Light City DAO Whitepaper (DRAFT)

Our goal is to provide a well-rounded socio-economic system for managing decentralized communities that is secure, flexible, uncensorable, and transparent. For this, we leverage the power of blockchain technology and cryptocurrencies to create a general framework that anybody can apply to easily create economically sustainable communities.

Pillars

1. Access to data and information for everyone in the community, transparency.
2. Building an economically powerful community that prioritizes family values over profits.
3. Designing beautiful communities in order to build Black economic wealth for the generation

Governance structure

The DAO operates on a proposal-based governance structure. Community members will vote on how to implement changes, manage operations, allocate capital, and bring improvements to the system.

Proposals represent ideas brought forward by community members. These ideas need to undergo a validation process before they can be submitted for voting. If an idea gathers a positive vote majority, the DAO will allocate the necessary resources to have it implemented.

Roles Within the DAO

Members of the DAO will have different roles that reflect their responsibility and stake within the community and the system.

These roles will also serve as private digital identities for their owners

Expert	Responsible for screening DAO policies. Experts can also form DAOs that move as a collective where all voting mechanics, rules, and caps still apply (to help scale).
Member	**Anybody can become a member of the organization** by acquiring a **property NFT** or being onboarded by the general community.
Landowner	A member who receives **property** from the DAO. A landowner can delegate votes to experts and suggest new propositions that concern private property.
Community Elder	Responsible for mediating disputes.

Proposal Flow

Any community member can submit a proposal that aims to improve the overall quality and performance of the DAO.

We defined two types of proposals within our system:

– Proposals submitted by expert members.
– Proposals submitted by other community members.

Experts can create and submit proposals that go directly to the voting process without any further requirements.

Members of the DAO that are not experts can also submit proposals, but before these proposals can be submitted to the DAO, they must be screened by the experts. If denied, they need to gather enough community support to be submitted to the voting ceremony.

Voting Procedure

The distribution of votes within the system is based on the following criteria:

– Landowners will get _1_ votes.
– Experts will get _1_ votes.

Experts hired by the DAO start out with 1 vote and can receive more from community members who delegate to them.

Experts will be able to earn reputation through actions that are economically positive for the DAO. Each reputation rank a DAO member achieves allows him to use 10 votes.

Experts can also form DAOs that move as a collective, where all voting mechanics rules and caps still apply (to help scale).

As the DAO scales and grows, community members will have to take a test or go through a process before they can delegate their votes to a specific area. If a member is approved to delegate votes to an expert in one area, it does not mean they will be to do the same in another

Every community member has the right to vote on any proposal.

Votes can also be delegated in the event users don’t have enough relevant knowledge related to the underlying implications of a given proposal. Therefore, they can allocate their votes to other members who are more qualified.

Members must pass qualifying criteria or an examination to be eligible to vote or delegate votes. Votes fall under different categories depending on the field that a proposal targets. The type of vote required for each proposal may vary.

Addressing Voter Fatigue

The DAO would address voter fatigue by having groups of experts in a specific area responsible for delegating member tokens, similar to an index fund.

Preventing Abuse

To avoid abuse of power and collusion, all voting identities or parts of organized groups in the DAO must make themselves known. Anyone caught abusing power or colluding in any way will lose the ability to vote or be an expert.

Removing Elected Officials

Members have the ability to delegate their voting power to another member or entity. This can be useful for those who don't have the time or expertise to participate in voting on proposals but still want to have their say in the decision-making process. However, members also have the ability to revoke their delegation at any time.

If enough members revoke their delegations from a particular entity or official, then that entity or official would no longer have significant voting power and could become irrelevant in the decision-making process. This dynamic helps to ensure that the members of the DAO are always in control and can respond to changes in the community's preferences or priorities.

