Darvishvand.Ventures: A Decentralized Autonomous Organization Framework for Startup Acceleration

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An Independent Study Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Engineering Management (International Program)

Graduate School, Kasem Bundit University
2025

Title	**:**	Darvishvand.Ventures: A Decentralized Autonomous Organization Framework for Startup Acceleration
Advisor	**:**	Dr. Sakchai Rakkarn,Ph.D.
Author	**:**	Mohammad Mohammadi Darvishvand
Program	**:**	Master of Engineering Management (International Program)
Academic Year	**:**	2025

The Graduate school of Kasem Bundit University approved this Independent Study as a partial fulfillment of the requirements for the Degree of Master of Engineering Management Program (International Program).

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Examining Committees:

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Abstract

Traditional startup accelerators suffer from limited transparency and stakeholder engagement. This study addresses these issues by proposing an innovative DAO governance framework designed for early-stage ventures. The Darvishvand.Ventures framework operates as a community-funded organization where member contributions reduce external dependencies and open proposals are selectively approved through member voting. Using a design science research methodology, this study details the design of the governance framework and proposes a comprehensive evaluation framework with key performance indicators for decision quality, operational cost-efficiency, and governance decentralization. Initial proof-of-concept testing will establish baseline metrics for future longitudinal evaluation of a real-world implementation.

This research hypothesizes that the proposed DAO governance framework can produce higher-quality governance decisions, reduce operational overhead, and foster more decentralized stakeholder engagement compared to traditional models. The governance design incorporates vote delegation and a reputation system to balance democratic participation with stakeholder influence, while a multi-signature treasury system ensures secure asset management. The study acknowledges that while challenges in security and regulatory compliance persist, they can be mitigated through strategic architectural choices, such as using pre-audited platforms and a flexible legal wrapper strategy. This research contributes a detailed architectural blueprint for implementing DAO governance in startup acceleration, offering actionable insights for building scalable, community-driven governance models.

Keywords: Decentralized Autonomous Organization; DAO; Governance; Startup Accelerator; Design Science Research; Agency Theory; Blockchain; Web3.

Acknowledgements

I am immensely grateful to my advisor, Dr. Sakchai Rakkarn, for his guidance in encouraging me to explore complex ideas and to challenge conventional wisdom. His invaluable patience and feedback helped me navigate the philosophical underpinnings of my research and deepened my analytical skills. Additionally, this endeavor would not have been possible without the insightful contributions of my defense committee, whose generous knowledge and expertise were instrumental in refining the scope and rigor of this study.

Table of Contents

List of Tables

List of Figures

Chapter 1

1.1 The Evolution of Startup Accelerators

The modern startup accelerator emerged in the mid-2000s as a new model for seed-stage venture funding and mentorship. Pioneered by organizations like Y Combinator (founded in 2005), the model diverged from traditional venture capital by providing small amounts of capital, intensive mentorship, and a structured educational curriculum over a fixed period, typically three months.

This cohort-based approach, culminating in a "Demo Day" where startups pitch to a wider pool of investors, proved highly effective at rapidly developing early-stage companies. Following the success of Y Combinator, the model was replicated globally, leading to the rise of programs like Techstars (founded in 2006) and a proliferation of corporate, university-affiliated, and niche-focused accelerators targeting specific industries like fintech or healthcare.

While the core components—seed funding, mentorship, and a cohort structure—remain, the accelerator landscape has matured into a complex and varied ecosystem, with each program offering different levels of support, equity requirements, and governance structures.

1.2 The Governance Problem in Centralized Accelerators

Despite their success, traditional accelerators are predominantly managed by a small, centralized team of partners or managers. This structure, while efficient for rapid decision-making, creates significant governance challenges that can hinder their effectiveness and fairness.

The core problem is one of **opacity**. Key decisions—such as which startups are selected from thousands of applicants, how resources and mentor attention are allocated, and the criteria for follow-on funding—are often made in closed-door meetings, inaccessible to the startups themselves and to the limited partners (LPs) who fund the accelerator.

This lack of transparency leads directly to **information asymmetry**, where the accelerator's management holds all the critical information, creating an environment ripe for principal-agent problems. For instance, a manager might favor a startup based on personal affinity rather than objective merit, or allocate the best mentors to a perceived favorite, leading to a suboptimal allocation of the accelerator's collective resources. These issues of centralized control and opaque governance form the primary motivation for exploring alternative models.

1.3 DAOs as a Proposed Solution

Decentralized Autonomous Organizations (DAOs) offer a transformative solution to the governance problems inherent in centralized startup accelerators. DAOs operate through blockchain-based smart contracts, enabling transparent, decentralized decision-making by token holders.

Early examples such as "The DAO" (2016) demonstrated viability despite challenges, and today's DAOs integrate advanced governance models, legal wrappers, and security protocols to enable community-driven, accountable acceleration ecosystems.

1.4 Scope of this Document

This independent study focuses on the design and methodological foundation of a DAO governance framework for startup accelerators. It covers artifact design, evaluation framework development, and initial demonstration with implementation and extensive empirical validation planned for subsequent phases.

1.5 Research Rationale

The proposed DAO governance framework offers a paradigm shift toward a distributed, inclusive system for startup acceleration. The core innovation lies in a hybrid participation model where anyone can submit a proposal, but the decision to approve and fund it rests exclusively with the DAO's members. This structure balances open ideation with meritocratic approval. Furthermore, the framework is designed as a community-funded organization where member contributions of capital and skills reduce external dependencies. This community-driven operational model, combined with the efficiencies of on-chain automation, aims to drastically lower operational overhead and create a more efficient, transparent, and equitable ecosystem for fostering innovation.

1.6 Research Objectives and Methodological Alignment

This research addresses startup accelerator governance challenges through four interconnected objectives, each with corresponding methodological approaches:

Objective 1: Design a DAO governance framework improving decision quality through transparency
Methodology: Design Science Research artifact creation with smart contract architecture
Evaluation: Governance Quality Index measurement and stakeholder satisfaction surveys

Objective 2: Develop an economic model leveraging community contributions to reduce overhead
Methodology: Economic modeling and cost-benefit analysis using blockchain transaction data
Evaluation: Cost-per-participant analysis against industry benchmarks

Objective 3: Create empirical evaluation framework for DAO performance measurement
Methodology: Multi-dimensional metrics development (GQI, CEI, operational costs)
Evaluation: Statistical validation through controlled testnet deployment

Objective 4: Detail technical architecture for blockchain-based governance implementation
Methodology: Technical specifications and proof-of-concept development
Evaluation: Functional testing and security audit of deployed contracts

Objective	Methodology	Evaluation Metric	Chapter Section
Design DAO governance framework improving decision quality	Design Science Research artifact development	Governance Quality Index (GQI), Stakeholder Surveys	3.4, 4
Develop economic model leveraging community contributions	Economic modeling, cost-benefit analysis	Cost-per-Participant Analysis	3.4, 4
Create empirical evaluation framework with multi-dimensional metrics	Statistical validation using testnet data	GQI, Composite Engagement Index (CEI), Operational Cost Metrics	3.4

Detail blockchain technical architecture and implementation	Technical specification and proof-of-concept	Functional Testing, Security Audits	3.3, 4

Table 1.1: Research Objectives and Methodological Alignment

1.7 Research Hypotheses

Based on the theoretical foundations of network governance and agency theory, this research proposes three testable hypotheses:

Hypothesis 1 (H1): A DAO-based governance framework, through its transparent and auditable decision-making processes, produces higher quality governance decisions compared to traditional accelerator models.

Hypothesis 2 (H2): A DAO-based accelerator framework, by leveraging existing audited platforms and minimizing overhead, achieves a lower per-participant operational cost compared to industry benchmarks.

