Decentralised Autonomous Organizations: The New Global Digital Venture Capital

Abstract. We performed a systematic review of decentralised autonomous organization (DAO)-based venture capital (VC) whitepapers. The advent of blockchain technology has spawned novel applications beyond just cryptocurrencies, including DAO, especially considering its potential as funding vehicles. While research on DAOs' governance and applications thrives, their use as VC instruments remains underexplored. Using a systematic review of ten prominent DAO VC whitepapers, we identify ten key components of best practice: registration, permissioned access, token-based voting, staking, separation of strategic and operational votes, dynamic voting duration, adaptive quorum systems, "rage quit" mechanisms, organizational support structures, and comprehensive whitepaper sections. Our findings contribute to two crucial aspects of VC studies. Firstly, we illuminate how blockchain technology fosters trust within the investment ecosystem, potentially mitigating information asymmetries and opportunistic behaviour prevalent in traditional VC settings. Secondly, we highlight the potential of blockchain-based DAO VC to democratize access to capital and address resource imbalances.

Keywords. Blockchain; DAO; Literature Review; Venture Capital; Whitepaper

Unveiling the Landscape of DAO-based Venture Capital Through Whitepaper Analysis

1. Introduction

The evolution of blockchain technology has gained significant attention since the creation of Bitcoin in 2009, with increasing momentum in the global economy (Munim, Shakil, and Alon 2019; Zalan 2018; Zhao et al. 2022). Initiated with the launch of Bitcoin as a decentralised peer-to-peer cash system (Nakamoto 2008), blockchain technology has enabled a new distributed system eliminating the need for trusted third parties and centralised server systems, including established financial institutions (Faqir-Rhazoui, Arroyo, and Hassan 2021). Blockchain technology is commonly described as an immutable distributed ledger using a peer-to-peer computer network consensus without the need for intermediaries (Bellavitis, Fisch, and Momtaz 2023; Lewis 2018; Murray et al. 2021; Shermin 2017). The structure of blockchain technology makes the on-chain stored data transparent, immutable, and secure, creating a system of `trustless trust' (Faqir-Rhazoui, Arroyo, and Hassan 2021; Zhao et al. 2022).

Focusing primarily on cryptocurrencies and financial solutions, increasing attention has been drawn towards other blockchain-mediated applications, including decentralised applications (DApps), non-fungible-tokens (NFTs), and decentralised autonomous organizations (DAOs) (Faqir-Rhazoui, Arroyo, and Hassan 2021; Zhao et al. 2022; Wust and Gervais 2018). Being described as the most complex smart contract, decentralised autonomous organizations (DAOs) has emerged as a new organizational structure built on automatically executed code where governance is distributed amongst members who share common interests and objectives (Faqir-Rhazoui, Arroyo, and Hassan 2021; Murray et al. 2021; Shermin 2017; Wang et al. 2019).

Several publications explore DAOs empirically, focusing primarily on their governance structure and applications (Anand and Chauhan 2020; Bellavitis, Fisch, and Momtaz 2023;

Murray et al. 2021; Santana and Albareda 2022; Zhao et al. 2022). These publications provide an initial conceptualization of DAOs and their potential. However, research on DAOs as a funding vehicle remains under researched. To date, only a few studies have explored the concept through case analysis of "The DAO" (DuPont 2018; Mehar et al. 2019) or discussed "The DAO" as a subsection in other publications (Anand and Chauhan 2020; Murray et al. 2021; Zachariadis, Hileman, and Scott 2019). The main narrative in these studies has been to address the historical evolution of "The DAO", thus not focusing on it as a venture capital (VC) fund. Furthermore, a few DAO VCs are mentioned by scholars as one of the disruptive industries without further investigation (e.g., BitDAO, Moloch DAO, The LAO, MetaCartel Ventures) (Santana and Albareda 2022; Saurabh, Rani, and Upadhyay 2023). The potential impact the DAO VC industry poses on the investment landscape, in addition to being an undiscovered research topic, makes DAO VC best practices an important topic of investigation.

Hence, the objective of this paper is to analyse of DAO VC whitepapers to get a comprehensive mapping of the industry and examine existing DAO VCs' content to determine best practices. We identified ten best practices to be included in a whitepaper (registration, permissioned, token-based voting system, staking, separating strategical and operational votes, adjustment for the voting duration, adaptive quorum system with various consensus thresholds, rage quit, organizational support structure, and components).

Our study contributes to the topic of venture capital studies in two forms. Firstly, VC activity is heavily influenced by information asymmetries and opportunistic behaviour (Zacharakis, McMullen, and Shepherd 2007; Jeon and Maula 2022; Fiet 2022). In this vein, digital governance may provide automated governance modes to improve transactivity (Hanisch et al. 2023). Nevertheless, past research has focused on the role of institutions in reducing asymmetry and opportunism (Grilli, Latifi, and Mrkajic 2019; Maurer et al. 2022; Bustamante, Mingo, and Matusik 2021). We add to this reasoning as we incorporate how digital

governance improve the VC ecosystem based on the trust provided by blockchain technology and autonomous aspect of DAOs. Secondly, as traditional models cannot meet the startups funding needs while VC firms move away from conventional funding (Kaal 2023; Skare, Gavurova, and Polishchuk 2023; Alvi and Ulrich 2023), blockchain technology becomes a crucial technology for capital investment. Thus, we contribute by providing a starting point to understand the role played by the blockchain technology in VC endeavours.

2. Decentralised Autonomous Organization

Recognised for its intricate nature, DAOs have arisen as a novel form of organizational framework, utilizing automatically executed code. In this structure, governance is decentralised among members who have shared interests and objectives, as highlighted in various studies (Faqir-Rhazoui, Arroyo, and Hassan 2021; Murray et al. 2021; Shermin 2017; Wang et al. 2019). Compared to traditional top-down hierarchical and centralised organizations, DAOs operate autonomously where decision-making is determined by membership consensus, enabling self-evolvement without being controlled by any centralised authority (Shermin 2017; Wang et al. 2019). While the individual DAO's governance structure varies depending on the rules set in the smart contract, members generally receive governance tokens issued by the DAO in exchange for a cryptocurrency such as Ethereum's ETH granting them proposal and voting rights (Wang et al. 2019; Zhao et al. 2022). Proposals could range from the allocating funds to membership approvals and changes to the smart contract, requiring a pre-defined voting quorum to pass (Bellavitis, Fisch, and Momtaz 2023; Zhao et al. 2022).

The creation of a DAO typically begins with the founders proposing the DAO's mission, governance structure, and tokenomics (token economics) in a so-called whitepaper, which acts as a business plan aimed at attracting attention and investments from cryptocurrency holders (Ante, Sandner, and Fiedler 2018; Santana and Albareda 2022). Once the whitepaper has been

drafted, DAO developers build a smart contract based on the whitepaper objectives, either using a DAO creator DApp such as Aragon or DAOhaus or coding it from scratch (Anand and Chauhan 2020; El Faqir, Arroyo, and Hassan 2020; Santana and Albareda 2022).

Empowered by smart contracts, DAOs enable a more flexible blockchain infrastructure compared to single blockchain use cases, such as Bitcoin (Murray et al. 2021; Shermin 2017). However, it is not without limitations. The first realization of a DAO, named "The DAO", was an investment platform launched in 2016 on the Ethereum blockchain aimed to raise funds directly from peers as a decentralised crowdfunding vehicle (DuPont 2018). Their mission was to further fund proposed projects voted through by their members, operating as a VC fund (El Faqir, Arroyo, and Hassan 2020; Wang et al. 2019). In its short funding period, it raised \$150 million worth of ETH, being the world's largest crowdfunding roject at that time (El Faqir, Arroyo, and Hassan 2020; Wang et al. 2019). However, due to a coding error in the smart contract, an individual exploited the limitation withdrawing one-third of the fund (Bellavitis, Fisch, and Momtaz 2023; Faqir-Rhazoui, Arroyo, and Hassan 2021). While the exploitation was reversed with a disputable "hard fork" by the Ethereum Foundation, "The DAO" did not survive (DuPont 2018).

