BLOCKCHAIN POWERED REAL ESTATE

Simplify the Close

CONFIDENTIAL AND PROPRIETARY

Whitepaper Version 3.2

***NOTE*: The contents of this Whitepaper are subject to change.**

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1. Overview

Anyone who has ever purchased property remembers their closing process as cumbersome, time consuming and filled with a multitude of service providers and documents, reports, disclosures and the like that needed to be drafted, read, executed and, in some cases, negotiated. This process becomes ever more painful when buyers and sellers are located at a distance from one another, let alone in different countries. Due to the large sums of money involved, the potential financial downside associated with a prolonged or flawed process and/or documentation can be huge. As industry professionals know, as the closing process drags out, the probability of achieving the closing diminishes. ***Time kills deals.***

Figure 1. **Manual Workflows in Residential Real Estate Are Still the Norm**

Typical Residential Agent Checklist

Highly Manual Closing Process
Many parties and documents are part of every transaction, often with no clear line of sight to critical path items or immediate access to required documents resulting in unnecessary delays, added costs and increased risks to close.

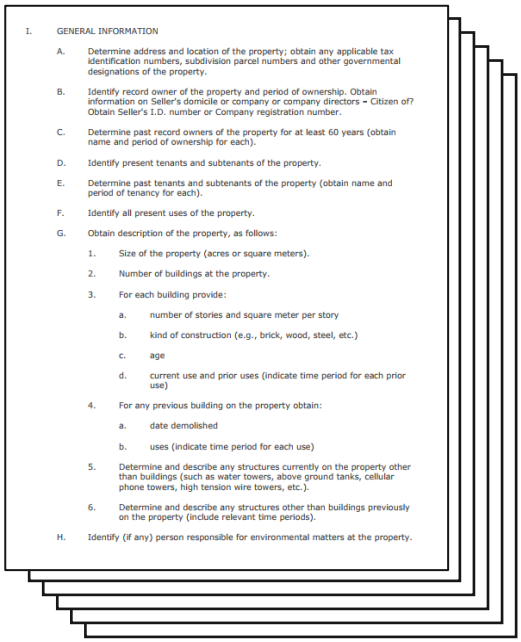
Untrusted Service Providers
Buyers acquiring property, especially long-distance, need to find local service providers in whom they can trust to competently represent their interests.

A highly compelling and immediate use case for automation, visualization and blockchain to accelerate closings and enhance services.

In a commercial setting, a similar set of factors prevail but the stakes are higher due to the higher monetary amounts involved, often running into hundreds of millions of dollars. In addition, the amount of information relevant to valuation is much greater and more difficult to compile, especially rapidly. When you take into account the fact that commercial transactions are often competitive bid situations affording limited time for due diligence, the result can be a highly stressful, risk-filled process.

Figure 2. **Lack of Transparency in Commercial Real Estate Adds Unnecessary Risk**

Typical Commercial Due Diligence Checklist



I. GENERAL INFORMATION

A. Determine address and location of the property; obtain any applicable tax identification numbers, subdivision parcel numbers and other governmental designations of the property.

B. Identify record owner of the property and period of ownership. Obtain information on Seller's domicile or company or company directors – Citizen of? Obtain Seller's I.D. number or Company registration number.

C. Determine past record owners of the property for at least 60 years (obtain name and period of ownership for each).

D. Identify present tenants and subtenants of the property.

E. Determine past tenants and subtenants of the property (obtain name and period of tenancy for each).

F. Identify all present uses of the property.

G. Obtain description of the property, as follows:

1. Size of the property (acres or square meters).
2. Number of buildings at the property.
3. For each building provide:
   a. number of stories and square meter per story
   b. kind of construction (e.g., brick, wood, steel, etc.)
   c. age
   d. current use and prior uses (indicate time period for each prior use)
4. For any previous building on the property obtain:
   a. date demolished
   b. uses (indicate time period for each use)
5. Determine and describe any structures currently on the property other than buildings (such as water towers, above ground tanks, cellular phone towers, high tension wire towers, etc.).
6. Determine and describe any structures other than buildings previously on the property (include relevant time periods).

H. Identify (if any) person responsible for environmental matters at the property.

Strenuous Due Diligence Process
Commercial transactions typically afford limited time for due diligence with limited documentation. Due diligence stress is exacerbated by the competitive nature of most procurements.

Post-Closing Surprises
Purchase documents can only escrow for so many unknowns, particularly in a competitive environment. These contingent liabilities can cause ROI projections to go out the window.

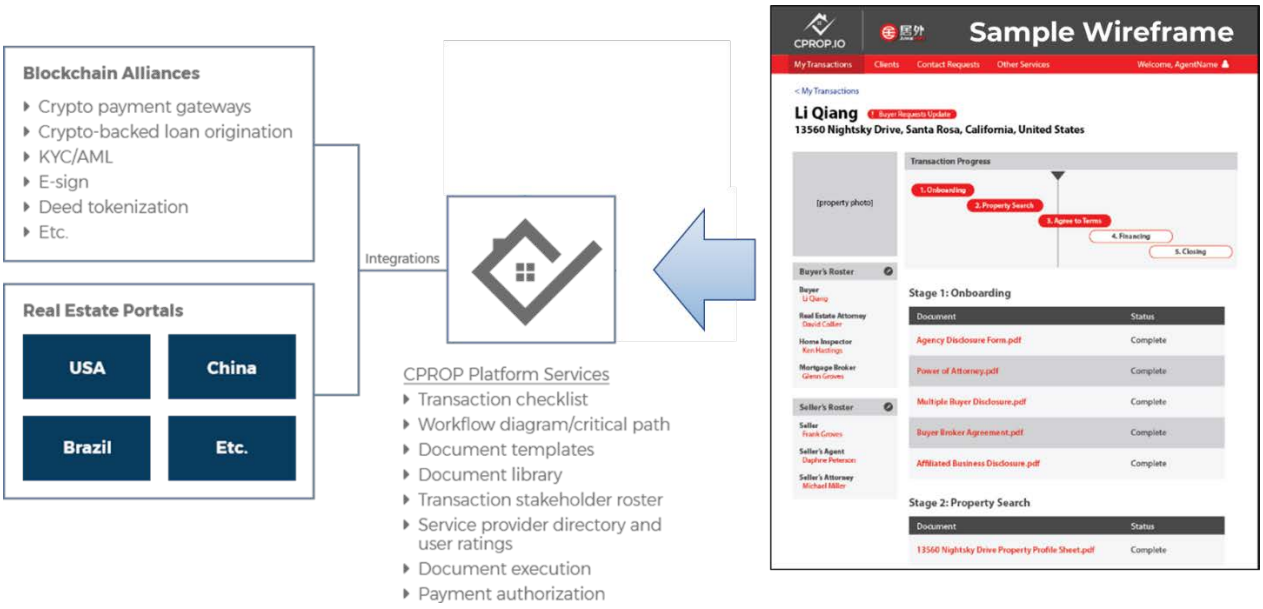
A highly compelling and immediate use case for blockchain to reduce risk and accelerate closings.

CryptoProperties LLC ("CPROP") is launching a comprehensive workflow management platform for residential real estate and a blockchain data repository for commercial real estate. CPROP was conceived to address the most common and major challenges intrinsic to all real estate markets in the world, namely, highly manual and inefficient work flows, lack of standardization, lack of transparency, risk of malfeasance and human error, incomplete or erroneous public records, and a host of logistical challenges associated with getting buyers and sellers together, especially for long-distance transactions. ***CPROP simplifies the close.***

CPROP fills a void in the current spectrum of SaaS market offerings and will allow multi-party collaboration, process transparency and unprecedented trust by connecting everyone on the blockchain while giving parties access to a range of blockchain-enabled services being sought by the market such as automated workflow management and document generation, secure e-signatures, access to user-rated service providers, and a payment gateway allowing buyers to pay with cryptocurrency. Real estate agents and brokers typically serve as the "project managers" on every transaction and CPROP has taken considerable care to ensure our platform is designed to address their day-to-day pain points while incorporating features that make their life easier. ***We take the paper out of work.***

CPROP will drive automation, transparency, standardization and validation in transactional real estate to reduce closing times, reduce costs, improve accuracy and reduce risks for all stakeholders.

Figure 3. **CPROP Residential Solution**



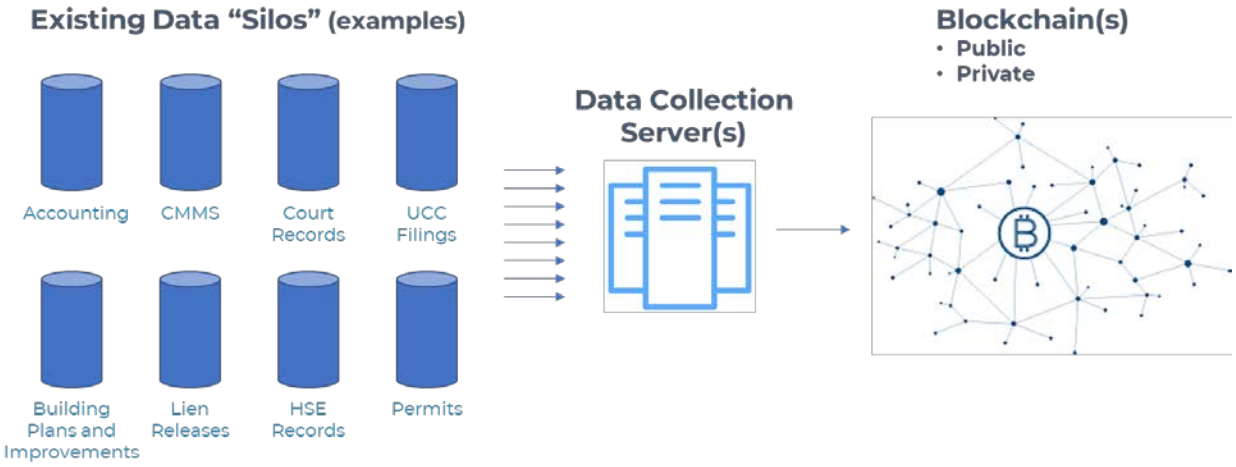
But no matter how well a product is designed, market adoption can still present a significant business risk. In this regard, CPROP is designing its residential platform to integrate with property portals around the world (e.g. Zillow) to make the portals' websites more "sticky" and improve the entire experience for both buyers and sellers and thus drive demand for CPROP integration. The web traffic and rich databases owned by the property portals make them valuable integration targets for CPROP.