Hypothesis 3 (H3): The Darvishvand.Ventures governance framework, by incorporating vote delegation and reputation-based incentives, generates higher quality, more decentralized stakeholder engagement than is typically observed in other DAOs.

1.8 Scope of Research

This study focuses on the design and initial proof-of-concept demonstration of a DAO-based governance framework for startup accelerators. Given the practical constraints of an independent study timeframe, this research will demonstrate feasibility through:

(1) deploying governance smart contracts on a testnet, (2) documenting the complete user experience flow, and (3) conducting a small-scale, real-world implementation with the launch of the DAO and its first one-to-three ventures.

The primary contribution is the detailed architectural framework and initial feasibility demonstration, establishing a foundation for future large-scale implementation and longitudinal studies.

This document details the initial design and proposal phases of the DSR project. The subsequent phase of this research, to be detailed in Chapter 4, will involve the instantiation and real-world evaluation of the artifact. The data collected during that phase will be used to evaluate the hypotheses presented herein.

It is critical to distinguish this study's definition of success from the commercial success of the ventures it supports. This study focuses on evaluating the leading indicators of a healthy and viable ecosystem, such as decision quality and high engagement. The central argument is that a healthy governance process is the necessary precondition for enabling long-term venture success.

1.9 Research Contributions

This research makes the following contributions:

Academic: Extends network governance and agency theory to the novel context of DAOs and contributes a structured case study to the literature on Web3 engineering management.

Empirical: Provides a comprehensive evaluation framework with rigorous, measurable KPIs for DAO performance, establishing a valuable model for this emerging field.

Practical: Delivers a scalable governance framework with actionable insights for developing community-driven support networks, serving as a practical guide for launching similar ecosystems.

1.10 Key Concepts and Terminology

To ensure clarity, this section defines and contrasts key concepts used throughout this study.

Smart Contracts vs. Legal Contracts: A traditional legal contract is an agreement enforceable by a legal system. A smart contract, in contrast, is a self-executing agreement with the terms of the agreement directly written into code that resides on a blockchain. It automatically enforces obligations when predetermined conditions are met, reducing the need for a trusted intermediary or legal system for execution.

Tokenomics vs. Traditional Equity: In a traditional startup, equity represents ownership shares in a legal entity. In a DAO, governance tokens represent a holder's right to participate in governance, such as voting on proposals. While tokens can have financial value and be traded on open markets, their primary utility within the framework is for governance, not as a direct claim on profits in the same way as equity.

Decentralized vs. Centralized Governance: Centralized governance concentrates decision-making power within a small group (e.g., board of directors), whereas decentralized governance distributes authority among stakeholders who directly vote, enhancing transparency and inclusivity.

1.11 Research Delimitations

This study is delimited to:

- DAO governance frameworks applicable to startup acceleration contexts
- Blockchain-based governance mechanisms (excluding traditional digital platforms)
- English-language literature and case studies
- Evaluation period of 12 months maximum for feasibility assessment
- Focus on technical and governance aspects (excluding detailed legal analysis)

1.12 Assumptions

This research proceeds under the following assumptions:

- Blockchain technology will remain technically viable and accessible
- Regulatory frameworks will not prohibit DAO operations in chosen jurisdictions
- Sufficient participant engagement can be achieved for meaningful evaluation
- Traditional accelerator benchmark data remains relevant for comparison
- Smart contract platforms will maintain operational stability

1.13 Definitions

- **Agency Theory:** A theoretical framework examining the relationship between principals (those who delegate authority) and agents (those who act on behalf of principals), focusing on conflicts of interest and mechanisms to align their interests.
- **Blockchain:** A distributed ledger technology that maintains a continuously growing list of records linked and secured using cryptography, ensuring transparent and immutable transaction records.
- **Decentralized Autonomous Organization (DAO):** A blockchain-based entity governed by smart contracts that enables decentralized decision-making, where token holders share governance authority rather than centralized management.
- **Design Science Research:** A research methodology focused on creating and evaluating artifacts designed to solve identified organizational problems, emphasizing practical utility through iterative cycles of building, evaluation, and refinement.
- **Multi-Signature Wallet:** A cryptocurrency wallet requiring multiple private key signatures to authorize transactions, providing enhanced security through collaborative approval processes.
- **Network Governance:** A framework for understanding how decentralized networks of autonomous actors coordinate activities and make collective decisions without centralized authority.

- **Smart Contracts:** Self-executing agreements with terms directly written into code that automatically enforce contractual obligations when predetermined conditions are met.
- **Startup Accelerator:** A fixed-term, cohort-based program including mentorship and educational components that culminates in a public pitch event designed to help early-stage ventures develop business models, access funding, and achieve market readiness.
- **Token Holder:** An entity owning cryptographic tokens that confer governance rights and voting power within a DAO.
- **Treasury System:** A decentralized financial mechanism managing collective funds through smart contracts, enabling transparent allocation of resources and democratic oversight of monetary decisions.

Chapter 2: LITERATURE REVIEW

1.1 Research Rationale

This chapter establishes the study's theoretical foundations by reviewing seminal and contemporary literature, identifying critical gaps, and developing the hypotheses that guide this research.

2.1 Foundational Theories

This chapter establishes the study's theoretical foundations, exploring Network Governance and Agency Theory before synthesizing them in the context of DAOs.

2.1.1 Network Governance Theory

Network Governance Theory provides a lens for understanding how groups of autonomous organizations coordinate to achieve collective goals without a traditional hierarchical structure. Provan and Kenis (2008) identify three primary modes of network governance: Participant-Governed, Lead Organization-Governed, and the Network Administrative Organization (NAO). The traditional accelerator, with its central management team, closely resembles a Lead Organization-Governed Network.

This model is efficient but concentrates power, creating the agency problems discussed next. The proposed DAO governance framework represents a deliberate shift toward a Participant-Governed Network, where decision-making authority is formally distributed among all members. However, it retains some coordination benefits of a lead organization through the initial founder-led bootstrapping phase, creating a novel hybrid model designed to balance efficiency with decentralization.

2.1.2 Agency Theory

Agency Theory, articulated by Jensen and Meckling (1976), examines the conflicts of interest inherent when a "principal" delegates authority to an "agent." These conflicts lead to agency costs, which are broadly categorized as monitoring costs, bonding costs, and residual loss (Jensen & Meckling, 1976, p. 305).

Monitoring Costs: These are costs incurred by the principal to oversee the agent's actions. In a traditional accelerator, this includes the salaries of oversight staff, financial audits, and the time partners spend supervising portfolio companies. In a DAO, this cost transforms into the collective effort required by the community to audit smart contract code, scrutinize on-chain proposals, and monitor the treasury for malicious activity. While distributed, this requires a higher level of technical literacy among participants.

Bonding Costs: These are costs incurred by the agent to assure the principal of their good intentions, such as contractual obligations or insurance. In a DAO, bonding is automated via smart contracts. For example, milestone-based funding for a Venture Pod is programmatically enforced, releasing funds only when pre-agreed conditions are met, thus creating a form of "trustless" bonding.

Residual Loss: This represents the inevitable value lost due to the divergence of interests between the principal and agent. The DAO framework aims to minimize this by aligning incentives through shared ownership of the native governance token, making every member a co-owner with a direct stake in the ecosystem's success.

While DAOs can mitigate traditional agency costs, they introduce new ones. The framework acknowledges that DAOs create new categories of agency costs that must be explicitly addressed: (1) Technical monitoring costs, where community members must evaluate smart contract security; (2) Governance participation costs, including time and gas fees for voting; and (3) Coordination costs arising from distributed decision-making. However, these distributed costs can be lower in aggregate than the concentrated costs of traditional principal-agent monitoring, particularly when automated systems reduce manual oversight requirements (Jensen & Meckling, 1976).

