Exploring the Viability of Distributed Autonomous Organizations and Systems for Emerging Economies

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Abstract

In recent years, distributed technologies have garnered significant attention as a model for organizing collective action. Distributed Autonomous Organizations and Systems (DAOS) encompass not only the organizational structure of a *Decentralized* Autonomous Organization (DAO), but also the collaborative technologies, ecosystems, and social structures necessary for a self-organizing system to emerge[3]. The focus of a DAOS is on the distributed nature of the organization, emphasizing the importance of collaboration and emergence over decentralization. This paper will explore the guiding principles of DAOS, discuss their limitations, and propose experiments to establish a DAOS that enables collective participation in ecological conservation.

1 Introduction

The first iteration at the use of blockchain to convene communities were Decentralized Autonomous Organizations (DAOs)[2], which operate using blockchain technology[4], allowing for distributed decision-making and financial transactions without the need for a centralized authority. However, as many experts have noted, these DAOs have significant pitfalls that have led to many failures. Some of these challenges include loss of community interest, slow adoption and scale, lack of a unifying principle, governance issues, and cybersecurity issues.

This proposal serves as an invitation to revisit the collective decision-making that can be made possible by distributed collaborations between people and technology. By developing a set of guiding principles to promote synergy, focusing on distribution over decentralization, and emphasizing ecosystemic thinking, we aim to explore models for Distributed Autonomous Organizations and Systems (DAOS) that facilitate the emergence and convergence of data and human behavior to address our generation's most pressing issues.

One potential application of DAOS is ecological preservation and community building. The proposed experiments will concentrate on guiding principles and collaborative technologies to establish an experimental DAOS for collaboration among organizations and technology in an effort to tackle challenges such as water pollution, soil erosion, and rising temperatures. These DAOS will be designed to unite various stakeholders, including local communities, conservation organizations, and government agencies, to work towards a shared objective.

2 Organizing Principles of the DAOS

The guiding principles of a Distributed Autonomous Organization and System (DAOS) are central to its success as a collaborative tool for collective action. These principles include emergence, harmony, tool creation, scalability, adaptability, no harm, sustainable economy, and the integration of history, art, culture, and ecology. We endeavor to build communities that are capable of adapting and achieving their goals, while also contributing to the greater good. We posit that these guiding principles provide a framework for creating a DAOS that is both effective and responsible. Emergence: refers to the idea that complex and sometimes unexpected ecosystems can arise from relatively simple iterative interactions. In the context of a DAOS, emergence means that the ecosystem should allow for the emergence of new ideas, collaborations, and solutions to problems, which occur as a product of iterative interactions at scale. Harmony: A DAOS that operates with the principle of harmony seeks to foster a sense of balance and cooperation among its members. This means that decision-making processes are inclusive and transparent, and that the interests of all stakeholders are taken into account. The goal is to create a positive and supportive community that works together towards a common purpose. This involves working towards the common good while respecting

individual perspectives and needs.

2.1 Tool Creation

A DAOS that embraces tool creation recognizes the importance of technology in achieving its goals. By developing and leveraging new tools and platforms, the DAOS can increase efficiency, improve communication, and facilitate collaboration among members. This principle emphasizes the need for continuous innovation and the willingness to experiment with new ideas. DAOS strive to create tools that facilitate collective action and allow individuals to contribute meaningfully to the cause.

2.2 Scalability

A DAOS that prioritizes scalability is focused on long-term growth and sustainability. It recognizes that as the organization grows, it must be able to adapt to new challenges and opportunities. This means building a strong foundation that can support expansion, while also remaining flexible and responsive to changes in the environment. DAOS should be able to grow and adapt to changing circumstances.

2.3 Adaptability

An adaptable DAOS is one that can quickly and effectively respond to changes in the external environment. This requires a willingness to embrace new ideas and approaches, and to be open to feedback and criticism. An adaptable DAO is also one that is able to learn from its mistgakes and make adjustments as necessary. No Harm: A DAOS that operates with the principle of "no harm" seeks to minimize negative impacts on people and the environment. This means taking a proactive approach to environmental and social responsibility, and prioritizing ethical considerations in all decision-making processes. DAOS should prioritize do no harm/accountability, ensuring that their actions prioritize the wellbeing of individuals or the environment.

2.4 Sustainable Economy

A DAOS that prioritizes a sustainable economy is focused on creating value in a way that is economically viable over the long-term. This means incorporating principles of financial responsibility, while also taking into account social and environmental factors. A sustainable economy requires balancing short-term gains with long-term goals, and prioritizing the health and well-being of all stakeholders.