Because property portals are not presently designed to communicate with one another, which can impede market transparency for international buyers and limit market visibility for sellers, a longer-term objective of CPROP is to connect portals so as to allow international buyers visiting the property portal in their home country and in their own language to access listing databases housed in property portals located in other countries.

CPROP's proposed end-to-end solution will allow property investors to research, transact (including with cryptocurrency), and reliably secure and record ownership, and eventually finance, their property purchases remotely. CPROP is currently in talks with some of the largest property portals in the US, China and Brazil to confirm features and requirements of these integrations.

CPROP is also developing a groundbreaking solution for the commercial market which leverages blockchain technology to make accessible all the important information associated with a commercial property that cannot typically be accessed on demand. Similar to the popular product Carfax®, which assists prospective buyers of used cars with complete vehicle histories, CPROP's solution aims to capture selected data and information presently residing in disparate systems, both inside and outside the building, and "push" or "pull" that data to collection points or servers linked to the blockchain utilizing a Distributed Hash Table (DHT) or IPFS. In this manner, the blockchain serves as a notary to vouch for the validity of data because, if the hash of a document pulled from a collection server does not match the record on the blockchain, an error message is generated.

Figure 4. **CPROP Commercial Solution**



Further detail on CPROP's planned pilot is provided in Section 5.

As shown in Table 1, global real estate capital flows and, hence, the addressable market for CPROP are enormous.

Table 1. **Global Real Estate Capital Flows, 2015 *(all figures in US$ billions)***

		Outbound Flows			
		N. America	**Europe**	**APAC**	**Mid East**
Inbound Flows	**N. America**	32	22	35	12
	Europe	75	68	24	16
	APAC	12	3	53	3

Total **intra**-regional capital flows = $153 billion
Total **inter**-regional capital flows = $202 billion

Source: "Around the World in Dollars and Cents", Savills World Research, 2016

It is widely acknowledge that, over time, tokenization of mortgages and deeds is inevitable. The blockchain use case benefits to governments, banks and property owners are simply overwhelming, however, the pace at which this transformation will take place is uncertain. CPROP is positioning for this transition by ensuring we have the technical capability to implement a tokenization program for any governments or banks wishing to implement blockchain technology. At the same time, we recognize there are other blockchain companies also striving to tokenize deeds. We view this as a positive for the blockchain and real estate sectors and are building our platform to be able to integrate with the efforts of these other companies as and when appropriate. As tokenization takes hold, CPROP will provide buyers with a way to securely record their ownership and for banks to securely document their lender

rights. Technical details on CPROP's plans for mortgage and deed tokenization can be found in Section 4.

CPROP's token structure is designed along a membership model. Real estate agents and other service providers will purchase CPROP tokens each year for a membership which gives them access to the CPROP residential and commercial platforms and a listing in CPROP's service provider directory. All tokens received by CPROP in payment of memberships will be placed in a locked wallet thus removing them from circulation[1], until the total number of tokens remaining in circulation is reduced to approximately 30 million (from a maximum total of 95 million minted).

Buyers completing transactions on CPROP's platform will be eligible to receive incentive tokens both for providing ratings of their service providers, thus allowing our directory to be self-curating, and for engaging CPROP to manage the properties they just acquired. Buyers will be free to hold those tokens, sell them on an exchange and/or use them to pay for CPROP membership or property management services, in which case they will be routed to the locked wallet.

A limited pre-sale of CPROP tokens is planned for January 2018 and an Initial Coin Offering (ICO) is planned once the MVP is available. The ICO will be structured with a hard cap of $15 million (see Section 9).

2. Industry Pain Points

Residential real estate transactions are highly manual and can have many moving parts and involve numerous parties and documents as illustrated above in Figure 1. Across Europe, the situation is more complicated because differing languages and legal systems create a confusing patchwork of rules, procedures, documentation requirements, legal rights and risks. The situation can become even murkier in emerging markets where legal and administrative systems are more immature and/or enforcement is weak.

Suffice to say, buyers investing in real estate outside their local jurisdiction can be presented with a confusing array of local rules, unfamiliarity with local practices and service providers, and logistical challenges – all of which drive up the cost and lengthen time to close.

The more common industry challenges are segmented into three main categories and discussed below.

2.1 End-to-End Transactional Inefficiencies and Limitations

Aside from the need for a willing seller and willing and qualified buyer to agree on a price for a property, multiple transactional inefficiencies and limitations associated with closing the sale are pervasive, including:

[1] There are 1.2 million licensed real estate agents in the US alone. Setting the membership price at 100 tokens per year, a highly competitive price @ $1.00/token, results in removal of 12 million tokens per year @ 10% market share.

Prolonged Time to Close	When all parties are unable to see where the various bits and pieces of a transaction stand at any point in time, communications are inefficient and critical path items can go unnoticed resulting in unnecessary delays.
Untrusted Service Providers	Buyers acquiring property long-distance need to find local service providers in whom they can trust to competently represent their interests.
Limited Property Portal Reach	The services provided by existing property portals are generally confined to providing listings and their market reach is limited to the extent they are not integrated with property portals in other geographies.
Risk of Defects	A variety of documentation-related defects can invade a real estate transaction, whether introduced through malfeasance (i.e., fraud, tampering and corruption) or human error.
Proximity Challenges	The buyer and seller may need to be in the same physical location to sign hard copies of closing documents creating logistical challenges and added cost for long-distance transactions.
Paper Processing	The reliance on hard copies leads to risk of documentation errors and a more time consuming, cumbersome and expensive closing process.
Currency	The buyer may experience difficulty accessing and paying the purchase price in the seller's currency of choice, or may wish to pay with cryptocurrency.
Misunderstandings	There can be a heightened risk of misunderstanding among the parties due to the buyer's unfamiliarity with, lack of proximity to, or inability to read or speak the language of the seller's jurisdiction.
Due Diligence Stress	In commercial environments, competitive procurements with a finite time allotted for due diligence with limited data can infuse added risk into the transaction for buyers.

2.2 Imperfect Title Documentation and the High Cost of Ensuring Property Rights

Perfecting title can be tricky business, even in industrialized countries such as the US, which relies on title insurers to protect lenders against title defects and from the invalidity or unenforceability of mortgage loans and other industrialized countries which rely upon national registry systems. Elsewhere, establishing and maintaining title to property can be precarious due to weak administrative and legal systems which can be further challenged by reliance on paper-based recordkeeping as well as corruption, fraud and tampering.

All this could change with the adoption of blockchain technology. In 2016, Vermont became the first state to approve the use of blockchain technology to verify and authenticate records and information admissible in a legal proceeding. While the commercial impact of this new law has yet to fully emerge in Vermont, the state has recognized the relevance of the technology for authenticating property records.

As stated in their analysis "Blockchain Technology: Opportunities and Risks" published on January 15, 2016: "… a transaction that has been verified and added to a valid blockchain is mathematically secure. The hash of a document existing outside the blockchain and the hash registered within the blockchain will be identical if the documents are identical. If the documents are different (due to forgery, corruption, error, or other problems) the hashes will not match. Thus, the blockchain can potentially provide an immutable registration of a record, to which future records can be compared for authenticity."

Financial losses resulting from errors, fraud and tampering are pervasive and significant. For example, the UK's Land Registry paid out £26 million in compensation to victims of property title fraud in a scheme where thieves took out mortgages on properties they did not own, pocketing the money and leaving the real owners in debt. The problem grows far worse in countries without well-developed/maintained property registry systems and robust legal frameworks supported with rigorous enforcement.

The Internet makes promotion of fake properties easy. Forgeries are also easy and prolific. Blockchain can effectively make forgeries and false listings a thing of the past because digital ownership certificates for properties, which are almost impossible to replicate and are directly linked to a unique property, are created and saved on an open ledger. With blockchain, all information necessary for a transaction is stored in the database and is accessible for both the buyer and the seller, as well as their respective service providers. A digital ID is created for each buyer and seller, as well as for the real estate asset. This makes the mortgage process and transfer of ownership more seamless, faster and far more secure than what it is today. Additionally, price histories can be followed through the blockchain and digital identities of properties could help track the chain of ownership while also keeping track of major repairs and refurbishments to the extent those improvements are publicly documented, such as by the issuance of a permit.

Blockchain is not likely to replace government registries in the near-term, rather, it can make governance of land registration as transparent and corruption resistant as possible. Over time, as governments build experience and confidence in blockchain registries, legacy systems can be expected to be replaced by blockchain registries. Further, in jurisdictions where the durability and accuracy of public records is called into question, it is CPROP's belief that property records anchored in the blockchain will steadily gain acceptance by the courts as admissible evidence in legal proceedings.

2.3 Imperfect Mortgage-Related Documentation

In a landmark study published in the Texas Law Review in 2008 entitled "Misbehavior and Mistake in Bankruptcy Mortgage Claims", Prof. Katherine Porter examined data from 1,768 foreclosures in the US and generated the following key findings:

- Over half of mortgage companies' proofs of claim lacked the documentation necessary to establish a valid debt (see Figure 5).
- In the aggregate, mortgage creditors asserted claims that were more than $1 billion higher than borrowers believed they owed.

Prof. Porter surmised that the problems identified in this foreclosure study are not limited to foreclosed mortgages and represent a broader trend within the industry and exposes significant weaknesses in the current mortgage servicing industry.

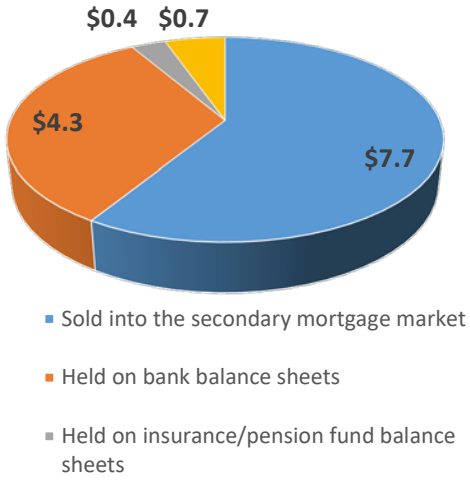
The Mortgage QC Industry Trends Report, published by ACES Risk Management, analyzed for critical defects among 75,000 unique loans in the US from 65 lenders. The data as of Q4 2016 implies some $210 billion of US mortgages contain such defects which are partially attributable to a rise in legal/regulatory/compliance since implementation of new regulations in Q4 2015.