In addition to security concerns in the quality of the code in smart contracts, another limitation is the question of legality and compliance with individual nations' laws (Kurcz and Paizis 2019; Wang et al. 2019). As decentralised and borderless organizations, DAOs selfregulate and are resistant to censorship, posing a challenge for regulators seeking to control their impact on the economy and enforce compliance (Anand and Chauhan 2020; Momtaz 2021; Wang et al. 2019). Blockchain technology has spurred regulatory efforts globally, such as the European Union's proposed regulative framework on cryptocurrencies in 2020 (Covarrubias and Covarrubias 2021) and the US regulations on security tokens and initial coin offerings (ICOs), both requiring compliance with know-your-customer (KYC) (C. Liu and Wang 2019; Myalo and Glukhov 2019). Moreover, uncertainty regarding future regulations and their impact on DAOs and the blockchain industry is seen as a potential threat and disadvantage to the development of the technology (C. Liu and Wang 2019).

While these limitations arguably could be seen as diminishing for further development of DAOs, the interest has skyrocketed, leading to the creation of thousands of new DAOs with different missions and purposes, reaching a market capitalization of over \$13 billion as of February 2023 (Bellavitis, Fisch, and Momtaz 2023; DeepDAO, n.d.). As a disruptive force in centralised governance, DAOs have the potential to reshape industries and markets by turning decision-making power to their members (Bellavitis, Fisch, and Momtaz 2023; Murray et al. 2021).

One interesting emerging use case for DAOs is their potential to disrupt the VC industry (Faqir-Rhazoui, Arroyo, and Hassan 2021; Santana and Albareda 2022). As the first and failed attempt with the "The DAO", several decentralised autonomous organizations have since been created as funding vehicles for new Web 3.0 startups (DuPont 2018; Faqir-Rhazoui, Arroyo, and Hassan 2021). Unlike traditional VCs, which typically collect funds from larger institutions to invest in startups with high growth potential, DAO VCs are able to collect funds from a decentralised network of individual investors to support new ventures (Ante, Sandner, and Fiedler 2018; Pandey 2022; Vernon 2020). Moreover, rather than focusing solely on later funding stages where the startup is required to have a working prototype (Schückes and Gutmann 2021; Vernon 2020), DAO VCs typically invest in earlier stages, lowering the threshold for new ventures to access capital (El Faqir, Arroyo, and Hassan 2020; Pandey 2022).

Traditional VCs typically participate in these later funding rounds to boost the startups' growth towards an exit strategy, such as an initial public offering (IPO) or an acquisition (Momtaz 2021; Vernon 2020), in exchange for new preferred shares that dilute founders'

ownership percentage (Vernon 2020). In contrast, DAO VCs do not acquire ownership but seek a return on investment (ROI) through increased token value as the startup succeeds (Anand and Chauhan 2020; Ibba et al. 2018). This provides token investors with the flexibility to exchange their investments easily into fiat or cryptocurrencies on exchanges, unlike traditional VC exit strategies, which often take several years to realize (Momtaz 2021; Zalan 2018).

Leveraging blockchain technology, DAO VC disrupts the established VC market, proposing an innovative business model (El Faqir, Arroyo, and Hassan 2020; Pandey 2022). Contrary to traditional VCs' concentrated decision-making power, DAO VCs distribute proposals and voting power to all members (Murray et al. 2021; Vernon 2020). DAO VCs, as a new phenomenon, offer an alternative funding model for startups using decentralised governance mechanisms and token offerings (Faqir-Rhazoui, Arroyo, and Hassan 2021; Santana and Albareda 2022). This makes DAO VC an interesting and relevant research topic.

3. Methodology

To analyse DAO VC whitepapers, we deployed a systematic literature review. Systematic reviews are well-suited for smaller niche research fields since it requires a narrower scope of study (Donthu et al. 2021). These reviews are typically manually executed by researchers to encapsulate the arrangement and acquisition of existing literature. This is essential to analyse both the thematic and content of the whitepapers (Donthu et al. 2021).

The whitepaper data extraction was conducted in a two-stage process consisting of first acquiring the dataset followed by a data structuring stage. The acquisition of whitepapers was a challenge due to the lack of a single database containing complete information on the existing DAO VCs, and the presumable lack of a coined definition. The starting point was a single keyword search on Google, using "DAO VC" as a keyword. The first direct result provided us with DAO.vc and their whitepaper published through GitBook, a digital document creator used by several organizations (DAO.vc, n.d.; Gitbook, n.d.).

We continued reading through the search results leading us to the database DeepDAO which contains information on over 2000 DAOs (DeepDAO, n.d.; Pandey 2022). DeepDAO has also been used by previous researchers for fund statistics and activity measures (Bellavitis, Fisch, and Momtaz 2023; Faqir-Rhazoui, Arroyo, and Hassan 2021). The database provides subcategories, and we analysed investment DAOs to determine whether the individual DAO was a VC or another type of investment DAO. As a result, we found three DAO VCs, namely BitDAO, MetaCartel Ventures, and The LAO, all with links to their web pages (DeepDAO, n.d.). Another issue was the individual format of the whitepapers. While the MetaCartel Ventures webpage provided a link to its published whitepaper in a PDF format on Github (MetaCartel Ventures 2019), BitDAO and The LAO had their whitepapers published as text directly on their webpages (BitDAO, n.d.; The LAO, n.d.). In the case of the largest investment DAO, BitDAO, with a treasury of \$2.5 billion (DeepDAO, n.d.), the whitepaper was published through GitBook.

MetaCartel Ventures' whitepaper also brought our attention to Moloch DAO. By searching on Github, we were able to retrieve their whitepaper (Moloch Ventures 2019). We also found that MetaCartel Ventures was created by the MetaCartel community, which led us to the original MetaCartel webpage. The webpage provided information on Hydra Ventures with a link to their whitepaper on Github (Hydraventures 2022). We continued the acquisition process by extending the Google search with the keyword: "DAO VC whitepaper". Amongst the top results was a link to a blog post containing the whitepaper of MetaRISE (Glaveski, n.d.). Altering the keyword search to "venture capital DAO" we found a recommended related search leading us to RocketDAO. We could not retrieve their whitepaper on the web page. Therefore, we searched directly for "RocketDAO whitepaper" on Google, leading us to their whitepaper in PDF (RocketDAO 2018).

In addition, we checked out all the found DAO VCs on the social media platform Twitter. We further accumulated Orange DAO and New Order DAO by looking at the proposed recommendations. Both had published whitepapers on their web pages (New Order, n.d.-a; Orange DAO 2022). In total, the dataset for further analysis is ten DAO VCs consisting of DAO.vc, BitDAO, MetaCartel Ventures, The LAO, Moloch DAO, Hydra Ventures, MetaRISE, Rocket DAO, Orange DAO, and New Order DAO.

In the second stage, we read all whitepapers to structure the dataset. The retrieved data was put in a self-created master table structured into several categories. This was done to get an overview of the DAO VCs and to further highlight the content and scope by looking at similarities and differences. Additionally, the master table provides essential insights to help determine best practices. The master table initially consisted of the following categories: mission, blockchain affiliation, page and word count, governance, tokenomics, community members on-chain, invested projects, proposal count, and operating status. These categories were retrieved from the whitepapers. We supplemented the whitepaper information with additional categories, including social media followers off-chain, corporate structure, and availability on secondary markets. This information was retrieved from the individual DAOs' web pages, social media accounts, in addition to DeepDAO.

