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Exploring DAO Governance in Multidisciplinary Blockchain Research

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TREO Paper

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Abstract

Since the launch of Ethereum around a decade ago, the booming of DAO (decentralized autonomous organizations) has highlighted a domain receiving significant attention from academia and industry. DAO enables great potentials to build and develop virtual organizations: More than four thousand DAOs have attracted an influx of more than 2.1 billion members, managing digital treasuries valued more than 10 billion US dollar in total, according to industrial statistics[1].

Novel DAO ecosystems emerge along with growing virtual communities crafted based on member's common intents and interests, e.g., building and curating virtual marketplaces for transacting collectables or valuable digital artifacts such as art or music using non-fungible tokens (NFT). In addition, DAO serves as a digital platform enabling knowledge workers to collaborate with each other including researchers, investors, and institutes to construct blockchain-backed teams in spectrums of technology, biology, or medicine areas[2].

With the genesis of DAO in progress, an intriguing question to unveil unknowns for DAO emerges—that is, what underlies the characteristics or factors useful or valuable to effectively govern DAOs?

Extant research concerning DAO governance appears fragmented, unfortunately, and is sparsely developed from technical-centric standing points such as applications in finance (Bischof, Botezatu et al. 2022) or in law (Kaal 2020). There lacks integrated investigation based on organizational-centric perspectives to provide a holistic landscape. In specific our research questions are: What are factors contributing to, or influencing DAO governance? For needed insights, what theory or framework are available to further advance the investigation? In addition, how aforementioned findings contribute to the research of virtual organizations?

Research Plan. To answer above questions, this research plans to survey relevant characteristics of blockchain infrastructure for DAO operation. IT governance provides a theoretical lens to guide the examination and analysis of DAO governance (Chau, Ngai et al. 2020). With numerous novel software (such as Decentralized Application, dApps) created to cater to DAO needs, the work further includes DAO systems development to embrace practice relevancy. While DAO embodies an unprecedented type of organization, cross-disciplinary theories governing human behaviors or social mechanisms may inspire and inform future research progress—such as ones in political science, psychology, or sociology, etc.

Expected Outcomes and Contributions. The research is expected to build a framework for DAO governance—via delineating the factors contributing to effective governance of virtual organizations empowered by blockchain. With relevant mechanisms elucidated, it is expected to address how strategic alignment influences DAO performance (Wu, Straub et al. 2015), and in turn, to showcase future opportunities for blockchain innovation (Pittenger, Berente et al. 2022).

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[1] DeepDao, accessed Apr 15 2022, https://deepdao.io/organizations
[2] ScienceDao, accessed Apr 15 2022, https://thesciencedao.io/