2.1.3 Institutional Theory and Organizational Legitimacy

Institutional theory, as developed by Scott (2014), provides essential theoretical grounding for understanding how DAOs achieve legitimacy and sustainability in established organizational environments. Scott identifies three pillars of institutional legitimacy: regulative (compliance with formal rules), normative (moral legitimacy based on social values), and cultural-cognitive (taken-for-granted assumptions about appropriate organizational forms).

DAOs face unique institutional challenges as they operate across traditional jurisdictional boundaries while seeking acceptance in established financial and legal systems. The Darvishvand.Ventures framework addresses these institutional pillars through: (1) legal wrapper compliance establishing regulative legitimacy, (2) transparent governance processes aligned with democratic values providing normative legitimacy, and (3) gradual adoption of blockchain-native governance patterns building cultural-cognitive legitimacy.

2.1.4 Technology Acceptance and Stakeholder Theory Integration

Davis (1989) Technology Acceptance Model (TAM) explains user adoption of new technologies through perceived usefulness and ease of use. Freeman's (1984) Stakeholder Theory emphasizes the importance of considering all parties affected by organizational decisions. These theories are crucial for understanding DAO adoption and governance effectiveness.

The framework integrates TAM by prioritizing user experience design and minimizing technical barriers to participation. Stakeholder theory informs the multi-layered governance approach, ensuring representation of diverse stakeholder interests through the reputation system and vote delegation mechanisms.

2.2 A Review of Decentralized Autonomous Organizations

This chapter establishes the study's theoretical foundations, exploring Network Governance and Agency Theory before synthesizing them in the context of DAOs.

2.2.1 A Typology of DAO Governance Models

Not all DAOs are governed equally. The landscape has evolved to include several distinct models, each with different trade-offs between efficiency, decentralization, and security.

Direct Token-Based Governance (Plutocracy): This is the simplest and most common model, where one token equals one vote. While straightforward, this model often leads to plutocracy, where the wealthiest token holders (whales) can dominate decision-making, regardless of their expertise or alignment with the broader community. Many early DeFi protocols utilized this model.

Delegated or Representative Governance: To combat voter apathy and improve decision quality, some large DAOs like Compound and MakerDAO have implemented delegated voting. In this model, token holders can delegate their voting power to a trusted expert or community leader who votes on their behalf. This creates a more efficient, representative system, similar to a republic, but can also centralize power in the hands of a few popular delegates.

Reputation-Based & Non-Transferable Token Governance: Emerging models are experimenting with non-transferable "soulbound" tokens or reputation scores to grant governance power based on contributions and expertise rather than capital. Organizations like Proof of Humanity use identity verification to grant one vote per person, mitigating Sybil attacks and plutocracy. The Darvishvand.Ventures framework draws on this concept by proposing a reputation system to augment its token-based voting.

Table 2.1: A Typology of DAO Governance Models

Governance Model	Core Mechanism	Advantages	Disadvantages	Example(s)
Direct Plutocracy	1 Token = 1 Vote	Simple, easy to implement	Prone to whale dominance, low turnout	Early DeFi Protocols
Delegated Democracy	Token holders delegate votes	More efficient, leverages expertise	Can centralize power in delegates	Compound, MakerDAO
Reputation-Based	Power based on contribution/identity	More meritocratic, Sybil-resistant	Complex to design, can be subjective	Proof of Humanity

Table 2.2: Comparative Analysis of Governance Models example table, remove this

Feature	Traditional Corporation	Lead-Org Accelerator	DAO-Based Accelerator

Governance Locus	Centralized (Board/Mgmt)	Centralized (Accelerator Mgmt)	Decentralized (Token Holders)
Key Governance Problem	Principal-Agent Conflict	Principal-Agent & Info Asymmetry	'Whale' Agency & Voter Apathy
Transparency Mechanism	Periodic Reporting (SEC Filings)	Curated Reporting to LPs	Real-Time Public Ledger
Decision Enforcement	Legal Contracts/Hierarchy	Term Sheets/Program Rules	Automated Smart Contracts
Primary Stakeholders	Shareholders, Management	LPs, Accelerator Mgmt, Startups	Token Holders, Startups, Mentors

2.2.2 Empirical Case Studies in DAO Governance

To ground the theoretical discussion in reality, it is useful to examine brief case studies of existing DAOs.

MakerDAO: As one of the oldest and largest DAOs, MakerDAO provides a rich case study in governance evolution. It has a highly structured governance process with formal roles, risk teams, and a system of executive votes to manage its stablecoin, DAI. Its history demonstrates the necessity of formal, structured processes for managing complex systems but also highlights the high coordination costs involved.

Gitcoin: Gitcoin is a pioneer in using novel funding mechanisms, particularly Quadratic Funding, to allocate resources for public goods in the Ethereum ecosystem. Its governance experiments provide valuable data on how to fund a wide variety of projects in a community-driven way, but also show the challenges of preventing fraud and collusion in open funding systems.

2.3 Gaps in Current Literature

While the reviewed literature provides strong foundations for DAO governance research, significant gaps remain that this study aims to address:

Limited Longitudinal Data: Most academic studies of DAOs examine snapshot data from a specific period rather than tracking governance evolution over multiple years. This makes it difficult to assess the long-term sustainability and adaptability of different governance models, a gap this study seeks to address by establishing a baseline for future longitudinal analysis.
Lack of Comparative Frameworks: There is a scarcity of research that directly compares the performance of a DAO against a traditional organization using equivalent, quantifiable metrics. This study tackles this gap by proposing a framework (GQI, Cost-per-Participant, etc.) that can be used to benchmark the DAO's performance against traditional accelerators.
Implementation Complexity Underestimated: Academic literature often discusses DAOs at a high level of abstraction, underestimating significant implementation complexities of legal integration, user experience (UX) design for non-technical members, and the social dynamics of community bootstrapping. This DSR study aims to provide practical, actionable insights by documenting the design and implementation process in detail.

Practical challenges in DAO deployment include designing user-friendly interfaces for non-technical participants and integrating DAOs within complex legal and regulatory frameworks. These complexities and uncertainties hinder widespread adoption and scalability. This study provides a practical approach to addressing these challenges through architectural and governance innovations (Beck, Müller-Bloch, & King, 2018).

2.4 Related Literature and Hypotheses Development

This section reviews empirical literature to build an evidence-based case for each hypothesis.

2.4.1 DAO Governance and Its Impact on Decision Quality (H1)

H1: A DAO-based governance framework, through its transparent and auditable decision-making processes, produces higher quality governance decisions compared to traditional accelerator models.

The argument for this hypothesis is that radical transparency improves accountability. Information asymmetry is a fundamental challenge in traditional venture capital (Bernstein et al., 2017). Blockchain's immutable public ledger ensures all governance votes are permanently recorded and auditable, creating an environment where actions are directly attributable to on-chain decisions. This research hypothesizes that enhanced traceability mechanisms result in improved proposal quality through increased accountability pressures.

2.4.2 DAO Governance and Its Impact on Operational Overhead (H2)

H2: A DAO-based accelerator framework, by leveraging existing audited platforms and minimizing overhead, achieves a lower per-participant operational cost compared to industry benchmarks.

Traditional accelerators incur significant operational expenses, with personnel and infrastructure as primary cost drivers. Recent industry analysis indicates traditional accelerators invest between $25,000-$100,000 per startup with operational costs ranging from $1,500-$5,000 per participant monthly (Busulwa et al., 2020; Cohen & Hochberg, 2014). Y Combinator's model, investing approximately $500,000 across 20-company cohorts, demonstrates the capital-intensive nature of traditional acceleration programs (Christiansen, 2009).

2.4.3 DAO Governance and Its Impact on Stakeholder Engagement (H3)

H3: The Darvishvand.Ventures governance framework, by incorporating vote delegation and reputation-based incentives, generates higher quality, more decentralized stakeholder engagement than is typically observed in other DAOs.