4. Results

4.1 Structure and overview

Table 1 shows the structure and provides an overview of the venture DAOs.

*** Insert Table 1 About Here ***

First, we found that all the DAOs were affiliated with the Ethereum blockchain. Moreover, when considering the year of creation, nine of the ten DAOs had information either in the whitepaper or easily found on an external platform (Crunchbase, n.d.-a; n.d.-b; New Order, n.d.-b). However, only six of the DAOs had the creation date written in their whitepaper. We were additionally unable to retrieve the creation date from DAO.vc. The findings show that the earliest creation was Rocket DAO in 2018, followed by Moloch DAO and MetaCartel Ventures in 2019.

We found that MetaCartel Ventures was a hard fork out of Moloch DAO and that Hydra Ventures spanned out as a hard fork from MetaCartel Ventures. The most recent DAOs were Hydra Ventures and MetaRISE DAO, created in 2022. We also included duration to see whether the DAO was created for a limited period and found that only Hydra Ventures had an end date operating for three years.

We investigated whether the DAOs were or intended to become registered as a company. Interestingly, we found that the majority were registered, whereas four DAOs (Hydra Ventures, MetaCartel Ventures, MetaRISE, and The LAO) were registered as a Delaware Limited Liability Company (LLC). Hydra Ventures was additionally registered in the Cayman Islands as an LLC. Subsequently, we found that New Order DAO was registered as an LLC in the British Virgin Islands, while DAO.vc was registered in Luxembourg as a special limited venture partnership.

Lastly, to further help investigate the content and scope of the DAOs, we looked at the whitepaper word count and the individual structure. We found that the whitepapers were both inconsistent in publication form, their structure, and had a high differentiation in the word count. In the lower spectrum, we found BitDAO (2627 words) and Orange DAO (2682 words).

MetaCartel Ventures had the largest word count with 9765 words. When calculating the mean, we found it to be 4940,6 words on average.

Additionally, addressing the publication form, four DAOs had their whitepaper as a PDF, consisting of Moloch DAO, MetaCartel Ventures, Hydra Ventures, and Rocket DAO. We found that three of the DAOs (BitDAO, DAO.vc, and New Order DAO) had published their whitepaper through GitBook, and thus readily available and divided into sections on their webpages. This was also the case with The LAO using a similar approach. Orange DAO's whitepaper was found in the "About Us" section on their webpage, while MetaRISE DAO's whitepaper was retrieved from a blog post.

4.2 Mission

Another vital factor was analysing the core mission statements to fully comprehend the individual DAO VC's objectives and purposes. Table 2 outlines the DAOs mission.

*** Insert Table 2 About Here ***

We found that all ten focused on building and developing the decentralised Web 3.0 ecosystem. For instance, BitDAO, New Order DAO, and Orange DAO focus on building the decentralised economy, while both Moloch DAO and MetaCartel Ventures aim to develop the public infrastructure within the Ethereum ecosystem. Interestingly, MetaRISE is created to support the development of the blockchain infrastructure in emerging markets, starting with Asia.

While nine out of ten DAO VCs directly fund startup projects in various blockchain areas such as DeFi and DApps, RocketDAO is built as a decentralised platform facilitating investors and ventures. The findings suggest that RocketDAO enables more investor flexibility where members of the DAO have the opportunity to create funds and customize the funds' structure (i.e., governance, tokenomics) to meet their preferences.

4.3 Governance

Table 3 shows the DAO VC governance structure.

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As mentioned, DAO members typically receive governance tokens that grant proposals and voting rights in exchange for a cryptocurrency like ETH. We find that all DAOs follow this structure except MetaRISE, which currently only grants voting rights. Interestingly, MetaRISE will start with a centralised structure and gradually decentralize as the DAO develops. Moreover, the findings show that half of the DAOs are permissioned (private), where new membership requests must either be approved with a quorum from existing members or meet certain criteria to access the DAO. For instance, membership requests in MetaCartel Ventures and Moloch DAO must be proposed from existing members, while new members to Orange DAO must first be accepted into the Y Combinators accelerator startup program. The LAO only offers access to accredited investors and is the only DAO limiting its membership base to 99 investors. The permissionless (public) DAOs consist of BitDAO, DAO.vc, New Order DAO, and Rocket DAO and are open to everyone owning the individual DAO's tokens. Only MetaRISE did not provide sufficient information in its whitepaper to analyse whether the DAO is permissionless.

The findings show a broad spectrum within governance architecture. Several of the DAO VCs use governance modules such as Gnosis Snapshot and Moloch to increase security and reduce gas fees by facilitating off-chain communication and decision-making processes. While these governance tools have different features, they generally contribute to increasing user participation in proposal and voting processes. One feature of the Moloch architecture is the ability for members to rage quit. Rage quit allows DAO members to leave the organization should they disagree with the outcome of a vote withdrawing their share of the funds. This

governance mechanism was found as a feature in Moloch DAO, MetaCartel Ventures, Hydra Ventures, and The LAO. Rage quitting also serves as a safety net to protect members' assets from malicious attacks and mismanaging of the DAO's resources. To prevent the risk of massive dilution if a majority of members opt to rage quit simultaneously, Moloch DAO has a safety mechanism that would invalidate the proposal. Another feature in Moloch v2 is guildkick. If a member misbehaves or acts against the DAO's rules, the member could risk being guildkicked equivalent to being voted out of the DAO. However, this is not an option in Moloch v3 used by Hydra Ventures.

The results also show various organizational structures to facilitate operations. For instance, Orange DAO's operations are coordinated by various member-elected committees, whereas the governance committee handles the day-to-day operations of the DAO. Additionally, DAO.vc and New Order DAO distributes basic tasks to a core team responsible for the execution, while Hydra Ventures outsources basic operational tasks to a service provider to ensure that the DAO members solely focus on its purpose of building the venture DAO ecosystem. This service provider will also be handling unresolved matters after Hydra Ventures' three years existence period. In the case of MetaCartel Ventures, members are distinguished into three categories: Mages, Goblins, and Summoners. Summoners are responsible for various service operations and are governed by Mages who are highly participating members, and similar to a management team. Mages are expected to contribute to the DAO's development, and if these members fail to reach a certain level of participation, they could risk being downgraded to Goblins. Goblins are perceived to be more passive members who have chosen not to participate to the same extent as Mages. The level of contribution is generally found to be an essential aspect of the DAOs ecosystems. This helps ensure long-term commitment and activity to reach their purposes. New Order DAO and DAO.vc use a staking system where longterm commitment increases influence and voting power.

When considering proposals, eight of the DAOs allow all members to propose. However, Orange DAO has a maximum threshold of seven proposals per day and limits the number of total proposals to a maximum 35 to reduce voting overload. Moreover, BitDAO demands a minimum threshold of 200.000 BIT for members to enable proposal rights. New Order DAO has a three-step process toward a consensus where all members can propose at the first stage (ideation phase). As previously mentioned, MetaRISE does not grant members proposal rights due to its centralised structure at the launch, while Rocket DAO's proposal and voting structure is decided by the individual funds.

Following proposals are the voting strategy. Generally, the majority of the DAO VCs have a standardised voting period ranging between seven and 14 days. In the voting period, we find several DAOs either use a one-member-one-vote or one-token-one-vote system. This reduces the risk of concentration of power and helps balance the distribution of voting. However, DAO.vc and New Order DAO use member engagement mechanisms such as staking as a multiplier to reinforce the voting value. The findings also suggest that four of the DAOs allow delegation of voting power to other members.

