Is DAO Governance Fostering Democracy? Reviewing Decision-Making in Decentraland

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Abstract

This study analyzes voting dynamics and proposal outcomes within Decentraland, a prominent Decentralized Autonomous Organization (DAO), by examining its voting behaviors and decision outcomes. We offer insights into how a DAO is employed to facilitate decision-making and discern the nature of the issues about which decisions are made. DAOs promise horizontal and democratic decision-making. However, our research reveals a high concentration of voting power among a few members despite them not utilizing it to a great extent.

Additionally, we identify the prevailing themes in decision-making processes within the organization through topic modeling. The primary topics identified are the effective management and governance of the platform and community and the platform's strategic growth, with a particular emphasis on wearable technology. This research addresses fundamental questions regarding the democratic integrity of DAOs and their ability to achieve equitable representation and decision-making.

Keywords: Blockchain, Decentralized Autonomous Organizations (DAOs), e-Democracy, e-Voting, Online Governance.

1. Introduction

The digital transformation introduced changes to almost every dimension of our everyday routines. Our experience as individuals is in constant evolution, transforming aspects related to our privacy (Minkkinen et al. (2017)), consumption (Dey et al. (2020)), or interaction (Boyd (2010)). The same occurs in our political dimension as citizens: the form we relate to public administrations (Gil-Garcia et al. (2020)) or political life (Vromen (2017)) has evolved towards a more digitized interaction, emphasized during the COVID-19 pandemic. In recent years, we witnessed several attempts to innovate in social participation using digital means, some successful (Borge et al. (2023)), others controversial (Natale and Ballatore (2014)). A similar pattern can be sought concerning the digitalization of elections, where successful uses of internet voting, e.g., Estonia (Ehin et al. (2022)), go hand-in-hand with other cases where this method was abandoned, e.g., New South Wales (Halderman and Teague (2015)) or Norway (Gjøsteen (2016)).

The use of digital methods of digital participation and voting in traditional offline processes (generally in parallel to conventional offline channels) seeks for an increase of convenience for citizens (Licht et al. (2021)), under the expectation that this will enlarge the number of participants engaged in the decision-making process (Borge et al. (2022)) and, eventually, improve the quality of democracy. On the other hand, adopting such technologies in very competitive and politically charged environments involves several risks and challenges that represent a significant limiting factor for its wider adoption. Furthermore, an important part of the population is still not tech-savvy enough to allow for massive implementation of digital means of decision-making. While promising results were obtained in pilot projects, we seem to be far from being able to adopt those systems at a large scale.

But how does the use of digital decision-making systems relate to communities or organizations whose nature is fully digital? Are the same limitations and concerns affecting them? The existing literature describes an interesting reality. Firstly, the lack of pre-existing forms of governance in many digital communities allows for creating their own tailored governing rules and ad-hoc digital systems (Pitt and Diaconescu (2015) and Schneider et al. (2021)). Wikipedia, for example, built its governance system combining formal bureaucratic managerial with flexible and adhocratic content management structures (Jemielniak (2020)). Secondly, the baseline knowledge regarding technology use and the digital nature of such communities make digital media the only realistic option for engaging the community in its governance.

This results in the development of creative digital governance models and decision-making systems that innovate the existing portfolio of democratic means (Simon et al. (2017)), introducing, on occasions, measures to rebalance the distribution of power (e.g., depending on the engagement in the community) or the mechanisms of voting and decision making (e.g., allowing tracking the results of voting processes on real-time) (Goldberg and Schär (2023)). Although it seems unrealistic that some of these methods will be transposed to offline decision-making and politically binding voting processes shortly, the experimental nature of some of those practices is worth observing to extract possible outputs on how those features impact the quality of the democratic process and its outcomes.

