



Cognitive Harmony Technologies
EquiSeed EST & DAO

Decentralized Cannabis Funding

Social Equity DeFi

1 Definitions

“Cannabis Regulation and Tax Act” or “CRTA”: Signed into law on June 25, 2019 by Gov. J.B. Pritzker, the CRTA ended cannabis prohibition and replaced it with a system to tax and regulate cannabis for adults 21 and over in Illinois. The new law offers significant benefits to communities hit hardest by inequities that were part of the war on cannabis.

“Disproportionately Impacted Area” or “DIA”: An area that has been historically disproportionately impacted by the prohibition of cannabis. In Illinois law, an address must fall within a DIA on [this map](#) in order to qualify as a Social Equity Individual under a DIA criterion.

“Social Equity Individual” or “SEI”: This is an individual who has been impacted by the prohibition cannabis. They must live in a DIA, have a cannabis related record or charge that was expunge-able under the terms of the CRTA, or have an immediate family member who has such a record or charge.

“Social Equity Applicant” or “SEA”: This is either a Social Equity Individual, or a company, who is applying for a cannabis business establishment license in Illinois. If a company, the company must be owned and controlled 51% by a Social Equity Individual, or maintain 51% Social Equity Individuals as employees (minimum 10 employees).

“Social Equity Company” or “SEC”: A company which qualifies as an SEA.

“EquiSeed Token” or “EST”: A blockchain token which represents debt of SECs to the token holders.

“Smart Contract”: A computer program or a transaction protocol which is intended to automatically execute, control or document legally relevant events and actions according to the terms of a contract or an agreement.

“Blockchain Oracle”: A blockchain oracle is any device or entity that connects a deterministic blockchain with off-chain data.

“Decentralized Autonomous Organization” or “DAO”: An organization whose governance is implemented via a Smart Contract.

Concept

One of the main goals of the IL CRTA legislation is to use recreational cannabis legalization to promote long term, sustained wealth creation for the communities most affected by the decades long “war on drugs”. Primarily, this is accomplished by giving SECs an impressive advantage in the application process, a 20 percent point increase on the overall application score. This is no small thing, as these are potentially some of the most valuable legal

cannabis business licenses in the world. While the law does take the most aggressive and innovative approach that's ever been attempted regarding these issues, there are "baked in" barriers to entry for SECs that are beyond the control of the state. Long term, it's not enough to tilt the application process by awarding extra points to SECs, if predatory investors are necessary to secure funding for the build-out stage of development. While the state has created a fund for low interest loans accessible only to license-holding SECs, the amount of licenses going on the market in the next few years all but guarantees that whatever the final size of the fund, it won't be enough. Listed below, are just a few of the biggest issues facing a license winner on the day one:

- Access to capital is the single greatest threat to social equity ownership over the long term,
- Traditional banks won't lend to SECs leaving them at the mercy of predatory loan givers that only offer personal loans;
- Not allowing SECs to take loans out under the protection of an LLC or a corporation puts them at a severe disadvantage;
- The above will force SECs to sell equity for investment money. A traditional loan would allow them to keep their equity once the loan had been repaid.

Cognitive harmony Technologies, in partnership with Perception Farms, proposes a solution using a blockchain technology, in conjunction with smart contracts, with a DAO to govern the transactions. This decentralized approach would allow a coin to exist that would help SECs to keep the long term consequences of predatory loan practices at bay, thus ensuring the intent of the law is realized to its fullest potential.

