investment products (buy side), driving down transaction costs and increasing connectivity of global financial markets.

### Why a Digital Securities Exchange?

One of the most important benefits of tokenization is its ability to bring liquidity through secondary market trading. Real estate is an attractive asset globally, and proven market appetite for publicly

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traded US REIT products, estimated at approximately \$10 billion daily, demonstrates the demand for secondary market trading of real estate investment products. Illiquidity of real estate is likely not due to lack of demand, but more a result of high capital requirements, long lock-up periods, and arduous transaction processes.

A disadvantage of REIT investments is the lack of control over the rebalancing of exposure to individual assets within the REIT portfolio. Tokenization first addresses the problem of accessibility through fractional ownership, then enables the swift settlement and transfer of these fractional interests in single real estate assets, facilitating flexibility and customizability in portfolio construction that is unavailable to REIT products.

Tokenization has additional advantages of being applicable to any portion of the capital stack of a property – debt or equity – while being able to co-exist alongside traditional methods of property finance and without disrupting any day-to-day activities such as property management.

Tokenization also facilitates liquidity for a wider variety of real estate assets. For example, capital invested in project financing is currently locked up for a long period, and delays in development could lead to heavy losses. A tokenized fund for project financing would have the appeal of enabling secondary trading, allowing investors to exit their investment before the term of the fund expires.

In 2018, retired NASDAQ Chairman/CEO Bob Greifeld stated: “100% of the stocks and bonds on Wall Street today could be tokenized, and in five years 100% of the stocks and bonds on Wall Street will be tokenized.”

The benefits of exchange-traded real estate-backed tokens includes the following:

## **Democratization via Fractionalization**

Commercial property is expensive and fractionalizing ownership (and/or the associated mortgage debt) in the form of tokens can lower barriers to investment by enabling those fractionalized interests to be more easily distributed to a wider investor pool, particularly retail investors who are typically excluded from the market.

## **Operational Efficiency**

Smart contracts are contracts executed by computer code that facilitate automation of processes such as compliance checks, investor whitelisting (and blacklisting) and dividend distributions. Smart contracts also facilitate the creation of different classes of tokens, each with their own unique attributes such as fee structures, voting rights, etc.

## **Reduced Settlement Time**

In a typical smart contract, settlement is instantaneous which is in sharp contrast to the hours, days or even weeks it can take to settle traditional finance transactions.

## **Data Transparency**

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Blockchain is a technology known for immutability and resistance to cyber attacks because data is distributed across a network of nodes, rather than a central server. Transaction information can be made visible on a blockchain (either to the public as is the case for Bitcoin, or to a permitted group of users) while the anonymity the transaction participants is preserved by the use of cryptographic hashes which cannot be reverse engineered.

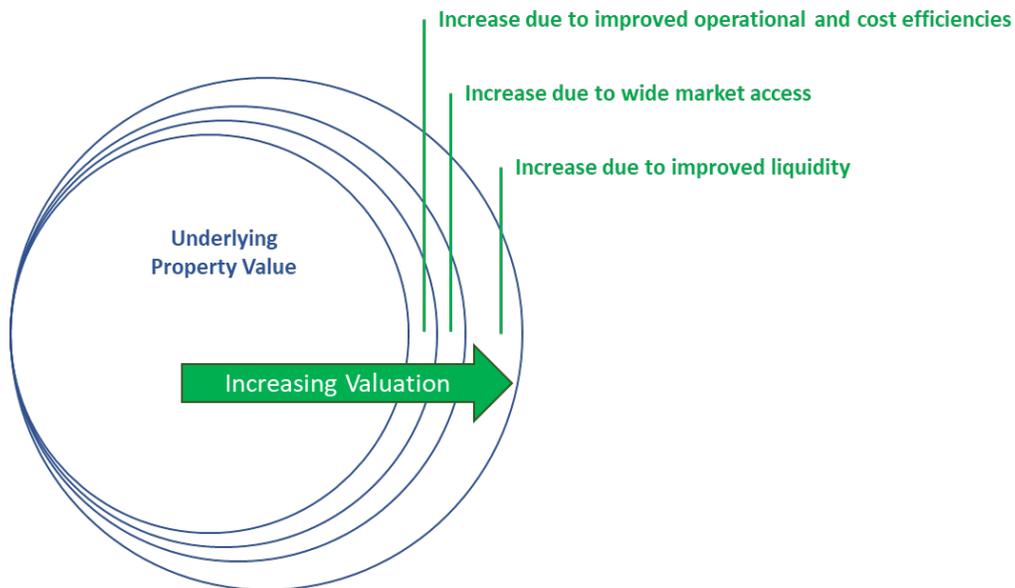
## Flexibility

The above elements combine to create an enormously flexible trading ecosystem. Fractionalization enables flexible portfolio construction and diversification. Faster settlement times and improved transactional data transparency allows for more accurate investment analytics. Tokenization can be applied to any portion of the capital stack while co-existing with traditional forms of finance for any given property.