Rolling Back Decisions

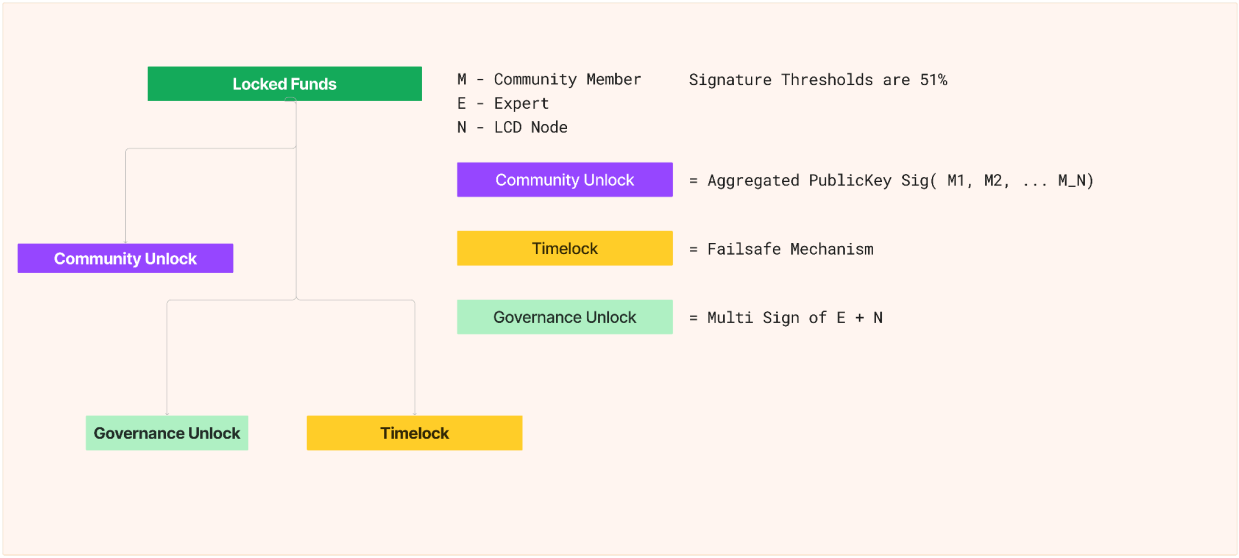
It is possible to create a proposal to undo or reverse a previous decision. This process is referred to as "rolling back" a proposal, and it requires a new vote to be initiated.

Funding happens in steps

Funding decisions are made through a multi-step process designed to prevent fraud and protect the assets of the organization. The number of steps will be determined by the financial experts of the DAO and business evaluators.

By implementing a multi-step funding process, we ensure that only well-vetted proposals are approved and that members have the opportunity to review and understand the implications of each proposal before funding is committed. This helps minimize the fraud risk and ensures that the DAO's assets are managed responsibly.

The Treasury



The DAO will have a certain amount of funds ready to be deployed towards future development prospects, operational costs, charity applications, and incentives.

The percentages of treasury fund distribution will fall under the responsibility of experts. They will be determined via a proposal that will be voted on. The budget distribution will be valid for _3_ months, after which the distribution percentages will be reallocated.

All the funds will be held in a distributed, non-custodial way using a large scale multi signature approach. **No person or entity will be able to move funds out of this wallet without community approval.**

The figure above illustrates the structure of the treasury wallet. The funds locked within the wallets can be moved if one of the 3 conditions are met:

1. The community comes to a majority to sign off on a community unlock
2. A governance decision has been made. In the scenario the unlocking procedure has 2 steps.
    a. First, majority of experts have to form a multisignature that signs off on the spending transaction
    b. The partially signed spending transactions are then sent to the validation layer which is composed of a certain number of nodes. Each of the nodes will check that the spending transaction is valid. If the nodes agree on the validity of the transaction, the transaction will be placed under a time delay and publicly broadcasted to the whole community for contestation. If nobody contests the decision before the delay is over, then the funds will be unlocked from the multi sign
3. As a fail safe, the treasury will have a time lock set in for the distant future, this serves as a means of unlocking the funds in case the system comes to a stand still and a majority cannot be formed anymore. This time lock will be automatically and periodically extended

Incentivization

The DAO aims to help people build sustainable and fair communities. Therefore, it will give out incentives to active communities that bring a net positive impact to the overall development process.

Incentives will come in the form of funding or resource allocation. The DAO will help members implement their business ideas by providing funds, equipment, and expertise.