2 Introduction

The Illinois Cannabis Regulation and Tax Act (hereafter CRTA) is a landmark piece of recreational adult cannabis usage legislation in which those who were most effected by the war on drugs were given a type of scored capital in the competitive process of applying for licenses to operate cannabis business establishments. Previous medical cannabis licensing rounds had been dominated by the well capitalized establishment, and those who were hurt most by the prohibition of cannabis were left high and dry. The aims of the legislators who drafted the CRTA were equally high. As described in the initial Findings of 410 ILCS 705/7-1(a):

The General Assembly finds that the medical cannabis industry, established in 2014 through the Compassionate Use of Medical Cannabis Program Act, has shown that additional efforts are needed to reduce barriers to ownership. Through that program, 55 licenses for dispensing organizations and 20 licenses for cultivation centers have been issued. Those licenses are held by only a small

number of businesses, the ownership of which does not sufficiently meet the General Assembly's interest in business ownership that reflects the population of the State of Illinois and that demonstrates the need to reduce barriers to entry for individuals and communities most adversely impacted by the enforcement of cannabis-related laws.

The CRTA then goes on to enact measures which are meant to ensure that those who were disproportionately impacted by the war on cannabis are given an opportunity to partake in the newly legal industry, not just as customers or even employees, but as owners of cannabis business establishment licenses. These measures include:

- Requiring either 51% license ownership and control or 51% employment of Social Equity Individuals in order to have a competitive application.
- Requiring 51% license ownership and control by a Veteran in order to have a competitive application.
- Limiting ownership interest in new dispensary licenses to 10 per principal officer.
- Limiting ownership interest in new craft grow or infuser licenses to 3 per principal officer.

Unfortunately, despite the Illinois Department Of Financial And Professional Regulation's (hereafter IDFPR) best efforts, the licensing roll out for recreational sales hasn't achieved much Social Equity yet. In fact, 2 years after the CRTA passed, not a single new cannabis business establishment has been licensed in Illinois!

21 well funded companies have won all of the 75 available dispensary licenses in the first round, all with perfect scoring applications. While Governor JB Pritzker has announced another "Supplemental Round" of deficiencies which will give the thousands of other Social Equity cannabis license applicants another chance at perfecting their applications and entering the first round lottery, the entrenched 21 original winners have taken the State Of Illinois to court over the matter, which is unlikely to be resolved before Summer. Even if the 21 original winners are unsuccessful, and first round supplemental deficiency notices move forward, there is much evidence that the original winners all have substantial numbers of applications in play (some with 50 applications or more!). As demonstrated by Cognitive Harmony Technologies in their [study and simulation of the Illinois dispensary license lottery](#), even at \$2,500 per application, the ROI for up to 47 applications pays off extremely well when dispensary licenses have a street value of \$13M or more. If you know you can pull off a perfect application, this isn't a bad bet to make!

On the production side of the business, the Illinois Department Of Agriculture (hereafter IDOA) has not yet announced craft grow and infuser license scores. The IDOA application is much more technical and granular in nature, which may favor the establishment, but it is also more limited when it comes to multiple license ownership. Due to the high scoring granularity, the ownership limitations, and the much smaller application pool we expect

there to be more Social Equity winners in cannabis production. Meanwhile, the State Of Illinois is working to pass new laws and administrative rules which will result in another 75 licenses being offered in a new lottery with new rules which don't favor the big cannabis players. This would mean that the playing field wouldn't be able to be gamed by an actor who can afford to risk a quarter million dollars on application fees. It also means that there will be a lot of Social Equity applicants coming to market who now have to compete with big business, on a shoestring budget.

3 Demand

Illinois will issue 310 new cannabis business establishment licenses in the next two years. With new application and lottery rules in play, we expect approximately half of those to be won by unfunded SECs. These SECs will be targeted by predatory loans with high interest rates and without many other typical small business financing options. While it is possible that a radical acceleration of cannabis banking reform occurs, we find the decentralized and democratizing approach which has emerged with DeFi to be the most just path forward. DeFi loans are optimally efficient, with supply directly engaging demand. Because DeFi loans can be made self governing, we can give the people the chance to support the cannabis businesses they want to see succeed in a post cannabis legalization world. So what does the demand look like? Let's assume that cannabis licenses in Illinois have the following street values:

Dispensary : 110 @ \$10M

Craft Grow : 100 @ \$20M

Infuser : 100 @ \$15M

While Illinois has carved out growth for new large canopy Cultivation Centers, it is going to be extremely difficult for bootstrapped SECs to meet the capital requirements in order to compete. That being said, the values suggested here can be thought of as a baseline. So, assuming a 50% SEC win rate, we have:

$$\text{Collateral} = \frac{(110 * \$10M) + (100 * \$20M) + (100 * \$15M)}{2} = \$2.3B$$

For simplification's sake, let's assume the following startup costs for each type of cannabis business establishment licensed in Illinois:

Dispensary : 110 @ \$500K

Craft Grow : 100 @ \$3M

Infuser : 100 @ \$1.5M

Similarly to our collateral estimate, the above implies that we have the following SEC loan demand:

$$\text{Demand} = \frac{(110 * \$0.5M) + (100 * \$3M) + (100 * \$1.5M)}{2} = \$252.5M$$

Which leaves us with a loan demand to collateral ratio of:

$$\frac{\text{Demand}}{\text{Collateral}} = \frac{\$252.5M}{\$2.3B} = 10.98\%$$

3.1 Quality Collateral

Not only are these loans highly collateralized, the collateral is very sticky. In order for a cannabis business establishment license to change hands in Illinois, a complete reapplication process must be initiated. This process includes disclosure of all debts and an obligation to retain Social Equity status. Clearly there is about a quarter Billion dollars worth of quality loan demand in the Illinois cannabis business establishment market just waiting to be served. We believe the best way to deliver the supply to this market is via DeFi blockchain technologies and decentralized lending practices. For this we turn to the Ethereum blockchain.

3.2 Growth

We are about to witness a Green Wave in the United States. Many other states are looking to Illinois to determine what worked and what didn't work when it comes to achieving Social Equity in recreational cannabis legalization. Social Equity is becoming the Gold Standard of legalization, and Decentralized Finance is poised to play a role in helping Social Equity Companies compete against Big Cannabis in the licensure land grab that is currently underway.

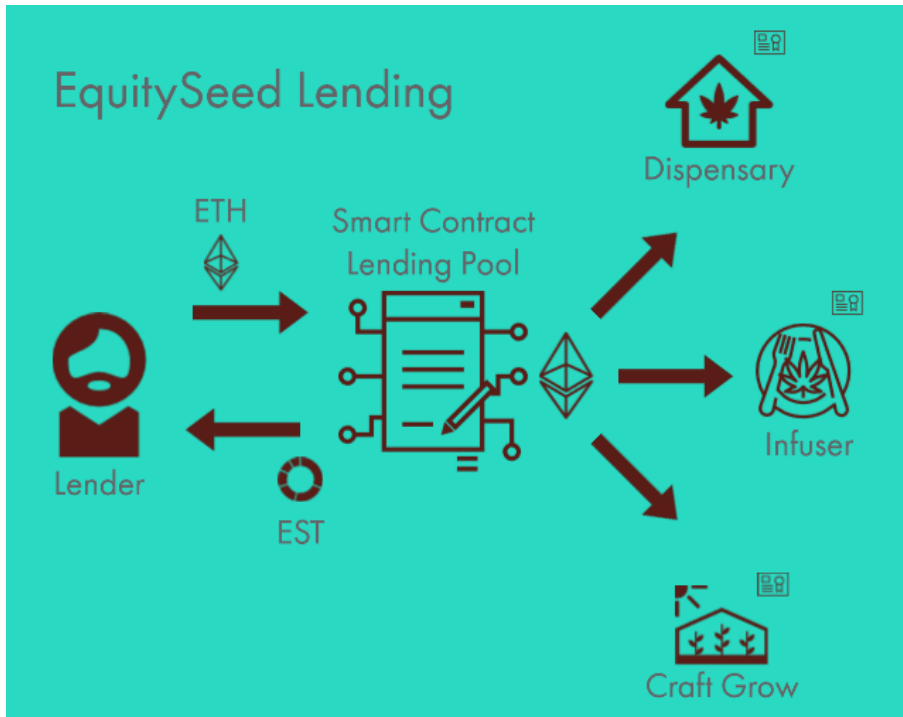
4 Supply

All cryptocurrency holders can benefit from "putting their money to work" in the emerging DeFi ecosystem. Today DeFi users participate in trustless peer to peer lending markets where they can put up one crypto token asset as collateral, and borrow another (likely to sell or short it). These transactions are trustless because the borrower cannot default on the loan without giving up their ownership of the loan collateral. This policy is enforced on a blockchain by a Smart Contract.

