Deep-Dive Into CityDAO:

An Experiment in Collective Land Ownership and Decentralized Governance

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About the Authors

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Zeslene Mao is lawyer with an especial interest in legal issues arising at the intersection of law and technology. She recently graduated in May 2023 with a Masters of Law from Harvard Law School, earning faculty prizes for Computer Science for Lawyers and Taxation. During her time at Harvard Law School, she was concurrently a Student Research Assistant with the Technology and Public Purpose Project where she explored the potential of blockchain to improve democratic governance. Prior to pursuing her Masters of Law, Mao was a disputes lawyer specializing in complex commercial disputes in Allen & Gledhill LLP, one of Singapore's largest law firms. She has also served in various roles in the public sector, including as a Magistrate and Justices' Law Clerk in the Singapore Supreme Court. She is presently sitting for the July 2023 New York Bar exam, and will continue to further her practice in complex commercial disputes (including disputes with a technological element) thereafter. Outside of the law, she enjoys adventure such as exploring the nooks and crannies of cities or trekking and diving in nature.

About the Technology and Public Purpose Project (TAPP)

The arc of innovative progress has reached an inflection point. It is our responsibility to ensure it bends towards public good.

Technological change has brought immeasurable benefits to billions through improved health, productivity, and convenience. Yet as recent events have shown, unless we actively manage their risks to society, new technologies may also bring unforeseen destructive consequences.

Making technological change positive for all is the critical challenge of our time. We ourselves - not only the logic of discovery and market forces - must manage it. To create a future where technology serves humanity as a whole and where public purpose drives innovation, we need a new approach.

Founded by former U.S. Secretary of Defense Ash Carter, the TAPP Project works to ensure that emerging technologies are developed and managed in ways that serve the overall public good.

TAPP Project Principles:

- Technology's advance is inevitable, and it often brings with it much progress for some. Yet, progress for all is not guaranteed. We have an obligation to foresee the dilemmas presented by emerging technology and to generate solutions to them.

- There is no silver bullet; effective solutions to technology-induced public dilemmas require a mix of government regulation and tech-sector self-governance. The right mix can only result from strong and trusted linkages between the tech sector and government.

- Ensuring a future where public purpose drives innovation requires the next generation of tech leaders to act; we must train and inspire them to implement sustainable solutions and carry the torch.

For more information, visit: www.belfercenter.org/TAPP

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1. Introduction

In October 2021, more than 5,000 people from around the world who are part of a group called CityDAO pooled together over $8 million USD and collectively bought 40 acres of land in Wyoming to experiment with "building the city of the future on the Ethereum blockchain." This unprecedented move made headlines in the crypto world, as it marked the first time that a DAO legally acquired and owned a piece of land on the blockchain.

DAO stands for decentralized autonomous organization. It is a digital-native organization that is typically governed by a set of smart contracts, or self-executing code on the blockchain, that enable members to propose and vote on decisions collectively, without the need for intermediaries or centralized authority found in traditional organizations. Members can interact with the DAO using digital tokens or cryptocurrencies, which give them voting power and influence over the organization's decisions. DAOs have proliferated over the last few years, with activities ranging from making investments, funding public goods, conducting philanthropy, building new communities, and acquiring real assets. The versatility and uniqueness of DAOs have captured the interest and attention of researchers, investors, and policymakers alike.

CityDAO is one such example: it is a group of individuals who met online and collectively purchased a piece of land in Wyoming to experiment with collective land ownership and blockchain-based governance. The emergence of CityDAO coincided with a general concentration of interest and hype around the concept of "crypto cities." From 2021 through mid-2022, mayors across the U.S. partnered with private companies to launch pilot projects exploring blockchain innovation for cities. These initiatives ranged from experimenting with putting municipal records on the blockchain to designing various versions of "city coins." Meanwhile, states were eager to experiment with regulatory innovation to create favorable legal and regulatory environments for blockchain-based businesses and attractive locations for the formation and operation of DAOs. Although the fervor surrounding these ideas has diminished in recent months due to the collapse of cryptocurrency prices and certain prominent crypto companies, it is worthwhile to carefully examine and reflect on these experiences in order to extract valuable lessons for future best practices.

In this case study, we conduct a comprehensive analysis of the CityDAO experiment and explore the topic of DAOs and decentralized governance within the context of land ownership and community governance. Through a combination of gray literature review, semi-structured interviews with key members of the group, and digital ethnography of online activities, conducted between October 2022 and January 2023, we gained a comprehensive understanding of the project from the perspectives of technology, governance, regulations, stakeholders, and values. In the following sections, we first provide an overview of Wyoming's DAO legislation, followed by an examination of the different phases of the group's evolution, and conclude by extracting key takeaways and lessons learned from this remarkable experience. (Disclaimer: The authors of this paper are academic researchers who have no financial interest or stake in the DAO. The content of this post is for informational purposes only and does **not** constitute legal or financial advice.)

Key Takeaways

- Blockchain-enabled data transparency fosters scalable trust and coordination amongst strangers.

- Security and immutability of votes ensure confidence of voters who participate and more dynamic governance.

- Decentralization allows for more participatory democracy and turns members from participants to contributors.

- Pseudonymity encourages participation, but disclosure of identities is required for greater accountability and trust.

- Decentralized communication can bring challenges to accessibility and communication efficiency.

- Token-based voting can lead to the "DAO Plutocracy Problem."

- Low levels of voter engagement leads to vetocracy and high coordination costs.