This paper analyzes the use of online voting methods in Decentraland, a blockchain based Decentralized Autonomous Organization (DAO) for entertainment. Decentraland claims to be the first decentralized metaverse that is built, governed, and owned by its users. Unlike traditional voting systems, Decentraland's voting is real-time and weighted according to members' symbolic power, measured by their token holdings. The study examines the voting behaviors, discussed issues, and proposals within Decentraland to understand its decision-making processes. Using quantitative methods, it assesses the distribution and use of voting power among members to determine if the DAO governance is democratic. Additionally, the research identifies common themes in decision-making through topic modeling. Ultimately, the paper seeks to address questions about the democratic nature of DAOs and equitable representation in their decision-making. It aims to provide insights into DAO governance and its implications within decentralized ecosystems.

2. Theoretical background

Decentralization and decentralized organizations have been the object of academic attention for several decades, focusing on how decentralization can benefit the functioning of organizations (Beckhard (1966)). The evolution of technology and society, especially the development of networks and blockchain technology, brought about a renovation in the field, with DAOs resulting from this evolution. As Hassan and De Filippi (2021) put it, the definition of DAO stems from an expansion of the initial concept of DAC (Decentralized Autonomous Corporation), used to refer to the new corporate governance form, using tokenized tradable shares as a means of providing dividends to shareholders (Hassan and De Filippi (2021), op. cit.), too narrow to gather the particularities of some Blockchain applications. A DAO can be defined as a self-governed organization controlled only and exclusively by an incorruptible set of rules, implemented under the form of a smart contract (De Filippi et al. (2020)). DAOs, hence, differ from other organizations, e. g., in lacking formal managers, proposing horizontal relations between members, allowing for not long-lasting membership, relying on non-hierarchical governance and group consensus, or using smart contracts to aggregate the votes of members (Wright (2020)).

The secure and trust-free assumptions traditionally linked to the use of blockchain (Zhang et al. (2019), Casey and Vigna (2018)) generated high expectations of the democratizing power of blockchain-based communities and DAOs. For example, Merkle (2016) referred to DAO democracy as a new form of democracy which is more stable, less prone to erratic behavior, able to meet the needs of its citizens, and better using the expertise of all its citizens to make high-quality decisions. Mainly, expectations about DAOs democratizing power derive from the fact that they are based on smart contracts and that are organizations lacking legal, physical, and economic constraints and a central authority (Chao et al. (2022)).

However, the idea that DAOs will bring a new distribution of power has been seriously questioned. Bodó et al. (2021) describe how technical decentralization does not necessarily bring social, political, or economic decentralization but can help create new centralities of power. Similarly, Cossar et al. (2024) described the democratic limitations of the Proof of Humanity DAO, self-labeled as "the first democratically governed DAO," due to its lack of political deliberation, internal polarization, weak internal legislation, difficult accessibility of the governance platforms, or lack of robustness of voting systems. Liu (2024) reaches similar conclusions, stating that DAOs' democratic functioning contradicts its promises by centralizing decision-making power. The libertarian aspirations to empower individuals through decentralization, openness, and freedom (Yee (2019)) proposed by blockchain technologies are put into question, also by the development of new forms of centralizing uses of cryptocurrencies.

In order to enrich this discussion, in this research, we approach the democratic functioning of Decentraland by analyzing how the features of their governance system influence the results of their voting processes. Specifically, we focus on two elements of the voting process, the participants' unequal voting power and the type of topics discussed. The unequal distribution of voting power is a generalized feature of DAOs governance, following a similar logic to the one

proposed by liquid democracy or delegative democracy (Fritsch et al. (2024)). The practical functioning of liquid democracy systems has been approached in the case of the German Pirate Party's internal democracy (Kling et al. (2015)). However, its functioning in DAO voting still lacks systematic studies (Fan et al. (2023)). Given the topic's novelty, research still did not agree on the impact of unbalanced power distribution in the governance of DAOs. While Han et al. (2023) conclude that power concentration tends to reduce its impact when DAOs grow, the works of Fritsch et al. (2024) and Peña-Calvin et al. (2024) reveal a significant concentration of voting power in the governance systems they analyzed. Combined with low participation rates, the previous power concentration creates a scenario where the influence of active large power holders can easily decide voting processes, contravening the expected democratizing power of distributed systems.