## Liquidity

Exchange-traded tokens can deliver liquidity to an asset class where the majority of assets are held in non-listed vehicles. If corporate securities are any proxy, improved liquidity should result in improved valuation for asset owners. The obvious caveat, however, is that the exchange must attract sufficient investor appetite and trading volume to support demand at any given point in time.

**Figure 1. Exchange Trading Can Boost Valuation**



## What is Happening in the Real World?

As highlighted in the prior section, one of the biggest promises of tokenization is to bring liquidity to previously illiquid assets, in particular by facilitating secondary market trading on exchanges globally. Liquidity will be one of the key drivers of the security token market. In practice, however, the promise of

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digital asset exchanges has yet to be realized for the most part due to a myriad of technical, regulatory and cultural challenges that are beyond the scope of this whitepaper but are well documented elsewhere. Regulatory activity in most parts of the world continues to move in favor of digital asset security exchanges and a few more recent developments are worth highlighting to demonstrate progress being made in the sector:

- On July 12, 2020, the Public Private Execution Network (PPEX), an alternative trading system (ATS), announced the successful completion of its SEC registration. PPEX offers users the ability to trade secondary shares of private investments and other non-listed securities, including late-stage private companies, private funds, special situations and other exempt securities from the protection of a regulated platform, making it possible for users to trade tokenized securities peer-to-peer. This development demonstrates further competition in the sector, as well as a more responsive approach by the SEC to the blockchain space.
- Also in July 2020, BNP Paribas Securities Services and Curv transferred a security token using Curv's multi-party computation (MPC) solution to ensure the security of the private keys. Curv is the only cloud-based, MPC wallet provider for institutional digital assets and the first of its kind to achieve both SOC2 Type II Certification and ISO 27001 accreditation. Curv also provides insurance of up to \$50M of digital assets backed by Munich Re. This successful proof of concept helped to demonstrate that tokenized securities can be transferred quickly, safely and transparently on the blockchain. As a leading global custodian, BNP Paribas Securities Services has taken a significant step forward in their strategy to deliver an integrated custody solution that combines both traditional and regulated digital assets.
- On February 27, 2020, Red Swan, in partnership with tokenization platform Polymath, announced that it had tokenized over \$2.2 billion in real estate assets. Polymath is providing the tokenization technology while Red Swan appraises, markets and sells the deals. The issued tokens represent 16 properties, including mid-rise and high-rise apartments in California, New York, and Texas, and a 150-acre hemp farm in Canada's Ontario province. Red Swan allows property owners to tokenize 90 percent of the net equity underlying a property. Red Swan has indicated it has 30,000 accredited investors registered to use its platform, has plans to tokenize a further \$4 billion in property, and will profit by keeping a percentage of the equity sold.
- On September 10, 2020, REINNO, a Connecticut-based company announced its launch of a marketplace for tokenized commercial real estate, including five offerings worth over \$237 million available to accredited investors. REINNO is providing three services, which are complementary to each other – real estate tokenization, loans against property-backed tokens, and a platform for listing and investing in tokenized real estate. REINNO is the first company to accept tokenized real estate as loan collateral.
- On August 30, 2020, MountX Real Estate Capital announced that it had licensed the Vertalo platform to design and launch 15+ digital real estate projects in Mexico and Canada in 2020 and early 2021. On November 7, 2020, they announced the completion of the first successful tokenization of real estate in Mexico. Vertalo's comprehensive API-based platform connects seamlessly with key ecosystem participants, including custodians, broker-dealers, KYC/AML providers, Exchanges, ATSs, Investors, and the issuers who own the assets that are tokenized. An

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interesting innovation of Vertalo's platform is the offering of keyless wallets, a sticking point for institutional investors unaccustomed to keeping track of cryptographic keys.

### CPROP's Real Estate Exchange (REX) Platform Design

CPROP believes the timing is right for a real estate-focused digital asset securities trading platform using a simple protocol to establish custody and validate settlement that can be implemented in virtually any jurisdiction and conformed to local regulation.