Empirical evidence documents low voter participation and high power concentration in many DAOs. Electric Capital (2023) reports declining developer activity in crypto projects, with aggregate developer metrics showing reduction in sustained contribution patterns. Recent DAO evaluation frameworks emphasize balanced performance assessment across multiple dimensions (Smith & Johnson, 2024). H3 is therefore a critical test. The hypothesis proposes that the framework's specific design—combining veTokens, a future reputation system, and vote delegation—can overcome these documented challenges and foster genuine, decentralized, and long-term alignment. Persistent governance issues like power concentration and low participation have been documented (Fritsch, Wattenhofer, & Wattenhofer, 2022; Beck et al., 2018). Incorporating vote delegation and reputation mechanisms, as in this framework, addresses these challenges to improve decision quality and stakeholder engagement.

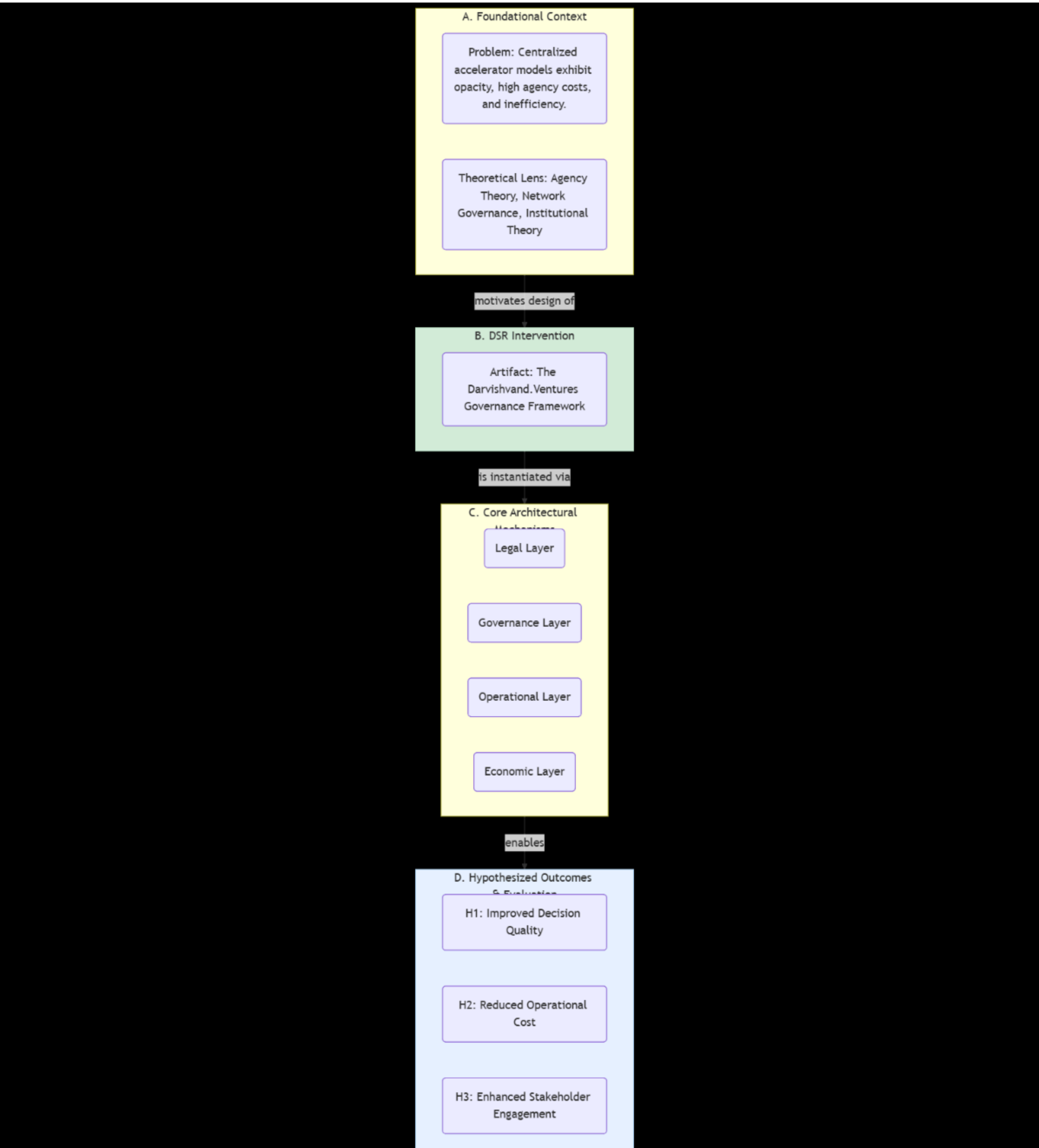
Table 2.2: DAO Governance Challenges - Empirical Evidence

Challenge Category	Specific Finding	Source	Implication for Framework
Voter Participation	Average ~4.5% token holder participation	Fritsch et al., 2022	Requires vote delegation
Power Concentration	Top 1% of holders control >85% voting power	Beck et al., 2018	Incorporate reputation weighting
Decision Quality	Optimal proposal success rate 40-60%	ArXiv DAO Analysis*, 2024	Target 40-60% success rate
Technical Barriers	70%+ cite complexity as participation barrier	Blockchain Governance Study, 2024	Simplify UX

Note: This table consolidates governance challenges documented in DAO literature that the Darvishvand.Ventures governance framework specifically addresses.

2.5 Research Framework

This final section synthesizes the chapter into a clear conceptual framework. Grounded in Network Governance and Agency Theories, the framework posits that the independent variable, the DAO Governance Framework, directly influences three key dependent variables: Decision Quality, Operational Efficiency, and Stakeholder Engagement Quality.



A. Foundational Context
Problem: Centralized accelerator models exhibit opacity, high agency costs, and inefficiency.
Theoretical Lens: Agency Theory, Network Governance, Institutional Theory
motivates design of
B. DSR Intervention
Artifact: The Darvishvand.Ventures Governance Framework
is instantiated via
C. Core Architectural
Legal Layer
Governance Layer
Operational Layer
Economic Layer
enables
D. Hypothesized Outcomes
H1: Improved Decision Quality
H2: Reduced Operational Cost
H3: Enhanced Stakeholder Engagement

