

**First Home - New Zealand First Home Buyer Support &  
Investment Blockchain - Public**

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## **Abstract**

New Zealand has become one of the most unaffordable housing markets in the world. House price inflation has marginalized a significant percentage of the New Zealand citizenry, particularly first home buyers. Low interest rate modern monetary policy has been a hindrance to first home buyers. These monetary policies have restricted access to the New Zealand housing market for first home buyers whilst fueling an exacerbated debt obligation for latecomers to the market.

Subsequent house price inflation has excluded many New Zealand citizens from potential home ownership through the inability to save a deposit.. First Home has been designed to assist first home buyers through blockchain technology and investment. First Home aims to:

- Record and accumulate first home buyer and investment data
- Financially assist verified first home buyers who want to purchase their first home via tokenization and investment
- Utilize blockchain/timechain technology's core concepts of "openness, decentralization and immutability" (Rana, 2018).

## **Philosophy & Mission**

First Home aims to facilitate first home ownership through:

- A decentralized immutable ledger of applicants
- A decentralized immutable ledger of funding records
- A decentralized immutable ledger of associated documentation
- A tokenization platform for investment & funding
- Assisting New Zealand first home buyers with home deposit assistance

First Home aims to promote the achievability of New Zealand citizen first home ownership by assisting New Zealand citizen potential buyers into the market through direct funding for their first home deposit. First Home is for Aotearoa's future generations and aims to empower its people back into an ownership model that past generations have enjoyed, built upon and prospered from.

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## **1. Founding Principles**

First Home's founding principles are the original timechain concepts of openness, decentralization and immutability (Rana, 2018).

First Home is available to:

- Any New Zealand citizen who has resided permanently in New Zealand for over 10 years, over the age of 18
- Any New Zealand citizen who does not yet own any physical form real estate property
- Any New Zealand citizen who falls within the selected income and financial threshold profile

First Home will only be governed by its original founders or the legally elected council members who must all be New Zealand Citizens and who have resided in New Zealand for at least 10 years

## **2. Introduction**

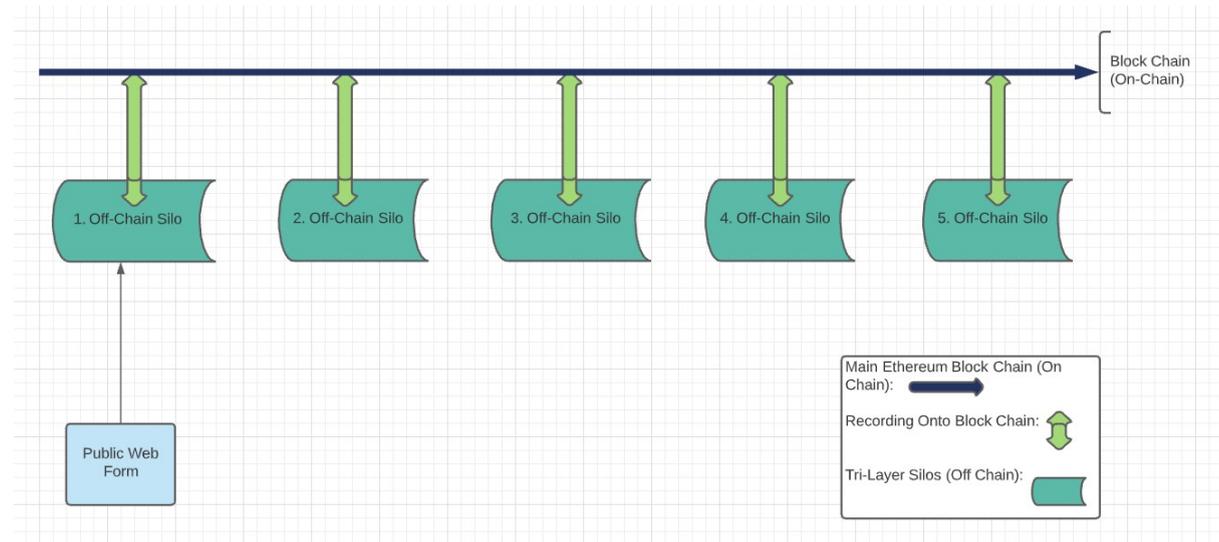
### *2.1 Elementary components*

First Home utilizes the Ethereum blockchain and off-chain decentralized storage protocols. Both will combine with modern encryption algorithms for data privacy. Timestamping of hash references are utilized to combine off-chain and on-chain procedures to minimize cost, maintain performance and adhere to the founding principles of timechain theory (Rana, 2018).