5 Smart Contracts

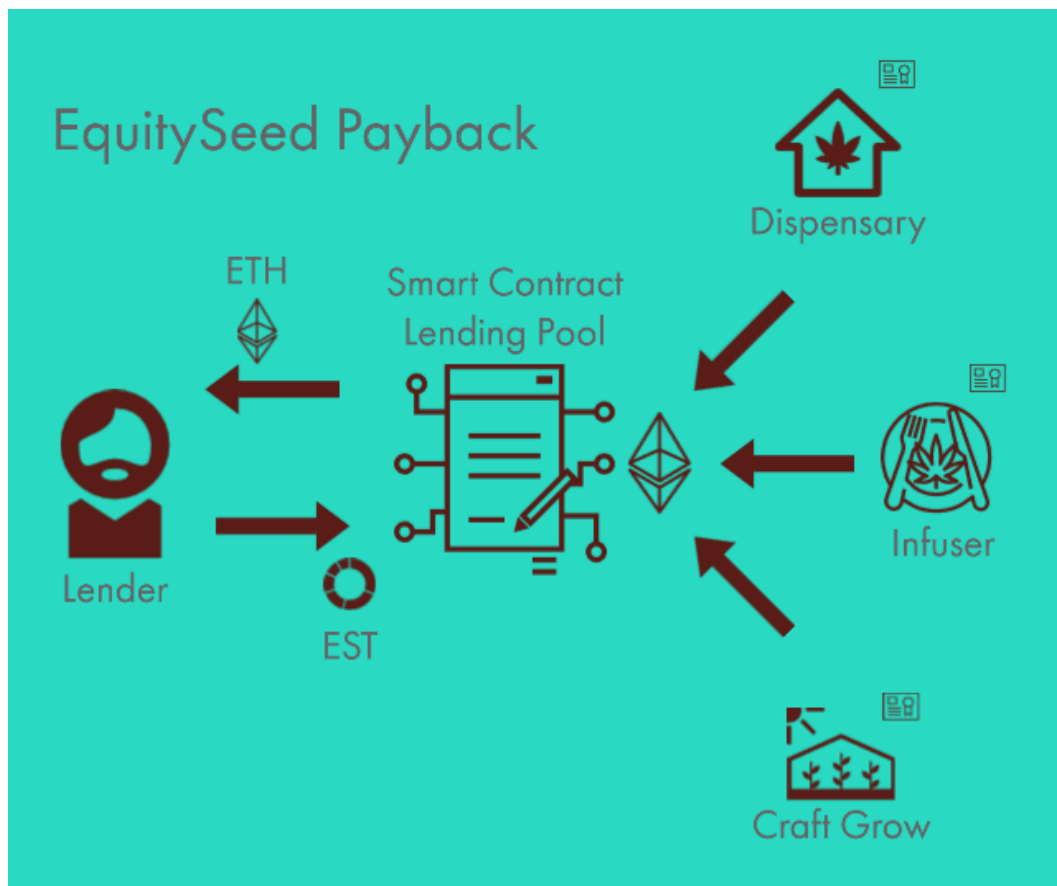
The Ethereum blockchain implements a massively redundant distributed computer. On this distributed computer we can run code that implements a lending system as a smart

contract. This lending system can operate on the native Ethereum token ETH, or a token that is unique to the EquiSeed ecosystem, let's call it EST. Such a system might look like the following diagram, where "ETH Lender" sends some ETH to the Smart Contract Loan Pool address. In return for the ETH deposit, an equal amount of EST are minted. These are IOUs which entitle the owner to the original ETH plus an interest or coupon payment.