The challenge for tracking these mortgages is that an assignment must be filed with the government registry that transfers the tracking of the mortgage to the Mortgage Electronic Registry System (MERS® eRegistry), a central electronic repository for mortgages created by the mortgage banking industry. Whether this is done perfectly every time is open to debate, but nonetheless, the parallel systems of government registries and MERS presents a tremendous opportunity for blockchain to provide a single unified solution to tracking mortgages while vastly improving the efficiency of secondary market transactions because a transaction could evolve to simply transferring a mortgage token from one wallet to another.

Figure 5. **Percentage of Proofs of Claim Missing Required Documentation**

Source: "Misbehavior and Mistake in Bankruptcy Mortgage Claims", Katherine M. Porter, *Texas Law Review*, Vol. 87:121, 2008.

Figure 6. **US Mortgages Sold and Held *($ trillion)***



Source: Federal Reserve Bank Flow of Funds. L217. September 25, 2013

3. Business Model

CPROP's mission is to drive transparency, standardization, automation and validation in transactional real estate to enhance operational efficiencies, reduce costs, improve accuracy and reduce risks for all stakeholders using both blockchain and non-blockchain technology.

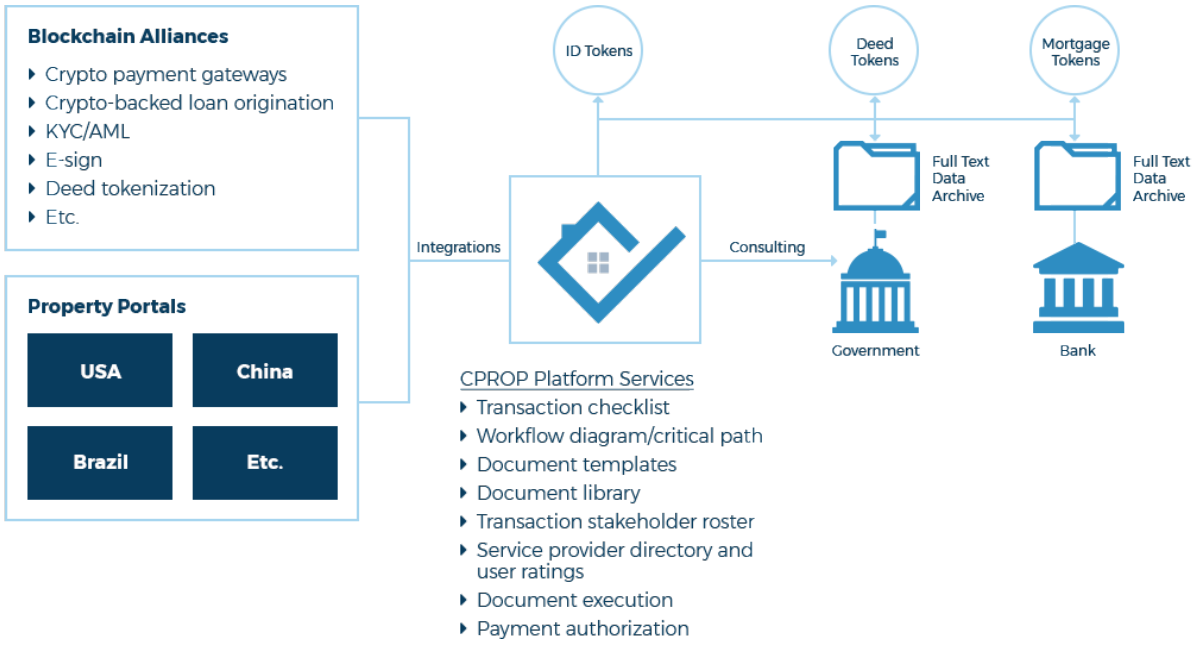
3.1 Residential Product

Figure 7 illustrates the business model for our residential product.

The heart of this product is the CPROP platform itself, a collaborative, cloud-based workflow management system that will offer sellers visibility to a global audience of potential international buyers and allow buyers to:

- Research listings housed in worldwide databases owned by property portals connected to the platform
- Provide 100% transparency on all workflows and give visibility to critical path activities
- Access all completed documentation with a resident document library
- Research and source local service providers that are supported with user ratings and commentary
- Access ancillary blockchain-related services provided by CPROP's alliance partners
- Generate standardized documents that conform to local laws and regulations and position for the eventual tokenization of property deeds and mortgages, or in the case of jurisdictions who have embraced blockchain for this purpose, to implement that tokenization
- Access a transaction roster with contact details for all parties to the transaction, including service providers

Figure 7. **CPROP Business Model**



By providing connectivity and transaction-related services, property portals can leverage CPROP to drive their web traffic and listings. CPROP may also be leveraged by brokers, financial institutions, title companies and mortgage brokers to create additional channels to market, especially to potential, non-local clients, by achieving high user ratings.

Integrations with property portals are presently envisioned to be via API and an important design criteria for these integrations is to ensure that property portals do not feel threatened that CPROP is going to steal their web traffic or listings. Quite to the contrary, CPROP envisions the property portals to remain customer-facing with CPROP providing background functionality. Our MVP is being designed with this criteria in mind. It is believed this strategy should be highly effective in attracting property portals to the platform and serve as an effective means to scale CPROP platform activity globally.

As mentioned previously, tokenization of deeds and mortgages is widely anticipated to be inevitable due to the overwhelming advantages blockchain technology generates in recording property and lender rights. Beyond its native token, CPROP presently envisions creating as many as three types of additional tokens on public and private blockchains, as appropriate:

- ID token that identified buyers and sellers and satisfies KYC and AML regulatory requirements
- Deed token
- Mortgage token

Section 6 provides additional detail on our technology roadmap for these tokens.

There are numerous blockchain companies bringing great products and services to market that are complementary to the overall CPROP mission. For example, CPROP is actively exploring alliances with other blockchain companies in the areas of crypto-backed loans and fiat/crypto payment gateways. By leveraging what already exists and integrating these services in a commercially efficient fashion, we serve our own commercial interests while helping to advance the blockchain industry at a faster rate.

3.2 Commercial Product

The business model for the commercial product will be developed as part of the pilot project described in Section 5, but it is anticipated to become part of the overall suite of CPROP platform services.

4. Residential MVP

With the help of its advisors and feedback from the real estate community, CPROP has developed a series of wireframes to demonstrate (a) what an integration with an existing property portal might look like, in this case Juwai which is located in China, and (b) how the workflow management system would appear and operate.

Figure 8 displays a page from Juwai's website translated into English that includes a new button labeled "Help me buy this property". When that button is clicked, a new window appears to help the prospective buyer find a licensed agent using specified search criteria. This search brings up an agent search window where the CPROP logo appears for the first time alongside Juwai's branding.

The agent search query returns a list of agents, together with their client ratings and customer satisfaction score, as shown in Figure 9. These reviews/scores are generated by buyers and sellers who have completed transactions on the CPROP platform and who have accepted CPROP tokens as an incentive payment to provide this feedback.

Additional screens are provided to help buyers find other service providers, such as attorneys, inspectors, appraisers, title companies, mortgage brokers, etc., together with their client reviews/ratings.

The platform will allow agents to maintain a database of properties for which they are transacting. And once a transaction is underway, the platform will provide overall visibility on progress of the transaction together with the ability to drill down on any particular stage to visualize critical path tasks, a document library, and a roster of transaction participants.

It is anticipated that the buyer will designate their real estate agent as the "administrator" for any given transaction. The buyer's agent will establish the transaction roster and assign permissions as to who can view which documents. If/when the buyer changes to a different real estate agent, administrative control would then pass to the new agent.

Figure 8. **Wireframe illustrating possible integration with Juwai**

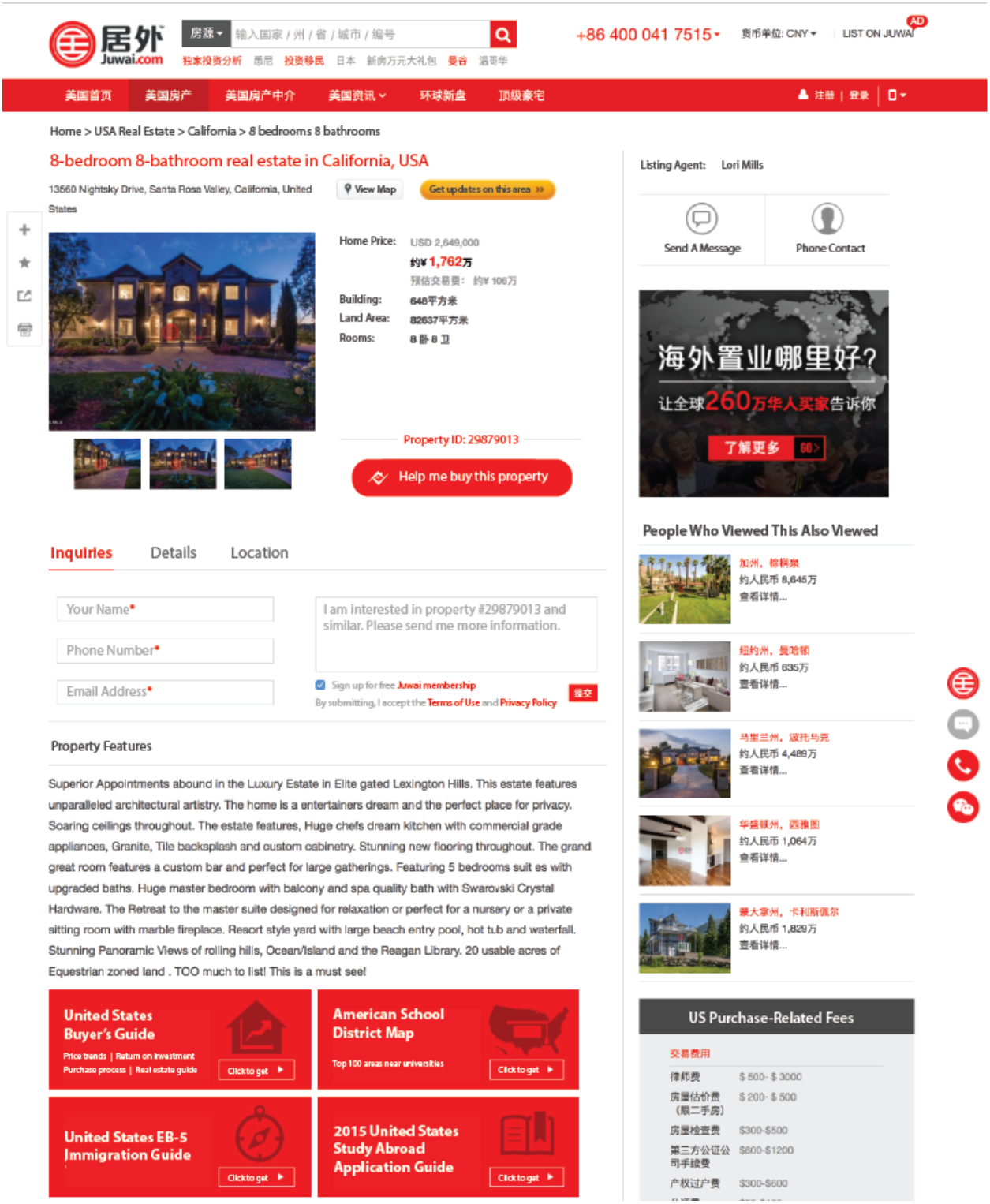


Figure 9. **Wireframe illustrating agent search results and associated user ratings**