Subsequently, a consensus is generally reached with a simple majority of the casted votes. However, some DAOs, including BitDAO, DAO.vc, Orange DAO, and The LAO, must reach a lower percentage threshold for a vote to be valid. MetaCartel Ventures and New Order DAO also differentiate between ordinary and extraordinary votes and the quorum needed. For instance, in the case of New Order DAO, an ordinary proposal only requires a simple majority of the counted votes, in addition to a minimum of 2.5% of the total governing tokens. At the same time, the extraordinary (constitutional) proposals demand 69% of current shares in MetaCartel Ventures and 66% with a minimum of 5% of the total governance tokens in New Order DAO.

After voting, MetaCartel Ventures, Moloch, and Hydra Ventures have a grace period that locks the outcome from being immediately executed in case members opt to rage quit. The grace period is between seven and 14 days in Moloch and MetaCartel Ventures, whereas Hydra Ventures using Moloch v3, has the opportunity to customize the voting period.

4.4 Tokenomics

Tokenomics help us understand the DAOs' economic structure, including token distribution and token allocation. Surprisingly, we found that several of the DAOs did not provide comprehensive information regarding tokenomics in their whitepaper or web pages. Table 4 shows the tokenomics overview, while Table 5 highlights the token allocation.

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The name of the governance token is only found in seven of the ten DAOs. Hydra Ventures, MetaCartel Ventures, and Moloch do not have an individual specified governance token, whereas the two latter lack retrievable data regarding tokenomics in general. The weak majority has additionally a fixed token supply to reduce inflation of the token value. However, Orange DAO states in its whitepaper that additional tokens could be minted if voted upon by the Orange DAO charter. To help manage token supply, BitDAO and Hydra Ventures are the only two DAOs mentioning burning of tokens in their whitepaper. Burning is a tool used to create scarcity and secure higher token value for investors, where the process involves permanently removing a number of tokens.

The findings further show that only three DAOs have available information on their treasury ranging between 30% and 54%. We also found that four DAOs are present on a secondary tradable market. Unsurprisingly, BitDAO, the world's second-largest DAO at the time of writing, singles out being present on 30 different exchanges.

The whitepapers also showed token allocation in six of the DAOs' whitepapers. One challenge was categorizing token allocation due to the non-existing standardization of structure and terminology. Therefore, we had to merge several of the token allocations into categories to provide an overview of the categories. For instance, the category Team & Stakeholders comprises several sub-themes, including core team, advisors, investors, remuneration, and service providers. The second main category was named Token & Distribution and consisted of sub-themes such as token incentives, liquidity provision, and community rewards. Thirdly, Finance & Investments was merged from sub-themes including startup investment, capital contribution, and reserve fund. The category Ecosystem & Partners comprises the ecosystem funds, brands, partnerships, and foundations. Lastly, Marketing also included token sales and liquidity.

In general, we find that the DAOs are inconsistent in the tokenomics content and lack an industry standard for displaying their tokenomics. Three DAOs gives no information on their token allocation, while DAO.vc, Hydra Ventures, MetaRISE, and New Order (when including treasury) are all fully transparent in their token distribution.

4.5 Network

Network, as the last category, was included to show member count and publication frequency on the off-chain social media platforms Twitter and Discord. While access to Twitter was transparent and open, we had to get approved as members in the respective DAOs on Discord to retrieve membership information. We managed to find all the DAOs in our sample size on Twitter, while only five were found and accessed on Discord.

The membership count on Twitter ranged from 917 (MetaRISE) to 48.556 (BitDAO). When calculating the mean, the average member count was 13.126. We furthermore managed to find and access five DAO forums on Discord, consisting of BitDAO, DAO.vc, Moloch, New Order DAO, and Orange DAO. The average membership base was 3.078, again leading with BitDAO with 10.205 members.

When investigating publication and activity frequency on Twitter, we found that six of the DAOs are still actively tweeting. The four inactive DAOs consist of Moloch DAO, MetaRISE, Hydra Ventures, and Rocket DAO. Of these DAOs, Moloch DAO and MetaRISE have not tweeted since October 2022. Moreover, Rocket DAO has not been active since January 2021, while Hydra Ventures last tweeted in May 2022. The lack of posts from Hydra Ventures could arguably be due to their limited timeframe structure in only accepting membership in the initial phase of the DAO. Of the active DAOs, the frequency of tweets varies from monthly to daily. For instance, MetaCartel Ventures is the least active, with only a couple of monthly posts, while Orange DAO and New Order DAO are the most active DAOs, with several daily posts. The remaining DAOs, The LAO, BitDAO, and DAO.vc, all posts several times weekly.

5. Discussion

Our systematic review of DAO whitepapers showed that the content and scope highly vary with little consistency, with the exception of their blockchain affiliation and mission statement. We shed light on and discuss the main findings to provide guidance towards best practices in a growing industry lacking a standardised framework.

One emerging trend from the literature suggests that DAOs and blockchain technologies will experience an increase in regulations in the coming years, already seen with the European MiFID framework and existing regulation of security tokens in the US (Covarrubias and Covarrubias 2021; Myalo and Glukhov 2019). Furthermore, Anand and Chauhan (2020) highlight that DAOs need mass adoption to reach their potential. Therefore, DAOs could benefit from registration to legitimize their status as a security asset and help build trust in the technology amongst stakeholders. This signals that the organization is committed to operating

professionally and helps prevent the potential moral hazard from malicious actors. However, one drawback of registration is the potential limitation of DAO operations, including increased compliance costs. On the contrary to these operational costs, one advantage is enhanced legal protection of users and organizations, which further help create more transparent rules of engagement between the actors and their interaction with both Web 3.0 and physical world companies. In order to increase credibility and reach mass adoption, we thus suggest that company registration of DAOs is a best practice as found in the following DAOs: DAO.vc, Hydra Ventures, MetaCartel Ventures, MetaRISE, New Order DAO, and The LAO.

Another main finding is whether the DAO is permissioned or permissionless and the advantages and disadvantages of each. The systematic review of whitepapers revealed that 50% of the DAOs were permissioned, while 40% were identified as permissionless. One of the advantages of a permissionless governance structure is a lower entry barrier compared to permissioned structures. Permissionless DAOs do not require membership approvals and are thus open to all that hold the individual token. Moreover, this ease of access also increases the likelihood of getting familiar with the ecosystem. This could also help explain BitDAO's large market capitalization found in DeepDAO (n.d.). However, permissionless structures could potentially lead to an increased number of investors joining the DAO to speculate on token prices rather than contributing to DAO development, in addition to reducing the likelihood of people sharing the same interest and objectives (Murray et al. 2021). This is supported by the literature, which finds permissionless governance structures to have less operational flexibility compared to permissioned structures (Covarrubias and Covarrubias 2021). These findings also suggest that permissioned structures increase the ease of reaching consensus due to higher goal alignment and a higher resemblance to existing physical world organizational structures. On the other hand, one disadvantage is the potential number of extra resources required to operate permissioned DAOs task management, including membership approvals. Additionally,

permissioned DAOs are perceived to possess a higher degree of centralization than permissionless DAOs since they ensure that only vetted participants can influence decisionmaking.