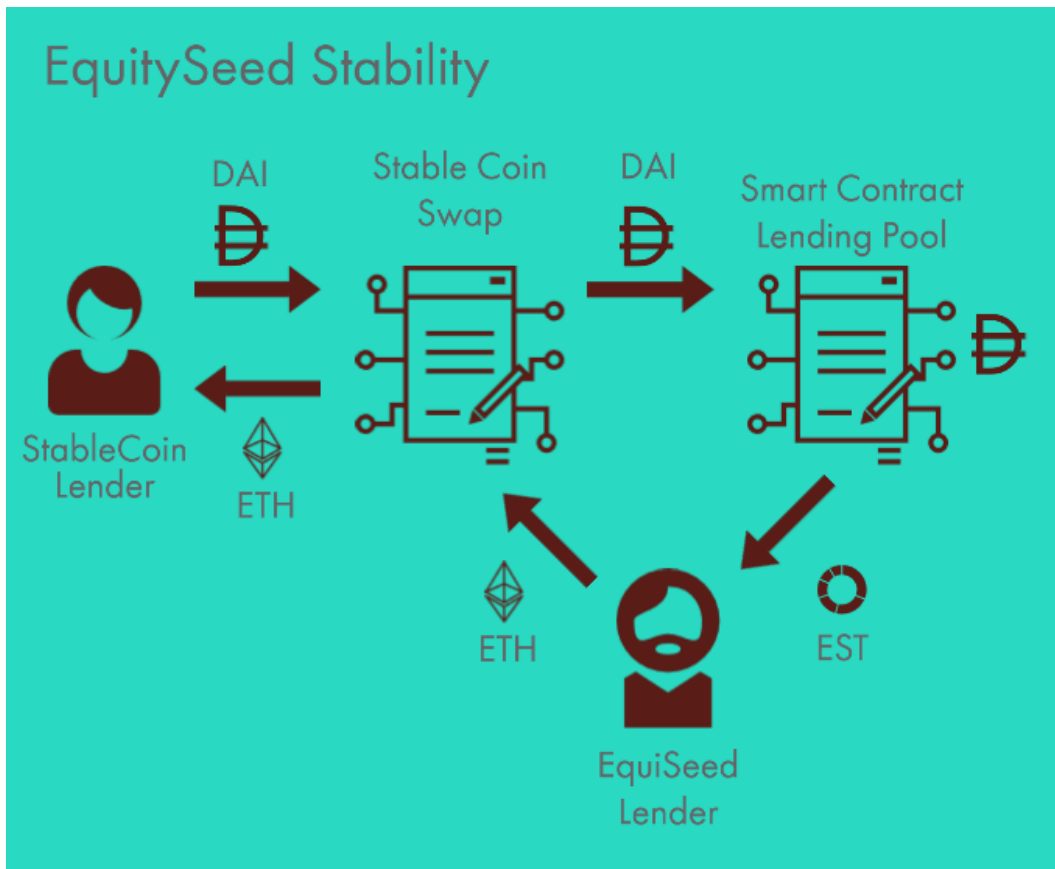
6 EquiSeed Oracle

Blockchains and Smart Contracts in isolation are blissfully unaware of the external universe in which they exist. An Oracle system is needed to provide real world data to our smart contract in order to adapt to real world changes in the underlying token markets. The EquiSeed Oracle will also function to validate loan application documents such as licensure and Social Equity Status.



7 Volatility Exposure

The astute reader will have no doubt already recognized that it may not be desirable for SECs to take delivery or hold ETH. These companies need to be able to count on stable notional and payback amounts in order to execute their startup timeline. If ETH prices fell dramatically relative to USD (which is the denomination that most startup costs will be incurred in) it would significantly impact the viability of SEC's business plans. If the price of ETH were to rise substantially, it would adversely impact an SEC's ability to repay the debt. For these reasons the EquiSeed platform will use a Smart Contract Based Stable Coin Swap.