## 2.2 Protocol overview

The First Home blockchain environment consists of 2 key areas of (i) *on-chain* and (ii) *off-chain* activity. On-chain represents the Ethereum blockchain environment. The on-chain environment will be an immutable record of hash references relating to data from off-chain decentralized storage mechanisms. The off-chain environment of storage mechanisms are represented by 5 data silos. Each silo has an identical off-chain decentralized storage structure.

### (i) Overall Structure On-chain/Off-chain



The 5 data silos represent 4 different phases and uses of data within the First Home Blockchain.

All 3 data layers are hashed and referenced on-chain(*purple line in figure i*). Each of the 5 silos in the diagram above represent a different phase of the First Home signup and investment process.

*Silo 1 - First Home Applied:* A publicly accessible portal and web form for signing up as a First Home Buyer to the Blockchain funding mechanism. All completed sign-up applicants will be considered non-verified at this phase. All completed unverified sign up applications will be represented both on-chain and off-chain.

*Silo 2 - First Home Verified:* represents the transition of non-verified to verified applications. This will be controlled by First Home administration staff via referencing income and other first home verification applicant data. Once administration has verified the application they will transfer the applicant to Silo 2 and the applicant will then be recorded both off-chain and on-chain as a verified First Home applicant.

*Silo 3 - First Home Funding In Process:* represents a chronological assignment process that will transfer verified buyers incrementally and chronologically to the funding stage of the blockchain. Each applicant will have a unique identifier and ordering number.

*Silo 4 - First Home Funded:* A silo for the completion of funding. Legal documents, contracts and bank verification will be placed under the First Home Buyers ID within this silo. At this stage the funding process will be complete, all relevant contracts and documentation applied to the funding silo.

*Silo 5 - Governance Silo:* All First Home's meeting minutes, legal documents, financial statements and company records will be placed into this silo on a monthly basis. This will be used for public records to verify the integrity of the blockchain, analytical data and council organization process.

Silo's 1 - 5 will send an email and text notification of the on-chain process to applicants for notification of progression.

### **3. Definitions**

#### *3.1 Fault Tolerance*

First Home uses Ethereum's traditional proof of work protocol. This coupled with our off-chain data model ensures legitimacy of the blockchain data. First Home is designed to use the established Ethereum model for on-chain hash referencing, coupled with 3 total layers of identical decentralized and traditional centralized data for backup and reference purposes. Every layer is hash referenced onto the main Ethereum blockchain, and each layer is a mirrored duplicate of data.

### *3.2 Data Integrity - Recording*

First Home has an on-chain/off-chain structure consisting of 5 silos and 4 total layers of data referencing for integrity. The first 3 layers of data are decentralized and immutable. The final is a traditional centralized model for backup referencing if needed. First Home has 3 administered on-chain data steps in its current design. This does not distract or reduce the integrity of the blockchain which is the core Ethereum layer that carries hash references from the off-chain silos. The Ethereum blockchain is an open, decentralized and immutable source of truth with the First Home off-chain data model as a store, backup and off-chain reference for administration and integrity.

### *3.3 Hash Referencing - Recording From Off-chain to On-chain*

Hash referencing is used to associate data from off-chain layers to the Ethereum on-chain blockchain. Hash references represent all 5 silo's and associated data within each silo. Hash referencing is used for on-chain data integrity and efficiency of processes for on-chain consensus mechanisms/costs.

### *3.4 On-chain / Off-chain*

On-chain represents the Ethereum blockchain environment. Off-chain represents a decentralised storage method and a traditional centralized database. Off-chain privacy schemes are specifically intended for privacy through the use of encryption mechanisms (Lesavre et al., 2018). Off-chain design also reduces on-chain activity and cost which improves efficiency.

### *3.5 Council*

The First Home council is a body of 11 individuals, all New Zealand citizens who have resided permanently for at least 10 years. All council members must be aged 18 years or older and are voted to position to oversee the First Home blockchain every 36 months. 5 are salaried administrators, 6 are non-salaried industry professionals who are provided with tokens for service.

## **4. Constitution & Building Blocks**

### *4.1 Ethereum*

Ethereum and the ERC20 protocol are used as the on-chain block chain mechanism for First Home.

### *4.2 Encryption*

Encryption practice is used both on and off-chain for privacy purposes.

### *4.3 Silos*

5 off-chain storage mechanisms consisting of decentralized and centralized protocols.

## **5 Tokenomics**

### *5.1 Objective*

To create an accessible investment platform for crypto investors and to accumulate funding for First Home Buyer funding allocation.

