# MIDOCEAN UNIVERSITY

## Master of Business Administration (MBA)

Proposal Research:

# Decentralized Decision-Making in AI-Driven Organizations


| | |
|---|---|
| Tarek Al-Hussain | 243001329 |

# 1. Introduction and Background

The integration of Artificial Intelligence (AI) into organizational structures is rapidly transforming traditional business models and operational paradigms. AI is no longer just a tool for automation or analysis; it is becoming a core component of strategic decision-making, enabling new forms of organizational design and governance. Simultaneously, there is a growing trend towards decentralization in organizational structures, moving away from rigid hierarchies towards more agile, networked, and empowered teams. This shift is driven by the need for faster adaptation, increased innovation, and better alignment with dynamic market conditions.

The intersection of these two powerful trends—AI adoption and organizational decentralization—presents a fertile ground for research. Specifically, the concept of "Decentralized Decision-Making in AI-Driven Organizations" explores how AI technologies can enable, enhance, or even fundamentally alter the way decisions are made when authority is distributed rather than concentrated at the top. This involves examining how AI-driven insights can empower teams at lower levels, how AI can facilitate coordination and consensus in non-hierarchical structures, and how autonomous AI agents might participate in or even lead decision-making processes within decentralized frameworks like Decentralized Autonomous Organizations (DAOs).

However, this convergence also raises significant questions and challenges. How can organizations effectively balance AI capabilities with human judgment in a decentralized setting? What governance mechanisms are needed to ensure accountability, transparency, and ethical considerations when decisions are made collaboratively by humans and AI, or even by autonomous AI agents? Existing governance frameworks, often designed for traditional hierarchies or specific AI applications, may not adequately address the unique complexities of AI-driven decentralized organizations. Concerns around alignment faking, probabilistic uncertainty in AI, governance capture, and ensuring proof of humanity in DAO contexts highlight the need for novel approaches.

This research proposal aims to investigate the models, challenges, and implications of decentralized decision-making within organizations that heavily leverage AI. It seeks to understand the conditions under which such models are effective, the necessary frameworks for

governance and ethical oversight, and the potential impact on organizational performance, innovation, and stakeholder value. By exploring this cutting-edge intersection, the research intends to provide valuable theoretical insights and practical guidance for businesses navigating the future of work and organization in an increasingly AI-driven world.

# 2. Literature Review

The study of decentralized decision-making in AI-driven organizations sits at the confluence of several established and emerging fields, including organizational theory, artificial intelligence, governance studies, and blockchain technology. This review synthesizes key literature relevant to understanding the current landscape, challenges, and potential of this intersection.

### 2.1 Evolution of Organizational Structures and Decision-Making:

Traditional organizational theory often depicts hierarchical structures where decision-making authority is concentrated at the top (Taylor, 1911). This model, rooted in scientific management principles, prioritized efficiency and control in stable environments but often suffered from slow responsiveness and information distortion as directives moved down the chain (Hamel, 2007). The limitations of strict hierarchies led to explorations of flatter, more decentralized structures, particularly with the rise of the knowledge economy. Companies like W. L. Gore & Associates and Morning Star pioneered models with minimal management layers, aiming for increased agility and employee empowerment (Hamel, 2011; Hamel & Zanini, 2020). However, widespread adoption was often hindered by the cognitive and informational challenges of coordinating complex decisions without central guidance (Functionly, 2025).

Decentralization, in essence, involves distributing decision-making authority across various levels or units (MasterClass, 2022; Organimi, 2024). This can enhance responsiveness, foster innovation by leveraging diverse perspectives closer to the operational front lines, and increase employee engagement (WalkMe, 2024; Kaplan, 2023). However, it also introduces challenges related to coordination, maintaining strategic alignment, ensuring accountability, and potential conflicts of interest (JointheCollective, 2024).

### 2.2 The Role of AI in Organizational Decision-Making:

Artificial Intelligence is fundamentally altering the information landscape within organizations. AI systems excel at processing vast datasets, identifying complex patterns, simulating scenarios, and synthesizing knowledge from disparate sources (Functionly, 2025). This capability shifts the paradigm from information scarcity to insight abundance, potentially overcoming the traditional barriers to effective decentralized decision-making. AI can provide teams at all levels with the real-time data and analytical power previously reserved for senior management, enabling more informed and timely decisions closer to the point of action (Cleveland Clinic example cited in Functionly, 2025).