In the context of DAO VCs, both the DAO and the startups involved would benefit from DAO members understanding that investing in new ventures is associated with high risk and volatility, and applicable knowledge and interest is an advantage that could help ensure goal alignment and higher quality in proposals and voting processes. Therefore, we suggest that permissioned governance structures are a best practice for DAO VCs. Our results show that the following DAOs have a permissioned structure: Hydra Ventures, MetaCartel Ventures, Moloch DAO, Orange DAO, and The LAO. However, we acknowledge that a permissionless structure could be a more optimal solution in other types of DAOs where goal alignment and participation are less critical.

Another significant finding is the difference in DAOs' voting structure. The whitepaper findings indicate two voting power distribution types: token-based or member-based voting weight. In a token-based voting system, the members' token holding at the time of the vote represents their members' voting power. Hence, a higher quantity of tokens corresponds with higher voting power. This system is found in the following DAOs: BitDAO, DAO.vc, New Order DAO, Orange DAO, and The LAO. On the other hand, a member-based voting system gives each member equal voting power regardless of their token holdings. This structure is found in Hydra Ventures, MetaCartel Ventures, and Moloch DAO. The findings from the content analysis do not address this particular topic, but our whitepaper analysis indicates several advantages and disadvantages with both.

First, the advantages of the one-member-one-vote system are a more inclusive and equal representation of DAO members, and a reduced concentration of power, lowering the risk of

manipulation by large token holders. Since token holdings are not tied to voting power, one disadvantage is that large token holders could be less incentivised to contribute as their influence is limited to one vote. Second, a benefit of the one-token-one-vote system involves higher incentives to participate as larger token holders increase their influence proportional to their holdings which could lead to a more engaged community. Additionally, token holders with significant stakes could be perceived as more likely to prioritize the organization's best interests, as they are more invested in the DAO's success. On the other hand, disadvantages include centralization of a decentralised organization through the concentration of power where only the larger token holders have a significant voice in controlling the DAO's direction.

Furthermore, this structure could also exclude minority voices and risks potential manipulation as larger token holders could steer the DAO to serve their own interests. One possible solution to mitigate the risk of concentration of power is to ensure a maximum number of tokens per member, as found in The LAO. While both structures have several advantages and disadvantages, we find that one-token-one-vote is a best practice because it could increase community engagement and attachment to the DAO's success. We furthermore suggest that a maximum token holding per member is essential to avoid 50%+1 attacks, as mentioned by Konashevych (2017).

One additional key theme in the DAOs whitepapers is how they incentivize contribution and long-term commitment amongst members to ensure goal alignment and higher activity levels. We find some of the DAOs to have measures to increase user activity. For instance, DAO.vc and New Order DAO allow staking of tokens which acts as a multiplier in voting power, meaning the longer the tokens are staked, the higher the value of the tokens. This acts as a reputation-based voting system, and the literature states that this structure incentivizes higher commitment and activity levels in granting the members a higher voting power (Anand and Chauhan 2020). Since DAO task management is built on voluntary contributions (Liu et al. 2022), enforcing reputation scores, such as multipliers could be beneficial to ensure the DAO's long-term success while simultaneously reducing speculation in the token, creating stability in the DAO and its assets. This is supported by Liu et al. (2022) that find economic feedback such as staking and social feedback among which member status positively effects member participation. However, staking often reduces the member's liquidity by locking the token holdings in a certain period, limiting their opportunity to access or exchange their assets rapidly. Staking is also considered as a security in countries as the US, demanding that only accredited investors are vetted for staking with potential penalties such as legal prosecutions if not followed (Kharif, Beyoud, and Versprille 2023).

Another type of reputation-based structure is found in MetaCartel Ventures and Moloch DAO. Contrary to the positive incentives found from staking, these DAOs demand a certain contribution threshold in order for members to maintain their status. While MetaCartel Ventures differentiate membership status according to their contribution level, both DAOs have the option of guildkick, where non-contributing members could, in the worst case, risk being voted out of the DAO. As the findings from the whitepaper analysis highlight, MetaCartel Ventures ranks Mages as the most essential members contributing to the DAOs' success, while Goblins are silent investors that do not meet the contribution threshold. Any Mage could risk being downgraded to a Goblin, and these structures found in MetaCartel Ventures and Moloch DAO thus acts as a negative incentive towards contribution. While guildkick could be an important measure to reduce moral hazard and malicious behaviour amongst members, it may also lead to members putting more weight on quantity over quality to reach the contribution threshold and avoid receiving negative incentives.

Based on our findings, we suggest that positive reinforcement of social capital impacts participation and commitment. While staking has some negative aspects, the economic and social incentives associated with the system increase long-term commitment and reward members' contributions, and we thus find staking as a best practice.

When considering different types of voting, the literature findings suggest that voting duration should be adapted between operational and strategic proposals to enhance performance (Zhao et al. 2022). From the whitepaper analysis, we found that the voting duration was between five and 14 days. Interestingly, only two DAOs (MetaCartel Ventures and New Order DAO) separate ordinary and extraordinary proposals. Subsequently, the content analysis stresses the importance of increasing voting duration in strategic decisions, while operational decisions should be designed with a shorter voting period with expertised voters responsible for the design (Zhao et al. 2022). The whitepaper findings show that none of the ten DAOs adjusts the voting period according to the type of proposal. Nevertheless, MetaCartel Ventures distributes operational tasks to some of its members, while Orange DAO elects members into different committees, which helps facilitate proposals and voting design.

Voting duration also impacts the efficiency of the DAO's governance process. This was also addressed as an issue in the literature investigating "The DAO" hack, where a disadvantage of DAOs is seen as the ability to respond rapidly to critical issues to mitigate these risks (Migliorini et al. 2019). Hence, a shorter voting duration could increase decision-making efficiency and maintain the DAO's agility and competitiveness. On the other hand, a disadvantage is the risk of less informed decision-making critical in strategically important governance processes. Our findings, show that differentiation between long-term strategic (e.g., fundamental changes) and operational proposals (e.g., membership approvals), is vital to reducing voting fatigue and emphasizing that strategic decisions are more critical to increase the DAO's performance. Therefore, we suggest that separating operational and strategic proposals as a best practice. We furthermore propose that a longer voting duration for strategic decisions and a shorter voting duration for operational decisions is a best practice and recommend implementing these practices by future DAO VCs.

Consensus is another vital aspect to consider in the governance of DAOs. Various consensus mechanisms can be employed in a DAO, including simple majority and supermajority. Each of these mechanisms has advantages and disadvantages, and their relevance depends on the content and scope of the proposal. We argue that a tailored approach aligned with the differentiation between strategic and operational proposals could optimize the governance processes within the DAO. Strategic decisions often have a long-term impact on the DAO and could benefit from a higher threshold to ensure a broader agreement amongst members. On the other hand, operational decisions, which often are more standardised, could take advantage of lower thresholds to improve agility and reduce voting fatigue. Building on this, we suggest that a higher quorum is beneficial in strategic decisions to ensure the voting receives the required deliberation. In contrast, operational decisions should be designed with a lower threshold to avoid voting fatigue and increase efficiency.

The findings from the systematic review show that nine of the DAO VCs demand a simple majority for a proposal to pass, while Rocket DAO's consensus mechanisms are decided by the individual funds. MetaCartel Ventures and New Order DAO distinguish between ordinary and extraordinary voting, where a simple majority is needed on ordinary proposals and with a higher voting threshold for extraordinary proposals. The DAOs further differentiate on the quorum required for a proposal to be considered valid. Mainly two categories are discovered consisting of either a minimum percentage of token supply or a majority of the casted votes. In the former category, BitDAO, DAO.vc, New Order DAO, and Orange DAO have a voting threshold ranging from 1% to 15% of the token supply. New Order DAO distinguishes between ordinary proposals requiring a minimum of 2.5% and extraordinary proposals needing a minimum of 5%. The latter category only demands a simple majority of the casted votes, simple majority of the casted votes.

including Hydra Ventures, MetaCartel Ventures, Moloch DAO, and The LAO, except for MetaCartel's extraordinary proposals, which demands a supermajority consisting of minimum 69% of current shares. In summary, implementing an adaptive quorum system with variating consensus thresholds is recommended as a best practice for the DAO VC landscape.