8 Governance

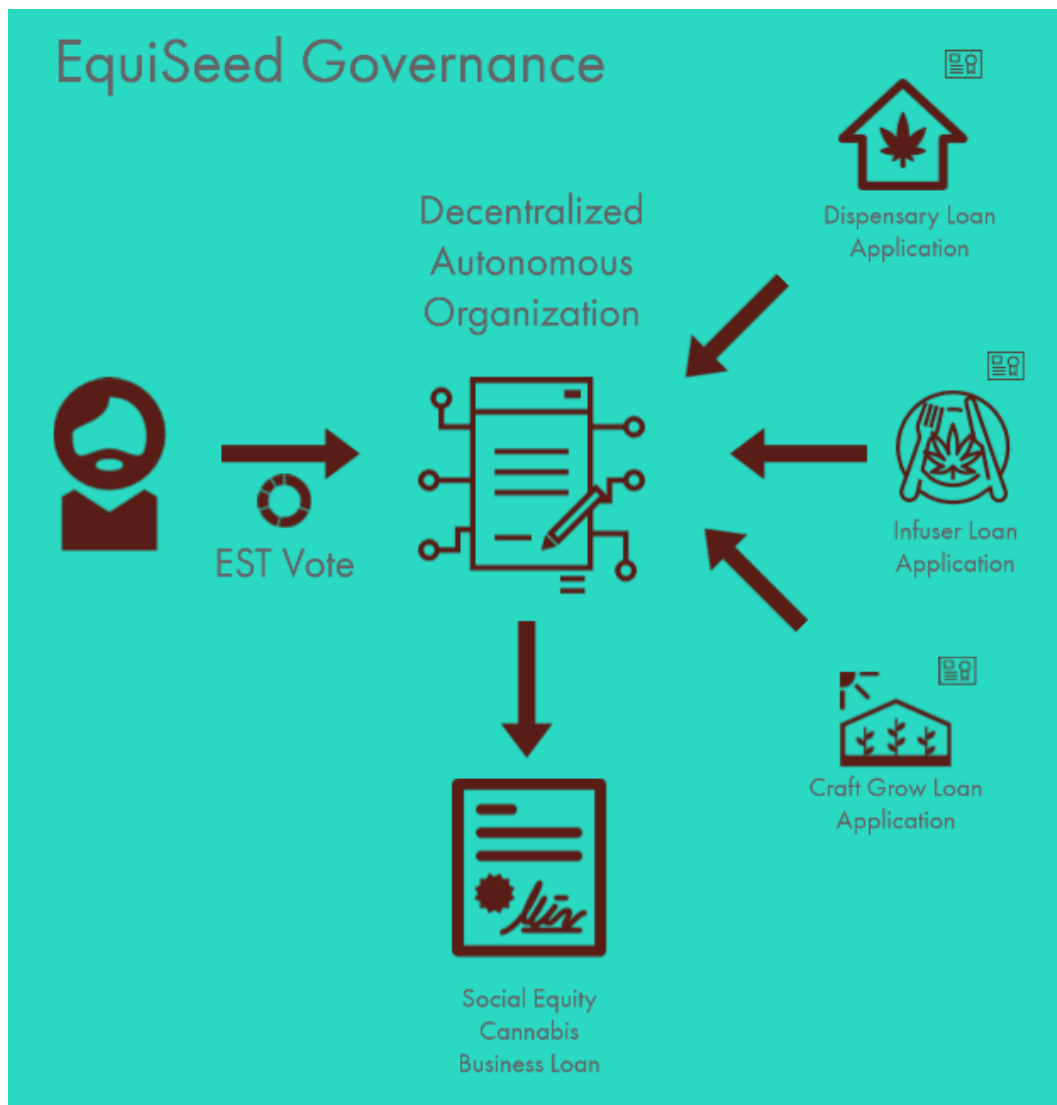
A system will need to be developed for managing EST governance. Every aspect of operating the DAO must be included in the scope of this system. This includes but is not limited to changes involving:

- Smart Contracts: In the event any bugs occur or the DAO would like to change Smart Contract behavior, the DAO needs to be able to update Smart Contract code.
- Decentralized Infrastructure: In order to evolve the platform the DAO needs to be able to update its Infrastructure.
- User Interfaces: In order to improve user experience and implement new capabilities on the EquiSeed platform, the DAO needs to be able to update its User Interfaces.