Secondly, the contents of voting processes in DAOs are also uncharted territory due to the difficulties in systematically analyzing them. Recently, Ziegler et al. (2024) used a Large Language Model to categorize proposals reaching the following types of categories: Treasury and Asset Management, Protocol Risk Management, Protocol Features and Utility, Governance Administration and Framework Management, Budget Allocation and Work Management, Partnerships and Economic Development, and Miscellaneous. The research conducted by Cossar et al. (2024) also collects some topics discussed in the Proof of Humanity DAO, but given the qualitative nature of their research, the results depict an evolutive analysis of topics rather than a comprehensive approach to the contents discussed. Ma et al. (2024) research describes some relevant weaknesses regarding the information availability or the proposal's description that undermine the democratic quality of the process.

By approaching the impact of power distribution and voting topics in Decentraland, this paper aims to bring valuable inputs that will continue enriching the current literature, providing stepping stones for future research.

3. Methodology

This research employs a mixed-methods approach, combining quantitative and qualitative data analysis to approach Decentraland's decision-making. The primary data source consists of the proposals submitted and voted on within the Decentraland DAO, extracted from Snapshot, a popular off-chain voting platform.

Snapshot is currently the most widely used platform for DAOs to make decisions (Peña-Calvin et al. (2024)). The Decentraland DAO employs Snapshot to store all proposals and votes submitted by the community, along with the final results of the proposals. Moreover, the DAO offers a user interface where users create proposals and vote, accessible at governance.decentraland.org. Every time a proposal is opened there, it is automatically created in Decentraland's dedicated Snapshot space.

For this study, data were gathered exclusively from Decentraland's Snapshot space. Snapshot offers a public API that allows anyone to query and extract data about the DAOs deployed on the system. By using it, we have extracted all relevant information regarding proposals (titles, voting options, and outcomes), and votes (voter, option, and voting power). The data covers all closed proposals from May 11th, 2021 (when Decentraland's Snapshot space was established) to June 4th, 2024. We excluded proposals that were still open at the time of the analysis, resulting in a final dataset comprising 2,547 closed proposals and 166,970 votes. Additionally, the number of unique voters was calculated, resulting in a total of 8,272 different addresses that participated in the DAO governance process. In Decentraland DAO, not all votes have the same weight. Each voter has its own voting power based on the type and number of tokens they have, which may not be constant across proposals. To get an estimate of each voter's voting power, we calculate the median voting power of all the votes cast by a voter.

Governance metrics were approached quantitatively. Descriptive statistics of votes per proposal and per voter, as well as voting power per proposal and per voter, were calculated. The degree of consensus among the community was quantified by comparing the number of votes cast in the winning option of a proposal with the voting power, as well as by examining the proportion of unanimous proposals. To assess the distribution of voting power and its possible inequalities, we employed the Gini coefficient.

Finally, we employed exploratory data analytics (EDA) and topic modeling techniques to analyze the textual data of the proposals' titles. EDA was used for extracting significant insights from textual data (Sahoo et al. (2019)), with a particular focus on elucidating the DAO resulting decisions. Further, we employed topic modeling techniques to generate clusters of topics based on text data being discussed at Decentraland as in Egger (2022). In particular, we used the Latent Dirichlet Allocation (LDA) algorithm to generate the topics.

4. Data analysis

The data analysis encompasses a total period of 3 years, from May 2021 to June 2024. During this period,

2,547 proposals were submitted, 166,970 votes were cast, and 8,272 distinct voters participated. This shows that Decentraland is a large DAO with high activity.

4.1. Participation and voting power distribution

To characterize Decentraland's voters, it is first necessary to analyze their participation and distribution of voting power. Table 1 indicates that the maximum number of times a voter has participated in the governance does not even reach half of the proposals. The mean and average number of times a voter has participated in proposals reveal a very low participation rate, with voters often participating in less than 1% of proposals, and a very low voter turnout.

Table 1. Voter participation in proposals and distribution of voting power.