After a proposal has reached a consensus, the whitepaper results show that four DAOs allow members to rage quit. While the literature does not investigate this phenomenon, rage quitting is a governance mechanism where members object to the outcome of a vote they have voted "no" on, and could leave the DAO with their share of tokens. MetaCartel Ventures and Moloch DAO facilitate this process by locking consensus-reached voting in a post-voting grace period between seven and 14 days. One of the advantages of this mechanism is that it proactively protects members from directions that disagree with their core beliefs. This could also strengthen the signalling effect to community members to behave accountably and pursue the DAO's objectives.

Nevertheless, rage quitting has its limitations. The grace period will reduce efficiency and agility, delaying the implementation of the voting outcome. Another potential drawback for the organization is the risk of reducing the liquidity of the DAO if a substantial number of members decide to rage quit. This could potentially create an immediate liquidity squeeze, forcing the DAO to sell assets at a disadvantageous time which could be detrimental to the return on investment and thus threatening the DAO's existence. One measure to mitigate this risk is to implement staking, which has already been established as a best practice. Moreover, Moloch DAO has a dilution safety mechanism to protect the remaining members from massive dilution if a large percentage of members opt to rage quit. This will automatically lead to the failure of the proposal. Weighting the benefits and drawbacks of rage quitting, we suggest that this governance mechanism, if combined with a permissioned structure, is a best practice.

One notion from the whitepaper findings is the organizational support structure existing in some of the DAOs. The key objective is to facilitate uncritical operational tasks to a team of elected members or outsourced personnel with applicable knowledge. As the results highlight, all DAOs except BitDAO, Moloch DAO, and The LAO mention various teams responsible for various tasks. Moreover, MetaRISE is the most centralised DAO with an established managing team in a hierarchical structure possessing rights ordinary members do not possess. BitDAO, on the other hand, could be perceived as the most decentralised organization without any supporting structure. Implementing a supporting governance structure may reduce the extensive use of resources on basic task management and increase the efficiency of the DAOs' operations. Since DAOs are considered as borderless organizations with members potentially spread across the globe (Zalan 2018), this could create bottlenecks in operational planning and execution that could be reduced by a supporting team. By including individuals with competent skills and knowledge, either through acquiring external personnel or electing members, DAOs could ensure that organizational tasks are streamlined, reducing potential errors and improving agility. On the contrary, a disadvantage involves a higher degree of centralization, empowering the team with decision-making authority.

Except for Orange DAO electing members to different committees, Hydra Ventures outsourcing basic tasks to a service provider, and MetaCartel's Summoners which could be members and external experts, the remaining DAOs' whitepaper is unclear of the core teams' respective roles. It is difficult to conclude which supporting system is the most effective, however, the role these organizational supporting structures possess based on the argumentation is suggested to be a best practice.

One emerging topic of interest distinguishing the DAOs is the content and scope of the whitepapers. Whitepapers, acting as business plans, enable a comprehensive understanding of the DAO's value proposition and showcase the information and transparency needed to attract

new investors. As mentioned by Liu and Wang (2019), the value of the DAO is linked to the quality of the whitepaper. We find from the systematic review that the whitepapers are inconsistent regarding the number of words, terminology, and the inclusion of various fundamental aspects. When considering word count, the results show that the DAOs range from 2627 (BitDAO) to 9765 (MetaCartel Ventures). While a higher number of words does not necessarily correlate with high-quality content, the inclusion of certain aspects is essential to establish a professional appearance, especially when aiming to attract new investors. Subsequently, we discovered an inconsistency in terminology within the whitepapers. This could confuse potential investors, as they may have difficulties understanding the differences among the DAOs. We were also required to merge various sub-terms to enable categorization for comparison. Therefore, we suggest that the standardization of terms as the industry matures could play a vital role in achieving mass adoption.

The inconsistency in terminology is also found in the literature, which uses various terms to explain different concepts. For instance, tokenomics is only used by Liu and Wang (2019), while Myalo and Glukhov (2019) addresses that token economics should be included in a whitepaper. Moreover, Myalo and Glukhov (2019) highlights that standardization of whitepaper content does not exist and further proposes a framework for what an ICO whitepaper should contain, including a mission statement, economics, and team. Covarrubias and Covarrubias (2021) further stresses the importance of a well-defined governance structure within crypto assets whitepapers. Hence, the literature results support our findings, indicating that increased standardization could benefit the blockchain sphere.

Another crucial role whitepapers play is to provide transparency to investors regarding the allocation and distribution of tokens, the incentives involved, and the economic model that drives the ecosystem. Labelled tokenomics as a collective term, an important finding shows that certain DAOs do not provide a comprehensive and transparent outline of tokenomics and that some DAOs neglect addressing it entirely. Conversely, to traditional VCs, where investors acquire a share of the startup, DAO VC does not claim ownership percentage, but investors earn a return on investments (ROI) on the token value after the startup's product is realised (Ibba et al. 2018). The significance of tokenomics in facilitating informed decision-making for investors entering a DAO, including aspects related to ROI, emphasizes its critical role in demonstrating an organization's attractiveness.

Due to the limited information regarding tokenomics in the literature and various DAO VC approaches, such as token allocation and token distribution, it is difficult to determine which structure is more suitable for a DAO in the VC landscape. Consequently, we suggest that a comprehensive presentation of tokenomics is a best practice that should be incorporated into every DAO VC whitepaper.

Summarizing the best practice findings, we propose a list of practices to elevate the competence and knowledge of future DAO VC developers. These best practices are presented in Table 6, identifying the rating of each DAO VC in our data sample to provide a comprehensive summary of best practices. Concluding from the Table 6, none of the DAOs incorporate all the found best practices. However, MetaCartel Ventures and New Order DAO are found to be most aligned with the best practices identified, checking on six of the categories. We posit that future DAO VCs implement our framework as a benchmarking tool to obtain a competitive advantage and to better reach mass adoption.

*** Insert Table 6 About Here ***

6. Conclusion

DAO VC best practices are a novel and unresearched topic. Previous literature has focused on conceptualizing this new organizational structure emphasizing various governance aspects and DAOs as a potential disrupter to traditional markets and industries (Faqir-Rhazoui, Arroyo, and Hassan 2021; Murray et al. 2021; Shermin 2017; Wang et al. 2019). Due to the lack of research on the topic, we conducted a systematic review of DAO VC whitepapers. By comparing and contrasting various topics that emerged during our analysis (e.g. governance and organizational architecture, tokenomics, and whitepaper structure), we identified ten best practices to be included in a whitepaper (registration, permissioned, token-based voting system, staking, separating strategical and operational votes, adjustment for the voting duration, adaptive quorum system with various consensus thresholds, rage quit, organizational support structure, and components). Aligned with these best practices, we found that MetaCartel Ventures and New Order DAO have a competitive edge incorporating six of these categories. Thus, best practices findings could be implemented as a benchmarking tool to enhance DAO VC performance, its attractiveness for investors, and to facilitate mass adoption.