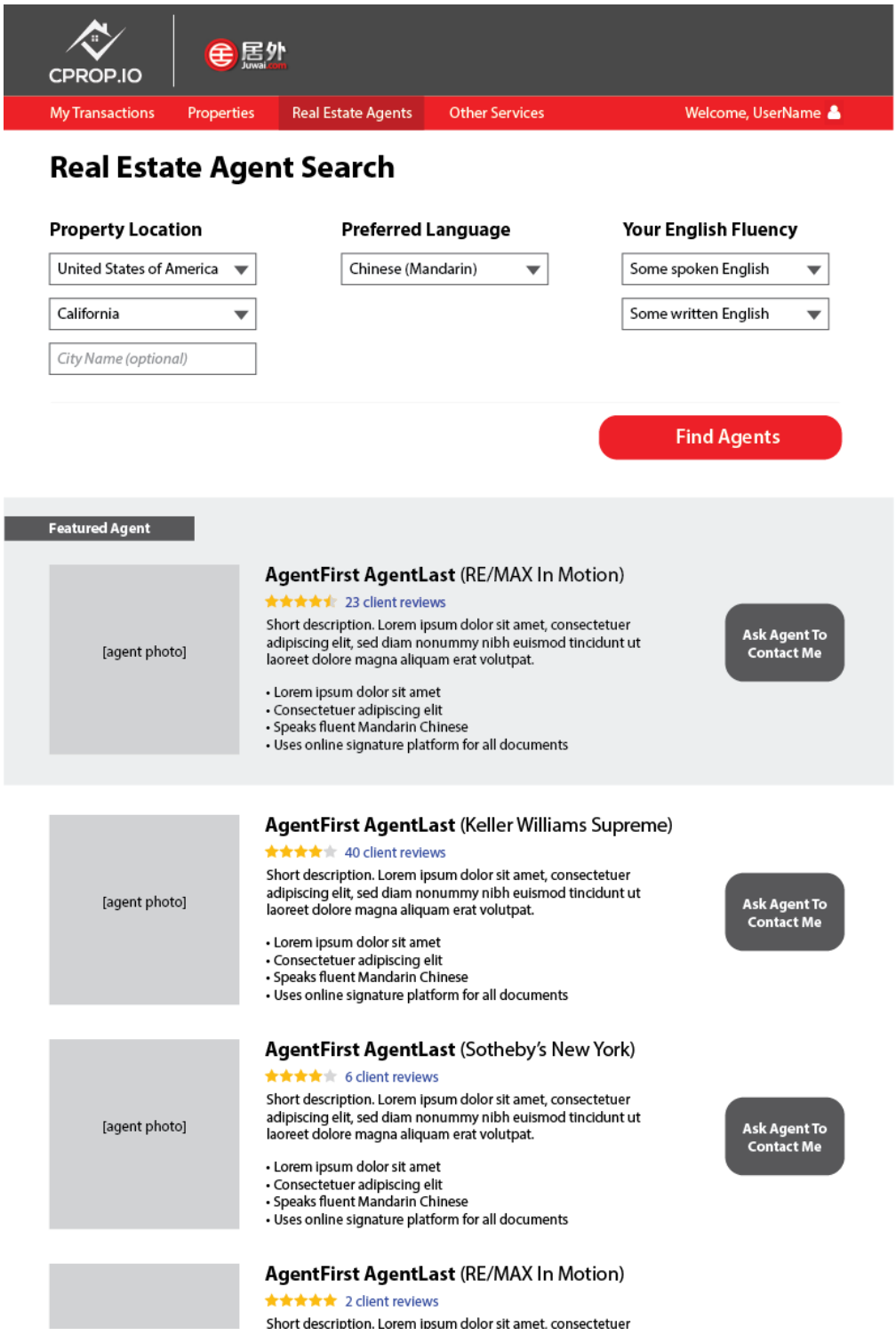
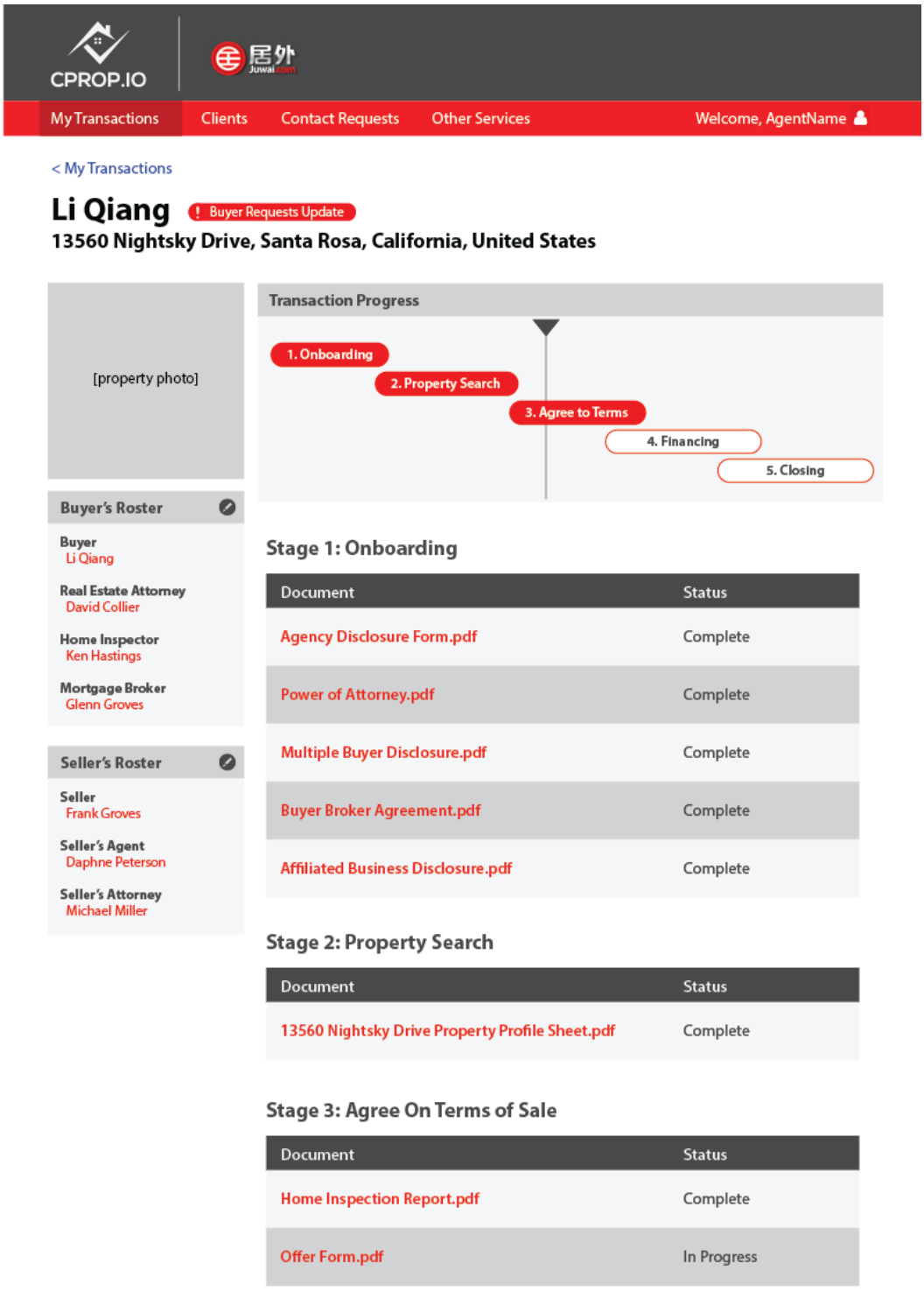


Figure 10. **Wireframe overall workflow management structure**



Agents will have the ability to add/edit/delete tasks as well as keep track of deadlines that, when triggered, can generate email/SMS alerts, all of which will be easily configurable within the system.

The above provides a small sampling of completed wireframes which are in the process of being developed into a fully functional application that we plan to beta test with various, pre-selected real estate brokerages located in New York, California and Florida – the three most popular investment destinations for overseas property investors.

5. Commercial Pilot

CPROP is working with KMK Law, the largest law firm in Cincinnati to formulate a pilot project with Hamilton County, Ohio (the county within which Cincinnati resides) to demonstrate its commercial product. Similar to the popular product, Carfax®, which helps prospective purchasers of used cars by providing complete vehicle histories, CPROP plans to demonstrate a similar concept for buildings. The idea behind the pilot is to pull (or push) data from existing, yet disparate, information systems connected with any building to the blockchain where an immutable history of transactions (or events) can be recorded and viewed.

In addition to CPROP and KMK Law, project participants are expected to include the various departments within the Hamilton County government (Clerk of Courts, Finance, and Facility Operations) as well as insurance providers and bond counsel, if the facility is subject to bond financing.