CPROP's original plan was to enter the US market by first launching a bulletin board which has the lowest level of regulatory oversight and thus the lowest barrier to entry. In discussions with SEC staff, we determined a smart contract could be embedded in the bulletin board to facilitate P2P transactions while not triggering broker-dealer registration requirements provided the platform is designed to give sellers discretion to accept offers from buyers. It is the discretionary nature of that arrangement that appears to avoid the broker-dealer registration trigger. However, the question then arises as to whether the bulletin board would be deemed to be a clearing agency under the Customer Protection Rule, and if so, the mechanism for compliance. If this is the case, then the bulletin board would have to rely on licensed third parties to provide clearing and settlement.

As an alternative, a traditional bulletin board could be established at any time provided the actual peer-to-peer transactions occur entirely off-platform. Although this structure has limited commercial scalability, it remains an option for getting started.

Longer-term, however, the optimum path forward is to establish a fully regulated and licensed ATS. Accordingly, CPROP has partnered with a world-class blockchain team to develop a technical specification for its REX so that it operates as an ATS. An overview of the platform is shown in [Figure 2](#) and a clickable demo is available at <http://cprop.tokend.io/>. (Please contact CPROP for log-in credentials.)

The CPROP REX harnesses the best features of blockchain to deliver unmatched efficiency to commercial real estate finance. By operating as a closed system, both with respect to participants and tokens, the REX provides the highest possible level of cybersecurity. Only pre-screened investors who are admitted as Members can participate which facilitates KYC/AML and regulatory compliance concerning which investors can own which tokens. Because neither security tokens or platform tokens cannot move beyond the CPROP REX blockchain (and this limitation is coded into their smart contract), there is no risk tokens can be illicitly moved outside this closed system.

Each listed security token represents an undivided ownership interest in a unique asset – a fund, a portfolio, an individual property and for any portion of the capital stack – debt or equity. If the REX is launched under US regulation, it is intended that all security tokens would be issued under a registration exemption, i.e., Reg D, Reg A or Reg S. Platform Token is the platform utility token with which a REX Member may purchase security tokens and serves as a “marker” for a Member's right to USD in the REX Custodian Account.

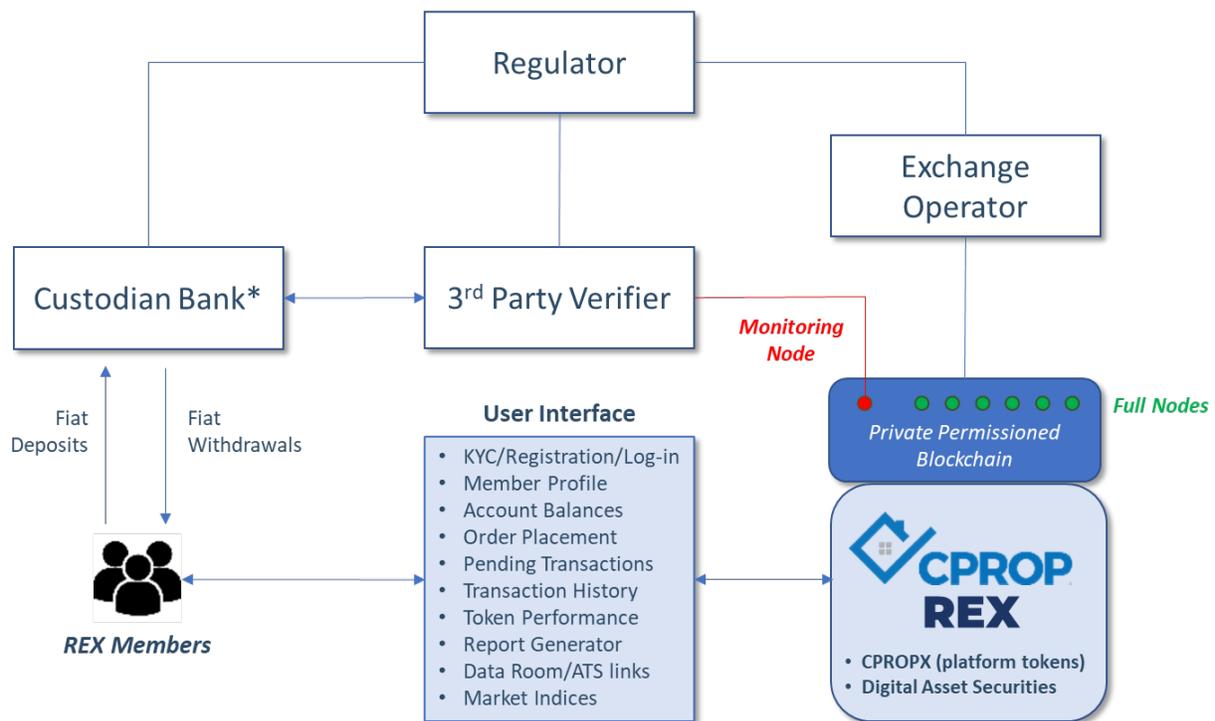
The blockchain that underlies the REX provides a transparent, secure way to manage the accounting, initially with daily, manual reconciliation with the Custodian Bank. With automation, the auditing and reconciliation can be accomplished continuously and instantly via API.