Resources will be provided to starting business owners in order to help them get started with their ventures. The amount and type of resources that will be allocated to them will be determined by proposals.

Operations and Sustainability

One of the most important objectives of our DAO is to become sustainable and ethically profitable for its community members. This will be achieved by setting up various revenue streams that will provide active cash flow to the community system, enabling it to grow and creating a fertile business environment.

Licensing Out Software

The core system protocol will be made open-source so that anybody can use it to build their own system. However, we will provide enterprise-level support at a cost for any client needing assistance in setting up our system.

Bitcoin Exchange

Users will be able to buy and sell bitcoin using the light city dao.

Capital Ventures

By helping members with potentially profitable business venture ideas set up their own operations, the DAO community would become a shareholder of the venture, receiving a share of the profits that the business generates.

A group of business curators (who have gone through a screening process similar to the experts) will be responsible for curating business ideas and deciding how capital is allocated for investments. Some of the key criteria they will look for can be:

1. Offer a valuable product or service: A business must offer a product or service that people want or need and are willing to pay for. This requires a deep understanding of customer needs and the market, as well as the ability to continuously improve and innovate the offering.

2. Control costs: A business must be able to control its costs and maintain profitability even as revenue grows. This requires careful management of expenses and a focus on efficiency and productivity.

3. Manage cash flow: Maintaining positive cash flow is essential for any business. This requires careful management of accounts receivable and payable, as well as the ability to forecast future cash needs and take proactive steps to ensure adequate funding.

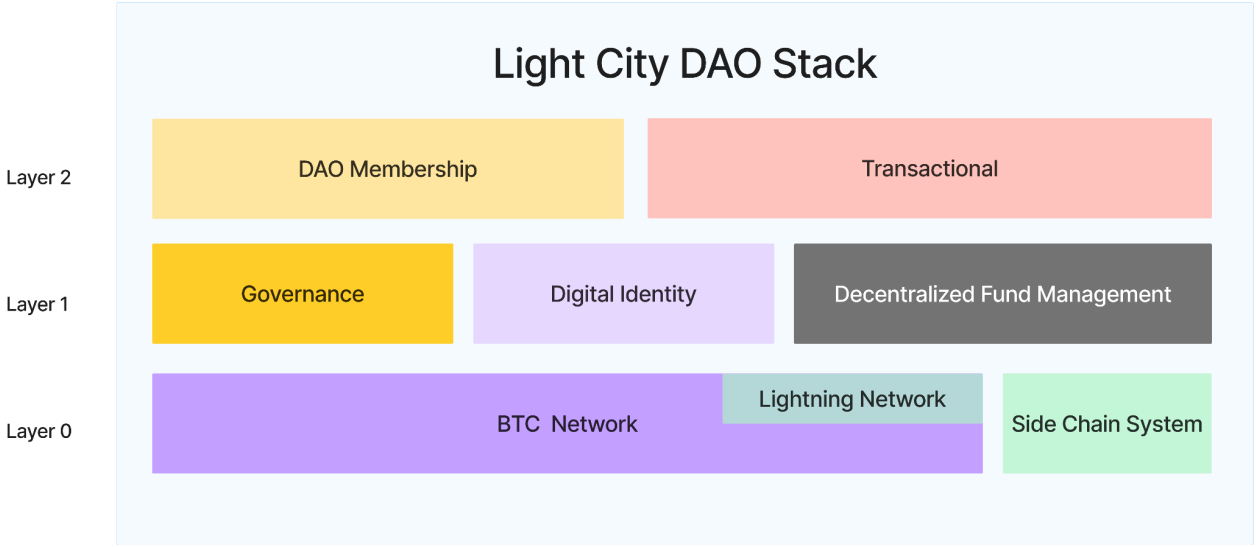
4. Build a strong brand: A strong brand can help a business differentiate itself from competitors, build customer loyalty, and generate repeat business. This requires a clear and consistent brand message, consistent delivery of high-quality products and services, and ongoing efforts to build brand awareness.