- The current regulatory landscape in the U.S. places limitations on blockchain-based fractional ownership of land (or other real world assets).

- When implemented in actual urban settings, the decentralized and "network state"-like model for property ownership may be infeasible and undesirable.

2. Legal Backdrop: The Wyoming DAO Legislation

As DAOs become increasingly popular as a new form of organizational structure, several U.S. states, such as Wyoming, Tennessee, Vermont, and Colorado, enacted legislation over the last few years to both accommodate and regulate DAOs. In April 2021, Wyoming Governor Mark Gordon signed the first-of-its-kind Senate Bill 38, codified as the Wyoming Decentralized Autonomous Organization Supplement, to recognize DAOs as limited liability companies (LLCs) under Wyoming's Limited Liability Company Act. The new law recognizes DAOs as separate legal entities capable of forming legally binding contracts and clarifies that the members of a DAO do not owe fiduciary duties to the DAO and each other (save as otherwise provided by the DAO's articles of association or operating agreement). Each DAO is required to have a registered agent in Wyoming who meets the statutory requirements. Under the new law, a DAO can be either "member-managed" or "algorithmically managed," provided that the smart contracts can be updated, modified, or upgraded. Articles of organization and smart contracts are to govern: relations amongst and between DAO members, the rights and duties of DAO members, activities of the DAO and the conduct of those activities, and the transferability of membership interests. Since the introduction of the new legislation, 800 entities have registered as DAOs in Wyoming as of March 2023, including CityDAO.

3. CityDAO: The Beginnings

On July 1, 2021, the same day that the Wyoming DAO law went into effect, software engineer Scott Fitsimones sent out a tweet to the world: "*Starting a DAO to buy and tokenize land in Wyoming, who wants in?*" Within two weeks, CityDAO's membership on online discussion forum Discord exceeded 1,000 people. A week later, on July 23, CityDAO officially registered as a DAO in Wyoming. Within the first month of its registration, CityDAO's treasury accumulated $250,000 in funding, sourced from the sale of "Citizen NFTs," which are non-fungible tokens that represent membership (i.e., "Citizen" status) and governance rights of the DAO. On the very next day, CityDAO connected with a real estate agent in Wyoming to assist with the purchase of a piece of land. Citizens then casted votes to collectively decide on which piece of land to buy, followed by the execution of the official purchase of 40 acres of land in Wyoming, now designated as Parcel 0. CityDAO's quick rise in popularity was partly due to the support of top influencers in the crypto space, including the likes of Ethereum founder Vitalik Buterin, Coinbase CEO Brian Armstrong, former Coinbase CTO Balaji Srinivasan, and Dallas Mavericks owner Mark Cuban, whose own purchases of Citizen NFTs and endorsement of the project on social media lent the DAO notable legitimacy.

Figure 1. CityDAO's ownership and governance mechanism. (Source: CityDAO)
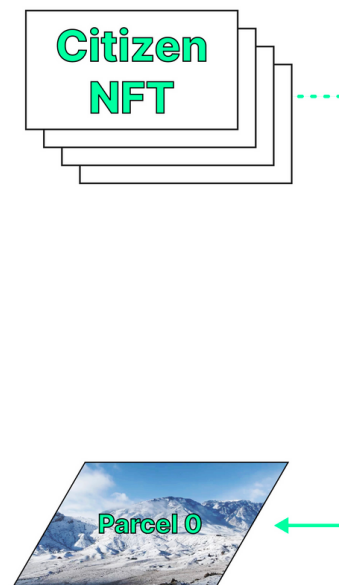
At a high level, CityDAO purports to be motivated by the mission to provide access to new forms of capital by democratizing land ownership, attracting innovation to rural areas (with respect to the context of Wyoming), encouraging affordable housing options, and incentivizing the development of broadband and other infrastructure. Following the initial Citizen NFT offering, participants acquire Citizen NFTs either by contributing towards the DAO or by purchase through secondary markets. These tokens enable members to participate in the decision-making process regarding the governance, operations and activities of CityDAO, and provide access to the facilities offered by the DAO. As Citizen NFTs do not represent legal ownership of the actual land nor a claim to future revenue, these NFTs appear unlikely to be treated as securities under the Howey Test for the purposes of U.S. securities law. This distinction is an important one as digital tokens which are treated as securities under U.S. law are subject to stringent registration and disclosure requirements. Such limitations highlight the ongoing challenge for DAOs to truly achieve fractional ownership of assets at scale in a legally compliant manner.