- Tokenization Agreement Or Other Legal Contracts: In order to adapt to the markets and jurisdictions in which it operates, the DAO needs to be able to update its legal documents.
- EquiSeed Oracles: The DAO may vote to change an EquiSeed Oracle at any time should a preferable choice emerge.
- Applications: The DAO needs to be able to choose applications for approval, and execute the resulting loans.

In order to meet these needs, and any other similar governing needs which might arise, EquiSeed will operate on the ESCP, or EquiSeed Change Proposal system. ESCPs will contain all executable code necessary to implement the given Improvement Proposal. ESCPs will require a majority vote and must have a minimum amount of EST registered to sponsor the Change. EST holders are entitled to a vote on any ESCP proportional to their holdings in the EquiSeed DAO loan pool.

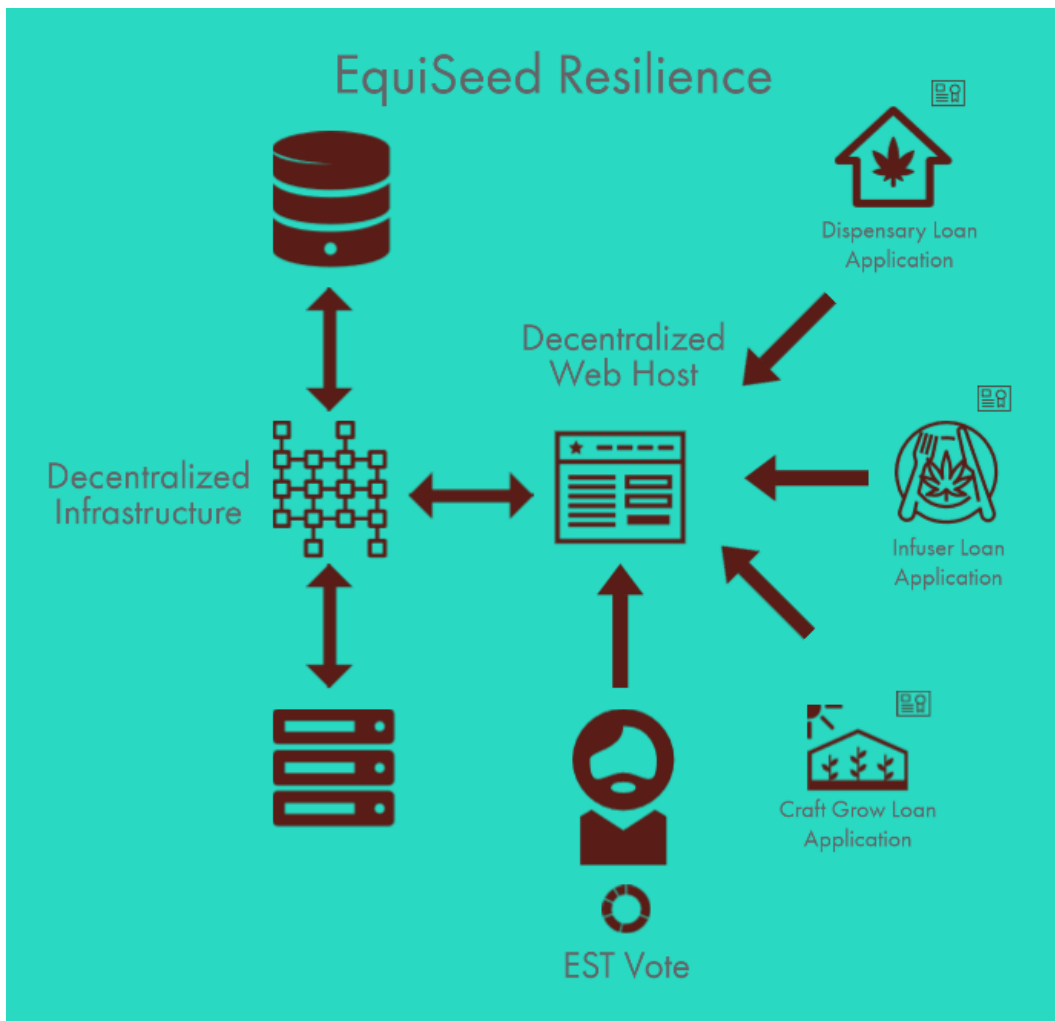
Loan applications are a special case of an ESCP. Applications for Social Equity Cannabis Business loans are submitted to the DAO, and made available for all EST holders to review well in advance of any voting deadline. Once the deadline has passed, all votes will be autonomously counted, and the loan funds for that voting period are disbursed. As part of the loan application, each SEC will sign a Tokenization Agreement, also made available well in advance of any application deadline. The Tokenization Agreement will authorize the creation of EST tokens which represent the obligation to repay the borrowed amount, using a portion of the SEC's interest in their cannabis business license as collateral. When a loan application is approved, a change to emit EST and disburse the loan amount will be executed. In the event that the SEC defaults on its payment obligations to the EquiSeed DAO, the DAO will execute a legal right to force liquidation of the license in order to repay the Lenders and unwind any Stable Coin Swaps involved.



