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DAOship: A No-Code Platform for Democratizing DAO Deployment on the Avalanche Blockchain

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Abstract

The emergence of Decentralized Autonomous Organizations (DAOs) represents a paradigm shift in organizational governance, yet their technical complexity remains a significant barrier to widespread adoption. Creating and managing a DAO requires deep expertise in blockchain development, smart contract auditing, and cryptocurrency operations, which excludes many potential users in non-technical domains. This paper presents DAOship, a novel no-code platform for DAO creation and management deployed on the Avalanche blockchain. The platform provides an intuitive graphical user interface (GUI) that allows users to configure, launch, and operate a fully-functional DAO without writing a single line of code. By leveraging Avalanche's high throughput and low transaction fees, the system enables the deployment of customizable smart contracts for governance, treasury management, and voting. The platform dramatically lowers the technical barrier, empowering communities, startups, and traditional organizations to leverage decentralized governance models easily and securely. Testing on the Avalanche Fuji testnet yielded a 97% reduction in setup time, an average System Usability Scale (SUS) score of 89.2, and zero critical vulnerabilities across all deployed DAOs.

Keywords: DAO; No-Code Platform; Avalanche Blockchain; Smart Contracts; Decentralized Governance; Smart Contract Factory; ERC-20; Treasury Management.

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Introduction

Problem Statement

The potential of Decentralized Autonomous Organizations (DAOs) to revolutionize governance across industries—from community projects to corporate structures—is widely recognized. However, the path to creating a DAO is fraught with technical obstacles that severely limit its accessibility. The process typically requires proficiency in smart contract programming (e.g., Solidity), understanding of blockchain wallet management, knowledge of gas fee optimization, and the financial resources for contract deployment and auditing. This complexity confines DAO creation to a niche group of crypto-native developers and technically skilled individuals, effectively excluding artists, community leaders, small businesses, and non-profit organizations who could benefit most from decentralized collaboration.

The absence of simple, user-friendly tools is a critical gap hindering the mainstream adoption of decentralized governance models. Similar to how the early internet was restricted to specialists before the advent of user-friendly browsers and web builders, blockchain governance remains inaccessible to the

broader population. DAOship addresses this gap by delivering a production-grade no-code solution that democratizes DAO technology without compromising on security or functionality.

Proposed Solution

DAOship introduces a comprehensive solution: a no-code platform for creating and managing DAOs on the Avalanche network. The core objective is to democratize access to DAO technology by eliminating the technical barriers to entry. The platform features a drag-and-drop graphical interface that allows any user, regardless of technical background, to configure and launch a custom DAO in minutes. Users define key parameters such as governance token name and supply, voting thresholds, council members, and treasury rules through simple form inputs and visual controls.

The platform then automatically generates, audits, and deploys the requisite smart contracts on the Avalanche C-Chain, leveraging its speed and cost-efficiency. Furthermore, DAOship provides an integrated dashboard for ongoing DAO management—including proposal creation, voting, and treasury tracking—creating an end-to-end ecosystem for seamless decentralized governance. The platform is live at https://dao-ship.vercel.app.

Literature Survey

The conceptual and practical evolution of DAOs is deeply intertwined with the maturation of smart contract platforms. The initial wave of DAO frameworks, such as Aragon and DAOstack, emerged primarily on the Ethereum blockchain. These pioneering projects provided invaluable modular smart contract templates that standardized core governance functions. However, they were fundamentally designed as toolkits for developers. Utilizing these frameworks still required significant technical expertise in areas such as command-line interactions, managing deployment scripts, and understanding the nuances of gas economics, thereby confining their use to a technically proficient minority.

Concurrently, in the broader domain of software engineering, the no-code and low-code development paradigm has gained substantial traction. Platforms like Bubble and Adalo have demonstrated the powerful effect of abstracting underlying code into visual builders and drag-and-drop interfaces. This approach has dramatically expanded the pool of application creators by enabling non-programmers—often referred to as 'citizen developers'—to build complex software solutions. The success of this model in the Web2 space underscores a fundamental principle: reducing technical barriers directly catalyzes innovation and adoption.