Currently, CityDAO remains in the early stages of innovation and continues to experiment with on-chain DAO governance. In what follows, we will explore the various iterations of decentralized governance that the group has tested over the last 18 months, followed by an analysis and evaluation of the experiment.
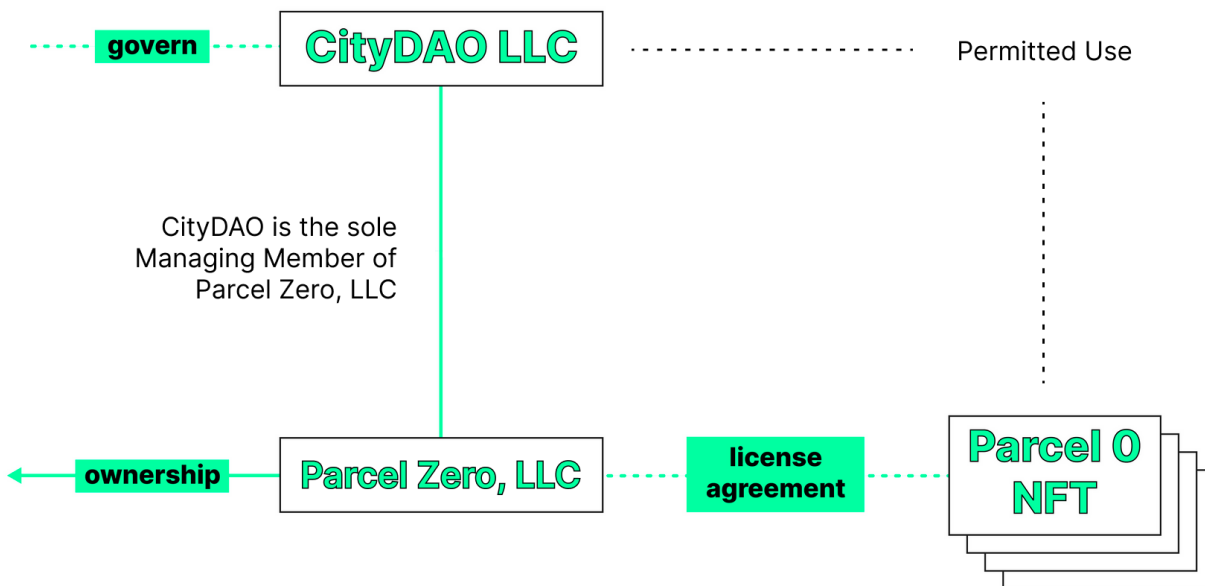
4. Iterative Experiments in Decentralized Governance

What is unique about CityDAO is that in comparison to most other DAOs, it began as being truly decentralized. Since Scott Fitsimones' first tweet, CityDAO has gone through four distinct iterations of governance: (a) Core Team; (b) Council; (c) Guilds; and (d) Projects-based governance. These iterations of governance illustrate the ongoing tensions between centralization and decentralization, efficiency and inefficiency, and the search for the most appropriate balance.

4.1 Core Team

The first form of governance in CityDAO came from a core team of 10 persons, one of whom was Scott Fitsimones. These were people who came from around the world, including U.S., Germany, Canada, and Ireland, who organically coalesced online during the initial period of CityDAO's formation to collaborate on issues related to the DAO. Under the leadership of the core team, CityDAO was registered as an LLC in Wyoming, released its Citizen NFTs, and purchased Parcel 0. The core team also had control over CityDAO's $8.5M treasury, with 8 of the core team members being signatories on CityDAO's multi-signature wallet (where 4 signatures were required for approvals).

After CityDAO purchased the land in Wyoming, there was debate amongst CityDAO's members as to how to use the land. Ultimately, the community approved a proposal in November 2021 to declare Parcel 0 *"primarily for conservation and wildlife."* With Parcel 0 designated for conservation (as opposed to building *"the city of the future"* on the blockchain), the CityDAO community began to grapple with the question of where the future of CityDAO lay. This led to a proposal for the formation and eventual establishment of a CityDAO Council.

4.2 **Council**

The impetus for a CityDAO Council arose out of a concern of the core team's mandate and the lack of a blueprint towards decentralization. In the words of a core team member Justin Kalland:

> "*Historically the core team has made decisions on how to proceed. This has worked well enough to get us to where we are today, and was necessary to get the DAO rolling. But increasingly it is becoming a blocker to not know what the governance process or mandate should be. This is leading to some paralysis, a growing unease, and frustration.*
>
> *CityDAO is being built on sand and needs to take a step back to focus on the foundation.*"

This led to a proposal for the formation of a CityDAO Council and the eventual election of a group of more than a dozen council members in January 2022. The mandate for the Council was to draft and ratify a CityDAO Charter and a DAO LLC Operating Agreement which would form the governance "*foundation*" upon which CityDAO would continue to develop. Interestingly, Scott Fitsimones – arguably the "founder" of CityDAO – was not part of the Council, demonstrating the power of the blockchain-enabled community to develop and further an idea without its initial architect.

Following numerous discussions, meetings and research hours in February and March 2022, the Council produced a draft Charter of 25 pages. The work on the Charter was monumental, with one Council member, Favian Valencia, describing it as one of "*the most challenging and rewarding experiences of [his] life,*" likening it to the experience of America's "*founding fathers.*" One can only imagine the effort and commitment that drafting a governance document from scratch for a decentralized community entailed!

The CityDAO Charter was ultimately ratified by the CityDAO community in April 2022. This concluded the chapter of CityDAO's Council – whose term expired as the Charter was not ratified within predetermined time limits – and its experiment with representative democracy. Of particular note was that the Council did not seek to hold onto power as the DAO's leaders within the Charter, perhaps contrary

to common experience. Instead, the Charter provided for the establishment of Guilds, being "*groups of Citizens who work together on a specific mandate … based on the Guild Proposal when a Guild is established*." Under the Charter, any Citizen could initiate a Guild by putting forth a proposal for a Guild, including the need, scope and roadmap for the Guild. In the same vein, the Council did not seek to take charge of CityDAO's treasury, opting to keep the 8-person multi-signature wallet structure on Gnosis Safe largely in place, making the disbursement of funds conditional on 5 out of 8 signatories approving the transaction.[1]

The choice of a Guild structure arguably manifested a philosophical commitment by the Council to political and operational decentralization, providing every citizen an equal opportunity to participate in the DAO based on interest, capacity and ability. The Council considered that certain Guilds were "essential to the effective functioning of CityDAO" and codified 11 Guilds within the Charter, which were: the Mission Guild, the Community Guild, the Public Affairs Guild, the Legal Guild, the Finance Guild, the Real Estate Guild, the Developers Guild, the Operations Guild, the Risk Mitigation Guild, the Media and Content Guild and the Design Guild.[2]

4.3 Guilds

In line with the Charter, the guild structure was established in early April 2022 with the 11 initial Guilds mentioned above. The establishment of the guild structure provided the guilds with initial funding of three months during which the guilds could propose bounties for specified tasks and fund their own projects. It was envisaged that the guilds would "*develop autonomously*" and that after the first three months of initial funding "*every guild will detach and create their own proposals, as need be, for their continued funding, facilitation and growth*." Subsequently, a 12th Guild – the Events Guild – was also established.