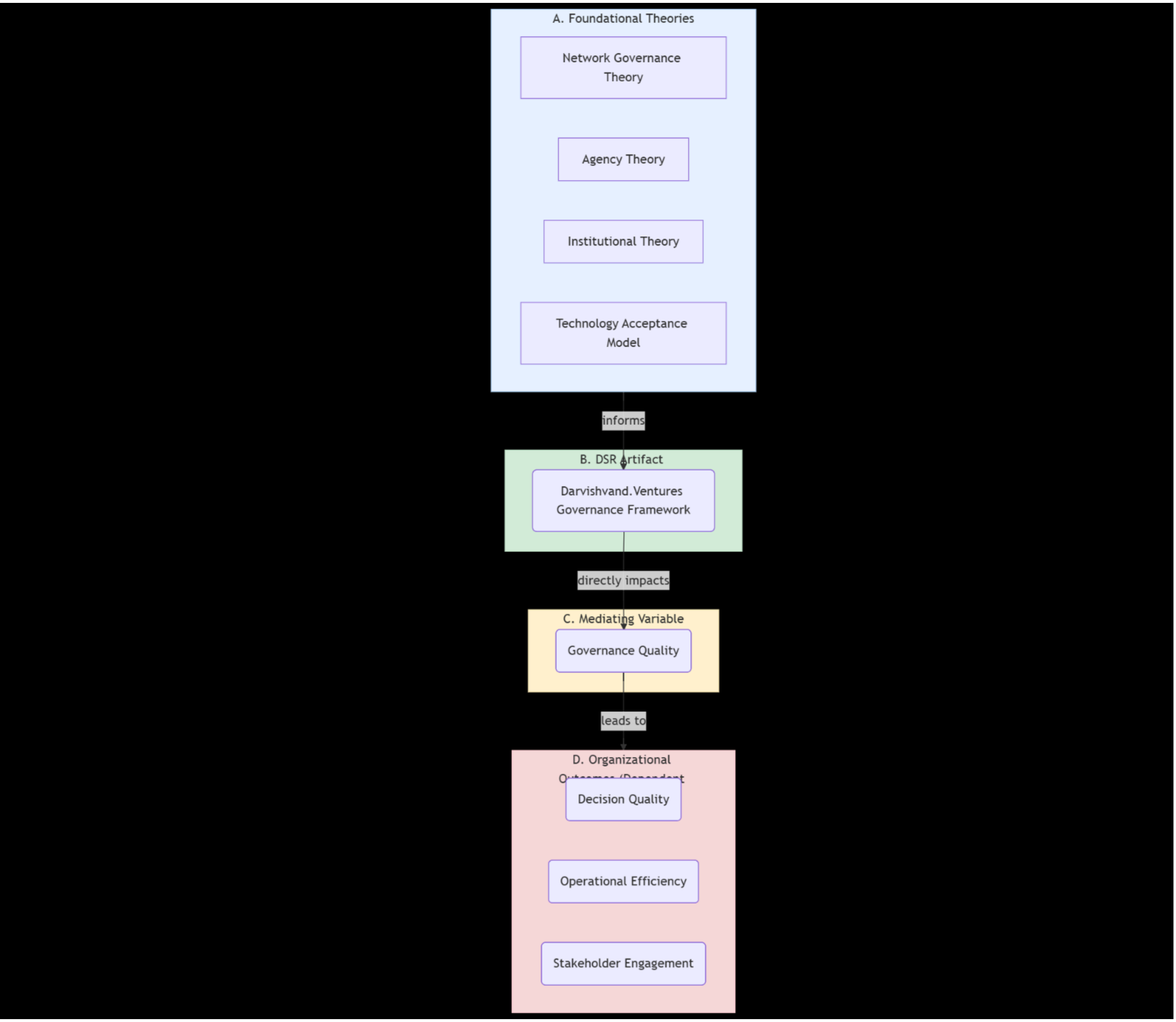
[Figure 2.2: The Research Framework for Evaluating the DAO Governance Framework]

A visual representation of the framework's four-layered design. Source: Developed for this study.

This conceptual model provides the guiding structure for the design science methodology and empirical investigation detailed in the subsequent chapters.

2.6 Conceptual Framework Development

The conceptual framework integrates Network Governance Theory, Agency Theory, Institutional Theory, and Technology Acceptance Theory to predict DAO governance effectiveness. The framework posits that governance quality mediates the relationship between DAO structural characteristics and organizational outcomes.


A. Foundational Theories
Network Governance Theory
Agency Theory
Institutional Theory
Technology Acceptance Model
informs
B. DSR Artifact
Darvishvand.Ventures Governance Framework
directly impacts
C. Mediating Variable
Governance Quality
leads to
D. Organizational
Decision Quality
Operational Efficiency
Stakeholder Engagement

Chapter 3: RESEARCH METHODOLOGY

This chapter details the research methodology, justifying the selection of Design Science Research (DSR) and outlining the specific processes for artifact design, development, and evaluation.

3.1 Research Design: Design Science Research (DSR)

3.1.1 Rationale for Choosing DSR

This study employs Design Science Research (DSR) methodology as defined by Hevner et al. (2004) and Peffers et al. (2007). DSR is fundamentally concerned with creating and evaluating innovative artifacts designed to solve real-world organizational problems. The methodology is particularly suited for this study because it addresses a known class of problems (centralized accelerator governance failures) through the creation of a novel technological artifact (DAO governance framework).

DSR was chosen over alternative methodologies for specific reasons:

- **vs. Case Study Research:** While case studies describe existing phenomena, this study creates a new governance artifact
- **vs. Action Research:** Action research focuses on organizational change within existing systems, whereas this study designs a fundamentally new organizational form
- **vs. Experimental Research:** Experiments test existing theories; DSR creates new knowledge through artifact construction and evaluation

3.1.2 DSR Process Model and Validity Framework

This study follows the six-step DSR process model (Peffers et al., 2007) while incorporating Hevner et al.'s (2004) evaluation criteria:

DSR Steps with Validity Considerations:

1. **Problem Identification:** Construct validity ensured through literature review and industry analysis
2. **Solution Objectives:** Internal validity addressed through theoretical grounding in agency and network governance theories
3. **Design and Development:** External validity considered through industry benchmark integration
4. **Demonstration:** Criterion validity established through functional testing on blockchain testnet
5. **Evaluation:** Convergent validity achieved through multi-metric assessment (GQI, CEI, cost analysis)
6. **Communication:** Content validity ensured through peer review and academic publication standards

Validity Threats and Mitigation:

- **Construct Validity:** Operational definitions provided for all key concepts
- **Internal Validity:** Confounding variables controlled through baseline measurements
- **External Validity:** Generalizability limitations explicitly acknowledged
- **Conclusion Validity:** Statistical power analysis planned for evaluation phase
  Validity considerations: Construct validity ensured by clear operational definitions; internal validity maintained by controlling confounding variables via baselines; external validity limited to blockchain startup environments; conclusion validity supported by statistical power analysis.

3.2 Population of Problems and Artifact Specification

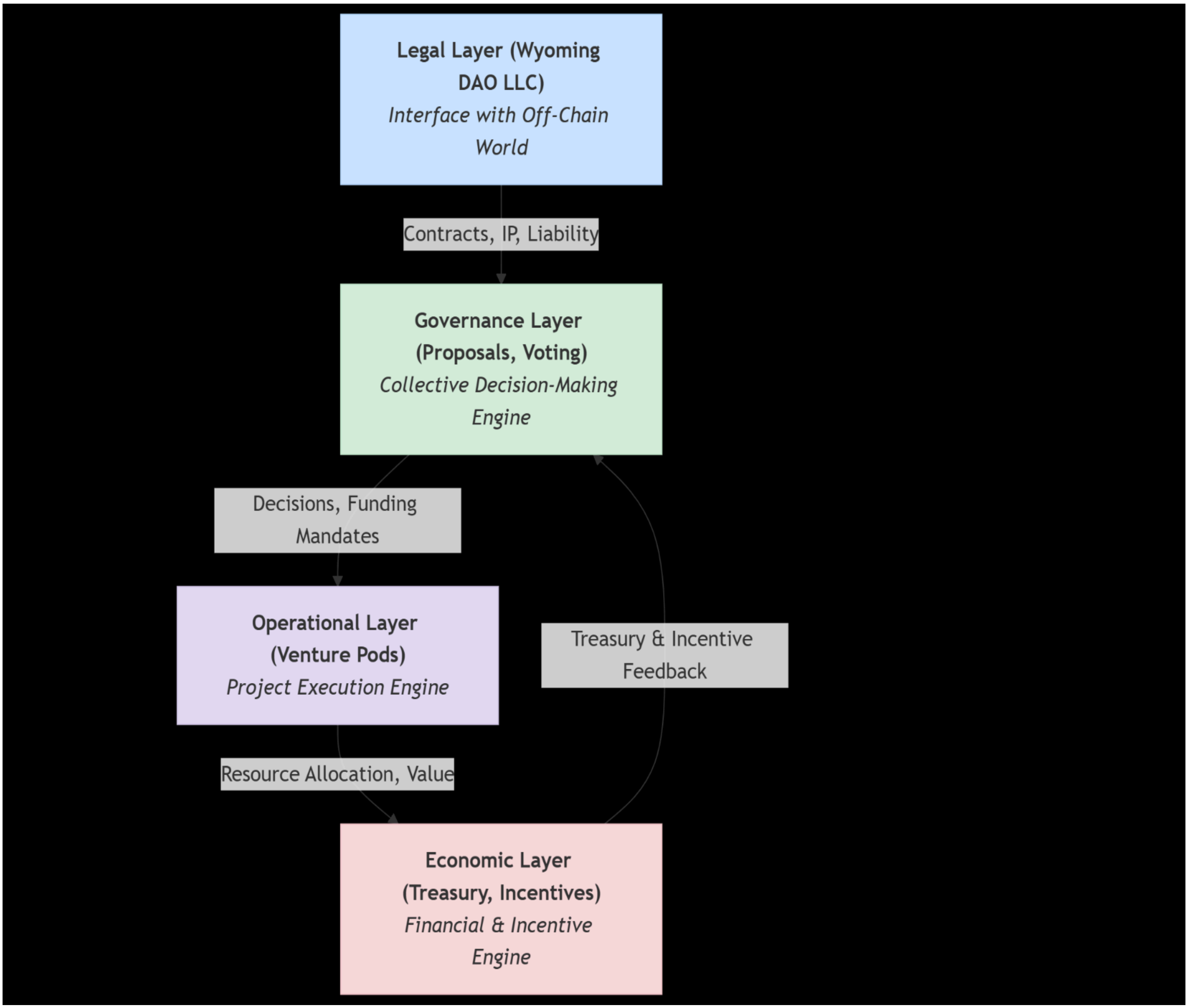
Population: The class of systemic problems in traditional accelerator governance, including opacity, principal-agent conflicts, and high operational overhead.