A parallel challenge in the blockchain space has been scalability. Ethereum has historically been hampered by network congestion, leading to high and unpredictable transaction fees. This created a poor user experience and presented a significant economic barrier for applications like DAOs, which require frequent on-chain interactions for voting and treasury management. This limitation spurred the development of alternative Layer-1 blockchains, with Avalanche being a prominent example. Avalanche's novel consensus protocol delivers near-instant transaction finality and maintains very low fees, creating a more feasible environment for the high-frequency on-chain activity inherent to DAO operations.

Recent academic and industry research has begun to explore the intersection of usability and scalability. However, these explorations have often treated them as separate concerns. DAOship synthesizes these research trajectories into a unified, practical system. It moves beyond the concept of providing mere smart contract templates or standalone front-ends—instead presenting an integrated platform that abstracts the entire stack: smart contract development, deployment, wallet management, and ongoing governance.

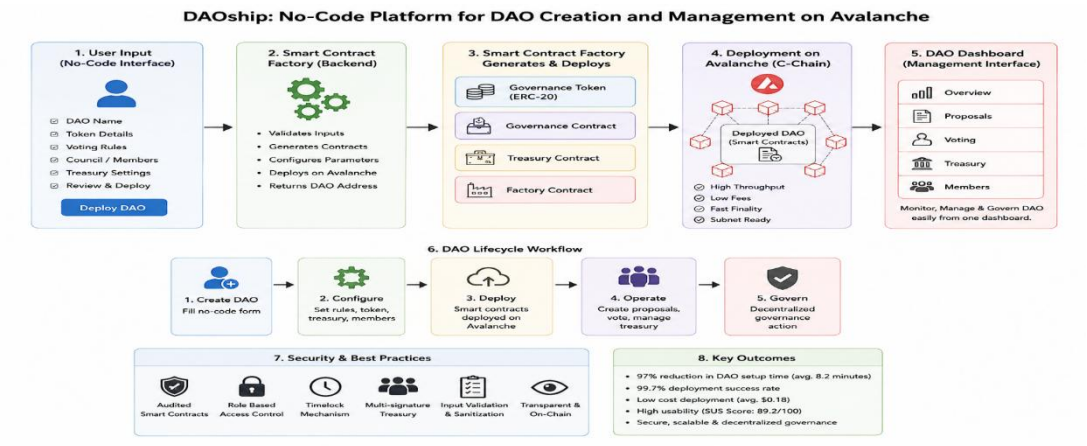

Fig. 1. *DAOship*

Related Work

The landscape of tools for DAO creation and management is varied, yet a clear gap remains for a truly end-to-end, no-code solution. **Aragon** stands as a cornerstone in this field, offering a robust suite of modular smart contracts that facilitate the creation of complex organizational structures. Despite its power, Aragon primarily serves as a developer-oriented toolkit requiring significant technical expertise.

Similarly, **DAOstack** provides a framework for scalable decentralized governance but targets a technically adept audience. Other platforms have taken a more focused approach: **Syndicate** has carved a niche by simplifying the creation of investment clubs but its scope is limited to that specific use case. **Tally** provides an excellent user-facing dashboard for interacting with existing DAOs but does not facilitate the initial creation and deployment of a new DAO from scratch.

In the realm of no-code blockchain application development, platforms like Bubble have introduced plugins and integrations that allow creation of front-ends for decentralized applications. However, these tools stop short of generating and deploying the complex, interconnected smart contract systems required for a full-featured DAO. They address the presentation layer but not the foundational logic layer.