While the Guild structure prioritized inclusivity and decentralization, various shortcomings soon became apparent. First, the guilds siloed both monetary and human resources, leading to duplication of work across guilds. Simultaneously, the

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1   Under 5.5.1 of the Charter, it was envisaged that additional signatories would be chosen from within the Guilds. To the best of our knowledge, this process was not implemented and the signatories to the multi-signature wallet continue to be members who were originally part of the core team.

2   See 4.2.5 of the Charter.

overlap between the functions of each guild caused confusion about the scope of responsibilities[3]. The lack of a centralized management authority also meant that the tasks each guild were working on were not necessarily geared towards a similar objective. Further, the autonomous nature of guilds created inefficiencies, with each guild moving at a different pace depending on the capacity and commitment of the contributors. Additional drawbacks of the guild structure were summarized by Scott Fitismones in *The DAO Handbook*, "*the guild model has some drawbacks - often, people will only hang around for so long before moving on if they don't find opportunities. Plus, the open nature of guilds makes it hard to vet talent.*"

4.4 Projects-Based Governance

These issues ultimately led to CityDAO moving away from a rigid guild structure to a more flexible projects-based approach.[4] Under the projects-based approach, "*small teams with a clear plan … come to the DAO, propose something concrete, and execute.*"[5] Since moving to a project-based approach, many projects teams came forward to propose ideas and seek funding from the DAO.

One particular project of note is the Baby Parcel project (now renamed as "Parcel Blanca") pursuant to which CityDAO acquired 10 acres of "*off-grid land*" in Blanca, Colorado with the aim of experimenting with NFT land leases. Rather than representing direct ownership of the land, these NFTs would represent "*rights to visit, use and potentially even build on land.*" Another interesting project currently being developed is town, an in-real-life hub for DAOs and Web3 organizations. With initial funding from CityDAO, t0wn seeks to become a supra-DAO project, by DAOs and for DAOs, rather than for individuals.

In order to ensure that the projects being proposed further the interest of the community, CityDAO implemented a key engagement metric of "Citizen Time" at CityDAO Property calculated as the product of the number of citizens and the number of days spent at a CityDAO property, as a tool to evaluate the alignment of proposals to CityDAO's broad mission of building a blockchain-native network city of the future. However, this key metric is neither systematically nor

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3   See also https://forum.citydao.io/t/retrospective-of-citydao-s-2022/1947.

4   From The DAO Handbook: "At CityDAO, we transitioned from using guilds to project-based teams and found it to be a more effective way to work, since it enables people who are aligned towards a goal to work together."

5   See https://city.mirror.xyz/OQ-VjksyKPgdswhN8vmnk3o_CNPym6PJ0EAFdX6h5TA.

substantially applied to evaluate the proposals within CityDAO, although some contributors allude to it when raising or discussing proposals.

The projects-based approach has also been the subject of criticism within the CityDAO community. A prominent contributor with pseudonym *DAOvolution*, opined that the projects "*coming out of CityDAO are splintering resources and efforts, there is no mandate to use the community of contributors for said projects, and the end result is a cash grab by people who should arguably be focused more on the CityDAO team.*" Another common criticism of the projects-based approach is the lack of ability to systematically hold the project teams accountable for their stated deliverables after the passage and funding of the proposal.[6] As a result, while many projects have been passed and funded, information regarding the projects such as their status, members involved, budget, and amounts spent thus far are difficult to access (if at all available). In addition, various members have raised concerns that the projects-based approach has led to a depletion of CityDAO's treasury without correspondingly creating value for CityDAO (whether in terms of profit, or a contribution to CityDAO's vision and mission), with some members advocating for a pause on all projects in favor of long-term planning, governance overhaul, or a discussion on the future direction of CityDAO.[7]

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6   See, for example, a comment from Da3vid at https://forum.citydao.io/t/retrospective-of-citydao-s-2022/1947/2: "One of my takeaways is the [challenge] of paying for work without a system of accountability. We essentially give money to people and then just hope they do the work. If they don't, there are no consequences. This incentivizes big asks and small returns."

7   See generally the discussions at https://forum.citydao.io/t/discuss-how-should-citydao-capture-value-from-proposals/1823; https://forum.citydao.io/t/taking-a-pause-before-voting-on-all-these-proposals/1881; https://forum.citydao.io/t/cip-0000-proposal-to-sunset-citydao-and-return-the-treasury-to-citizens-on-a-pro-ratia-basis/2143 and https://forum.citydao.io/t/cip-149-quorum-and-elections/2109.