5. Foster a positive company culture: A positive company culture can help attract and retain top talent, improve employee morale and motivation, and create a competitive advantage. This requires clear values and goals, open communication, and a focus on creating a supportive and inclusive work environment.

6. Stay adaptable and agile: The business environment is constantly changing, and a successful business must be able to adapt and evolve in response. This requires a willingness to try new things, embrace innovation, and be flexible in the face of change.

By focusing on these key factors, a business can increase its chances of becoming profitable and sustainable over the long term.

System Architecture



The system is built by leveraging the advanced cryptographical environment provided by the Bitcoin network.

Our architecture have is build to enable the following core features within our system:

1. Privacy Oriented Digital Identity
2. Private Decentralized Governance And Voting
3. Reliable and transparent propagation of information
4. Collective Management Of Funds

We chose the Bitcoin network because it provides a solid and transparent decentralized foundation to build on.

The end goal of our architecture is to provide an environment that makes it easy to set up systems that need decentralized governance and an efficient transactional system.

As a result, we ended up with a simple 3-layer architecture that provides the foundational support we need to implement our vision.

Layer 0 – Foundation Layer

The base layer of the application structure, built using two main components: The Bitcoin Network and a custom-built side chain component.

This layer serves to store all the key information that the system relies upon.

By using Bitcoin, we ensure that all data remains transparent, accessible , and permanent.

Layer 0 – The Side Chain

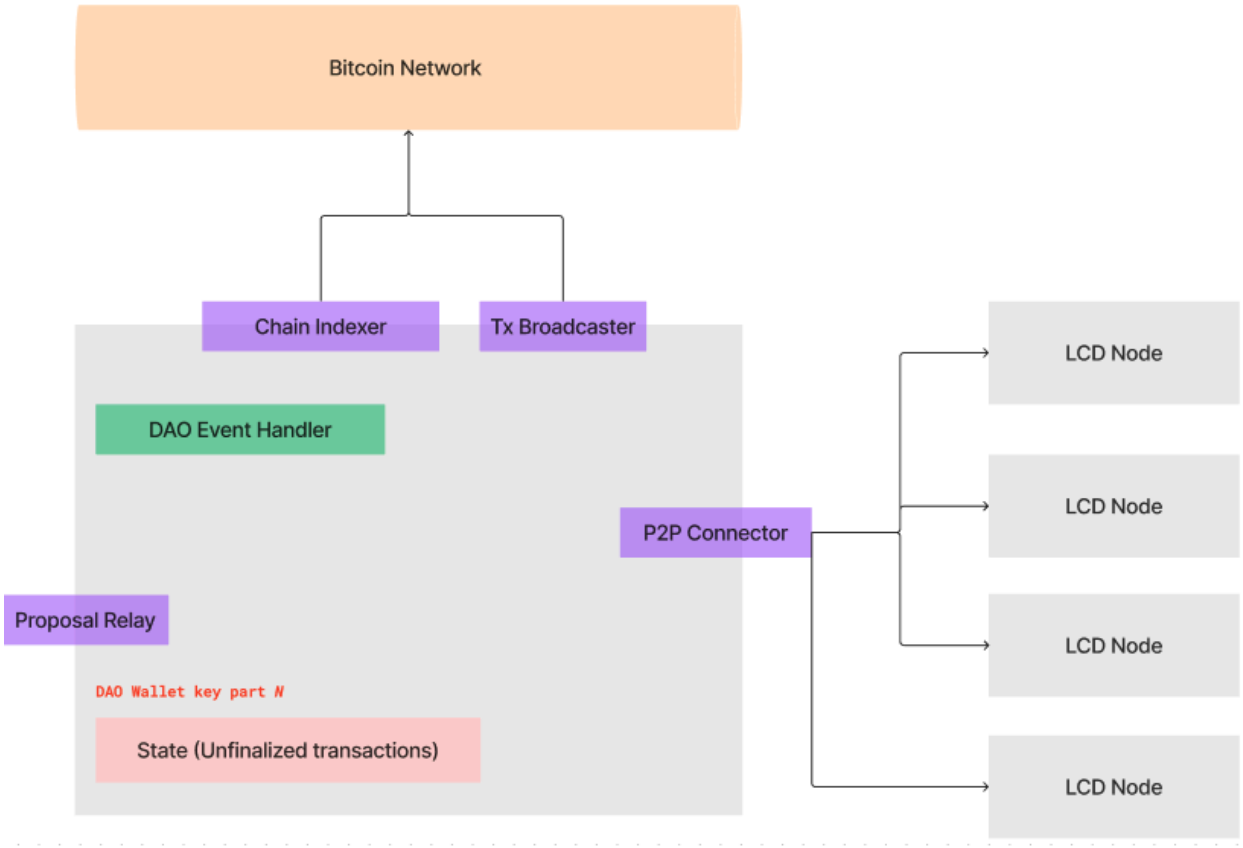
The side chain serves as a validation layer for the whole decentralized governance system, it is a gatekeeper for the treasury, helping to ensure that funds are not being spent with malicious intent and also keeps track of metadata related to voting, and digital identity.