AI's role extends beyond providing insights; it can actively participate in or automate aspects of the decision-making process. This ranges from AI recommending actions based on data analysis to AI agents executing tasks autonomously based on predefined goals and learned strategies (Xi et al., 2023).

**2.3 Decentralized Autonomous Organizations (DAOs) and Web3 Governance:**

The advent of blockchain technology has introduced a radical form of decentralization through Decentralized Autonomous Organizations (DAOs). DAOs operate via smart contracts on a blockchain, with rules and decisions encoded and executed transparently, often governed by token-holder voting (Wipro Tech Blogs, 2024). They represent a potential alternative to traditional corporate structures, aiming for greater transparency, stakeholder alignment, and community-driven governance (Messari, 2023). DAOs have emerged in various forms, including social clubs (LinksDAO), investment vehicles (Syndicate), and collection management (PleasrDAO) (Wipro Tech Blogs, 2024).

The integration of AI with DAOs (AI-DAOs) presents further possibilities, where AI could automate governance proposals, moderate discussions, manage treasuries, facilitate shared intelligence between DAOs, or even act as autonomous agents participating in the governance process (Wipro Tech Blogs, 2024; Ocean Protocol cited in Wipro Tech Blogs, 2024). This synergy could potentially create self-sufficient systems capable of autonomous operation and adaptation.

**2.4 Governance Challenges in AI-Driven Decentralized Systems:**

While promising, the combination of AI and decentralization introduces unique governance challenges. Existing frameworks like the EU AI Act and NIST AI Risk Management Framework primarily address AI risks in more traditional contexts and may not fully cover the complexities of autonomous AI agents operating within decentralized structures (Chaffer et al., 2024).

**Key challenges include:**

- **Ethical Alignment and Control:** Ensuring AI agents, particularly autonomous ones, act in accordance with human values and ethical principles, avoiding issues like "alignment faking" or unintended consequences (Hinton, 2024; Greenblatt, 2024; Chaffer et al., 2024).
- **Accountability and Transparency:** Establishing clear lines of responsibility when decisions are made by distributed human teams augmented by AI, or by autonomous agents. Web3 technologies offer potential solutions through immutable records and transparent smart contracts, but challenges remain (DcentAI Blog, 2024).
- **Security and Manipulation:** Decentralized systems, including DAOs, can be vulnerable to attacks like Sybil attacks (where fake identities manipulate voting) or governance capture (where specific groups gain undue influence) (DcentAI Blog, 2024).
- **Probabilistic Uncertainty:** AI decisions are often probabilistic, carrying an inherent risk of error. Mechanisms are needed to manage this risk, especially when decisions are executed automatically on-chain (Wipro Tech Blogs, 2024).
- **Proof of Humanity:** Distinguishing between human participants and AI agents in decentralized governance systems is crucial for preventing manipulation (Wipro Tech Blogs, 2024; DcentAI Blog, 2024).

### 2.5 Proposed Frameworks (e.g., ETHOS):

To address these governance gaps, new frameworks are being proposed. The ETHOS (Ethical Technology and Holistic Oversight System) model, for example, suggests leveraging Web3 technologies (blockchain, DAOs, smart contracts, soulbound tokens, zero-knowledge proofs) to create a decentralized governance system specifically for AI agents. It includes features like a global registry, dynamic risk classification, proportional oversight, automated compliance monitoring, and decentralized dispute resolution (Chaffer et al., 2024). Such frameworks aim to

balance innovation with ethical responsibility through participatory and transparent governance mechanisms.

### 2.6 Synthesis and Research Gap:

The literature indicates a clear trend towards both organizational decentralization and AI integration. AI offers the potential to overcome historical limitations of decentralized models by democratizing access to insights and enabling new forms of coordination, including DAOs. However, this convergence creates significant governance challenges related to ethics, accountability, security, and the unique nature of autonomous AI agents. While frameworks like ETHOS are emerging, there is a need for empirical research to understand how decentralized decision-making functions in practice within AI-driven organizations, the effectiveness of different governance mechanisms (including Web3 approaches), and the resulting impacts on organizational outcomes. This research proposal aims to address this gap by investigating the practical implementation, challenges, and performance implications of decentralized decision-making models in organizations actively utilizing AI.