### *5.2 Allocation Policy*

A total of 1,000,000 tokens will be created for the platform

### *5.3 Pre Mined*

- 570,000 tokens to be pre-mined
- 70,000 tokens for early private investment in a pre-mining ICO allocation
- 500,000 coins will be used as the funding base for the First Home Funding Token pool.
  - 50,000 ==> 40,000 --- % possible burndown - deflationary burn down
  - Random burn down times
- 430,000 tokens will be made available to the public via the ICO

#### *5.4 Circulating Supply*

An inflationary supply with selldowns/burn and re-assignment to the funding pool with a yearly reduction in total supply through this burn mechanism (similar to halving -- create schedule for decade).

#### *5.5 Max Supply*

1,000,000 tokens that cumulatively reduce over time with burndown affecting the 500,000 funding token pool.

### **6. First Home Buyer Verification**

First Home buyers are verified by income and legal documents to validate no previously or currently owned residential or commercial property. First home buyers will only be considered and fundable if they have no property via direct ownership, trust, co-investment or any other legal property or home ownership model.

Any acceptance onto the first home funded blockchain will assign all validation documentation and sign-up processes onto the off-chain protocol as data.

### **7. First Home Buyer Funding Process**

Funding will be done in adherence to New Zealand law. First home buyers will need to sign and upload an acceptance document. Possibly a grant process, recorded and funds being recoverable by First Home if:

- There is any proof of fraud in previously submitted documents
- First home buyers sell the grant funded property within 5 years
- First home buyers are not permanently living in the property for a minimum of a five year period
- There is any new information that proves a breach or fraud to the initial First Home Buyer verification process

## **8. Council Structure**

The First Home council is a body of 11 individuals all aged 18 years or older that are voted to position to oversee the First Home blockchain every 36 months. 4 are salaried administrators, 6 are non-salaried industry professionals who are provided with tokens for service. The structure of the council:

- Manager x 1
- Developer x 1
- Developer x 1
- I.T. Manager x 1
- Lawyer x 1
- Accountant x 1
- Administrator x 5

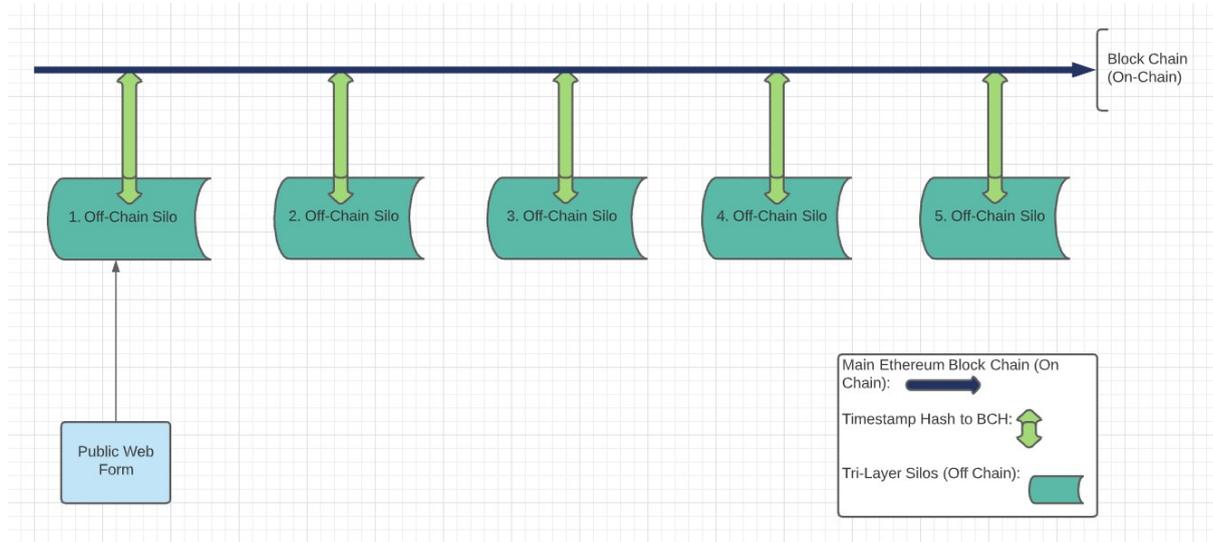
The Council will reset with new personnel every 36 months with administrators having the option to extend for up to 3 total consecutive terms. The Council will be reset and selected by an online blockchain based voting protocol.

## **9. Conclusion**

The First Home blockchain is designed as a prototype concept to solve a social problem. It requires more work, investment and expertise to come to fruition. The key components, ideas are all in place as of this first prototype. This blockchain should grow and develop with the core goal of more New Zealand citizens easier access to home ownership and quality housing through home ownership.

## 10 Diagrams

### 10.1 Overall Structure On-chain/Off-chain



## 11. References

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