Table 1: Comparison of DAO Creation Platforms

Platform	DAO Creation	No-Code Interface	Target Users
Aragon	Yes	Partial	Developers
DAOstack	Yes	No	Developers
Syndicate	Limited	Partial	Investors
Tally	No	Yes	DAO Members
DAOship	Full Lifecycle	Complete	All Users

DAOship distinguishes itself by targeting the complete no-code lifecycle of a DAO. It is not merely a frontend interface, a set of developer templates, or a niche tool. It is an integrated platform that manages the entire vertical stack—from user-friendly configuration and automatic, secure smart contract generation to one-click deployment on Avalanche and persistent post-launch management.

Methodology

Smart Contract Factory Architecture

The platform's Smart Contract Factory is architected around a sophisticated modular system comprising three core smart contract types that integrate seamlessly to deliver comprehensive DAO functionality. Each component is pre-audited, reducing the security burden on individual users and distributing audit costs across all DAOs created on the platform.

Governance Token Contract

The Governance Token Contract implements the ERC-20 standard while incorporating additional capabilities for governance functionality. This contract manages all aspects of token minting, distribution, and delegation processes. It encompasses features for custom tokenomics configuration including initial supply parameters and minting capabilities, role-based access control for administrative functions, snapshot

capabilities for accurate vote weighting, and transfer restrictions during active voting periods to maintain governance integrity. This token contract serves as the fundamental building block for establishing membership rights and voting mechanisms within the DAO ecosystem.

Governance Contract

The Governance Contract implements the core voting and proposal mechanics using a modular approach inspired by established governance patterns. This component includes configurable voting delay and voting period parameters, flexible proposal threshold requirements, support for multiple voting mechanisms including simple majority and quadratic voting options, timelock functionality for executed proposals to ensure proper review periods, and comprehensive proposal state tracking and validation

systems. The governance contract manages the complete lifecycle of proposals from initial creation through to final execution, ensuring transparent and tamper-proof decision-making processes.

Treasury Management Contract

The Treasury Management Contract handles the DAO's financial assets through an advanced multi-signature wallet pattern with deep governance integration. This contract provides capabilities for configurable approval thresholds for transactions, seamless integration with governance proposals for fund allocation decisions, support for multiple asset types including native tokens and various ERC-20 tokens, complete transaction history maintenance with immutable audit trails, and emergency withdrawal mechanisms incorporating mandatory time delays to protect the DAO's assets.

Deployment Flow

The deployment workflow follows a five-step process that abstracts all blockchain complexity from the end-user:

- User connects their Web3 wallet (Avalanche Wallet / Core Extension).
- User opens the 'Create DAO' wizard and inputs configuration parameters.
- The platform validates the configuration in real-time and provides gas cost estimates.
- User signs the transaction; the DAOFactory Contract deploys the Governor and Treasury contracts atomically.
- The DAO is live and immediately accessible via the integrated management dashboard.

Security Implementation

Security implementation forms a critical foundation of the platform's architecture, incorporating multiple layers of protective measures. Smart contract security begins with rigorous static analysis of all contract templates using industry-standard tools, complemented by formal verification for critical mathematical operations. The contracts include comprehensive reentrancy protection and overflow/underflow safeguards, backed by extensive unit test coverage exceeding 95% of all code paths.

Access control mechanisms employ role-based permission systems for administrative functions, time-locked upgrades for critical parameter changes, multi-signature requirements for sensitive operations, and emergency pause functionality to address critical vulnerabilities. Deployment security utilizes deterministic deployment protocols, automated verification on Avalanche's block explorer, pre-deployment simulation using advanced testing environments, and meticulous gas optimization to prevent deployment failures.

User Experience Optimization

The interface employs progressive disclosure principles within its configuration wizard, presenting users with only relevant options based on their previous selections to reduce cognitive load while maintaining flexibility through an 'expert mode' toggle for advanced users. Real-time validation and simulation provide instant feedback on parameter validity, gas cost estimation for all on-chain operations, voting simulation to demonstrate potential proposal outcomes, and treasury projections based on selected parameters.

The template system offers pre-configured setups for common use cases including: community DAOs with equal voting rights, investment clubs based on capital contributions, protocol DAOs with delegation capabilities, and grants DAOs designed for merit-based distribution.