2.5 Integration of History, Art, Culture, and Ecology

A DAO that integrates history, art, culture, and ecology recognizes the importance of these factors in shaping human experiences and the natural environment. By incorporating these elements into decision-making processes, a DAO can create a more meaningful and holistic approach to problem-solving. This principle emphasizes the importance of cultural diversity and the need to take into account the complex interactions between human societies and the natural world. The integration of history, art, culture, and ecology can help ensure that DAOS are embedded within the broader cultural and environmental context of the communities they serve.

To achieve these principles, DAOS can harness the power of collaborative technologies such as blockchain, machine learning, smartphones, gaming, big data, and open data. For example, blockchain can enable secure and transparent financial transactions, while machine learning can help analyze and interpret data collected from sensors and other sources. Smartphones can allow individuals to participate in data collection and ecological preservation efforts in their local communities. Gaming can be used as a tool to incentivize participation and make ecological preservation efforts more engaging. Big data can help identify patterns and trends that can inform decision-making, while open source data can facilitate collaboration and knowledge sharing.

3 The First Activations of a DAOS: Street Tree Planting for the Million Trees Miami Campaign and World Record Beach Cleanup

To put these principles and technologies into practice, an experimental DAOS will undertake the street tree planting components of the Greater Miami Area's goals to restore an urban canopy and activate 280 miles of beach cleanup. Miami's Million Trees Campaign aims to achieve a 30% tree canopy by planting 1 million trees throughout the county. One component of this plan involves increasing the number of trees in public spaces and roadways, planting quality trees in public rights of way, developing a tree management plan, promoting the design of tree-centered urban spaces, encouraging farmers to produce ecologically appropriate species, and educating policymakers and the public on the importance of an adequate tree canopy. In parallel, the project recognizes the pursuit of data collection, which will enable the City to reduce and eventually achieve "net zero" carbon emissions.

Centering relationship-building, this DAOS is designed with tiered participation to encourage diverse levels of engagement for actors across the general public, skilled conservationists, government and policymakers, technologists, and artists. The activities will account for diversity across socioeconomic status, culture, ability, and age. For example, some individuals may physically plant trees, while others may contribute to data collection efforts. The DAOS will collaborate with cities and counties in the Greater Miami Area to identify suitable planting and organizing sites, and select plants that support the long-term ecological health of the area.

The Great Beach Cleanup will attempt to break a world record for the longest consecutive beach cleanup. Community volunteers will unite on Earth Day to clean 280 miles of Florida's environment. Participants will be distributed across the state's east coast, and will have the opportunity to share their cleanup efforts by taking pictures of their work. These images will be shared and used to train machine learning models that will help automate efforts like trash item identification and quantification of the amount of trash cleaned. This DAOS is designed to encourage and incentivize participants to remove plastic and debris from the environment, raise awareness of the scale of the issue, and offer artists a potential source for artwork made from the

collections.

Data collection efforts can be supported through smartphone-based games[1], blockchain, machine learning, and open-source data by encouraging participants to engage in activities that collect data about the ecosystem, plant trees, clean beaches, and monitor carbon emissions. For example, participants could take pictures of tree planting sites and share them with the community to document progress and build engagement. Additionally, data on carbon emissions can be collected through sensors and other sources, providing valuable information to city planners and other stakeholders. This data can be used to identify areas where tree planting efforts can have the greatest impact and to track the success of the program over time.

Importantly, these project activations will work to center the ongoing conservation efforts of the Seminole and Muskogee communities, as well as those carrying Tequesta history. This could include supporting the maintenance and restoration of traditional Seminole and Muskogee lands, such as cypress domes and hammocks, and providing funding for cultural preservation initiatives. The project plans to approach the Ah-Tah-Thi-Ki Museum in Hendry County, Florida, and follow their leadership and recommendations if they consent to the community's participation in their efforts. By incorporating the knowledge and expertise of these communities, the DAOS can ensure that its efforts are respectful and in right relationship with the Earth and her stewards.

The project's sustainability will be ensured by creating a sustainable economy where participants could be rewarded with tokens or other incentives for their contributions. The project's adaptability will be ensured by monitoring and adjusting the project's goals and objectives based on feedback from participants and stakeholders. Finally, the collaborative nature of the DAO can lead to the creation of art that is shareable and meaningful for the community. This could include public art installations that highlight the importance of ecological preservation and the role of the community in achieving this goal (such as love-letters to Miami or tree-naming). Through these efforts, the DAO can create a sense of ownership and pride within the community.

4 Conclusion

The proposed experiments strive to establish a DAOS focused on ecological preservation, adhering to guiding principles of emergence, harmony, tool creation, adaptability, accountability (do no harm), sustainable economy, and the integration of history, art, culture, and ecology. By fostering an environment of encouragement and inclusivity, the experiment holds the potential to create a sustainable and collaborative approach to ecological preservation, gather valuable data for policymakers, and bring Miami and Florida closer to achieving their goals of creating a sustainable and thriving environment for their citizens.

References

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