## 3. Research Questions and Objectives

Based on the background and literature review, this research seeks to address the gap in understanding the practical implementation and implications of combining AI with decentralized organizational structures. The study is guided by the following primary research question and specific objectives:

### 3.1 Primary Research Question:

How does the integration of AI technologies shape the structure, processes, effectiveness, and governance of decentralized decision-making within contemporary organizations?

### 3.2 Research Objectives:

1. **Identify and Characterize Models:** To identify and characterize the prevalent models of decentralized decision-making currently employed in organizations utilizing AI technologies (ranging from AI-augmented teams to AI-integrated DAOs).

2**. Analyze AI Roles:** To analyze the specific roles AI (including analytical tools, predictive models, and autonomous agents) plays in enabling, facilitating, or modifying decentralized decision-making processes (e.g., insight generation, coordination support, process automation, agent participation).

3. **Evaluate Impact:** To evaluate the perceived and measurable impact of AI-driven decentralized decision-making on key organizational outcomes, such as decision speed and quality, organizational agility, innovation capacity, operational efficiency, employee engagement, and overall performance.

4. **Investigate Governance:** To investigate the governance mechanisms (including traditional management oversight, algorithmic governance, and Web3/DAO-based protocols like those proposed in the ETHOS framework) used to manage AI-driven decentralized decision-making, focusing on ensuring transparency, accountability, ethical alignment, and risk mitigation.

5. **Identify Challenges:** To identify the key challenges, barriers, and ethical dilemmas organizations face when implementing, managing, and scaling AI-driven decentralized decision-making models.

6. **Develop Framework and Recommendations:** To synthesize the findings into a conceptual framework that explains the dynamics of AI in decentralized decision-making and to derive practical recommendations for managers and organizational designers seeking to effectively leverage AI within decentralized structures.

# 4. Methodology and Theoretical Framework

This research will employ a mixed-methods approach, combining qualitative case studies with potentially quantitative survey data to provide a rich and comprehensive understanding of decentralized decision-making in AI-driven organizations. The qualitative component will allow for in-depth exploration of complex processes and contexts, while the quantitative element can help identify broader patterns and correlations.

### 4.1 Research Methodology:

**Primary Approach:** Multiple Case Study Design. This approach is well-suited for exploring contemporary phenomena within their real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2018). We will select a diverse set of organizations (e.g., tech companies, financial services, potentially DAOs) that are known to be implementing forms of decentralized decision-making and utilizing AI technologies significantly.

**Secondary Approach (Potential):** Survey Research. Depending on access and feasibility, a survey could be developed and distributed to managers or team members within relevant organizations to gather quantitative data on the prevalence of certain practices, perceived impacts, and challenges related to AI-driven decentralization.

### 4.2 Data Collection:

Data collection will focus on gathering rich information from multiple sources within each case study organization:

**Semi-structured Interviews:** Interviews will be conducted with key informants at different organizational levels, including senior leaders, middle managers, team leaders, team members, and potentially AI/data science specialists. Questions will focus on the structure of decision-making, the role and integration of AI tools/agents, governance processes, perceived benefits, challenges, and ethical considerations.

**Document Analysis:** Relevant internal documents such as organizational charts, process descriptions, policy documents, project reports, governance protocols (including smart contracts or DAO proposals if applicable), and internal communications will be collected and analyzed.

Observation (Potential): Where feasible and permitted, direct or indirect observation of team meetings or decision-making processes involving AI tools might be conducted.

**Survey Data (if applicable):** Collection of quantitative data through online questionnaires focusing on scales related to decision-making autonomy, AI usage, perceived effectiveness, governance satisfaction, etc.

### 4.3 Data Analysis:

**Qualitative Data:** Interview transcripts and documents will be analyzed using thematic analysis (Braun & Clarke, 2006). This involves identifying recurring patterns, themes, and concepts

related to the research questions. Cross-case analysis will be performed to identify similarities and differences across the selected organizations, leading to more generalizable findings.