	Participation per voter	Voting power per voter
Min	1 (0.04%)	0%
Mean	20 (0.79%)	0.01%
Median	4 (0.16%)	7e-06%
Max	1,271 (49.90%)	9.16%

The estimated voting power distribution among the voters in Table 1 reveals a significant disparity in the influence of each individual. The minimum voting power of a voter is close to zero, while the maximum reaches approximately 9% of the estimated voting power of the community, representing a notable disparity between voters with the highest and lowest voting powers. This phenomenon is particularly evident when examining the mean and median values, which represent less than 0.01% of the estimated voting power. This indicates that more than half of the voters possess a voting power that is exceedingly limited, thereby illustrating the existence of a significant inequality in voting power distribution. To further explore this finding, we calculated inequality metrics related to the concentration of voting power among voters.

First, we calculated the Gini coefficient, resulting to be 0.9819, indicating that voting power within the DAO is extremely unevenly distributed, with a significant concentration of power among a small number of voters. Subsequently, we conducted an analysis to determine the number of voters needed to hold together more than 50% of the estimated voting power. The results indicated that 15 voters were sufficient to concentrate more than half of the DAO's voting power, which represents only 0.18% of the total number of voters, illustrating how a relatively small proportion of voters can exert a disproportionately high influence on decision-making. Figure 1 reflects these findings through the Lorenz curve. The curve deviates significantly from the line of perfect equality (represented by the diagonal black line), underscoring the considerable concentration of voting power among a few voters.

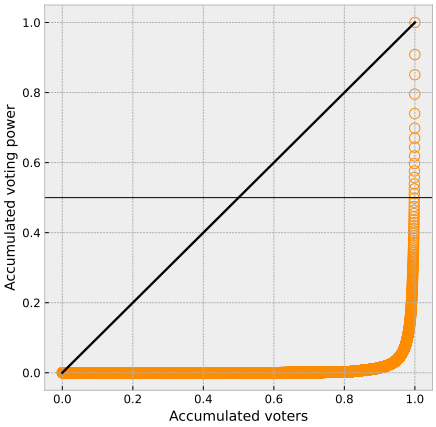

Figure 1. Lorenz curve.

Having explored power concentration in a few voters, it is essential to delve deeper into the implications of this power structure. A critical question arises: What is the extent of voter participation among those with greater voting power in governance? Are they the most involved in the decision-making process, or, on the contrary, are they not very participatory? In order to ascertain the existence of a relationship between participation and power, we calculated the correlation coefficient between the number of times a voter has cast a vote and their median voting power. Pearson's correlation coefficient resulted in r = 0.0440, confirming no correlation between the level of participation and the power a voter has.

The scatter plot in Figure 2 confirms this behavior but also reveals an interesting deviation from it. In particular, in the upper left part of the figure, we can see that among the most participatory voters are those with very little voting power. In addition, voters with a higher voting power are not as likely to participate. Therefore, we can affirm that being a very powerful voter does not mean participating the most in governance and that they are not using their power on a regular basis to influence the results.

4.2. Community consensus

The next step is to examine the proposals' outcome in greater detail, focusing on the results obtained to determine whether there is a general consensus around

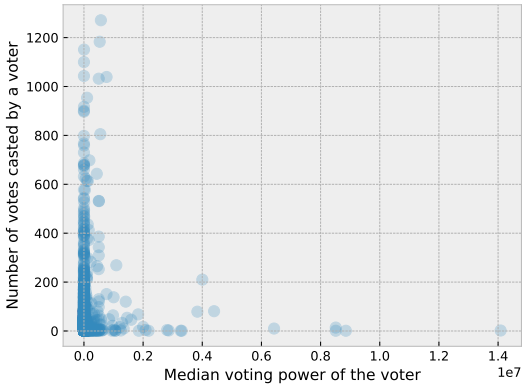

Figure 2. Ratio between the number of votes cast by a voter and their voting power.

an option or whether there are highly disputed decisions. Firstly, it was observed that 354 proposals (13.9% of the total) were approved unanimously. This indicates that for a significant subset of decisions, the community demonstrates a high degree of consensus.