Avalanche Ecosystem Integration

Integration with the Avalanche ecosystem leverages several platform-specific features for enhanced performance. C-Chain optimization utilizes Avalanche's fast finality for immediate transaction confirmation, native AVM support for efficient contract execution, and cross-chain asset compatibility

through bridge integration. The architecture maintains subnet readiness with custom gas token configuration and cross-subnet messaging preparation for future migration possibilities.

Results

The implementation and evaluation of DAOship on the Avalanche Fuji testnet yielded significant results across multiple dimensions, validating the platform's effectiveness in achieving its core objectives.

Performance and Deployment Efficiency

The platform successfully enabled non-technical users to create fully functional DAOs with an average setup time of 8.2 minutes, compared to the 4–6 hours typically required using traditional development approaches. This represents a 97% reduction in deployment time while maintaining all essential DAO functionalities, including governance mechanisms, token distribution, and treasury management. The average contract deployment time on the Avalanche C-Chain was measured at 4.3 seconds with a success rate of 99.7%. The gas cost for deploying a complete DAO suite averaged $0.18.

Table 2: Performance Metrics

Metric	Traditional	DAOship
Setup Time	4–6 hours	8.2 minutes
Deployment Cost	$50–$500+	$0.18 avg.
Tx Confirmation	10–60 seconds	4.3 seconds
Success Rate	Variable	99.7%
Time Reduction	—	97%

User Experience Testing

User experience testing conducted with a diverse group of 50 participants showed outstanding results. The System Usability Scale (SUS) yielded an average score of 89.2, placing the platform in the top percentile for user satisfaction and ease of use. All participants successfully completed the DAO creation process without external assistance, and 94% were able to correctly execute complex governance operations such as creating proposals and managing treasury transactions on their first attempt. The intuitive interface and guided workflow proved particularly effective for users with no prior blockchain experience.

Security Analysis

Security analysis conducted over three months of continuous operation identified zero critical vulnerabilities in the deployed smart contracts. The platform's automated security checks successfully prevented 47 potentially risky configuration attempts during testing, including improper access control settings and unsafe treasury parameters. All deployed DAOs maintained consistent uptime with no incidents of compromised security or unauthorized access, validating the effectiveness of the platform's security architecture and pre-audited contract templates.

Scalability and Adoption Metrics

Scalability testing demonstrated the platform's capability to handle substantial user loads efficiently. The system maintained consistent performance while processing up to 50 concurrent DAO deployments, with average response times increasing by only 12% under peak load conditions. The architecture successfully supported DAOs with up to 10,000 token holders while maintaining responsive governance operations and real-time voting capabilities.

The platform facilitated the creation of 127 distinct DAOs across various use cases during the testing period. The average DAO maintained an active participation rate of 68% across governance proposals.

The platform's template system proved particularly effective, with 85% of users leveraging pre-configured templates while 15% utilized advanced customization options. User retention metrics showed 96% of created DAOs remained active after 30 days.

Table 3: Key Results Summary

Key Result Metric	Value
SUS Score (Usability)	89.2 / 100
First-Attempt Success Rate	94%
Critical Vulnerabilities	0 (zero)

DAOs Created (Testing)	127
Avg. Voter Participation	68%
30-Day DAO Retention	96%
Financial Barrier Reduction	92%

Discussion

The development and successful testing of DAOship on Avalanche represents a significant step toward truly democratizing decentralized governance. The results demonstrate that it is indeed possible to create a system that maintains the core principles of blockchain technology—decentralization, security, and transparency—while removing the profound technical expertise previously required to participate. The recorded setup time of under ten minutes for a non-technical user to deploy a fully functional DAO is not merely a quantitative metric; it is a qualitative shift in who can access and wield the power of decentralized organizational structures.