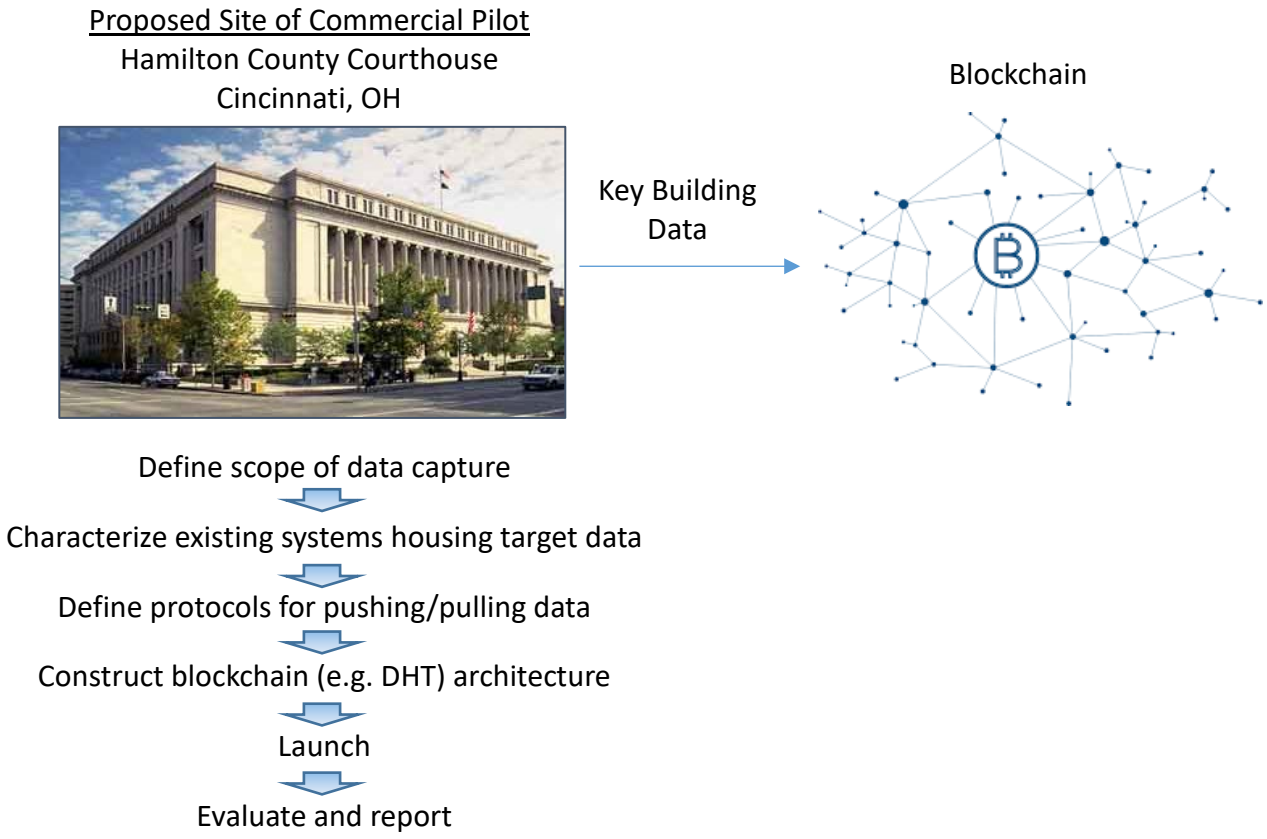
Figure 11 illustrates the basic steps of the pilot project. CPROP anticipates officially kicking off the pilot by March 2018.

The goals of this pilot include the following:

- Evaluate and demonstrate the feasibility of continuously "pushing" or "pulling" data from different types of legacy information systems. This goal entails an exploration of many types of issues – technical, commercial, legal and even cultural – associated with each system.
- Determine the best architecture for hashing data to one or more blockchains. This goal will encompass an examination of how to ensure documents are properly synchronized so that useful error messages can be generated to detect inconsistencies, whether by accident, intention or malfeasance.

If successful, we believe this product has broad applications across the real estate business spectrum and CPROP is in an especially favorable position to capture this opportunity.

Figure 11. **Commercial Pilot Overview**



6. Technology Roadmap

6.1 The Role of Identity Tokens

Blockchain platforms can be understood as decentralized Certificate Authority (CA) providers that can maintain the correlation of a given digital identity to an individual's public key. Besides being used by contemporary Internet infrastructure to enable protocols such as *https*, another common use of a CA is issuance of "virtual" identity cards ``by national governments which can be used to electronically sign documents. Countries like Estonia[2] are spearheading the effort to digitize the identities of its citizens and allow for non-physical digital signatures, even if still provided by centralized government services.

Blockchain is the next natural evolution in this process as it is a tool to deliver trust among parties which do not already trust one another. Public key cryptography, as used by blockchains (Elliptic Curve Digital Signature Algorithm or ECDSA), can be used as a form of a digital credential by linking identity data to cryptographic signatures to sign and verify digital documents and contracts. ECDSA signatures are impossible to fabricate without owning the private key, which makes them a much safer option than

[2] https://e-estonia.com/solutions/e-identity

hand drawn signatures. On a fundamental level, blockchains operate by signing transactional contracts, colloquially known as “transactions”, with a user’s private key which is verifiable against that user’s public key and understood as valid by all the parties on the network. Imagine applying the same principle to real estate, where your Bitcoin private key signature is your legally valid signature and your house or apartment is a token hosted on a public blockchain. This is the pathway for property records to become part of a public, immutable database, similar to Bitcoin.

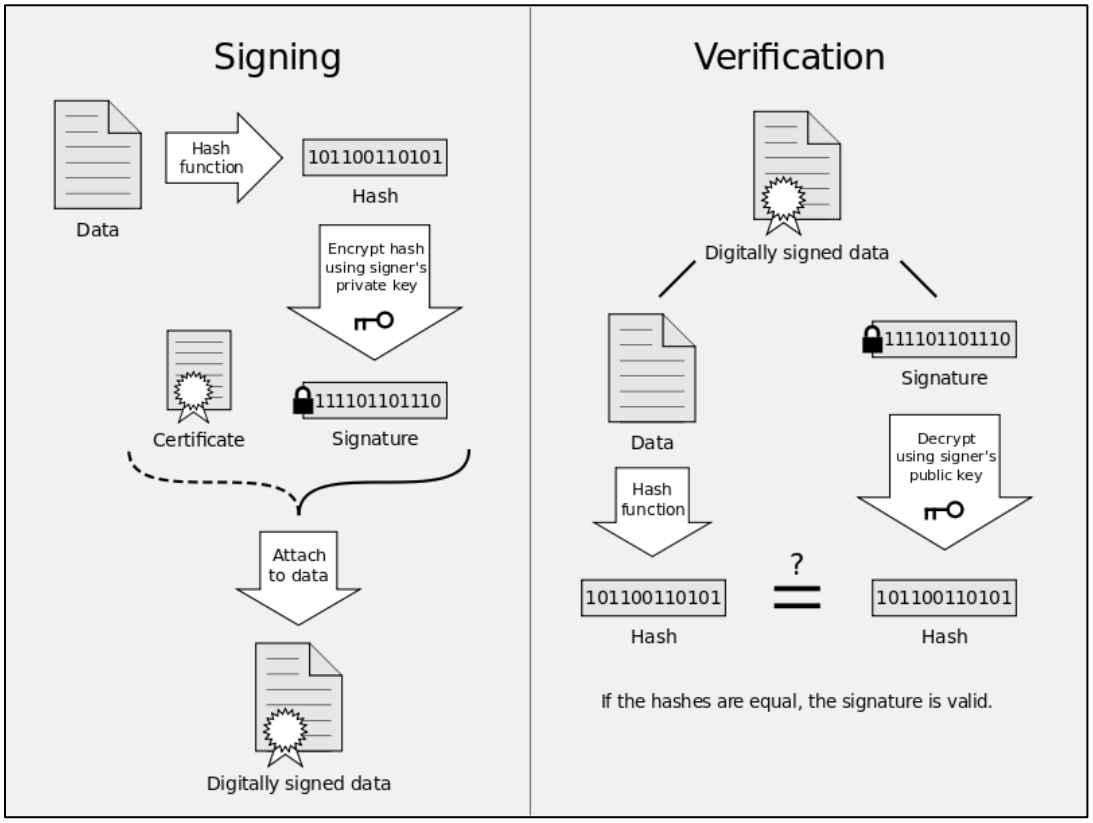
CPROP will leverage technology introduced by the public blockchains like Bitcoin to deliver a secure, transparent and fully verifiable platform for property records. For property records, CPROP believes custom blockchain implementations do not make technological sense, as the required features are already accessible with Bitcoin where the networks are already established and have a solid user base, there are many active developers and a sufficient number of active nodes maintaining the network and distributed ledger housing entire transactional histories. However, for mortgage tokenization, private blockchains will be required due to privacy requirements.

The very goal of CPROP is to utilize the power of blockchain to simplify and evolve the real estate market, to usher in a new era where public notaries are obsolete and all you need is a blockchain-based digital identity which presents your valid signature. A long-term goal of CPROP is to demonstrate to policymakers how accepting ECDSA digital signatures can serve as legally valid signatures providing benefits of seamless integration with the public blockchains and delivering cheaper, faster and safer handling of property deeds and a better experience for all stakeholders.

In order to post offers on the CPROP platform, sellers will have to register with the platform by presenting their digital identities in the form of an ID token hosted on the blockchain, simultaneously enabling CPROP to comply with KYC and AML regulations. CPROP will provide a user-friendly interface enabling users to create their identity token hosted on the public blockchain upon submission of their government issued identification documents.

In addition to creating its own ID tokens, CPROP will also strive for integration with compatible third party digital identity services, such as Civic, Air Platform, Blockchain-helix, Consent, SpidChain, and many others. Some of these platforms accomplish user identity verification via proxy (Twitter, Facebook, LinkedIn) and some do the authentication process with users’ government-issued identification documents. CPROP will connect with as many of these platforms as possible provided they are compliant to international laws and fulfill our own expectations of reliability and security.

Figure 12. **Digital Signature Schematic**



Source: https://en.wikipedia.org/wiki/Electronic_signature

6.2 Tokenizing Property Deeds

A deed is any legal instrument in writing which passes, affirms or confirms an interest, right, or property and that is signed, attested, delivered, and in some jurisdictions, sealed.

Digitalization of property deeds by making them into blockchain records (tokens) is one of our long-term goals. There is considerable interest in this and recent examples by other blockchain companies include pilots in Cook County (Chicago), Brazil, Republic of Georgia and Ukraine.

There are three basic requirements for legally transferring property deeds in most jurisdictions:

- Legal description of the property,
- The names of the respective parties (current owner, prospective owner),
- The signature of the person transferring the real estate.

By having a blockchain token representing a property deed, we fulfill the first legislative requirement for a valid transfer. By having individual tokens representing the identities of each of the deed owners (seller and buyer), we fulfill the second requirement for a valid transfer. And by utilizing the blockchain

technology as a decentralized store of digital signatures, we fulfill the third requirement for valid transfer.