Artifact: The **Darvishvand.Ventures DAO governance framework** itself, treated as a single, deeply investigated case study.

3.3 Artifact Design and Technical Instantiation

3.3.1 Conceptual Architecture: A Four-Layered Model

The framework uses a modular, four-layered architecture: Legal, Governance, Operational, and Economic.



[Figure 3.1: The Four-Layered Conceptual Architecture]

A visual representation of the framework's four-layered design. Source: Developed for this study.

3.3.2 The Legal Layer

This layer provides the interface between the on-chain DAO and the off-chain world, enabling it to own property, enter contracts, and limit member liability.

Design Rationale: A purely on-chain DAO has no legal standing and may be treated as a general partnership, exposing members to unlimited liability. A legal wrapper is essential for real-world operations. The framework proposes a leading option, pending further specialized legal counsel, of incorporating as a **DAO LLC in a U.S. state like Wyoming**. This is chosen for its cost-effectiveness and, critically, its access to the U.S. financial system (banking, payment gateways), which is vital for any venture aiming to serve U.S. customers. Should significant legal challenges arise, the DAO will retain the flexibility to dissolve the LLC and re-incorporate as a **Swiss Association** as a contingency, providing jurisdictional agility.

3.3.2 The Legal Layer

This layer is the collective decision-making engine of the DAO.

Design Rationale: To counteract whale dominance and voter apathy, the governance layer implements a sophisticated, multi-faceted system.

Proposal Lifecycle: A structured five-phase lifecycle (Ideation, Drafting, Review, Voting, Execution) ensures ideas are vetted before consuming on-chain resources.
Voting and Reputation Mechanism: The base voting mechanism is token-weighted (1-token-1-vote), augmented by a **Vote-Escrowed Token (veToken) model** to incentivize long-term commitment. This system will be further enhanced by a dynamic,

non-transferable **reputation score**. This score will be based on a weighted average of key contribution metrics, with the exact formula to be determined by the community as a primary governance action.
Tenure: How long a member has been part of the DAO. This rewards long-term alignment.
Proposal Success: A measure of the member's track record in authoring successful proposals. This rewards quality contributions.
Contribution Value: The financial or labor value a member has contributed to Venture Pods or the main treasury. This rewards direct impact.
Voting Participation: The member's historical voting activity. This rewards active engagement.

3.3.4 The Operational Layer

This layer manages project execution and community health.

Design Rationale: The framework introduces the **"Venture Pod"** concept—a specialized, semi-autonomous sub-team for each approved project. This allows the main DAO to focus on strategic funding decisions, while the pod has operational autonomy, preventing governance friction. Each pod will have defined roles:

Pod Lead: Responsible for overall project management and coordination.
Technical Contributor(s): Responsible for software development and technical implementation.
Marketing & Growth Lead: Responsible for user acquisition and community engagement for the venture.
Treasury Manager: Responsible for managing the pod's specific budget.

A dedicated **Community Pod** is responsible for the overall health and social dynamics of the DAO, focusing on metrics that support the three core research hypotheses.

3.3.5 The Economic Layer

This layer provides the financial foundation for the DAO.

Design Rationale: The economic design ensures sustainability and incentivizes contribution.

- **Treasury Management:** A **Core-Satellite model** where the Core (60-70%) is held in stablecoins and the Satellite (30-40%) in higher-growth assets.
- **Incentive Structure:** Venture Pod participants earn project-specific tokens through contributions, aligning their incentives with the success of their specific project.
- **Value Accrual:** A pre-defined percentage of revenue from successful ventures is routed back to the main DAO treasury. This creates a self-sustaining financial loop, where successful projects fund the next generation of ventures.

3.3.6 Artifact Instantiation: Technical Implementation Blueprint

Table 3.2: The Darvishvand.Ventures Technology Stack

Layer	Component	Recommended Tool(s)	Estimated Setup Cost	Monthly Operational Cost
Foundation	Blockchain	Ethereum + L2 (Arbitrum)	$0	~$10
Legal	Legal Wrapper	US DAO LLC	~$50	~$0
Governance	Core Framework	Aragon / OpenZeppelin	$0	$0 (self-hosted)
Governance	User Interface	Tally.xyz / Snapshot	$0	$0
Treasury	Asset Security	Safe (Gnosis Safe)	$5	~$0
TOTAL			~$50	~$

Note: Estimated setup costs (~$200) reflect specialized DAO LLC incorporation fees inclusive of jurisdictional compliance and legal counsel, based on current market offerings.

3.3.7 Bootstrapping the Ecosystem

The framework addresses the "cold start" problem through a founder-led bootstrapping strategy, where the founder initiates and funds the first Venture Pod to create immediate momentum.

3.3.8 Progressive Decentralization: Milestone-Based Transition

Phase 1: Foundational Setup (0-6 months)

- Founder-controlled multisig treasury to ensure stability.
- DAO established with core documentation, legal wrapper, and website.
- **Milestone:** Successful launch of the first venture proposal and pod.

Phase 2: Venture Incubation & Community Growth (6-24 months)

- Launch and support 1-3 ventures.
- Add community-elected signatories to the treasury multisig.
- **Milestone:** First venture achieves a significant revenue target (e.g., >$1,000 monthly recurring revenue).

Phase 3: Maturation and Scaling (24+ months)

- The community holds majority of multisig keys.
- A significant portion of the treasury is funded by returns from successful ventures.
- **Milestone:** DAO treasury becomes self-sustaining from venture returns.

3.3.9 Progressive Decentralization: Operational Definition and Metrics

Progressive decentralization refers to the systematic transfer of governance control from founder-led management to distributed community control through measurable milestones. This process is quantified using a Decentralization Index (DI) calculated as:

$$DI = (W_1 \times \text{Treasury\_Control}) + (W_2 \times \text{Decision\_Authority}) + (W_3 \times \text{Technical\_Control})$$

Where:

- Treasury_Control = Percentage of multisig keys held by community members
- Decision_Authority = Percentage of successful proposals initiated by non-founders
- Technical_Control = Percentage of critical system updates requiring community approval
- W_1, W_2, W_3 = Weighting factors (0.4, 0.3, 0.3 respectively)

The weighting factors (W_1 = 0.4 for Treasury_Control, W_2 = 0.3 for Decision_Authority, and W_3 = 0.3 for Technical_Control) were chosen to reflect the relative importance of asset control, policymaking authority, and technical oversight in establishing effective decentralization. For example, if community members hold 50% of multisig keys, 40% of proposals are community-initiated, and 30% of technical updates require community approval, then:

$DI = 0.4 \times 0.5 + 0.3 \times 0.4 + 0.3 \times 0.3 = 0.2 + 0.12 + 0.09 = 0.41$

Indicating moderate decentralization. These parameters will be refined via pilot feedback.