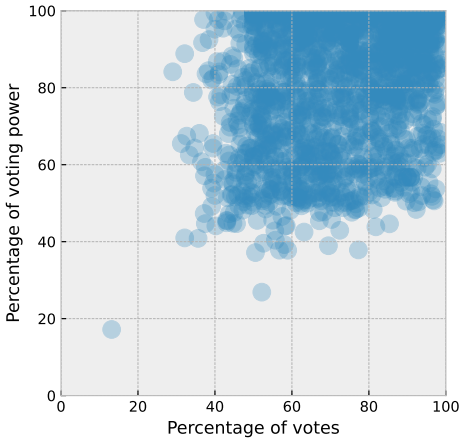

Figure 3. Ratio between the percentage of votes and the voting power received by the winning option.

The community votes fairly evenly, with the winning option receiving an average of 86.73% of the voting power used on that proposal and 75.83% of the votes. This indicates that the proposals are not highly contested, and despite the unequal distribution of voting power, the outcome does not appear to be imposed. Figure 3 illustrates that the majority of the proposals are situated within the first quadrant, indicating that the winning option wins both in terms of voting power and votes. This high percentage suggests that even in non-unanimous decisions, there is often a clear and decisive preference for one option, with the majority of members aligning with the final decision. This reinforces the perception of a high degree of cohesion and agreement in decision-making.

4.3. Analysis of voting topics

The textual data obtained from Decentraland proposals constitutes an important source of insight into the dynamics of the community in relation to the key topics, issues, and ideas being discussed. In this study, textual data is analyzed using both Exploratory Data Analytics (EDA) and Topic Modelling to understand which are the main topics being voted on.

The analysis revealed that “interest,” “points,” and “location” were among the four most frequent words. This is due to the fact that Decentraland has a specific category of proposals designated as “Point of Interest” that are always of the form “Add the location X, Y to the Points of Interest” or “Remove the location X, Y from the Points of Interest.” Consequently, we have decided to exclude this category of proposals from our text analysis study, as they introduce a considerable degree of noise. A total of 505 proposals fall within this category (19.83% of the total). Therefore, the text analysis will encompass a total of 2,042 proposals.

4.3.1. Exploratory Data Analytics

In the present research, EDA techniques were employed to identify top words, which typically refer to the most frequent or commonly occurring words in a dataset. These words are often visualized using techniques such as unigrams, bigrams, trigrams, and word clouds.

The most prevalent words identified by the text analysis are presented in Figure 4. The word “decentraland” is indicative of a strong focus on the platform itself, and “dao” indicates discussions around decentralized governance and identity. It is also known that “dcl“ is an abbreviation for Decentraland. “Wearables” suggests a focus on virtual items within the platform, being natural in a metaverse ecosystem. Further, “add” suggests a tendency to frequently consider new features at the platform level. Finally, the top word, “name” could relate to the discussion of specific names that are used on the platform. The remaining top words suggests discussions around prohibiting offensive content (“ban”), may be indicative of a request for financial support to develop projects (“grant”), and highlights the importance of the user base and social interactions (“community”). Lastly, the word “linked” may refer to connections between various elements inside or outside the platform.

While unigrams provide insights into individual word frequencies, analyzing bigrams and trigrams

captures word combinations and contextual relationships, thereby facilitating the identification of common phrases and more profound patterns within the text that may not be discernible through the examination of single words. Figure 5 and Figure 6 present the top bigrams and trigrams, respectively, extracted from the textual data of the proposals.

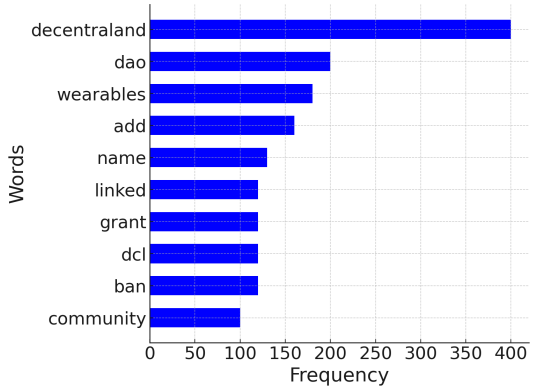

Figure 4. Unigram.