6.1 Implications for literature

The ideas presented in this paper contributes to the topic of VC studies. DAO VCs are different from traditional VCs in multiple ways (see Table 7). Firstly, considering VC trust, this study challenges the traditional notion of trust in VC, suggesting that blockchain-based "trustless trust" mechanisms can offer more secure and transparent investment models. Leveraging blockchain technology, DAO VCs operate on a foundation of "trustless trust" (Faqir-Rhazoui, Arroyo, and Hassan 2021; Zhao et al. 2022). Unlike traditional VC structures plagued by information asymmetries and opportunistic behaviour (Zacharakis, McMullen, and Shepherd 2007; Jeon and Maula 2022; Fiet 2022; Maurer et al. 2022; Bustamante, Mingo, and Matusik 2021), DAO VCs rely on code-enforced rules and immutable transaction records to establish transparency and accountability (Bellavitis, Fisch, and Momtaz 2023; Murray et al. 2021). This mitigates trust dependence on individual actors and reduces the risks associated with human bias and manipulation.

*** Insert Table 6 About Here ***

Secondly, we present DAO VCs as potential catalysts for a more inclusive VC landscape. Facing widespread criticism for funding disparities and centralised control, conventional VC models struggle to meet the diverse needs of early-stage startups (Kaal 2023; Skare, Gavurova, and Polishchuk 2023). DAO VCs, however, empower token holders with direct voting rights on investment decisions, decentralizing the power traditionally concentrated within VC firms (Santana and Albareda 2022; Saurabh, Rani, and Upadhyay 2023). This democratization of control facilitates broader participation, potentially attracting promising startups traditionally ignored by established VC structures and fostering a more inclusive investment ecosystem.

By providing a foundational analysis of DAO VC best practices and their potential impact on the investment landscape, this study paves the way for further exploration of these revolutionary entities. By investigating their operational nuances and long-term implications, we can advance our understanding of how DAO VCs might reshape the future of VC and unlock new avenues for democratised and transparent investment.

6.2 Implications for decision-makers

In the evolving landscape of venture capital, the emergence of Decentralised Autonomous Organizations (DAOs) presents transformative implications for decision-makers in the industry. Firstly, the study underscores the importance of embracing blockchain technology, particularly its 'trustless trust' mechanism. For venture capital firms, this signifies a paradigm shift away from traditional reliance on interpersonal trust towards a more secure, transparent system underpinned by immutable transaction records and code-enforced rules. Decision-makers are thus urged to reconsider their trust frameworks, potentially integrating blockchain solutions to mitigate risks associated with information asymmetries and opportunistic behaviours. This integration not only enhances security but also elevates the accountability standards in investment practices, which is crucial in maintaining investor confidence in an increasingly digitised financial landscape.

Secondly, DAO-based venture capital models are heralded as catalysts for fostering a more inclusive and democratised investment ecosystem. Decision-makers in traditional VC firms are challenged to reassess their operational structures in light of DAO VCs' ability to empower stakeholders through direct voting rights and decentralised governance. This democratization facilitates broader participation, potentially attracting a diverse array of promising startups traditionally overlooked due to funding disparities and centralised control. For decision-makers, this translates into an opportunity to diversify their investment portfolios, tapping into novel markets and innovative ideas that may have been previously inaccessible. Embracing such inclusivity not only broadens the scope of potential investments but also aligns venture capital practices with evolving societal expectations of equity and representation in business financing.

Finally, the paper points to critical areas for future research that decision-makers should closely monitor. This includes the exploration of optimal tokenomics structures and the balance between centralization and decentralization in DAOs. As DAO VCs continue to mature, understanding these aspects becomes paramount in designing effective operational models and governance structures. Decision-makers should stay informed about these developments to adapt their strategies accordingly. Additionally, given the rising traction of DAO VCs, assessing their impact on traditional VC models becomes imperative. This involves not only adapting to competitive pressures but also exploring potential synergies between traditional and DAO-based models. Staying attuned to these changes will enable decision-makers to strategically position their firms in a rapidly transforming venture capital ecosystem, ensuring resilience and relevance in the face of disruptive technological advancements.

6.3 Limitations and future studies

This study is not free of limitations. The emergence of DAO VC is recent, thus the search for whitepapers was limited by our selection criteria and biases. We also limited our scope of investigation by focusing on a few whitepapers' aspect summarised by the ten best practices analysed. Thus, future research could investigate the impact of DAO whitepaper length and the affiliated formality in the whitepaper to provide guidance to improve the outline for future DAOs. This could help understand which language style most effectively extends credibility and trust to new investors and members. Moreover, researchers should examine the applicability of our findings on whitepaper sections and their relatedness to DAO success.

While we find registration as a best practice in the DAO VC landscape, we do not investigate the preferred country to register in. Future research could explore the advantages and disadvantages of the different countries and further provide recommendations, showing the ideal type of registration and the most suitable country to affiliate with, to enhance security and further development of these organizations.

Another critical aspect to investigate is the ideal level of decentralization for a DAO. As our findings suggest various best practices that can influence the level of decentralization within the DAO VC landscape, future research could aim to determine the optimal balance between centralization and decentralization and how different governance mechanisms affect this balance. Our findings also suggest supporting governance structures as a best practice to improve DAO VC performance. Building on this, future research directions could investigate the most effective supporting structure for facilitating DAO operations, weighing the benefits and drawbacks of outsourcing the basic tasks to external experts or delegating them to contributing members. While our findings identified several governance modules coordinating proposal and voting structures off-chain, further analysis should focus on determining the most effective module and its correlation with community engagement. Future research could therefore compare different governance modules to determine which is most appropriate for different types of DAOs.

The integration of tokenomics in a DAO VC whitepaper is recommended as a best practice. However, due to limited transparency and high inconsistency in our whitepaper results, we were unable to pinpoint the optimal structure for supporting long-term growth. Therefore, we propose that future research analyses alternative data sources to enable a quantitative analysis of tokenomics best practices. As the industry matures, future investigations could assess the correlation between tokenomics transparency, investor attraction, and DAO success.

Future research could also compare different tokenomics structures (e.g., token distribution, token allocation, reward mechanisms, token supply, and burning) to determine their effectiveness in promoting growth and sustainability within the DAO ecosystem. By analysing these structures, researchers can help design customised solutions and facilitate standardization within the DAO industry. This could make it easier for investors to compare various DAO VCs and potentially increase trust and credibility. Furthermore, as DAO VCs gain traction, examining their impact on traditional VCs and investment strategies could provide valuable insights into how the landscape is evolving and the influence of DAO VCs on traditional VCs.

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DAO Name	Creation	Registration	Blockchain Affiliation	Words	Duration
BitDAO	2021*	Not registered	Ethereum	2627	N/A
Dao.VC	N/A	Luxembourg SLVP****	Ethereum	3128	N/A
Hydra Ventures	2022	Delaware LLC and Cayman Islands LLC	Ethereum	5460	3 years
MetaCartel Ventures	2019	Delaware LLC	Ethereum	9765	N/A
MetaRISE DAO	2022	Delaware LLC	Ethereum	3703	N/A
Moloch DAO	2019	Not registered	Ethereum	4076	N/A
New Order DAO	2021**	British Virgin Islands LLC	Ethereum	7869	N/A
Orange DAO	2021***	Not registered	Ethereum	2682	N/A
RocketDAO	2018	Not registered	Ethereum	4823	N/A
The LAO	2020	Delaware LLC	Ethereum	5273	N/A

Table	1.	General	whitepaper	information
Table	т.	General	wintepuper	mormation

Note: (*) Creation date was extracted from Crunchbase (n.d.a). (**) Creation date was extracted from Medium (New Order, n.d.b). (***) Creation date was extracted from Crunchbase (n.d.b). (***) DAO.vc is registered as a special limited venture partnership.