Another requirement in almost all jurisdictions is having the deed notarized, which is fulfilled by the very nature of the blockchain itself which is, by definition, a time-stamped database.

Example of a title deed (UK land registry):

> Title Number: CS72510
> Property Address: 23 Cottage Lane, Kerwick, PL14 3JP
> Registered Owner: Peter Andrew Bartram of 23 Cottage Lane, Kerwick

- The Title Number is a unique identifier assigned to the title by the government registry;
- Property Address is the legal address where the property is located (in some jurisdictions, the legal address may be geographic coordinates or other property boundary descriptions);
- Registered Owner is the physical person (or business entity) which is the current, registered and legal owner of the title.

This example deed, drawn from the UK land registry, can be tokenized by making a colored coin transaction on the Bitcoin blockchain which embeds the relevant property-related information to be included into the blockchain. Fields "Title Number" and "Property Address" can be expressed in less than 80 bytes[3] which makes it possible to pack it inside the Bitcoin transaction as metadata.

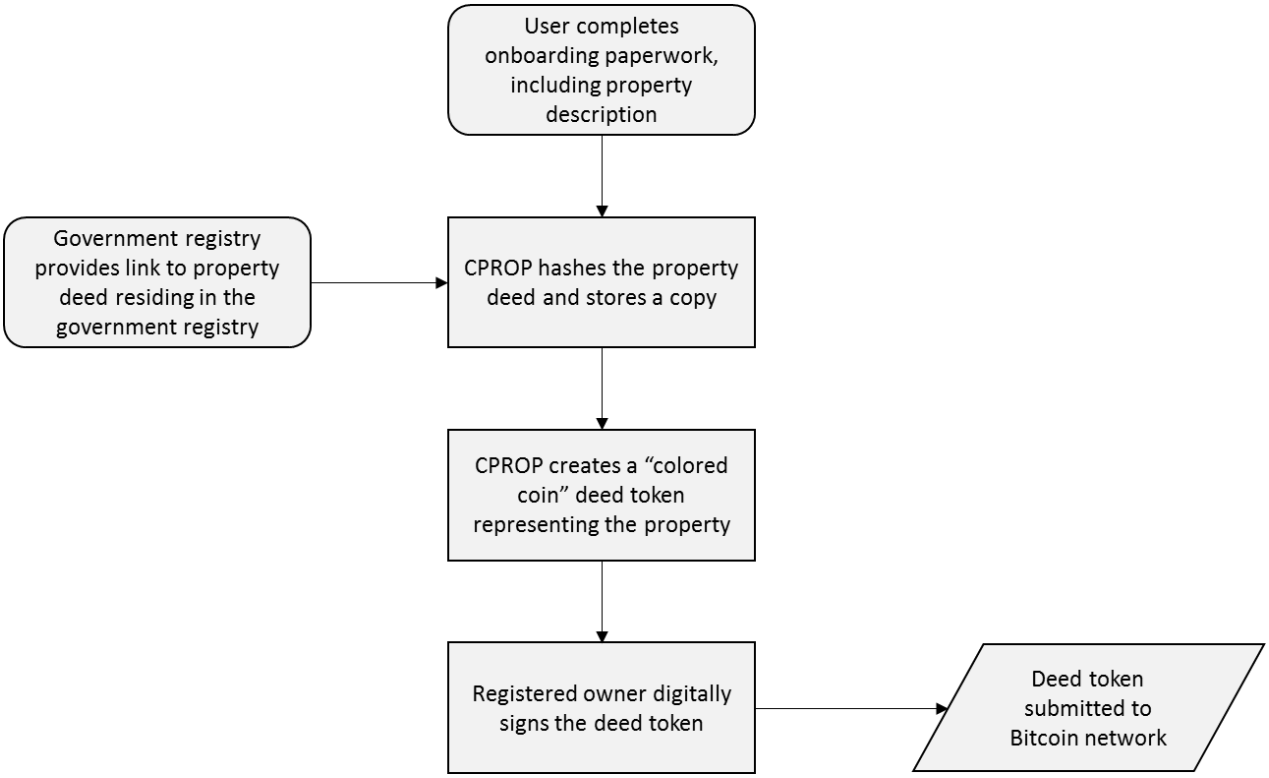
For purposes of verification and inspection of the validity of the deed token, a link to the government registry and original deed document file must be included as well as the hash of this document at the time of token creation. This workflow allows an instant comparison of the actual deed with the metadata provided on the deed token thus creating a means to prevent mismatches, either accidental or intentional (see below for further discussion).

Deed tokens can be hosted on multiple public (or even private) blockchains at the same time for redundancy if that is desired by the government registry. The field "Registered Owner" is described differently. If the deed is a token, then the "Registered Owner" is described by the chain of transactions relating to that property, i.e., who owns this deed token. In other words, the deed token is assigned to the legal owner's pubkey which is the same mechanism by which Bitcoins are transacted.

CPROP will focus its deed tokenization efforts in those jurisdictions/countries which already have digitized records, rather than archaic paper records. Some European countries like the UK, Ireland, Slovenia and Croatia offer property records in digital format[4] freely accessible online which makes these countries ideal candidates for integration with our platform.

[3] 80 bytes is metadata size limit for Bitcoin transactions
[4] https://e-justice.europa.eu/content_land_registers_in_member_states-109-en.do

Figure 13. **Deed Tokenization Flowchart**



However we still want to ensure that records provided by government-operated land registries are accurate and untampered. In this regard, we plan to maintain a copy and store the hash on the public blockchain so we can always detect a change in the underlying document content. "Hashing" is a way to mathematically express a file (a document) in the form of a string called a hash. Bitcoin uses the sha256 algorithm which guarantees that nobody is able to reproduce the hash; once a document is hashed, its hash is guaranteed to be unique, like a fingerprint. Thus, we will always be able to verify the integrity of the underlying deed document.

One of the biggest problems with the online trading of real estate is fraud where parties falsely proclaim themselves as owners of properties listed for sale or post listings for properties they do not own. CPROP offers a solution to end this abuse this making online real estate safer for consumers.

Because it is possible to express the original deed document in the form of a secure hash, which acts like a document fingerprint, we can always detect a change in the file. CPROP accomplishes this upon creation of the deed token as a way to back up the state of the government-provided document at the moment of its creation. This hash is attached to the property deed token as an additional safety measure.

While browsing the CPROP platform using our web-based client, our users can verify the listed properties against the government land registry on demand by simply clicking a button. At any moment, our software can pull the file from the government registry, hash it and compare it to the hash attached

to the deed token itself. If the hashes do not match, then the document has been changed on the government registry end thus flagging a problem with title.

Upon consummation of the sale or transfer of a property, CPROP can ensure the government registry is updated to the latest ownership state so that the token and deed remain synchronized.

6.3 Tokenizing Mortgages

A mortgage is a loan for the purchase of real property, secured by a lien on the property.

The same principles described above for deeds can be applied to mortgages, as they can be tokenized as well and attached to property deeds, as long as the mortgage tokens reside on a blockchain. By tying together relevant information from both the mortgage (a document typically filed with the government registry) and the promissory note (an agreement between a borrower and lender which is not filed with a government registry), lenders can have better assurance of keeping relevant paperwork intact and accurate to reduce their risk of not being able to enforce their rights in the event of a payment default. Imagine a scenario where documenting a mortgage is simply a matter of sending a mortgage token representing your property to a multi-signature address which is also accessible to the lender. Once the mortgage is repaid, the bank lien is released because the smart contract has been fulfilled.

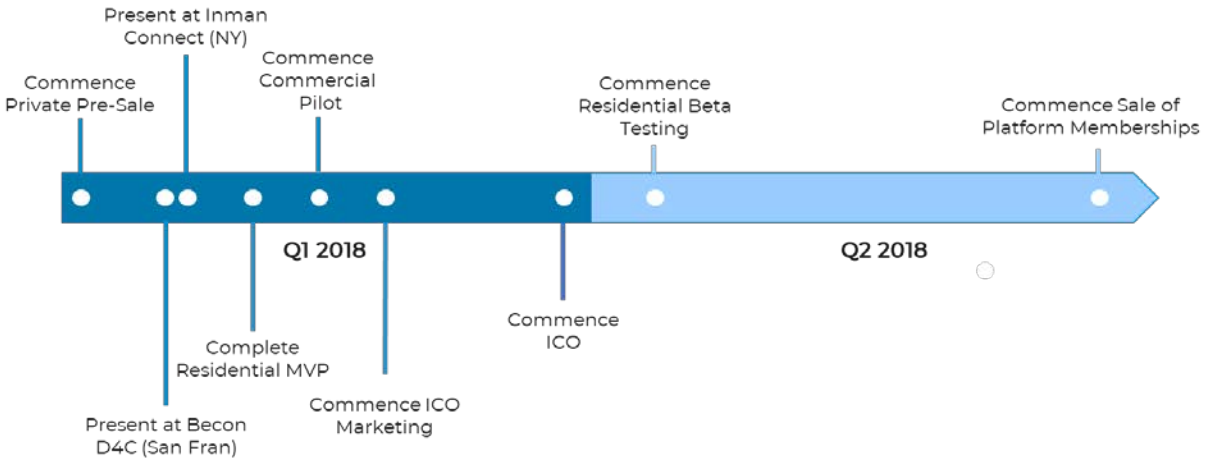
When a mortgage is sold in the secondary market, the sale of that mortgage may or may not be recorded with the government registry. This situation can be a serious impediment to being able to track secondary market transactions. In the US, the mortgage banking industry created the Mortgage Electronic Registry System (MERS® eRegistry) to serve as a central electronic repository for mortgages while complying with relevant federal regulations. When mortgages enter MERS, an assignment of that loan is supposed to be made by the government registry so the loan can continue to be traced within MERS rather than with the government registry. Suffice to say, blockchain is the perfect solution to this patchwork system of recordkeeping.

7. Commercial Roadmap

CPROP is pursuing a two-pronged strategy for its token sale. Initially, CPROP International Ltd., a Gibraltar limited company, is being established for the purpose marketing CPROP tokens to non-US investors and US accredited investors (under Regulation D) during the pre-ICO period at a discount to the ICO price. CPROP believes the environment in the US points toward increasing regulation by the US Securities and Exchange Commission and, therefore, it would be prudent to plan accordingly.