9 Resilience

For the long term viability and resilience of the EquiSeed DAO, decentralized technologies will be leveraged to support all DAO Governance and Lending functions. This will allow all components of the DAO Governance and Execution system to continue functioning for as long as the Ethereum blockchain is in existence. The following use cases must be solved for:

- Storage (IPFS)
- API (web3 & Infura)
- Compute (Ethereum)
- Identity (ENS)
- Money Market (Compound)
- Stable Coin (DAI)



10 Conclusion

The Illinois CRTA is a landmark piece of recreational adult cannabis usage legislation in which those who were most effected by the war on drugs were given a type of scored capital in the competitive process of applying for licenses to operate cannabis business establishments. Unfortunately, despite the IDFP's best efforts, the licensing roll out for recreational sales hasn't achieved much Social Equity yet. In fact, 2 years after the CRTA passed, not a single new cannabis business establishment has been licensed in Illinois! That being said, all is about to change. Illinois will issue 310 new cannabis business establishment licenses in the next two years. With new application and lottery rules in play, we expect approximately half of those to be won by unfunded SECs.

There is about a quarter Billion dollars worth of quality loan demand in the Illinois cannabis business establishment market just waiting to be served. We believe the best way to deliver the supply to this market is via Decentralized Finance blockchain based technologies and decentralized lending practices. Social Equity is becoming the Gold Standard of legalization, and Decentralized Finance is poised to play a role in helping Social Equity Companies compete against Big Cannabis in the licensure land grab that is currently underway. All cryptocurrency holders can benefit from "putting their money to work" in the burgeoning cannabis economy, which thanks to DeFi, is opening up to access beyond just the wealthy establishment.

The Ethereum blockchain implements a massively redundant distributed computer. On this distributed computer we can run code that implements a lending system as a smart contract. An Oracle system is needed to provide real world data to our smart contract in order to adapt to real world changes in the underlying token markets. SECs need to be able to count on stable notional and payback amounts in order to execute their startup timeline, therefore EquiSeed will package a stablecoin swap/loan a part of the EST tokenization / generation. A system will need to be developed for managing EST governance. Every aspect of operating the DAO must be included in the scope of this system. As part of the loan application, each SEC will be required to sign a Tokenization Agreement, securing the EST tokens with an SEC's license as collateral. For the long term viability and resilience of the EquiSeed DAO, decentralized technologies will be leveraged to support all DAO Governance and Lending functions.