5. CityDAO: The Future

CityDAO now stands at a crossroads. Having realized the initial objective of owning land on the blockchain fairly rapidly, the CityDAO community has struggled with finding consensus on governance mechanisms and the DAO's future direction. Members have competing visions for the next stage of CityDAO's governance and development, ranging from the development of a clear framework for the funding of projects;[8] changing the first-come-first-served nature of the current projects-based approach in favor of an approach where multiple sets of projects are voted on at intervals;[9] organizing elections for the signatory positions to CityDAO's multi-signature wallet;[10] and the creation of a centralized governing body for CityDAO in the form of a Mission Guild;[11] amongst other ideas. Others have proposed (seemingly in jest but perhaps also with a grain of seriousness) winding down the DAO in its entirety.[12]

The governance impasse at CityDAO led to certain disruptions in the community's operations. Members who had supported CityDAO's back-office functions previously noted that "*CityDAO did not properly plan for continuation of … responsibilities going into 2023,*" resulting in these members having to perform their roles in January 2023 in an unpaid capacity. Similarly, the CityDAO community team was inactive in January and February 2023 due to a lack of provision for continuation of responsibilities, resulting in a significant drop in intra-community interaction. These continuation gaps have since been rectified in mid-March 2023, with the community team publishing a host of community updates on the CityDAO website in quick succession. As of end-March 2023, the community is also actively discussing improvements to CityDAO governance.

It remains to be seen if CityDAO will fulfill its mission of building an "*on-chain, community-governed, crypto city of the future,*" or if it will wind down its operations in the coming months. Irrespective of what the community eventually decides, CityDAO's experiment with land ownership and community governance has been an extraordinary journey offering a wealth of lessons for anyone interested in blockchain, DAOs and DAO governance. We unpack some of these in the next section.

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8   https://forum.citydao.io/t/citydao-in-2023-request-for-comment/1843

9   https://forum.citydao.io/t/citydao-in-2023-request-for-comment/1843/10

10 https://forum.citydao.io/t/cip-145-citydao-elections-multi-sig/2053

11 https://forum.citydao.io/t/cip-1001a-the-consensus-solution-for-the-future-of-citydao/2061

12 https://forum.citydao.io/t/cip-1000-throw-a-huge-event-and-then-wind-down-citydao/1990

6. Takeaways from CityDAO

At the most fundamental level, CityDAO embodies an example of how blockchain technology has enabled a decentralized community to coalesce and accomplish a specific mission: collective land ownership. Indeed, without the characteristics of blockchain, it is difficult (if not impossible) to envisage how unconnected individuals from across the globe could come together and collectively own and govern a piece of land.

In particular, we consider that the following unique features of blockchain were instrumental to the establishment and continuity of CityDAO:

1. **Blockchain-enabled data transparency fosters scalable trust and coordination amongst strangers.**
   The **decentralized**, **transparent** and **secure** nature of the blockchain provided the essential foundation of **scalable trust** upon which individuals from across the world could pool funds with confidence, knowing that the funds raised through NFT sales would be spent in a traceable and auditable manner. This enabled a community interested in the mission of building a Web3 city on-chain to come together organically without the need for a centralized entity driving the agenda. The decentralized foundation upon which CityDAO was formed also afforded members the opportunity to be active participants and contributors to the mission, rather than mere passengers that are pulled along decisions made by a central leadership committee or a small board of directors.

2. **Security and immutability of votes ensure confidence of voters who participate and more dynamic governance.**
   The use of ancillary DAO tooling, such as Snapshot voting, allows votes on issues to be recorded on the blockchain. Snapshot uses the blockchain to register users' votes on issues, thereby ensuring the **security** and **immutability** of the poll. Further, only users which have the requisite NFT to the DAO have the ability to vote, thus eliminating fraudulent votes from those without a stake in the DAO. The **transparency** of the process is an **assurance** to members that their voices are being heard and that the votes are being counted fairly – a stark contrast to the opacity of voting in political elections.

3. **Decentralization allows for more participatory democracy and turns members from participants to contributors.**
    The decentralized structure of DAOs provides all members with equal opportunities to participate and, more importantly, to actively contribute to the mission by proposing ideas for community voting. Through the integration of blockchain technology and smart contracts, DAOs facilitate the implementation of participatory and direct democracy models in a more feasible and effective manner, granting participants direct agency, unlike traditional organizations or engagement processes where participants often respond to programs designed by higher-level representatives.[13] In the realm of property ownership, changes in work cultures and spatial demand following the Covid-19 pandemic, along with the growing number of distressed commercial properties, call for increased flexibility in local development. This situation creates an opportunity to explore innovative concepts and technologies related to decentralized governance, financing options, and collective ownership, ultimately leading to more agile and nimble solutions for local development.[14] Models resembling DAOs present a chance to examine community-oriented financing and local development strategies based on fractional ownership and collective governance, made possible by token engineering. This approach represents a significant departure from the prevailing real estate development model, which is dominated by institutional investors and developers primarily focused on profit maximization.

Meanwhile, there are multiple challenges and open questions that come with decentralization and a number of other current limitations of DAOs that CityDAO illustrates:

1. **Pseudonymity encourages participation, but disclosure of identities is required for greater accountability and trust.**
    A key attribute of public blockchains such as Ethereum is the ability for participants to remain pseudonymous. Previous research suggests that anonymity can enhance the likelihood of participants providing

13 Davidoff, Paul. 1965. "Advocacy and Pluralism in Planning", Journal of the American Institute of Planners, Vol.31, pp.103-114.