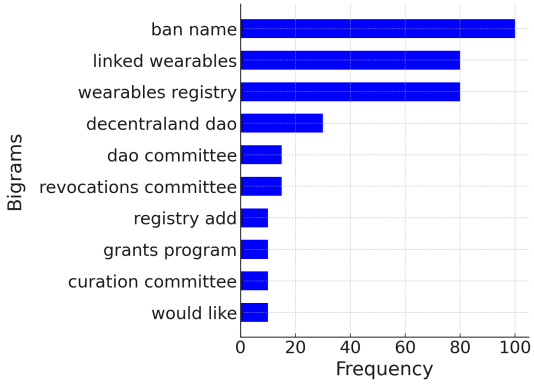

Figure 5. Bigram.

The bigrams indicate that the discussion is centered on the effective management and governance of the platform and community, with a particular focus on the expansion of wearable technology. This phenomenon can be observed with the bigrams "Decentraland dao" and "dao committee", that highlight the platform's dedication to decentralized governance by placing a significant focus on governance through the DAO and committee-based decision-making procedures. Furthermore, other key bigrams include the "curation committee" and "revocations committee," which indicates an effective organizational structure dedicated to managing and facilitating the decisions, and handling of revocations within the platform through proper structure, possibly related to governance or financial decisions such as funding a grant. This leads us to "grants program", which focuses on the financial support mechanisms within the platform to develop new projects. Both "linked wearables" and "wearables registry" highlight the significant focus on managing and cataloging wearable items, which are crucial aspects of the user experience in Decentraland. Lastly, the bigram "ban name" suggests banning offensive names from the platform.

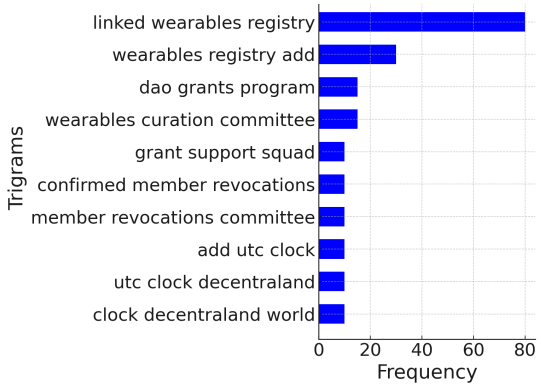

Figure 6. Trigram.

The trigram is illustrated in Figure 6. The results indicate that the proposals under analysis have a strong focus on effective management, governance, and strategic initiatives within the community. The trigrams such as "linked wearables registry," "wearables registry add," and "wearables curation committee" underline again the platform's emphasis on the organization and management of wearable items. This implies that a good deal of conversation is on making sure wearables are appropriately categorized and incorporated into the platform. The trigrams "clock decentraland world," "utc clock decentraland," and "add utc clock" are also noteworthy as they suggest that Decentraland has a large and active community, and may be based in different time zones, which might be important for events and other time-sensitive activities. Further, key trigrams such as "member revocations committee" and "confirmed member revocations" point towards structured procedures for managing community membership and the enforcement of rules, indicating an organized approach to governance. Lastly, trigrams like "dao grants program" and "grant support squad" highlight the emphasis on financing sources and financial assistance that foster platform innovation and development. In conclusion, the results of trigrams indicate that the Decentraland community is actively participating in conversations about management, governance, and the platform's strategic growth. The platform's ecosystem is managed in an orderly and systematic manner, as seen by the numerous references to committees and registers, which guarantees the

ecosystem's sustained growth and evolution.

Finally, the results of the word cloud analysis are presented in Figure 7, showing the most occurring words, key topics and ideas of interest to the community. The term "decentraland" (and "dcl," its abbreviation) is one of the most prevalent in the word cloud, indicating that members are engaged in discourse pertaining to core ideas and the platform itself. Other terms like "wearables", "game," and "nft" are intrinsic to Decentraland domain and to be expected in a metaverse. Additionally, "proposals," "committee," "community," and "vp" suggest a focus on governance and decision-making that is essential for the successful running of the platform. Lastly, "grant," "new," "ceate," and "add" highlight a dynamic and ever-evolving platform and represent continuous attempts to improve and broaden the virtual environment.