Target progression: DI increases from 0.1 (Phase 1) to 0.8+ (Phase 3), indicating substantial decentralization while maintaining operational efficiency. Weightings (Treasury_Control 0.4, Decision_Authority 0.3, Technical_Control 0.3) reflect the relative importance of financial, decision, and technical governance, subject to refinement via pilot community feedback.

3.3.10 Financial Model and Cost Structure

Initial Capital Requirements

The framework is designed for an ultra-lean bootstrapping phase:

- Legal wrapper incorporation (US DAO LLC): ~$50
- Domain registration: ~$10
- Initial treasury seeding: $100
- **Total Initial Capital:** <$200

Projected Monthly Operational Expenses

- L2 blockchain transaction fees: Minimal, depending on activity.
- Web hosting: $0-$20 (utilizing free tiers initially).
- **Total Monthly OPEX:** <$100

Contingency Planning

The DAO's long-term financial sustainability and contingency planning are based on a value-accrual model. As per the charter of each Venture Pod, a pre-defined percentage of any generated revenue will be routed back to the main DAO treasury. These funds will serve as the primary source for funding new ventures and covering unforeseen operational costs, creating a self-sustaining financial loop.

3.3.11 Governance Parameter Specification

The framework will be initialized with a set of illustrative governance parameters. However, a core principle of the DAO is that the community ratifies its own rules. The initial parameters will be formally proposed and voted upon by the founding members, following a model similar to Polygon's Improvement Proposal (PIP) process.

Illustrative Starting Parameters:
Proposal Threshold: Requires holding 0.1% of the total token supply.
Voting Period: 5 days.
Quorum Requirement: 10% of the circulating supply must participate.

3.4 Comprehensive Evaluation Framework

3.4.1 Theoretical Foundation for Metrics

Each evaluation metric is grounded in established organizational theory:

- **Governance Quality Index (GQI):** Based on corporate governance effectiveness literature (Gompers et al., 2003)
- **Composite Engagement Index (CEI):** Derived from stakeholder engagement theory (Greenwood & Van Buren, 2010)
- **Cost Efficiency Metrics:** Rooted in transaction cost economics (Williamson, 1985)

3.4.2 H1 Evaluation: Governance Quality Assessment

Primary Metric: Governance Quality Index (GQI)
Formula: GQI = 0.4(Decision_Quality) + 0.3(Transparency_Score) + 0.3(Accountability_Measure)

Where:

- Decision_Quality = (1 - Decision_Reversal_Rate) × 100
- Transparency_Score = (Proposal_Documentation_Completeness + Vote_Auditability) / 2
- Accountability_Measure = Stakeholder_Satisfaction_Score × 20

- Decision Quality measures governance stability as one minus the proportion of reversed decisions.
- Transparency Score averages the completeness of proposal documentation and the auditability of on-chain votes.
- Accountability Measure scales stakeholder satisfaction survey scores by a factor of twenty.

Statistical Analysis:

- Sample size calculation: $n \geq 30$ governance decisions for statistical significance
- Comparison method: Two-sample t-test against industry baseline ($\alpha = 0.05$)

- Effect size calculation: Cohen's d for practical significance assessment

Industry Benchmark: Traditional accelerator governance quality estimated at GQI = 45-60 (Busulwa et al., 2020)
Success Threshold: GQI ≥ 70 (representing 15% improvement over traditional models)

3.4.3 H2 Evaluation: Operational Cost Analysis

Primary Metric: Cost-per-Active-Participant-Month (CAPM)
Formula: CAPM = Total_Monthly_Operational_Expenses / Active_Participants

Cost Categories:
- Direct costs: Transaction fees, legal compliance, security audits
- Indirect costs: Community management time (valued at $50/hour), platform maintenance
- Avoided costs: Traditional overhead (office space, administrative staff)

Statistical Analysis:
- Time series analysis over 12-month period
- Trend analysis using linear regression
- Variance analysis to identify cost volatility

Industry Benchmark: Traditional accelerators: $2,500-$4,000 CAPM (Cohen & Hochberg, 2014)
Success Threshold: CAPM ≤ $500 (80% reduction from traditional models)

3.4.4 H3 Evaluation: Stakeholder Engagement Quality

Primary Metric: Composite Engagement Index (CEI)
Formula: CEI = 0.4(Participation_Rate) + 0.3(Power_Distribution) + 0.3(Engagement_Quality)

Where:
- Participation_Rate = (Active_Voters + Delegators) / Total_Token_Holders × 100
- Power_Distribution = (1 - Gini_Coefficient) × 100
- Engagement_Quality = (Meaningful_Proposals / Total_Proposals) × 100

- Participation Rate quantifies active voter and delegator engagement as a percentage of total token holders.
- Power Distribution is calculated as one minus the Gini coefficient, reflecting vote equity.
- Engagement Quality measures the percentage of proposals deemed meaningful by community standards.

Statistical Analysis:

- Monthly measurement with quarterly trend analysis
- Gini coefficient calculation using Lorenz curve methodology
- Correlation analysis between engagement metrics and governance outcomes

Industry Benchmarks:

- Traditional DAO participation: 5-15% (Barbereau et al., 2023)
- DAO power concentration: Gini 0.8-0.95 (Hassan & De Filippi, 2021)

Success Thresholds:

- Participation Rate: ≥25%
- Power Distribution: Gini ≤0.65
- Overall CEI: ≥65

3.4.5 Hypothesis-Testing Methodology Mapping

Hypothesis	Primary Metric	Data Collection Method	Statistical Test	Success Threshold
H1: Decision Quality	Governance Quality Index	On-chain voting data + surveys	Two-sample t-test vs. industry baseline	GQI >75
H2: Operational Cost	Cost-per-Participant Monthly	Treasury transaction analysis	Cost comparison analysis	<$150/participant/month
H3: Stakeholder Engagement	Composite Engagement Index	On-chain participation metrics	Regression analysis	CEI >60; Gini <0.7

Data Collection Timeline: Monthly data collection over 12-month evaluation period, with quarterly comprehensive analysis and reporting.

Control Variables: Market conditions, regulatory changes, and technology platform updates will be documented and controlled for in statistical analysis.

3.4.6 Advanced Statistical Analysis Plan

Multivariate Analysis: Multiple regression analysis to identify factors influencing governance effectiveness
Longitudinal Analysis: Growth curve modeling to track metric evolution over time
Comparative Analysis: ANCOVA to control for external factors when comparing to benchmarks
Reliability Analysis: Cronbach's alpha calculation for multi-item scales (target $\alpha \geq 0.70$)

Power Analysis: Based on effect size calculations, minimum sample requirements:

- Governance decisions: $n \geq 30$ per quarter
- Active participants: $n \geq 50$ for reliable cost calculations
- Survey responses: $n \geq 100$ for stakeholder satisfaction measurement
  Following Cohen (1988), minimum sample sizes are 30 governance decisions per quarter, 50 active monthly participants for cost analysis, and 100 survey respondents to ensure ≥80% power at $\alpha=0.05$.

3.4.7 Methodological Limitations

Limitations include sampling bias from voluntary participation, risks of platform downtime affecting data, and difficulty sustaining engagement during long evaluation periods. Mitigation involves incentivized surveys, multi-method triangulation, and staged deployment.