14 See: Rong, Helena, A proposal for fractional property ownership and collective governance in local development (February 10, 2023). Available at SSRN 4353724.

honest responses in online participation,[15] although its benefits may be counterbalanced by challenges such as negative disinhibition (e.g., the use of offensive language or engaging in hoaxes) and diminished credibility.[16] Although the ability to remain pseudonymous was likely to have been important for a segment of users who wished to participate in the community anonymously, there were many examples of CityDAO members who voluntarily revealed their identities. The disclosure of identities particularly occurred in situations where the need for responsibility and accountability was high, such as in the case of the signers of the multi-signature wallet, as well as during elections for the CityDAO Council. Regarding the financial governance of CityDAO, it is important to note that while there are no technological barriers preventing 5 out of the 8 multi-signature wallet signatories from colluding to drain CityDAO's treasury for their personal gain, there are at least two reasons for why such a scenario is unlikely to occur. First, the CityDAO community is generally aware of the actual identities of the signatories to CityDAO's wallet. Hence, civil and criminal liability as well as general social condemnation are possible deterrents against such behavior. Second, the transparent and immutable nature of the blockchain allows illegitimately siphoned-off funds to be easily traceable, making it difficult for illegal funds to be drawn down or accessed.

2. **Decentralized communication brings challenges to accessibility and communication efficiency.**

    Because of the absence of a centralized coordinator in the DAO, there is no single source of "truth" for information, creating challenges for outsiders seeking to understand CityDAO, participate, review its history, and stay informed about its ongoing projects and their status. The effort required to unearth the "truth" and understand the history of CityDAO has been highlighted by multiple members of the DAO as a significant obstacle to accessibility and efficient participation.[17] In addition, the project utilizes

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15 Lelkes, Y., Krosnick, J. A., Marx, D. M., Judd, C. M., & Park, B. (2012). Complete anonymity compromises the accuracy of self-reports. *Journal of Experimental Social Psychology, 48*(6), 1291-1299.

16 Wagenknecht, T., Teubner, T., & Weinhardt, C. (2016). The impact of anonymity on communication persuasiveness in online participation.

17 See, for example, a post by JoeZamm in October 2022 at https://forum.citydao.io/t/make-it-easy-for-newcomers-to-get-involved/1810 who highlighted that as a newcomer to the DAO, it was *"very hard to understand what is happening at the current moment. There are lot of different things going on, so a central location that is continuously updated would be important to maintain"*. See also a post by Da3vid in November 2022 at https://forum.citydao.io/t/citydao-in-2023-request-for-comment/1843/17 observing that CityDAO's website was not up-to-date, and that researchers *"had trouble accessing our information"*.

multiple platforms to facilitate communication, thereby decentralizing the very process of participation. While a single platform for all interactions may appear more streamlined, there seems to be a current market gap for a centralized DAO platform. It is worth questioning whether having a centralized DAO platform contradicts the very concept of DAO in the first place.

3. **Token-based voting can lead to the "DAO Plutocracy Problem."**
   There are currently no guardrails in CityDAO's token-based voting to prevent a user from creating multiple accounts or purchasing a large amount of Citizen NFTs to hold an outsized influence in the voting system, highlighting problems of the **sybil attack**[18] and the **DAO Plutocracy Problem**[19] most DAOs face today. To address the problem of the sybil attack, a proposed alternative is soulbound tokens (SBTs), introduced by Glen Weyl, Puja Ohlhaver, and Vitalik Buterin. SBTs are publicly verifiable and non-transferrable tokens that "represent the commitments, credentials, and affiliations of "Souls" [which] can encode the trust networks of the real economy to establish provenance and reputation."[20] In this model, a member's voting power in a DAO can be based on their reputation within a community as opposed to token ownership, suggesting a merit-based model that disconflates financial stakes with governance. To address the DAO Plutocracy Problem, an alternative form of voting called **quadratic voting** proposed by Glen Weyl[21] takes into account a voter's intensity of preferences by assigning a quadratic cost to each vote cast, meaning that the more votes a person casts on a particular issue, the more they will have to pay per vote. Within the realm of fractional ownership and governance of physical properties like real estate, Rong further suggests differentiating voting rights between property owners and local residents. This distinction aims to ensure that local residents, who may be affected by negative

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18 The sybil attack refers the security threat that involves creating multiple fake identities or accounts to gain control over a network.

19 The DAO Plutocracy Problem refers to the disproportionate influence of large token holders ("whales") over voting outcomes, while smaller token holders have minimal say.

20 Weyl, Eric Glen and Ohlhaver, Puja and Buterin, Vitalik, Decentralized Society: Finding Web3's Soul (May 10, 2022). Available at SSRN: https://ssrn.com/abstract=4105763 or http://dx.doi.org/10.2139/ssrn.4105763.

21 Lalley, Steven; Weyl, E. Glen (24 December 2017). "Quadratic Voting: How Mechanism Design Can Radicalize Democracy". SSRN 2003531

externalities of new developments, have a voice in decisions that could influence their well-being.[22]

4. **Low levels of voter engagement leads to high coordination costs.**
   Problems prevalent in democratic systems such as voter apathy and voter fatigue are just as pervasive in DAOs. For DAOs, the consequence of low voter engagement is that they default to a vetocracy, the situation where a group lacks the power to make effective decisions due to the requirement of a high quorum. To address this issue for DAOs, Wyoming's amendment of Senate Bill 38 in March 2022 affords DAOs the ability to redefine their own quorum and set the minimum number of votes needed to pass a proposal. While traditional corporations use a quorum system to determine the required number of votes, Wyoming was concerned that this approach could hinder innovation in Wyoming DAOs if at least half of the members had to vote. To address this, the new law permits Wyoming DAOs to establish their own definition of a quorum in their articles of incorporation. This will be especially helpful for DAOs with a large number of members, as it may be challenging to gather enough numbers to reach a 50% quorum using a traditional corporate approach. For example, a DAO with 10 members may find it easy to vote on proposals, while a DAO with 10,000 members may find it challenging to do so under a traditional quorum system. For DAOs, the governance question is about enhancing their coordination mechanisms to ensure that decision-making questions are targeted to the appropriate individuals at a more localized level – as not all members have the same level of interest or expertise in every issue that requires a vote, while balancing the interests of all DAO members.