Figure 7. Word Cloud.

4.4. Topic Modeling

In addition, topic modeling was employed to analyze the text data and extract latent features using the Latent Dirichlet Allocation (LDA) algorithms, generating a total of 10 topics. Table 2 shows the results of the topic modeling, which indicates that the community is focused on a wide range of topics, including the current infrastructure and practices in order to develop and expand the platform.

To complement the findings of topic modeling, we conducted a cluster analysis based on LDA, employing the k-means clustering algorithm. To determine the ideal number of clusters for k-means, we utilized the number of topics produced by LDA (Negara et al. (2019)). This permitted the visualization of the topics based on their dispersion using principal component analysis (PCA) as a dimensionality reduction technique. Figure 8 shows that seven of the clusters are clearly defined, despite their proximity to one another. Additionally, the remaining three clusters (i.e. "Decentraland Infrastructure", "Grant Committees and Projects" and "Metaverse Development and Curation") exhibit a greater degree of dispersion, which may suggest that the discussion of the topic is not as focused on the identified topic by LDA. This makes sense given the nature of the topics, which discuss the creation of new projects and new content on the platform. Finally, the variety and specialized focus areas within the clusters emphasize the dynamic nature of the Decentraland community.

Table 2. Topic modeling results.

Keywords	Topic
['dcl', 'community', 'content', 'earn', 'video', 'part', 'dapp', 'library', 'dao', 'game']	Community and Content Creation
['voting', 'dao', 'change', 'implement', 'name', 'ban', 'add', 'grant', 'page', 'squad']	DAO Governance and Voting
['decentraland', 'system', 'delegate', 'incentives', 'squad', 'land', 'voting', 'events', 'add', 'proposals']	Delegation and Incentives
['grant', 'revoke', 'vp', 'support', 'creators', 'wearable', 'request', 'process', 'gaming', 'squad']	Grant Management and Support
['decentraland', 'decentralands', 'squad', 'protocol', 'marketplace', 'new', 'renewal', 'studios', 'maintenance', 'builder']	Decentraland Infrastructure
['grant', 'committee', 'revocations', 'resubmission', 'amount', 'instead', 'proposal', 'confirmed', 'category', 'projects']	Grant Committees and Projects
['wearables', 'linked', 'add', 'dao', 'users', 'district', 'registry', 'improve', 'treasury', 'vp']	Wearables and User Registry
['dao', 'platform', 'advertising', 'engagement', 'framework', 'vr', 'team', 'mobile', 'strategic', 'health']	Platform Development and Strategy
['button', 'wearables', 'metaverse', 'development', 'world', 'committee', 'would', 'create', 'meta', 'curation']	Metaverse Development and Curation
['decentraland', 'guidelines', 'grants', 'mana', 'program', 'names', 'nfts', 'nft', 'make', 'wearable']	Guidelines and NFT Management

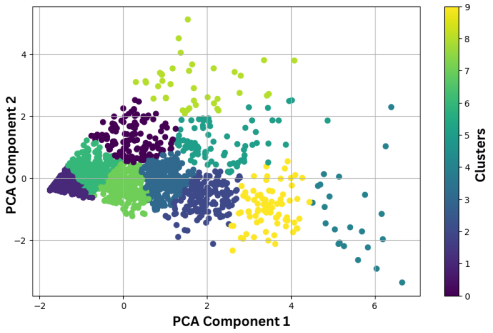

Figure 8. Cluster analysis.

5. Discussion

The analysis of the distribution of voting power within the DAO reveals a strong concentration of power, with important implications for the participation of all users in the actual decision-making of the DAO, far from a democratic form of governance. The concentration of voting power in a small group of participants results in a significant imbalance in the distribution of influence over decision-making, which is contrary to the principles of democratic governance. This fact raises fundamental questions about the representativeness and fairness of voting processes since few voters could easily impose their will.