Structurally, the system is formed out of a network of interconnected software programs that we call “nodes”.

The nodes communicate with each other in a peer to peer fashion in order to keep the state of the governance system in check while also being an accessible source of information for clients.

The nodes will always fall back to being the bitcoin network as the single source of truth, indexing any relevant information so that it can be easily and efficiently accessed by the outside world.

The following figure illustrates the basic ideas behind the architecture of a node



The main takeaway for nodes it that they:

1. Validated the system state.
2. Keep track of membership, ownership and digital identities, using the bitcoin network as the decentralized storage if information
3. Gatekeep the spending of funds.

Anybody will be able to setup and host a node, thus helping the network become more secure. Node operators will receive incentives derived off the system revenue streams.

Layer 1 – Base Utility Layer

The second layer is home to the base functionality of the system, holding the main functionality necessary for running the system's major utilities. It holds the implementations for defining property ownership on-chain, the on-chain governance system, and a transparent transactional system.

Digital Identity

The digital identity functionality is built by leveraging the same blockchain technology that Bitcoin uses. This component serves as a way of embedding identities on the blockchain, ensuring a transparent, persistent, and easily accessible data record. **With the recent development in bitcoin ordinals, and taproot assets this approach has become more and more efficient and easy to implement**

A derivative of digital identity management is the ability to model **property ownership on chain.** Properties will be referenced on-chain via a unique cryptographic identity linked to the digital identity of the property owner. **The bulk of information related to property ownership will be held off-chain and encrypted in a form of decentralized storage. Owners can choose to decrypt that information if they wish to.** Being able to model property ownerships is is am important aspect for the light city dao system because, memberships will be granted conditionally based ownership of property

Governance

The governance functionality is also built using the underlying blockchain technology provided by Bitcoin. The main purpose of this component would be to serve as a decentralized voting system that can be used by the system's members to implement changes on a per-voting basis.

Changes brought by the governance application will take the form of **proposals** that will be submitted to voting. Any community member will have the ability to vote for a given proposal or delegate their vote.

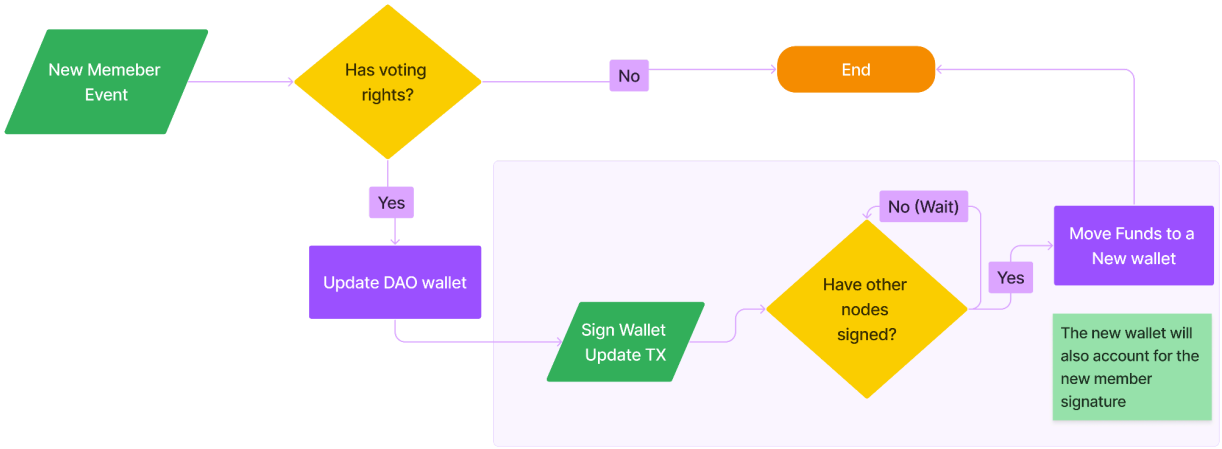
The governance functionality is dependent on three key elements that need to be modeled using the underlying blockchain technology: **governance proposals, voting system, and memberships**. All these elements are referenced on the blockchain layer and are implemented using a decentralized approach.