5. **The current regulatory landscape in the U.S. places limitations on blockchain-based fractional ownership of land (or other real world assets).**
   The potential of a DAO for collective ownership lies in promising a fairer distribution of wealth by enabling all members to share in the potential upsides of the collective good. However, current U.S. securities laws would likely recognize such upsides as being characteristics of securities, making it infeasible for DAO-tokens to feature such elements. Therefore, it is important to reiterate that CityDAO Citizen NFT holders do not in

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22 Rong, Helena, A proposal for fractional property ownership and collective governance in local development (February 10, 2023). Available at SSRN 4353724.

fact possess any direct legal rights or claims to the physical asset of land. While collective governance is achieved through the various mechanisms discussed above, collective ownership is still unattained, and it remains unclear how DAO members can ultimately benefit from any future appreciation in the value of the underlying asset that they collectively govern. Current exemption clauses,[23] such as Reg A+, Reg S, or Reg D, allow entities to issue securities without going through the IPO process, provided certain conditions are met. However, these exemptions can be expensive and may not be suitable for DAOs with smaller treasuries. Consequently, the attention of policymakers and regulators is needed to devise approaches that can accommodate these innovations while ensuring consumer protection and fostering opportunities for more equitable wealth distribution.

6. **When implemented in actual urban settings, the decentralized and "network state"-like[24] model for property ownership may be infeasible and undesirable.**

   Built and operated by crypto-natives, CityDAO's radical experiment of on-chain land ownership takes place in a sandbox-like environment owing to the rural and isolated nature of the site. However, if implemented in an actual urban setting, this model in its current form may face two primary challenges. First, real estate or urban development requires a high degree of professionalism and efficiency, and the decentralized governance structure of the DAO could introduce unwanted amateurism into an otherwise highly professionalized and efficient practice. Second, the DAO's virtual community may struggle to engage and intermediate with local communities when negotiating development trade-offs. The crypto-native focus of the DAO could potentially pose risks to physical residents, as development decisions made by DAO members lacking physical stakes and connections to the site might negatively impact local residents excluded from decision-making. To genuinely advance DAO-enabled democratic ownership and governance of properties within an urban context, the model must evolve to allow for nimble coordination with both in-house and outsourced professional service providers. Additionally, it should

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23 U.S. Securities and Exchange Commission. April 28, 2022. "Overview of Capital-Raising Exemptions." https://www.sec.gov/education/smallbusiness/exemptofferings/exemptofferingschart.

24 Proposed by Balaji Srinivasan, the "network state" is an online community united by a common objective that has the ability to engage in collective action, which crowdfunds territory globally and ultimately obtains diplomatic recognition from pre-existing states. See: https://thenetworkstate.com/.

establish a governance structure that prioritizes local residents' ownership and participation while balancing the needs of all decentralized DAO members. As DAO-like models are applied to real-world assets like real estate, they will likely differ from DAOs governing digital assets due to their intrinsic ties to physical spaces, local communities, and regulatory frameworks. These factors call for a more context-specific and collaborative approach, ensuring that the interests of all stakeholders are effectively considered and integrated into the decision-making process.

It is also interesting to observe that CityDAO lacks a **tokenomics** playbook. Unlike other Web3 projects which envisage a certain return on investment through mechanisms such as yield-farming or the staking of tokens, the Citizen NFT in CityDAO represents no more than a right to participate and vote in the CityDAO community. CityDAO thus demonstrates that profit motive is not the "be-all" for blockchain and DAO projects. In our view, the current malaise within CityDAO lies less in the lack of profit-generating activities, and more with the lack of consensus within the community on a concretized direction or objective towards which the community can build collectively, leading to recurrent debates within the community about process issues such as governance. What seems clear is that for a decentralized community to build its core governance architecture from the ground up, friction and inefficiencies are almost an inevitable result. Nevertheless, depending on the goals of the community, these may be necessary and worthy sacrifices. That said, if the goal of a community is to quickly achieve a particular substantive objective, the foundational rules of engagement should ideally first be established (such as through a constitution or other basic governance document). This ensures that process issues would not be a stumbling block in the path towards the community's substantive aims.

7. **Conclusion**

CityDAO has been a pioneering experiment in harnessing the value of decentralized ledger technologies for collective land ownership. Whilst CityDAO has achieved success in bringing a diverse group of individuals together for a joint objective of owning land on the blockchain, it is unclear if CityDAO can remain an enduring community into the future. As CityDAO complexified over time, moving from a simple and defined objective of purchasing a piece of land in Wyoming to determining its future direction from a myriad of possibilities, it lacked a similarly complex governance structure and toolkit to enable it to navigate forward as a collective in an efficient and structured manner. CityDAO's current frustrations with governance suggest that complex communities and subject-matters (such as ownership and governance of land or physical assets and a significant treasury) require equally sophisticated decision-making processes, perhaps with a degree of political centralization for the management of routine matters, to keep the community in a forward advance and to avoid stalemate and paralysis. At the same time, broad based participation in key decisions affecting the community is a desirable and worthy objective, and as communities like CityDAO continue to iterate and evolve, the appropriate balance between centralization and decentralization, participation and efficiency will no doubt emerge.