Despite the potential for these powerful voters to exert considerable influence over the outcome of decisions, our findings indicate that they do not regularly exercise this power. Nevertheless, although they do not currently use their voting power to influence outcomes, they retain the ability to do so, thereby having the potential to undermine community decisions at will.

This dynamic raises a number of important considerations. Firstly, the concentration of power does not currently translate into a concentration of influence, as the most powerful voters are not the most participatory. In addition, the high level of consensus observed in proposal outcomes may account for the limited participation of powerful voters. It is possible that they either agree with the prevailing decisions or do not consider minor decisions sufficiently important to engage. This could also indicate a degree of satisfaction among the most powerful voters with the status quo, or a reliance on the broader community to make decisions. Nevertheless, the potential for these influential voters to significantly impact outcomes remains, presenting a potential risk to the democratic integrity of the DAO.

This observation raises an important question for future research: under what circumstances or on which specific topics do powerful voters leverage their position to impose their criteria in the final outcomes? It is crucial to understand when these influential voters are active, such as whether they engage on specific topics or if they vote with the intention of influencing the results.

This brings us to the next question. Snapshot enables anyone to view the outcome of the proposals in real-time. This transparency may allow powerful voters to decide whether their participation is necessary based on their interests, potentially leading to strategic use of their power. For instance, they might wait until the last minute to vote, thereby influencing the results without allowing sufficient time for others to react. Further research is required to elucidate what the impact of real-time visibility of voting results is on the final outcome of voting processes.

In conclusion, it can be stated that investigating the conditions under which powerful voters use their power will provide deeper insights into the dynamics of DAO governance and help identify potential vulnerabilities in the decision-making process.

The results of the LDA-topic modeling analysis have yielded several key insights for the Decentraland community. The results indicate that the most significant topics are related to the emphasis on community and content creation, the governance of the DAO, and the voting process. Furthermore, the discourse surrounding the voting and governance procedures demonstrates a strong commitment to decentralized decision-making, ensuring that the platform develops in a manner that represents the collective desires of the users. This commitment to participatory governance is of the utmost importance in order to preserve user involvement, engagement, and confidence. In addition, the findings of topic modeling have revealed a pronounced focus on strategic development and infrastructure. Topics such as grant administration, incentives, and delegating suggest that systematic efforts are made to assist creators and encourage active engagement on the platform.

However, the analyzed proposals primarily address the day-to-day operational aspects of the community and the development of new projects that will facilitate the platform's growth. These proposals lack strategic significance and have no further implications, which may be a contributing factor to the low participation of the most powerful voters.

6. Conclusion

This analysis provides a comprehensive examination of the voting and proposal dynamics within Decentraland DAO. Our findings reinforce the ideas of Fritsch et al. (2024) regarding the significant concentration of voting power and their potential capacity to influence decisions. Also, the nature of distributed governance is sustained by the cryptoanarchist approach that individual freedom is a core value to be preserved in the digital sphere, reducing the capacity of central unique mediators to structure and organize (Chohan (2017)). However, the practical implication of such a principle should go hand-in-hand with a large participation of the members of communities to ensure a result that represents the community. But this does not seem to be the case in DAOs nor in neighboring uses of cryptoanarchist philosophy such as Online Creation Communities, where unequal participation is not considered to be a

problem but rather an expected outcome (Fuster Morell (2014)). This phenomenon is similarly observed in the study by Peña-Calvin et al. (2024), which analyzed data from over 10,000 DAOs and concluded that larger DAOs tend to have greater inequality. Furthermore, the study found that inequality becomes a common characteristic of large collaborative online communities, following the iron law of oligarchy.

Rather the opposite, the application of distributed governance mechanisms in DAOs, opens the door to the re-centralization of power in some individuals whose condition gets reinforced by the internal dynamics of governance (Bodó et al. (2021)). This situation gives those large-power holders not only a larger and (on occasions) decisive power but also the possibility to strategically use it depending on the situation and the context. This situation sheds doubts on the real capacity of DAOs to fulfill the promise of becoming a fully democratic environment and makes the adoption of this voting method difficult in contexts where inter-individual equality stands as a value over individual freedom.

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