

# Improving Corporate Governance Using DAO

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**Abstract:** This study analyzes the transformative potential of Decentralized Autonomous Organizations (DAOs) in reshaping traditional corporate governance through Knowledge Management (KM) and Information Systems (IS). By highlighting the limitations of centralized governance models, such as power centralization, opacity, and stakeholder conflicts, this study argues for the efficacy of DAOs, which are undergirded by blockchain technology and smart contracts. DAOs epitomize non-hierarchical structures, autonomous functionality, and consensus-driven decision making. By leveraging decentralized platforms for transparent transactions and decision recording, DAOs augment organizational accountability and compliance. Through smart contracts, DAOs can effectively codify and manage business rules, ethical standards, and legal requirements, thereby enhancing the utilization of organizational knowledge and information systems. The study concludes that while DAOs may not universally replace traditional organizational structures, they can significantly reduce governance deficiencies and optimize knowledge and resource management, thereby offering a more effective corporate governance model in specific sectors.


## 1 INTRODUCTION


Corporate governance is a topic of enduring significance and complexity that has attracted global attention across multiple disciplines, including management and finance. While the term itself is often challenging to define precisely, it broadly serves as a mechanism for directing and controlling organizations to safeguard the interests of various stakeholders, from shareholders to employees (Dao & Nguyen, 2020). However, traditional models of governance are not without their pitfalls. High-profile corporate failures such as those of Enron, WorldCom, and Lehman Brothers have highlighted the weaknesses inherent in centralized governance systems, despite legislative efforts such as the Sarbanes-Oxley Act of 2002 to bolster them (Gordon et al., 2006; Harakeh et al., 2020).

Quality governance impacts not only internal organizational dynamics but also the external investment landscape. Research indicates that companies exhibiting strong governance attributes

enjoy better financial performance and greater trust among shareholders, thus attracting more investments (Ferreira & Matos, 2008). Conversely, poor governance can deter investment and result in financial losses for shareholders as it raises the risk profile of the company (Augustine, 2012). Despite these insights and decades of academic research, governance malpractices persist, calling into question the effectiveness of the existing structures and regulations (Chakraborty et al., 2022).

Against this backdrop, Decentralized Autonomous Organizations (DAOs) have emerged as a potentially transformative alternative. DAOs, rooted in blockchain technology and smart contracts, offer a paradigm shift from hierarchical to flat organizational structures, enabling transparent and autonomous decision-making processes. These decentralized systems provide a more participatory approach to governance, allowing stakeholders to contribute directly to decision-making and oversight. DAOs propose a softer form of rules that are not imposed but agreed upon by members, offering flexibility to adapt and evolve (Mitchell et al., 2022).

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The pivot to decentralized governance can be used in a new era of corporate conduct. It promises a more optimal use of knowledge and resources, allowing for individualized oversight that could potentially close the governance gaps often missed in centralized systems.

## 2 THEORETICAL FRAMEWORKS

### 2.1 Corporate Governance

The significance of corporate governance has expanded to involve not only shareholders, but also a broader spectrum of stakeholders, including employees, customers, suppliers, and regulatory authorities (Orihara & Eshraghi, 2022, 2022). Traditional governance structures, often hierarchical, are fraught with challenges. These structures may give rise to conflicts of interest among managerial roles, leading to actions that may not align with the collective goals of the organization, thus making emerging technologies such as blockchain attractive as they offer transformative solutions to these longstanding issues (Bischof et al., 2022).

Blockchain has been shown to enhance governance quality across the board by fostering transparency, increasing liquidity, and reducing operational costs (Derbali, 2019). The advent of smart contracts and Decentralized Autonomous Organizations (DAOs) under the blockchain umbrella has been acknowledged for their potential to redefine governance paradigms, benefiting a wider range of stakeholders (Ronaghi, 2022; Singh et al., 2019).