Membership

The membership functionality is an extension of the digital identity implementation. **Property owners are automatically classified as members.** The role of this functionality is to provide the implementation of the various roles within the organization, with each role having its own responsibilities and authority.

Membership is defined by owning a **special cryptographic identity** that the user can use to prove that he is a member of the DAO.

Adding and removing new members affects the state of the DAO's treasury wallet due the the **community lock** component. In order to be consistent, the community funds need to be moved to a new lock every time a new member is added or removed. This operations is handled by the validator nodes in a transparent way.



Governance Proposals

Proposals come in the form of text or media that will be embedded in the **Bitcoin network** and referenced on the side chain application.

Each proposal will be modeled as a unique cryptographical safe identifier that references the real-world document or media that it represents. This media will be stored in decentralized storage.

On chain, the proposal will be represented by a pay to script hash address that will define the lockup rules for the proposal's funding scheme.

Voting System

Governance proposals and membership systems will go hand in hand to form the voting system.

Members of the DAO will be able to vote on governance proposals, voting sessions being transparently recorded using the tools provided by Layer-0.

Votes can also be delegated, meaning that one member can temporarily send his votes to another that can vote on his behalf. The delegation can be revoked at any time with ease.

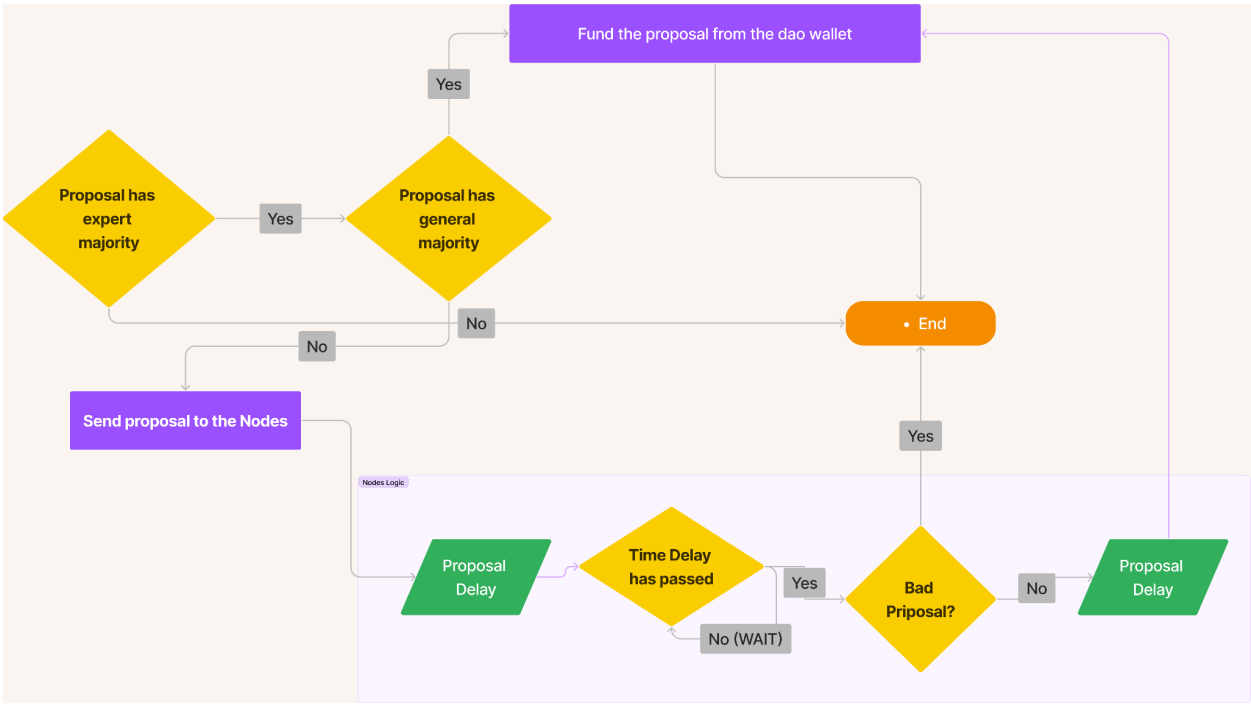
The memberships are created via partially signed transactions.