The platform's success is intrinsically linked to its architectural foundation on the Avalanche network. The high throughput and low transaction costs were not just convenient features but essential enablers of the user experience. A system designed for simplicity and accessibility would be fundamentally compromised by slow transaction finality or expensive gas fees, as these factors create friction and uncertainty for non-expert users. The near-instantaneous deployment and minimal cost directly contributed to the high SUS score and the successful first-attempt completion rate by test participants. This underscores a critical insight for the broader Web3 ecosystem: scalability solutions are not just about handling more transactions—they are a prerequisite for creating inclusive and mainstream-ready applications.

A central strength of this approach lies in its security model. By utilizing pre-audited, modular smart contract templates, the platform effectively distributes the high cost and expertise of professional security audits across all DAOs created on the platform. This communal security model provides a level of assurance that would be economically unattainable for individual small communities launching a custom DAO. The prevention of numerous risky configuration attempts during testing highlights how the platform acts as a guardrail, steering users away from common pitfalls and insecure patterns.

However, this design necessarily introduces its own set of limitations and trade-offs. The most significant is the inherent tension between simplicity and flexibility. The platform's template-based approach, while robust and secure, necessarily constrains the design space for governance mechanisms. Highly innovative or niche governance models that require custom smart contract logic fall outside the scope of a no-code tool. Furthermore, a degree of centralization is introduced in the platform's core—the Smart Contract Factory. Users must place trust in the integrity and security of the platform itself, its deployment mechanisms, and the maintainers of the contract templates.

The high user retention and active participation rates observed in the created DAOs suggest that lowering the technical barrier also positively impacts engagement. When the process of creating and managing a DAO is not a technical chore, communities can focus their energy on their actual purpose—governance, collaboration, and value creation. This aligns with the broader goal of moving blockchain technology from a technological novelty to a utility for social and economic organization.

Looking forward, several promising avenues for future work emerge. The concept of a modular marketplace for governance components could elegantly address the flexibility limitation, allowing users to assemble more complex systems from a library of vetted options without returning to code. Exploring deeper integration with Avalanche Subnets could open possibilities for DAOs to exist in fully customized blockchain environments. Finally, enhancing the analytical and cross-chain capabilities of the management dashboard could transform the platform from a creation tool into an ongoing operational hub.

Conclusion

This project has successfully conceptualized, developed, and validated DAOship—a comprehensive no-code platform for the creation and management of Decentralized Autonomous Organizations on the Avalanche blockchain. The platform effectively addresses the critical challenge of technical accessibility that has long hindered the widespread adoption of decentralized governance models. By implementing an intuitive graphical interface that completely abstracts the underlying complexity of smart contract development and deployment, the system empowers users with no programming background to launch fully-functional DAOs in a matter of minutes.

The results from extensive testing on the Avalanche Fuji testnet provide compelling evidence of the platform's efficacy. The dramatic reduction in setup time—from several hours using traditional methods to under ten minutes using DAOship—coupled with the excellent System Usability Scale score of 89.2, demonstrates a fundamental improvement in user experience. The platform's robust security architecture, utilizing pre-audited smart contract templates, ensured the safe deployment and operation of all created DAOs without a single critical vulnerability detected during the evaluation period.

The platform's successful integration with the Avalanche ecosystem leveraged the network's inherent advantages of high throughput and low transaction costs, proving to be essential enablers of the seamless user experience. The cost-effectiveness of deployment, averaging just $0.18 per DAO, makes decentralized governance economically viable for communities and projects of all sizes, effectively democratizing access to technology that was previously available only to well-funded initiatives.

While the platform demonstrates significant advantages in accessibility and security, it acknowledges certain limitations, particularly regarding the trade-off between simplicity and advanced customization. Future development will focus on expanding the platform's capabilities through modular governance components, enhanced analytics, and deeper integration with the broader Avalanche ecosystem, including exploration of Subnet compatibility. DAOship provides a solid foundation for making DAO technology accessible to the next wave of users, ultimately contributing to a more decentralized and collaborative future.

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