### 2.2 Decentralized Autonomous Organizations (DAOs)

Decentralized Autonomous Organizations (DAOs) signify a paradigm shift in governance, operating through predefined rules enabled by open-source software and smart contracts. These digital entities can manage a range of activities both online and offline without the need for central authority or human intervention (Aste et al., 2017). This contrasts sharply with traditional corporate governance models, in which a clear divide exists between ownership and managerial control. In DAOs, participants are simultaneously stakeholders and decision makers, fostering a more integrated and democratic governance structure (Bischof et al., 2022).

Although DAOs aim for complete autonomy, they are not entirely devoid of human influence. Vitalik Buterin, the creator of Ethereum, pointed out that DAOs still require human intervention for tasks that are not yet automatable (Beniiche et al., 2021). Nevertheless, the unique blend of human and automated decision making in DAOs distinguishes them from purely AI-based systems.

DAOs represent a significant departure from traditional hierarchical governance, offering new approaches to financing, resource allocation, talent management, and decision-making processes (Zalan, 2018). By employing blockchain technology, DAOs ensure that all transactions are transparent and secure, thereby enhancing trust among the participants (Muneeb et al., 2022). Although Ethereum is currently the most prominent blockchain for DAOs, other platforms, such as Cardano, Tezos, EOS, and Tron, offer alternative ecosystems, each with its unique features and limitations (Faqr-Rhazoui et al., 2021).

One of the technical backbones of DAOs in the Ethereum ecosystem is the Solidity programming language used to write smart contracts that govern the DAO. To initiate its operations, a DAO requires Ether, the native cryptocurrency of the Ethereum network. During its inception phase, the DAO issues tokens in exchange for Ether. These tokens serve a dual function: they act as a form of ownership and provide voting power within the DAO. The more tokens a participant holds, the greater their influence on decision making (Nikolaidis & Refanidis, 2022).

### 2.3 Traditional Governance vs. DAOs

Traditional organizations operate within established legal frameworks governed by contracts that delineate the rights, responsibilities, and relationships among stakeholders. These contracts are enforceable by law, offering a structured, albeit rigid, operating environment. A hierarchical governance model typifies these organizations, with decision-making powers generally centralized on a board of directors or executive management. Although this system offers stability, it often lacks agility. Stakeholders may provide input, but the ultimate authority rests with a selected group of individuals at the top.

By contrast, Decentralized Autonomous Organizations (DAOs) exist in a more fluid legal space. They are built on open-source protocols with smart contracts on blockchain platforms serving as binding agreements. These are not subject to traditional legal systems but are instead enforced by code and consensus among network participants.

DAO members are incentivized through tokens that serve dual purposes: as rewards for completing tasks and as voting stakes in governance decisions.

Traditional governance is characterized by a top-down decision-making structure. A small group of individuals, typically the board of directors or top management, holds most of their decision-making power. While this centralization can lend consistency and stability to the organization, it often results in bureaucratic delays and resistance to rapid changes. It also restricts direct stakeholder involvement in organizational decisions, limiting an organization's responsiveness to market changes and stakeholder needs.

DAOs flip this hierarchical model on their head, advocating a decentralized, democratized approach to decision-making. Stakeholders have direct involvement in governance through a token-based voting system. This not only speeds up the decision-making process, but also makes it more equitable. Unlike traditional organizations, DAOs can comprise participants from diverse geographical locations, bound together not by legal contracts but by code and a shared mission. Decentralization extends to the DAO's very architecture; once deployed, it operates autonomously, governed by smart contracts and consensus protocols.

The agility of the DAOs extends their adaptability. Traditional organizations, bound by legalities and bureaucracy, often find it challenging to pivot quickly in response to market changes or crises. DAOs, unburdened by such constraints, can adapt more swiftly, potentially making them more resilient in volatile environments.

## 2.4 Creating a New Paradigm of Corporate Governance

Decentralized Autonomous Organizations (DAOs) signify a transformative shift in the corporate governance landscape, leveraging blockchain and smart contracts to redefine organizational decision making and resource allocation. Primarily functioning on blockchain platforms such as Ethereum, DAOs use this technology as a digital ledger to record and validate all activities transparently and securely.