The voting ceremony itself is built around a single commitment. Each user must commit how many votes they put towards and against a proposal and embed this on the chain.

The voting ceremony can have 1 of 3 outcomes:

1. Experts Majority – In the case of an expert majority, the proposal will be send to the validation layer and set under a time delay, this triggers a **governance unlock**
2. Community Majority – In case of a community majority, the proposal does not get screened by the validator nodes and a **community unlock** can be triggered
3. Proposal gets rejected

The following illustration shows the flow of a voting ceremony



Layer 2 – DAO and Transactions

The most complex layer of the system sits at the top of the architecture and is the main interface between the outside world and the system.

This layer will host decentralized applications that enable real-time interactions with the system.

Currently, there are two main use cases that we wish to deploy on this layer: a DAO application and a p2p transactional system.

Transactional Layer

The third component of this layer is represented by the transactional system. The system serves as a means to record transitions between the members of the system in order to **provide anti-fraud functionality and non-custodial escrows and make it easy to hand out incentives**.

The types of transactions that the transactional layer must handle are as follows:

1.P2P Native Transactions
– represent Bitcoin transactions between members. These Transactions are to be conducted via the lightning network payment channels.
– are automatically embedded in the blockchain and can be traced back.
– **users can opt-in to use the system's built-in escrow functionality for a more secure transaction approach and to avoid fraud**.

2. P2P Non-Native Transactions
– are transactions done by using any other form of currency except Bitcoin.
– are embedded manually into the blockchain by the transacting parties.
– anti-fraud functionality **can be provided** on digital asset-based transactions but needs to be implemented based on the asset form of the transactions.

3. Tax Transactions
– a tax will be perceived each time a non-custodial escrow is used.
– this tax goes to the system treasury.

The DAO Application

The DAO application will be the access point for the property ownership and governance system defined in Layer 1.

This component implements all the governance and digital identity functionalities described in this document.

Bogdan Brinzoiu Expand on this

The Supply Chain

The base of the decentralized supply chain is **the transactional system of the second layer**, which is used to store and verify transactions and data. The supply needs to support both public and private transactions in order to give the users the freedom to choose the level of transparency.

The goal of the system is to provide an end-to-end solution that connects suppliers, distributors, and consumers. Business intelligence and analytics solutions are embedded within this system. This allows participants to gain insights into the supply chain's performance and identify areas of improvement.

For example, the system can be used by suppliers to automatically set up entire logistics operations for selling their goods and services.

Supply chain participants, such as manufacturers, distributors, retailers, and consumers, interact with the supply chain using the digital identity system provided by the DAO component.

Roadmap

Create the MVP of a BTC-backed DAO for Light City DAO
Assemble the first community members
Have members put down payments on land and register it with the DAO
Part of the land will be owned by the DAO and split up for different community projects
Have v1.0 ready
Build the supply chain system
Integrate AI to reduce friction within all the interactions of the DAO
Use part of the land to start an engineering and design school
Lease out part of the land to Black tech companies

References:

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https://bitcoin.org/bitcoin.pdf
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