Table 2. DAOs'	Mission	statement
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DAO Name	Mission Statement
BitDAO	"BitDAO aims to support builders of the decentralised economy. It is an open platform for proposals that are voted upon by BITtoken, and is agnostic to chains and projects." (BitDAO, n.d.)
Dao.VC	"DAO.vc is a decentralised autonomous organization that acts as a service for blockchain-based tokenised pool governed through common voting for investment projects selected according to an algorithm established." (DAO.vc, n.d.)
Hydra Ventures	"Hydra Ventures is an investment DAO fund of funds that aims for accelerate the emergence of the venture DAO ecosystem." (Hydra Ventures, 2022)
MetaCartel Ventures	"MetaCartel Ventures aims to be a project that aims to deepen MetaCartel's existing commitment to furthering the progress within the Ethereum DApp ecosystem and Web 3." (MetaCartel Ventures, 2019)
MetaRISE DAO	"MetaRISE is an investment DAO and decentralised startup accelerator on a mission to harness the potential of emerging marketsstarting with Asia." (Glaveski, 2022)
Moloch DAO	"The immediate goal of the Moloch DAO will be to fund and further the development of public infrastructure related to Eth 2.0." (Moloch Ventures, 2019)
New Order DAO	"New Order is a community-driven venture DAO with a focus on building DeFi startups through Incubation and Acceleration." (New Order, n.d.a)
Orange DAO	"Orange DAO exists to support past, present, and aspiring Y Combinator founders who are building the future of the crypto ecosystem." (Orange DAO, 2022)
RocketDAO	"Decentralised crowdfunding and startup evaluation platform." (RocketDAO, 2018).
The LAO	"The LAO was organised in the spirit of The DAO, as a member-directed venture capital fund organised in the United States, with an aim to be compliant with U.S. law." (The LAO, n.d.)

DAO Name	Membership	Proposal strategy	Voting strategy
BitDAO	Permissionless. Governed by BIT token holders.	Threshold: 200,000 BIT	Delegated voting: Yes Weight: Per token Duration: Min. 7 days Consensus: Simple majority Quorum: 100M BIT (1% of total supply) Staking: N/A
Dao.VC	Permissionless. Governance NFT holders	All members can propose	Delegated voting: Yes Weight: N/A Duration: N/A Consensus: Simple majority Quorum: Participation of minimum 10% of token holders Staking: Yes
Hydra Ventures	Permissioned. Only allowing memberships at the start. Offers rage quit	All members can propose	Delegated voting: N/A Weight: Per member Duration: 7 days Consensus: Simple majority Quorum: Counted votes Staking: N/A
MetaCartel Ventures	Permissioned. New memberships are proposed by existing members. Offers rage quit and guildkick	All members can propose	Delegated voting: N/A Weight: Per member Duration: 14 days voting and 14 days grace period Consensus/quorum: Simple majority of counted votes (ordinary proposals) Minimum 69% of current shares (extraordinary proposals) Staking: N/A
MetaRISE	N/A	Limited at start	Ability to vote
Moloch DAO	Permissioned. New memberships are proposed by existing members. Offers rage quit and guildkick	All members can propose	Delegated voting: N/A Weight: Per member Duration: 7 days voting and 7 days grace period Consensus: Simple majority Quorum: Counted votes Staking: N/A
New Order DAO	Permissionless. Governed by \$NEWO token holders	All members can propose. Three steps towards consensus (ideation, specification, and consensus).	Delegated voting: N/A Weight: N/A Duration: 5 days + 7 days

Table 3. DAOs' governance

Orange DAO	Permissioned. Only allowing founders accepted into Y Combinator's startup program.	All members can propose	Consensus/quorum: Ordinary proposals need simple majority and minimum 2.5% of circulating token supply. Extraordinary proposals need minimum 66% approval and minimum 5% of circulating token supply. Staking: Yes Delegated voting: Yes Weight: Per token Duration: 7 days Consensus: Simple majority Quorum: Minimum 15% of circulating supply Staking: N/A
RocketDAO	Permissionless. Open to all \$ROCK token holders	Decided by the individual fund	Decided by the individual fund.
The LAO	Permissioned. Only accepting accredited investors, and maximum 99 members. Offers rage quit	All members can propose	Delegated voting: Yes Weight: Per LAO unit Duration: 7 days, but can be expanded Consensus: Simple majority Quorum: Casted votes.

DAO Name	Token	Token Supply*	Treasury**	Exchange***	Burning
BitDAO	\$BIT	10.000 M	30%	30	Yes
Dao.VC	\$DAOVC/\$VCDAO	100 M	-	3	-
Hydra Ventures	-	-	-	-	Yes
MetaCartel Ventures	-	-	-	-	-
MetaRISE DAO	\$METARISE	100 M	-	-	-
Moloch DAO	-	-	-	-	-
New Order DAO	\$NEWO	800 M	38%	3	-
Orange DAO	\$ORANGE	100 M	54%	-	-
RocketDAO	\$ROCK	25 M	Decided by the different funds	1	-
The LAO	\$LAOUnits	-	-	-	-

Table 4. DAO's tokenomics

Note: (*) M is an abbreviation for Millions. (**) Treasury is measured in percentage of token supply. (***) Exchange is the number of secondary markets where the tokens can be traded.

DAO Name	Team & Stakeholders	Token & Distribution	Finance & Investment	Ecosystem & Partners	Marketing
BitDAO	-	-	-	-	-
Dao.VC	15.91%	-	10%	30%	54.09%
Hydra Ventures	8%	23%	69%	-	-
MetaCartel Ventures	-	-	-	-	-
MetaRISE DAO	55%	25%	10%	10%	-
Moloch DAO	-	-	-	-	-
New Order DAO	40%	22%	-	-	-
Orange DAO	-	30%	-	-	-
RocketDAO	10%	-	-	-	-
The LAO	-	-	-	-	-

Table 5. Token allocation

Best practice	DAO VC	
Registration	DAO.vc; Hydra Ventures; MetaCartel Ventures; MetaRISE; New Order; The LAO	
Permissioned	Hydra Ventures; MetaCartel Ventures; Moloch; Orange DAO; The LAO	
Token-base voting system	BitDAO; Orange DAO; The LAO	
Staking	DAO.vc; New Order	
Separating strategical and operational votes	MetaCartel Ventures; New Order	
Adjustment of voting duration	None	
Adaptive quorum systems with various consensus thresholds	MetaCartel Ventures, New Order	
Rage quit	Hydra Ventures; MetaCartel Ventures; Moloch; The LAO	
Organizational support structure	DAO.vc; Hydra Ventures; MetaCartel Ventures; MetaRISE; New Order; Orange DAO; Rocket DAO	
Whitepaper content:	BitDAO; DAO.vc; New Order; MetaRISE;	
Mission, Governance, Tokenomics	Orange DAO; The LAO	

Table 6. DAO VC best practices

Feature	DAO VC	Traditional VC
Mission	Democratize venture funding, prioritize community driven innovation.	Maximize returns for limited partners (investors).
Network	Open and accessible to anyone with the token. Global reach based on token holders.	Exclusive and invitation-only. Limited network based on relationships and reputation.
Tokenomics	Token holders vote on funding decisions and protocol parameters. Token value tied to DAO's success and portfolio performance.	No direct participation in fund management. Value of shares primarily driven by portfolio performance.
Structure	Decentralised and autonomous governed by smart contracts. No hierarchy or management team.	Centralised with a dedicated management team and investment committee. Hierarchical decision-making.
Governance	Proposals submitted and voted on by token holders using on-chain voting mechanisms. Transparent and community-driven.	Proposals made by management team and approved by limited partners (investors). Less transparent and centralised.

Table 7. Comparison between DAO and Traditional VCs