Smart contracts are the linchpins of the governance model of DAOs. They automate a host of governance-related functions, including but not limited to, proposal evaluations, fund disbursements, and decision enforcement. For instance, when a specific proposal garners sufficient support from token holders, the associated smart contract

automatically triggers the allocation of resources to that proposal. These tokens, which are generally ERC-20 or BEP-20 types, serve dual purposes: they signify a stake in the organization and enable participation in governance activities. The influence of a token holder in decision making is directly proportional to the number of tokens they possess.

In stark contrast to the hierarchical and centralized decision making seen in traditional organizations, DAOs epitomize decentralization. They enable collective decision making by allowing any token holder to propose changes or projects for the organization. These proposals are then voted upon by the community of token-holders, with the outcomes determined by predefined rules encoded in smart contracts. This ensures both transparency and fairness, as all actions and decisions are publicly recorded on the blockchain, making manipulative or deceitful activities virtually impossible.

DAOs also offer various voting mechanisms, each with unique advantages and implications. These range from simple majority voting to more nuanced systems, such as quadratic or conviction voting, thereby offering flexibility in how democratic processes are carried out within the organization.

Resource allocation in DAOs is similar to that in groundbreaking environments. Participants submit proposals detailing the objectives, scope, and budget requirements for potential projects. Token holders exercise their voting rights to either approve or reject these proposals. If a proposal gains sufficient support, the embedded smart contract automatically facilitates the transfer of the requisite funds to the project, thereby streamlining what would be a complex process in traditional settings.

Furthermore, DAOs are designed for adaptability and future upgrades, features that are uncommon in traditional governance models. They often utilize upgradeable proxy contracts, enabling seamless transitions to new versions of governance logic, without the need to create an entirely new contract.

Lastly, DAOs are inclusive by nature. Unlike traditional governance, in which participation often requires specific roles or minimum share ownership, DAOs are accessible to anyone who holds its tokens. This fosters a diverse and inclusive environment, encouraging wide-ranging participation.

## 2.5 DAO Challenges and Limits

DAOs present several challenges in their approach to governance.

A key issue is the lack of a clear legal framework. Given their decentralized nature, assigning legal

accountability becomes complex, creating hesitancy among potential investors. Governance mechanisms in DAOs are also a double-edged sword. While they democratize decision making, they can also lead to inefficiencies, as reaching consensus can be slow and cumbersome. Scholars are exploring alternative governance models such as liquid democracy to improve both efficiency and inclusivity.

On a technical front, DAOs face the risk of smart contract bugs and security breaches, which can result in substantial financial losses for members. Furthermore, the underlying blockchain technology often suffers from scalability issues, impacting its ability to handle large transaction volumes. Several mitigation strategies, such as risk-management frameworks and off-chain solutions, are being explored. Continued research and innovation are crucial for overcoming these challenges and unlocking DAOs' full potential.

Based on the previous sections, this sets the stage for addressing several critical research questions:

RQ1: What aspects of corporate governance can DAOs reform?

RQ2: What challenges do traditional governance models pose?

RQ3: How can DAOs offer solutions to these challenges?

RQ4: What adaptations are necessary for integrating DAOs into existing corporate structures?

### 3 DISCUSSION

Decision-making within organizations can be broadly classified into tactical and strategic decisions. Tactical decisions are routine, addressing day-to-day operational needs. Managers and employees usually make these decisions to meet specific objectives. On the other hand, strategic decisions are long-term and often involve setting organizational goals. Both types of decisions are essential for an organization's performance and success (Eisenhardt & Zbaracki, 1992; Sanchez & Heene, 2004).

Decentralized autonomous organizations (DAOs) fundamentally change this traditional decision-making framework. DAOs empower their stakeholders through token-based voting, which effectively decentralizes the decision-making processes. From finance to supply chain management, DAOs demonstrate utility across various sectors.