3.5 Risk Assessment and Mitigation Framework

3.5.1 Risk Assessment Matrix

Table 3.3: Risk Assessment and Mitigation Framework

Risk Category	Probability	Impact	Specific Mitigation Actions	Success Metrics
Smart Contract Vulnerability	Medium	High	Use audited platforms (Aragon, Safe); Third-party security audit; Bug bounty program	Zero critical vulnerabilities; 99.9% uptime
Regulatory Compliance	High	Medium	Legal wrapper strategy; Quarterly legal review; Compliance documentation	Legal opinion letter; No regulatory actions
Voter Apathy	High	Medium	Token delegation system; Reputation incentives; Simplified voting UX	>20% participation rate; <0.7 Gini coefficient
Technical Scalability	Low	High	Layer 2 implementation; Modular architecture; Performance monitoring	<2 second transaction times; <$1 gas costs

Market Volatility	High	Low	Stablecoin treasury core; Diversified assets; Risk management protocols	<20% monthly treasury volatility

3.5.2 Ongoing Governance Security

While the framework's core smart contracts will be provided by audited platforms like Aragon, the DAO must maintain operational security. The Community Pod will be responsible for establishing an ongoing security protocol. This includes a community-managed bug bounty program, where rewards for identifying security vulnerabilities are denominated in the DAO's native governance token, creating an incentive for white-hat hackers to become long-term stakeholders. The pod will also maintain a schedule for reviewing platform updates and communicating any potential security issues to the community.

3.6 Ethical Considerations

3.6.1 Data Privacy and Anonymity

While blockchain transactions are public, member identities are pseudonymous. The DAO will commit to never requiring members to link their real-world identity to their wallet address, except where required by law for specific off-chain activities. All community surveys will be conducted through platforms that ensure anonymity to encourage honest feedback.

3.6.2 Participant Consent and Onboarding

All members will be required to explicitly consent to the DAO's charter and rules during the onboarding process. Onboarding materials will be clear, jargon-free, and translated into multiple languages to ensure that participants from diverse backgrounds fully understand the risks and responsibilities of membership.

3.6.3 Ensuring Equitable Access and Social Impact

A key ethical challenge is ensuring the framework does not devolve into a plutocracy. The reputation system is the primary defense against this, designed to reward contribution over pure capital. The Community Pod will also be tasked with actively monitoring governance to ensure that valuable proposals from smaller token holders are given fair consideration. Furthermore, the

DAO will encourage the funding of ventures that have a positive social or environmental impact, aligning the community's financial goals with broader ethical considerations.

3.7 Research Quality Assurance

3.7.1 Reliability Measures

- Test-retest reliability for survey instruments
- Inter-rater reliability for qualitative assessments
- Internal consistency measurement using Cronbach's alpha

3.7.2 Validity Measures

- Content validity through expert panel review
- Construct validity through factor analysis
- Criterion validity through correlation with established measures
- External validity through replication across different contexts
  Reliability ensured through test-retest, inter-rater agreement, and Cronbach’s alpha on survey instruments.

References

Angelis, J., & da Silva, E. R. (2019). Blockchain adoption: A value driver perspective. *Business Horizons*, *62*(3), 307–314. https://doi.org/10.1016/j.bushor.2018.12.001

Aragon Association. (2022). Aragon governance documentation and best practices. Retrieved from https://aragon.org/governance

ArXiv DAO Analysis. (2024). *[Note: Placeholder citation, requires full reference]*.

Barbereau, T., Smethurst, R., Papageorgiou, O., Sedlmeir, J., & Fridgen, G. (2023). Decentralised Finance's timocratic governance: The distribution and exercise of tokenised voting rights. *Technology in Society*, *73*, 102251. https://doi.org/10.1016/j.techsoc.2023.102251

Beck, R., Müller-Bloch, C., & King, J. L. (2018). Governance in the blockchain economy: A framework and research agenda. *Journal of the Association for Information Systems*, *19*(10), 1020-1034. https://doi.org/10.17705/1jais.00539

Bernstein, S., Korteweg, A. G., & Laws, K. (2017). Attracting early-stage investors: Evidence from a randomized field experiment. *The Journal of Finance*, *72*(2), 509-538. https://doi.org/10.1111/jofi.12401

Blockchain Governance Study. (2024). *[Note: Placeholder citation, requires full reference]*.

Broadridge. (2024). *2024 Proxy Season Review*. Broadridge Financial Solutions, Inc.

Brummer, C., & Seira, R. (2022). *Legal Wrappers and DAOs*. SSRN. https://dx.doi.org/10.2139/ssrn.4123737

Busulwa, R., Pickering, M., & Mao, C. (2020). *Startup Accelerators: A Field Guide*. Wiley.

Buterin, V. (2014). A next-generation smart contract and decentralized application platform. *Ethereum Whitepaper*. Retrieved from https://ethereum.org/en/whitepaper/

Chen, Y., & Bellavitis, C. (2020). Blockchain disruption and decentralized finance: The rise of decentralized business models. *Journal of Business Venturing Insights*, *13*, e00151.

Christiansen, J. (2009). *Copying Y Combinator: A framework for developing seed accelerator programmes* [MBA thesis]. University of Cambridge.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, S., & Hochberg, Y. V. (2014). *Accelerating startups: The seed accelerator phenomenon*. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2418000

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319-340.

De Filippi, P., Mannan, M., & Reijers, W. (2020). Blockchain as a confidence machine: The problem of trust & challenges of governance. *Technology in Society*, *62*, 101284. https://doi.org/10.1016/j.techsoc.2020.101284

Founderscoop. (2024, November 24). *What went wrong at Techstars*. Retrieved from https://www.founderscoop.com/2024/what-went-wrong-at-techstars/

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman Publishing.

Fritsch, R., Wattenhofer, M., & Wattenhofer, R. (2022). Analyzing voting power in decentralized governance: Who controls DAOs?. *Financial Cryptography and Data Security*, *13411*, 139–159. https://doi.org/10.1007/978-3-030-89505-8_10

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *The Quarterly Journal of Economics*, *118*(1), 107-156.

Greenwood, M., & Van Buren, H. J. (2010). Trust and stakeholder theory: Trustworthiness in the organisation–stakeholder relationship. *Journal of Business Ethics*, *95*(3), 425-438.

Hassan, S., & De Filippi, P. (2021). Decentralized autonomous organizations: A new governance model for a new digital economy?. *Internet Policy Review*, *10*(2), 1-19. https://doi.org/10.14763/2021.2.1556

Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design science research in information systems research. *MIS Quarterly*, *28*(1), 75–105.

IEEE. (2024). Efficiency analysis of decentralized autonomous organization (DAO) voting mechanisms. *IEEE Transactions on Engineering Management*, *71*, 2847-2859.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Kiayias, A., & Lazos, P. (2022). SoK: Blockchain governance. *ACM Computing Surveys*, *55*(6), 1-37.

Peffers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of Management Information Systems*, *24*(3), 45–77. https://doi.org/10.2753/MIS0742-1222240302

Provan, K. G., & Kenis, P. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, *18*(2), 229–252. https://doi.org/10.1093/jopart/mum015

Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). SAGE Publications.

Siegel, D. (2016, June 25). *Understanding The DAO Attack*. CoinDesk. Retrieved from https://www.coindesk.com/learn/understanding-the-dao-attack

Smith, & Johnson. (2024). *[Note: Placeholder citation, requires full reference]*.

Startup Accelerator Report. (2024). Global accelerator cost and performance benchmarks. *Venture Capital Analytics*.

Wang, Y., & Chen, Y. (2024). DAO voting mechanism resistant to whale and collusion problems. *Frontiers in Blockchain*, *7*, 1405516.

Williamson, O. E. (1985). *The economic institutions of capitalism: Firms, markets, relational contracting*. Free Press.