During the pre-ICO period, CPROP plans to raise up to $2 million via a Simple Agreement for Future Tokens (SAFT), with a minimum contribution of $25,000, denominated in BTC, ETC, LTC or PPC. The SAFT will no longer be used for pre-sales once the smart contract is completed and audited (anticipated February 2018). Once the smart contract is completed, an additional $9 million pre-ICO raise is targeted.

Figure 14. **ICO Launch Timeline**



See Section 9 for more details concerning the CPROP token structure.

We anticipate commencing an ICO prior to the end of the first quarter of 2018.

CPROP will be rolled out in phases as outlined below:

Phase 1: **Pre-ICO and ICO (through Mar 2018)**

- Prepare SAFT
- Gibraltar incorporation of CPROP International Ltd.
- Launch MVP
- Launch commercial pilot
- Complete and audit smart contract
- Confirm US compliance strategy for Cryptoproperties LLC (Delaware)
- Launch pre-ICO/ICO website that allows participation of US citizens

Phase 2: **Detailed design (9 months)**

- Requirements document for property portal integrations
- Requirements document for MVP enhancements
- Complete and report on commercial pilot; prepare next design iteration
- Coding
- Beta test MVP

Phase 3: **"Soft opening" (3 months)**

- Launch web app
- Debugging and platform refinement

- Expansion of operational and in-country sales channel partnerships
- Expand commercial pilot activity
- Refinement of post-Phase 3 roadmap and target market

Phase 4: Commercial launch (12 months post-ICO)

- Commercialization of both residential and commercial products
- Intensified marketing and property portal integrations
- Continued expansion of partnerships and staff
- Build operational capabilities

Phase 5: Conversion of legacy records systems (post-ICO; opportunistic)

- Work with local government to convert property records to blockchain in selected markets
- Work with selected lenders to convert mortgage documentation to blockchain

8. Features and Benefits

The commercial launch of CPROP (Phase 4) should provide numerous features and benefits to its users, including:

- **Provide real estate agents and brokers with an automation solution to close real estate transactions more quickly and easily**

  By automating workflows and document generation as much as possible based on the requirements of each legal jurisdiction, real estate agents and brokers will gain much better control over the transaction process and reducing time to close significantly. With full process transparency, critical path items will be visible to all parties. To the extent standardized document templates can be incorporated, the platform can reduce errors resulting in more accurate and reliable closing documents. In those jurisdictions that have embraced tokenized deeds, documents will be structured so they can be readily synchronized with the deed tokens created by CPROP. CPROP fills a vacuum in the current spectrum of SaaS real estate product offerings.

- **Enable buyers to transact utilizing Bitcoin and other accepted cryptocurrencies.**

  CPROP may partner with payment providers to facilitate conversion of cryptocurrency into fiat currency. There are several blockchain companies in this space already, e.g., Exch.One. If transactions are priced in the seller's fiat currency, the payments provider can facilitate the conversion of cryptocurrency into fiat currency on the date of closing at the exchange rate prevailing on that day.

- **Provide an efficient means to access all key information about buildings for transactional purposes.**

  CPROP will be the first company in the world to establish and execute an architecture for bringing together information presently residing in disparate information systems and hashing that information to the blockchain.

- **Vastly expand addressable markets for existing listings by leveraging existing property portals.**

  By providing connectivity among existing property portals, which are typically designed for local or regional markets, CPROP should extend the reach of those property portals to potential overseas buyers. And by supporting connected property portals with transaction-related services, CPROP hopes to help to drive their web traffic and revenue growth. Our Zillow connection is enhanced by current and former members of DotLoop who serve on our advisory and product development teams. Discussions are also underway with some of the largest property portals in China and Brazil.

In the longer-term, e.g. Phases 4 and beyond, CPROP envisions several additional features, including:

- Multilanguage translations of standardized document packages to reduce geographic barriers
- Originate crypto-based mortgages, e.g., in partnership with a cryptocurrency lender such as SALT Lending or Lendoit.

9. CPROP Token and Structure

CPROP's token structure is designed along a membership model. Real estate agents and other service providers will purchase CPROP tokens each year for a membership which gives them access to the CPROP platform and a listing in CPROP's service provider directory. All tokens received by CPROP in payment of memberships will be placed in a locked wallet thus removing them from circulation[5], until the total number of tokens remaining in circulation is reduced to approximately 30 million (from a maximum total of 95 million minted).

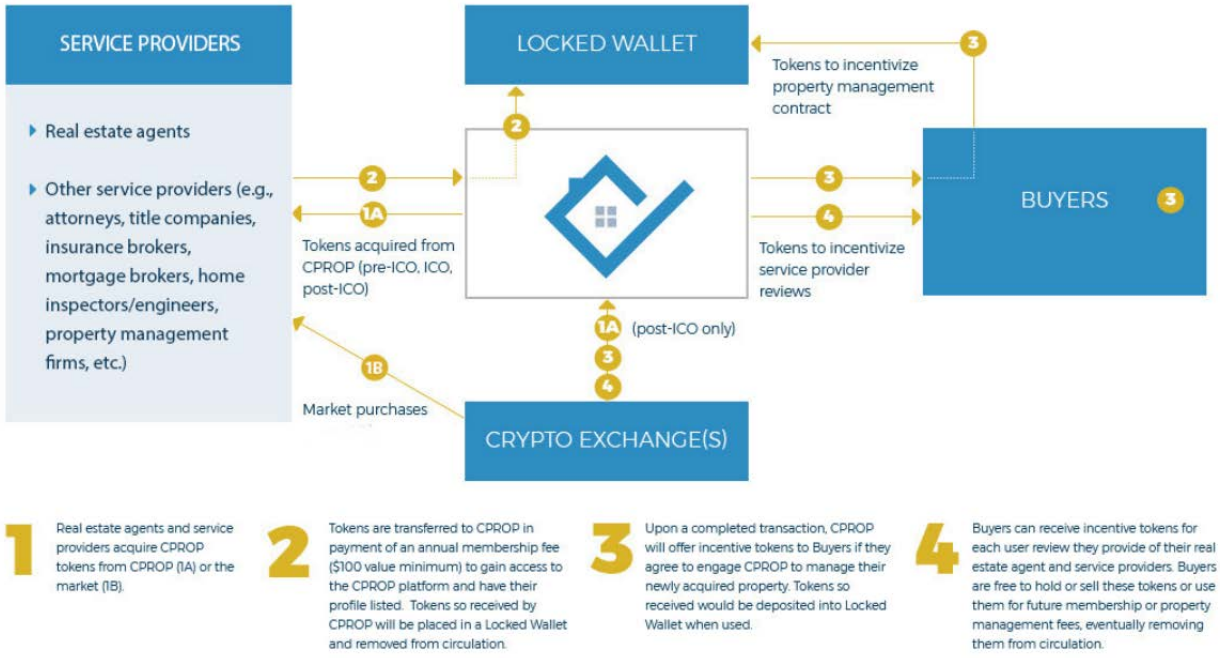
Buyers completing transactions on CPROP's platform will be eligible to receive incentive tokens both for providing ratings of their service providers, thus allowing our directory to be self-curating, and for engaging CPROP to manage the properties they just acquired. Buyers will be free to hold those tokens, sell them on an exchange and/or use them to pay for CPROP membership or property management services, in which case they will be routed to the locked wallet.

The sponsor of this project, CryptoProperties LLC (CPROP), is a limited liability company incorporated in the State of Delaware. CPROP plans to establish an affiliated entity, CPROP International Ltd. (CPROPI),

[5] There are 1.2 million licensed real estate agents in the US alone. Setting the membership price at 100 tokens per year, a highly competitive price @ $1.00/token, results in removal of 12 million tokens per year @ 10% market share.

a Gibraltar limited company[6], to issue the CPROP tokens. CPROPI will enter into a license agreement with CPROP for the intellectual property.

Figure 15. CPROP Token Structure Overview



CPROP is planning a crowdsale of CPROP tokens with a hard cap of **$15 million** and a soft cap of **$2 million**. CPROP will mint a maximum **95,000,000** tokens with a nominal value of $1.00, allocated as shown below in Table 2 and Figures 16 and 17.

As illustrated in Figure 15, tokens tendered for platform membership will be placed in a locked wallet until the total tokens in circulation drops to 30 million. At that point, tokens will be removed from the reserve to maintain a level of at least 30 million tokens in circulation. At such time as platform membership grows to the point where the reserve is exhausted, it will be clearly evident that the business and token model has succeeded and membership tokens will no longer be directed to the locked wallet.

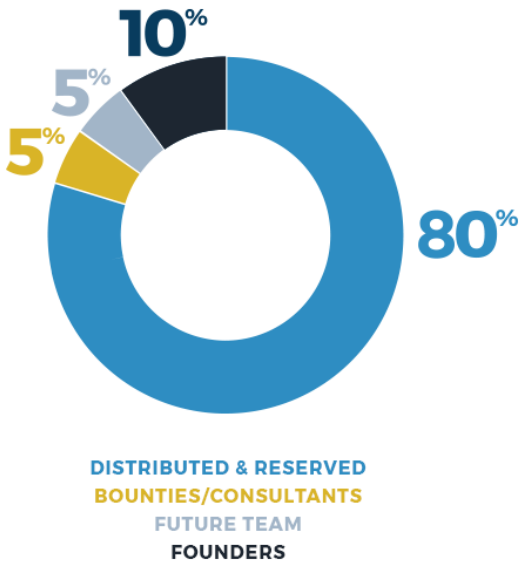
The results of a model that was constructed to examine the rate at which the number of tokens in circulation might be reduced and when the reserve might be exhausted is shown in Figure 18. The most important assumptions underlying this model is that CPROP's market penetration of licensed real estate agents and brokers will reach 10% by the 5th year of operation. Based on Dotloop's market penetration of ~50%, we believe this to be an entirely reasonable assumption, particularly given our strategy to partner with existing property portals.

[6] One or more other non-US jurisdictions aside from Gibraltar may ultimately be selected for token issuance.

Table 2. **Estimated CPROP Token Allocation and Pricing**

Allocation Category	Target Tokens
Early Contributor	20,000,000
Pre-ICO and ICO	26,000,000
Allocated to Founders	9,500,000[7]
Reserved for future Team members	4,750,000[7]
Reserved for bounties, consultants	4,750,000[7]
Reserve for platform growth	30,000,000
Total	**95,000,000**
CPROP tokens in circulation after maximum lock up	**30,000,000**

Figure 16. **Estimated CPROP Token Allocation**



[7] These token quantities will be reduced based upon the actual number of tokens distributed to contributors so that an approximate ratio of 10% to Founders, 5% for additional team members and 5% for bounties and consultants is maintained.