For instance, in a conventional setting, a project manager may decide on resource allocation based on team members' skills and availability. By contrast, in

a DAO, these decisions could be put to a vote among token holders, thereby democratizing the process and potentially leading to more optimal outcomes. This decentralized model ensures broader inclusion, thus reducing the risk of a single point of failure or bias.

When it comes to strategic decisions, such as entering a new market, traditional organizations often rely on the expertise of a select group of executives. These individuals evaluate market conditions, risks, and opportunities before making decisions. However, the DAOs allow for a more collective approach. Any token holder can propose a strategy and decisions are made through a democratic voting process. Collective intelligence offers diverse perspectives, making a strategy more robust and inclusive.

The use of DAOs is not limited to theoretical discussions; they also have practical applications.

MakerDAO and Uniswap are excellent examples of the financial sector. MakerDAO allows decentralized lending in which token holders decide on interest rates and collateral requirements. Uniswap operates under DAO governance, with token-holders voting on protocol changes and funding allocations.

DAOs have also shown promise in supply chain management by enabling decentralized decision making for tracking products, managing inventories, and coordinating logistics. In addition, DAOs can facilitate social impact initiatives by democratizing resource allocation.

Addressing Research Question 1 (RQ1) regarding the aspects of corporate governance that can potentially reform DAOs, we assume that business rules serve as the cornerstone for regulating behavior and actions within an organization. These guidelines not only ensure ethical conduct but also pave the way for efficiency and consistency in decision-making. Designed to be in line with legal stipulations, industry norms, and the organization's own policies, business rules act as governance mechanisms.

In the context of Decentralized Autonomous Organizations (DAOs), these business rules are not just written guidelines, but are coded into smart contracts on a blockchain. This guarantees uniform adherence to the rules by all participants in the DAO.

Transparency is a critical business rule that DAOs are uniquely positioned to address. In traditional organizations, transparency is often a policy-driven aspiration; however, in a DAO, it is a built-in feature. By leveraging blockchain technology, every transaction and decision is recorded and made publicly accessible. This allows all stakeholders, from employees to investors, to have a transparent view of the organization's financial and operational activities.

Accountability is another fundamental business rule that DAOs can substantially enhance. Unlike traditional settings, where accountability might be diluted due to hierarchical complexities, DAOs offer a transparent and auditable trail of all organizational decisions thanks to the blockchain. Smart contracts further fortify this by automating rule enforcement, making each decision strictly compliant with pre-set rules. This creates a level of accountability that is challenging for traditional organizations to match.

In response to RQ1, DAOs offer a paradigm shift in both tactical and strategic decision making. By decentralizing these processes, DAOs not only make organizations more democratic but also potentially more effective and resilient.

Regarding Research Question 2 (RQ2), the challenges to traditional corporate governance models are encompassed by a framework of rules, practices, and processes that guide and regulate a company. These aim to ensure that actions are taken in the best interests of all stakeholders, including shareholders, customers, employees, and society. Despite its importance, traditional, centralized organizations encounter various challenges in executing effective corporate governance.

One of the most important issues is the hierarchical concentration of decision-making power. In such centralized models, a select group—often the board of directors and top executives—wields a significant influence. This centralized authority can create a vacuum of accountability, as these key players might not be held sufficiently responsible for their actions or the implications of their decisions.

Transparency, or rather the lack thereof, is another hurdle. Traditional organizations often operate behind closed doors and withhold critical operational information from stakeholders. This opacity hampers stakeholders' ability to hold the organization accountable and can lead to deterioration of trust and credibility, thereby tarnishing the organization's reputation.

Finally, conflicting interests among various stakeholders pose a challenge. In a traditional setting, differing objectives among departments, shareholders, and other parties can create discord, making it challenging to establish a unified direction for the company. This disharmony often results in inefficiencies and hampers the effective functioning of corporate governance systems.