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The blockchain is private and permissioned and all blockchain nodes are cloaked to further enhance security. In the highly unlikely event a node is attacked, it can be immediately disabled and a new node created to take its place.

Monitoring nodes are envisioned to allow designated third parties to have full access to the distributed ledger. For example, we anticipate using a third-party verifier (e.g. Big 4 accounting firm) to acquire primary data for control and audit purposes and manage reconciliations with the Custodian Bank. We can also allocate a monitoring node to FINRA to facilitate reporting and compliance.

**Figure 2. CPROP REX Functional Overview**



\*Note: Custodian bank account fiat (e.g. USD) balance =  $\sum (\text{Platform Token}_{\text{Member Accounts}})$

From a technical standpoint, the distributed ledger can be manually appended at any time in the event of keystroke errors, reconciliation errors or hacks. This is a highly desirable feature from an operational security point of view, but we recognize it may indirectly create a custody issue from a regulatory standpoint. If this becomes a problem, this feature can be bypassed altogether.

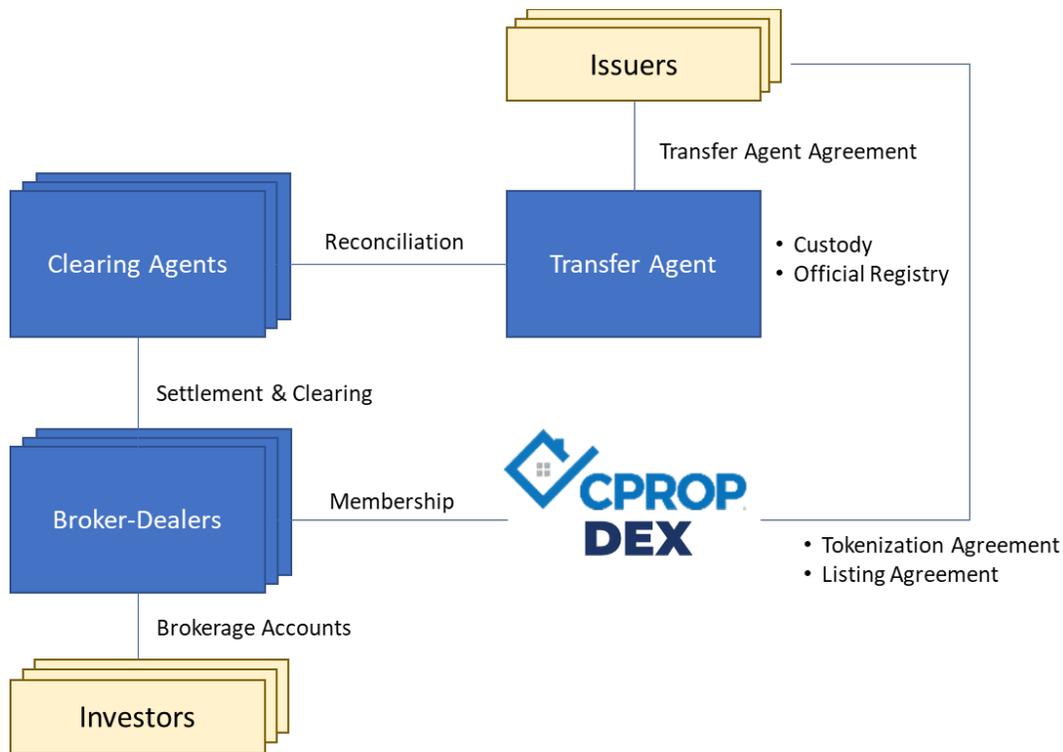
REX members would be subject to two KYC processes, one for the Custodian Bank and another for the REX, which must be matched before any investor funds can be deposited into or withdrawn from the system. Withdrawn funds can only be deposited into a Member's account from which they originally deposited funds as a further security feature.

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We originally anticipated instituting a mandatory 3-day waiting period to clear transactions to provide ample time to verify each transaction, using a protocol similar to that utilized by Coinbase. However, we have been advised by SEC staff that this functionality would likely trigger the Customer Protection Rule because the Platform Administrator's ability to intervene in a transaction in this manner is viewed by the SEC as that party having custody. Again, this feature could be bypassed if required.