Figure 17. **Estimated Application of Contributions**

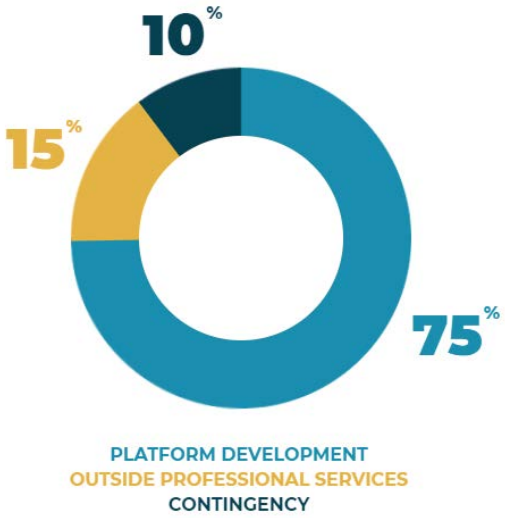
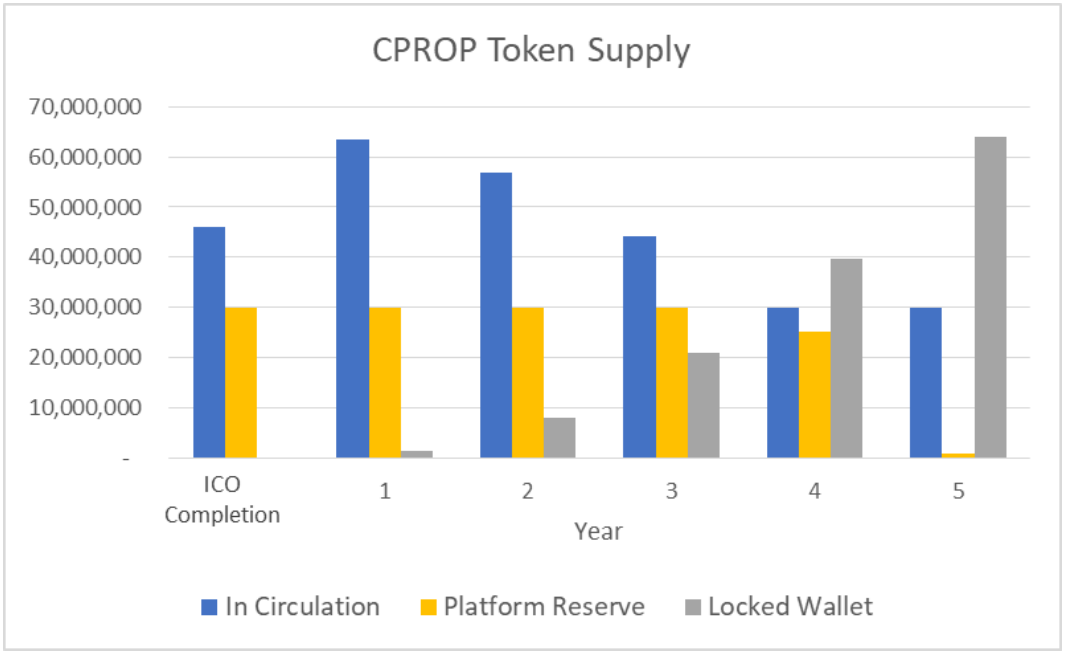


Figure 18. **CPROP Token Supply Model**



10. Reasons to Support CPROP

The founders of CPROP are also avid crypto investors, and they have incorporated design features into the business model to maximize value for token holders:

1. The ICO fund raise has a reasonable soft cap of $2 million and a hard cap of $15 million – CPROP is not trying to take in unlimited funds.
2. A maximum of 95 million tokens will be minted.
3. Tokens used to purchase platform-related services will be placed in a locked wallet until circulation decreases to 30 million.
4. CPROP is a true blockchain company because blockchain is core to the business model and its token is essential to the practicability of the business model.
5. CPROP plans to conduct and publish an annual audit by a globally recognized top accounting firm.
6. In addition to maintaining its social media channels, CPROP anticipates sending weekly progress updates to its email subscriber list.
7. A number of potential revenue streams are possible due to the number of services being offered to a multiplicity of users.
8. CPROP has assembled an impressive global team with vast and relevant international experience.
9. Founders' tokens will be distributed in equal installments over 24 months, thus ensuring focus on making the project a success. Any founder that leaves the project will have their undistributed tokens burned, thus assisting scarcity.
10. CPROP's planned commercial product will be a breakthrough, first-of-a-kind in the market that can deliver immense value to the largest asset managers in the world.
11. CPROP's planned residential product addresses a well-known pain point and fills a hole in the current spectrum of SaaS real estate products.
12. Property-related records is widely recognized as one of the top use cases in which blockchain can become mainstream. Mortgage tokenization is another widely accepted use case. CPROP is positioning for both.
13. CPROP anticipates integrating other blockchain companies with its offering, giving preference over non-blockchain concepts in order to help grow the community. CPROP believes blockchain companies need to work in cooperation with one another to accelerate the transition of blockchain to a mainstream, commercial construct.

11. Team Members

11.1 Co-Founders

Adam Koehler

- Co-Founded The DotLoop Company, a real estate-based startup sold to Zillow for $100+ million.
- Founded Reversed Out Creative Services which he has grown into a multi-million dollar enterprise.

- Founded CovWorx, a shared working space for tech professionals in Covington, KY.
- Named to Great Leaders Under 40 for 2017 by Lead Magazine.
- Nominated by Legacy Group of NKY for Next Generation Leadership Award 2017.
- Co-Founded CinciCrypto, a group for cryptocurrency enthusiasts.

Sandy Selman
- Co-founded/managed Asia West Environment Fund LP, a $100M+ early-stage venture capital program.
- First professional investor in E-Leather Ltd., served as Chairman and grew to profitability and No. 1 global market share.
- Co-founded Sanus Connect which designed and is deploying a novel data platform for a Fortune 500 real estate firm for property management.
- Extensive global experience developing and financing real assets as project finance banker.

Luke Sestito
- Founded The DeLeon Group, Inc. to take emerging technologies globally.
- Advised governments of GCC including Saudi Arabia, Qatar, UAE, and Kuwait on matters involving food security, water, and infrastructure.
- Co-founded Sanus Connect which designed and is deploying a novel data platform for a Fortune 500 real estate firm for property management.

11.2 Regional Team Heads

Brazil

Fabiano Távora
- Chairman of the International Law section of the Brazilian Bar Association – Ceará Chapter.
- Managing partner Távora Advogados, an international law firm serving varied clients from multinationals to technology start-ups.
- Former Brazilian CEO for Alphapraxis International, an international strategy management consulting firm.
- Co-founded and sold a Brazilian mobile app company that generated millions in revenue in its initial 12 months of operation.

James Spence
- Responsible for technology and investment product sales for SEI Corporation, a wealth management business, serving the institutional finance sector.
- Retained by MP3.com to provide strategic advice in support of their $1.3 billion IPO.
- Co-founded EQ Ventures to mentor scores of C-Level executives across a variety of verticals on strategy and implementation of initiatives to grow revenue.
- Moved to Brazil and executed a turnaround for a large multinational.

China

Eric Wang
- Led M&A for Tom Group Ltd., a US$8 billion HK GEM-listed company.
- China GM of JV between VC-backed US company and a large Chinese SOE.
- A skilled sales & marketing professional with a demonstrated track record of navigating across the Chinese commercial and government landscape.
- Excellent profile with Chinese central government ministries, PBOC and Provincial governments.

Saudi Arabia

Saleh Bawazir
- Built and managed the Disaster Recovery Center in Jeddah, Saudi Arabia which houses the Kingdom's critical data.
- Led that team that installed the Inmarsat satellite system in King Fahad City that provides communications for commercial ships and naval vessels.
- Brought numerous new technologies into Saudi Arabia including the first aeroponic farming system to recycle precious water in partnership with Pepsi, Jeddah.
- An avid real estate investor representing and advising his extended family and members of the Royal Family in hundreds of transactions worldwide.

11.3 Advisors

"Peerchemist"
- A respected member of cryptocurrency community.
- Led the Peercoin project and invented the PeerAssets token protocol – a highly efficient, blockchain agnostic protocol designed to facilitate secure P2P transactions involving assets.
- Strives to enhance the cryptocurrency community by increasing real-life use cases like tokenization of tangible assets and blockchain-based governance and organization.

Piper Moretti
- Co-Founder/CEO of The Crypto Realty Group, a Los Angeles-based firm specializing in conducting real estate transactions with crypto currency.
- Licensed international luxury REALTOR® at Keller Williams, one of the world's largest real estate brokerages.
- A Certified International Property Specialist, the only international designation recognized by the National Association of REALTORS®.
- Advisor to the Los Angeles Blockchain Lab and member of the Los Angeles chapter of the International Blockchain Real Estate Association.

Alex Allison
- Built and presently leads Dotloop's marketing strategy as Director of Business Development.
- Has established partnerships with many of the top real estate brands in the world.
- Developed go-to-market strategies and launched multiple successful products.

- Co-founder and advisor to multiple early-stage tech start-ups.

Jay Fortin

- International corporate attorney with more than 20 years of experience as a law firm partner and general counsel representing investors, developers, financiers, government entities, contractors and other stakeholders in complex cross-border investments in real estate, infrastructure and other real assets.
- Successfully closed over US$5 billion of transactions in both developed and emerging markets in the US, Europe, the Middle East, Asia and Latin America.
- Experience developing and managing compliance programs for OFAC, FCPA and AML rules and regulations and managing enquiries and investigations by governmental authorities on behalf of clients. Familiar with U.S. laws governing or affecting business internationally, including the US securities laws, Sarbanes-Oxley, Dodd-Frank and FATCA.
- Extensive experience dealing with foreign and domestic governmental officials and regulatory agencies, including negotiating concession agreements and obtaining necessary licenses, permits and approvals for large, high-profile transactions.

Jon Zinman

- Licensed attorney in the States of New York and Florida.
- Represents foreign investors in commercial and residential real estate in the US.
- Represents private and commercial lenders in construction financing for small- and mid-cap developers.
- Represents developers in condominium conversion and construction projects.
- Sponsor of the Real Estate Board of New York and gives continuing education classes to real estate brokers.