Appendix

Appendix Img 1: Tweet by Scott Fitsimones that kickstarted the CityDAO project
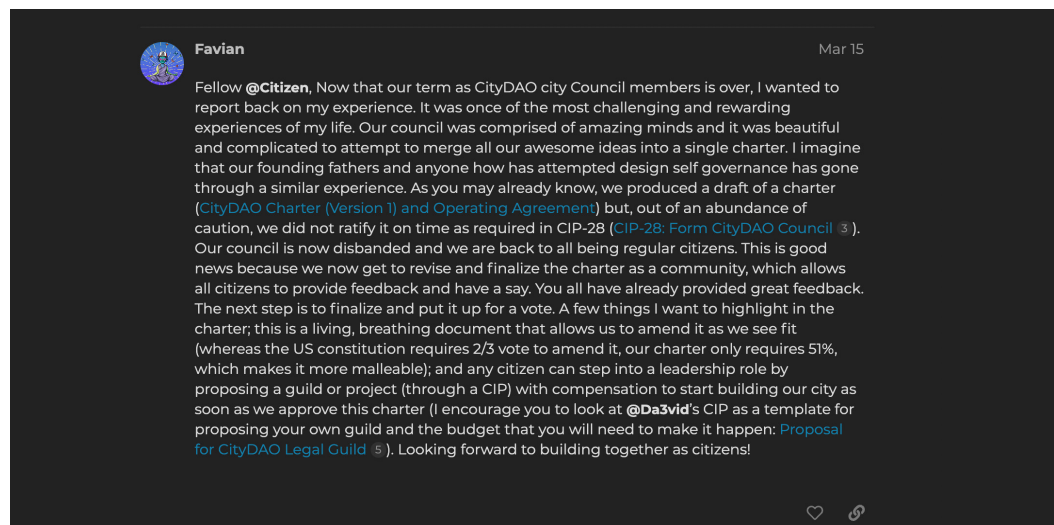
Appendix Img 2: Reflections by @Favian on his participation as a member of CityDAO's Council

Appendix Img 3: Pitch document prepared by the project team proposing the town project
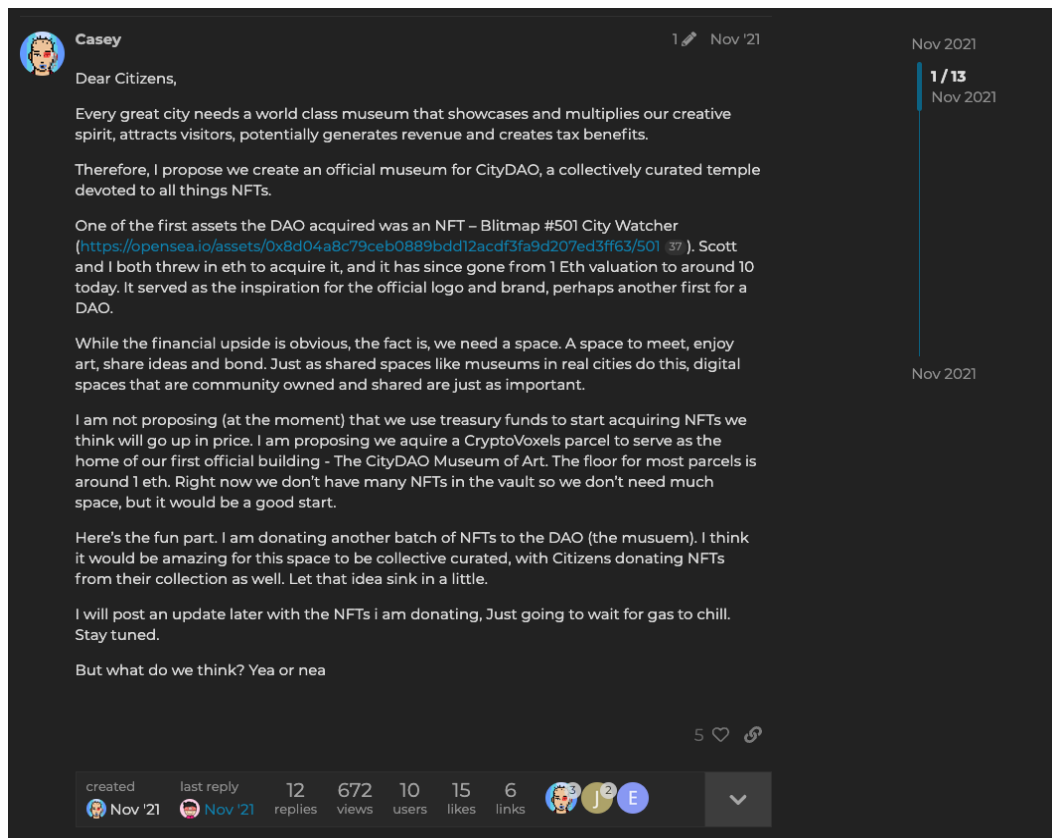
Appendix Img 4: Example of a proposal posted by a CityDAO member on the Discourse platform for discussion within the community

Appendix Img 5: Example of Snapshot voting on a proposal to switch from a one-token-one-vote system to a quadratic voting system

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