Research Question 3 (RQ3) addresses how Decentralized Autonomous Organizations (DAOs) offer innovative solutions to tackle the challenges faced by traditional centralized organizations in corporate governance.

First, DAOs enhance transparency and accountability, which are two cornerstones of effective governance. Utilizing blockchain technology, DAOs make all organizational activities and decision-making processes transparent and auditable in real-time. This level of openness fosters trust among stakeholders and ensures that the organization is acting in alignment with their interests.

Second, DAOs foster a participatory governance model. Unlike traditional models, where decision-making power is held by a select few, DAOs distribute this power to all the token-holding members. Every member can propose, discuss, and vote on their organizational decisions. This democratic approach not only engages stakeholders but also helps align their varied interests, ensuring a more holistic development of the organization.

Finally, DAOs mitigate the risk of conflicts of interest, a common issue in centralized systems. They employ smart contracts to automate and regulate decision-making, leaving little room for a kind of subjective interpretation that can lead to conflicts. These smart contracts define and enforce the rules of engagement for proposals, voting, and implementation, thereby making the process tamper-proof and objective.

Research Question 4 (RQ4) addresses the adaptations required for the integration of DAOs into existing corporate structures.

To successfully integrate Decentralized Autonomous Organizations (DAOs) into existing corporate frameworks, a multifaceted transformation covering the organizational structure and legal regulations is imperative.

Traditional centralized organizational structures must evolve into decentralized paradigms. This transition necessitates revamping decision-making processes to adopt more inclusive governance models. These models should foster greater stakeholder participation, ensuring that governance becomes a collective endeavor rather than a top-down process.

In addition, the implementation of blockchain technology is not negotiable for such transitions. Blockchain serves as the cornerstone for DAOs. Adopting this technology will entail substantial investment in new infrastructure and IT systems. Additionally, workforce training is essential to equip employees with the skills needed to effectively operate and maintain blockchain systems.

Navigating an evolving and complex regulatory landscape is another critical aspect. DAOs currently inhabit legal gray areas, raising several compliance

questions. The vagueness of the existing legal frameworks for decentralized entities poses significant challenges. Therefore, regulatory clarity is crucial for fostering greater DAO adoption, requiring concerted efforts from legislators, regulators, and the community.

## 4 CONCLUSIONS

This study examines the transformative possibilities that Decentralized Autonomous Organizations (DAOs) bring to the realm of corporate governance. It identifies transparency as a standout feature that traditional governance structures often lack. The blockchain underpinning of DAOs ensures that all organizational actions and decisions are transparent and immutable, fostering stakeholder trust. This characteristic seamlessly aligns with existing scholarly views that extol transparency as the cornerstone of effective governance.

This article further illuminates the accountability advantages offered by DAOs over centralized models. In DAOs, decision-making power is dispersed among token holders, fostering a sense of collective ownership and shared responsibility. This is a stark departure from traditional hierarchical structures where accountability tends to be muddled by bureaucratic complexities.

Another compelling point is the agility that DAOs bring to organizational operations. Traditional governance often suffers from inefficiency due to the centralized nature of decision making. With their decentralized frameworks, DAOs empower stakeholders, thus enabling more agile and responsive operations. This agility is in line with existing academic literature that advocates for more adaptive and flexible governance frameworks.

Moreover, this article acknowledges the legal and technical hurdles faced by DAOs. From the inadequacy of existing legal frameworks to the technical risks like smart contract vulnerabilities, these challenges are laid bare. However, it also points out that these challenges are far from insurmountable, and they are the subject of ongoing research.

This comprehensive exploration goes beyond traditional academic discussions by providing a nuanced view of DAOs, focusing on technical, legal, and pragmatic aspects. While it resonates with existing literature that underscores the importance of transparency, accountability, and stakeholder engagement, the article delves deeper into how DAOs specifically address these issues.

The article thereby contributes to the discourse on corporate governance in the digital age. It not only identifies DAOs as a viable solution to long-standing challenges but also serves as a touchstone for further research and debate in this burgeoning field.

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