An operational overview of the REX is shown in [Figure 3](#). This structure would be updated as US regulations around digital custody evolve. If the REX is domiciled in a country other than the US, the settlement and clearing process shown below would be conformed to the regulations of the host country.

**Figure 3. CPROP REX Operational Overview**



Anticipated investor benefits include:

- Provide an easy way to enter the market, particularly for non-US investors in US assets;
- Can establish low minimum investment thresholds to boost attractiveness to retail investors;
- Familiar user interface; no need to understand blockchain or manage wallets;
- For properties that would otherwise not be financed in a public vehicle, the CPROP REX creates a path to liquidity as soon as the mandatory holding period for any particular security token has expired;
- The CPROP REX is intended to offer a wide variety of products (funds, portfolios, individual properties) from which investors can choose to precisely design their investment exposure; and
- Costs should be highly competitive because digital transactions should be much less expensive to execute and manage.

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Anticipated benefits for project sponsors and asset owners include:

- Gain access to an enlarged investor base, for example:
  - Accredited investors who do not want to lock up funds in a closed-end vehicle with a potentially large minimum investment requirement
  - Foreign investors who are easier to reach with a digital offering
  - Local, unaccredited investors (for Reg A or Reg CF offerings) who would otherwise not participate in this market
- Tokenization does not disturb other essential property-related activities, e.g., mortgage financing, property management, etc. or limit an asset manager’s ability to disposition the property
- Do not need to sell 100% of the equity to tokenholders, e.g., if a developer wants to retain a portion for sale at a later date
- Can still use conventional equity financing alongside tokenized financing provided equity segments remain distinct from an accounting standpoint.

**Table 2. CPROP REX Summary of Features**

Feature	MVP	Post-MVP
Registration/Log-In Page	Yes	Yes
KYC	Non-functional demo fields according to data field list supplied by CPROP	IdentityMind integration and full functionality
Custodian Bank integration	No, manual reconciliation process only	Yes, automated reconciliation process with possible third party oversight or administration
Third Party Verifier	No	Possibly
FINRA integration	No	Possibly
Platform Token functionality	Yes	Yes
Token smart contract	Yes	Yes
Matching engine	No, start with bulletin board	Yes
Format of primary security token sales	Both ICO-type and investor-friendly options available	Both ICO-type and investor-friendly options available
Pending transaction (hold period)	No	Depends on updated Customer Protection Rule (custody)
Dividend distributions in	No	Yes

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Feature	MVP	Post-MVP
Platform Token		
Data Room	Add as custom feature, with fixed partitions	Yes, partitions can be modified by Platform Administrator
UI Member - all token balances	Yes	Yes
UI Member - open bids/asks	No, if starting with bulletin board	Yes
UI Member - completed transactions	Yes	Yes
UI Member - pending transactions	No (placeholder only)	Depends on updated Customer Protection Rule (custody)
UI Member - transaction history	Yes	Yes
UI General - indices (FX, NAREIT)	No (placeholder only)	Yes
UI Security token - Link to Data Room	Yes	Yes
UI Security token - total issued	Yes	Yes
UI Security token - total USD raised	Yes	Yes
UI Security token - dividend yield	No (placeholder only)	Yes
UI Security token - book value	No (placeholder only)	Yes
UI Security token - implied market value	Possibly	Yes
UI Security token - price and volume history	Yes	Yes
UI Security token - pending transactions	No	Depends on updated Customer Protection Rule (custody)
UI Security token - order book	NA if bulletin board	Yes
UI Links - Member profile	Yes	Yes
UI Links - Data Room	Added as custom feature	Yes

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Feature	MVP	Post-MVP
UI Links - Report Generator	No (placeholder only)	Yes
UI Links - Log out	Yes	Yes
Email notifications	Yes, according to event list	Yes
2FA notifications	No	Yes, according to a specified event list
Payment of REX fees in CPROR	No	Possibly
P2P messaging among Members	No	Probably

### Planned Role for the CPROR Token

Separate and distinct from the Platform Token, the CPROR token is a membership token and will be required to be purchased and held by all Members of the REX. Each transaction on the REX will generate exchange fees, a portion of which will be used to purchase CPROR tokens from the market to be removed from circulation and burned. Increasing exchange membership and transactions should place upward pressure on the market price of CPROR.

In addition, the team is developing some ideas around DEFI that will allow tokenholders to stake and earn a portion of exchange fees in ETH, BTC or USDT. These developments will be announced as the project develops.