**Quantitative Data (if applicable):** Survey data will be analyzed using descriptive statistics (frequencies, means, standard deviations) and inferential statistics (e.g., correlations, regression analysis) to explore relationships between variables like AI integration level, degree of decentralization, governance mechanisms, and organizational outcomes.

Mixed-Methods Integration: Findings from the qualitative and quantitative analyses will be integrated during the interpretation phase to provide a more holistic understanding, using one dataset to elaborate or clarify findings from the other (Creswell & Plano Clark, 2017).

**4.4 Theoretical Framework:**

This research draws upon several theoretical lenses to frame the investigation and interpret the findings:

**Organizational Theory:** Concepts such as contingency theory (examining the fit between structure, technology, and environment), organizational information processing theory (how organizations gather and use information for decisions), and theories of organizational change and adaptation will inform the analysis of structural and process shifts.

**Agency Theory:** This theory will be relevant for understanding the delegation of decision rights in decentralized structures, potential conflicts of interest between principals (e.g., leadership) and agents (e.g., empowered teams or AI agents), and the role of monitoring and governance mechanisms.

**Complexity Theory:** Given the dynamic and potentially emergent nature of AI-driven decentralized systems, complexity theory concepts like self-organization, adaptation, and feedback loops may provide valuable insights into how these systems function and evolve.

**Technology Acceptance Model (TAM) / Unified Theory of Acceptance and Use of Technology (UTAUT):** These frameworks can help understand the factors influencing the adoption and effective use of AI tools by individuals and teams within the decentralized decision-making context.

**AI Ethics and Governance Frameworks**: Principles related to fairness, accountability, transparency, and bias in AI systems, as well as emerging concepts in AI governance (e.g., algorithmic governance, constitutionalism for AI), will be crucial for analyzing the ethical dimensions and governance challenges.

**Sociotechnical Systems Theory:** This perspective emphasizes the interplay between social aspects (people, teams, culture) and technical aspects (AI tools, platforms, infrastructure) in shaping outcomes.

**Web3/DAO Governance Theories (if applicable):** If DAOs are included as cases, theories related to tokenomics, consensus mechanisms, and decentralized governance protocols will be incorporated.

By integrating these theoretical perspectives, the research aims to develop a nuanced understanding of the multifaceted phenomenon of decentralized decision-making in AI-driven organizations.

# 5. Expected Contributions and Implications

This research on decentralized decision-making in AI-driven organizations is expected to make significant contributions to both academic theory and managerial practice.

### 5.1 Theoretical Contributions:

**Integrating AI into Organizational Theory:** The study will contribute to organizational theory by providing empirical insights into how AI technologies are reshaping fundamental concepts like organizational structure, decision-making processes, power distribution, and governance. It will extend existing models (e.g., information processing theory, contingency theory) to account for the unique capabilities and challenges introduced by AI.

**Advancing Understanding of Decentralized Models:** By examining decentralization in the context of AI, the research will offer a more nuanced understanding of the conditions under which decentralized models are effective, the role of technology in overcoming traditional limitations, and the emergence of new forms like AI-augmented teams and AI-integrated DAOs.

**Developing AI Governance Frameworks:** The research will contribute to the nascent field of AI governance by empirically investigating the effectiveness of different governance mechanisms (including traditional, algorithmic, and Web3-based approaches like ETHOS) in real-world organizational settings. This can inform the development of more robust and context-aware governance frameworks for AI, particularly concerning autonomous agents.

**Bridging Organizational Studies and AI Research:** The study will help bridge the gap between organizational studies and AI research by examining the practical implementation and organizational impact of AI technologies beyond purely technical perspectives.

### 5.2 Practical/Managerial Implications:

- **Guidance for Organizational Design:** The findings will provide managers and organizational designers with practical insights into how to structure their organizations to effectively leverage AI while promoting agility and empowerment through decentralization. This includes guidance on defining decision boundaries, structuring AI-augmented teams, and choosing appropriate governance mechanisms.
- **Best Practices for AI Implementation:** The research will identify best practices and potential pitfalls associated with integrating AI into decentralized decision-making processes, helping organizations navigate the complexities of implementation and maximize the benefits while mitigating risks.
- **Informed Technology Adoption:** By understanding the roles AI can play and the associated challenges, organizations can make more informed decisions about adopting and deploying specific AI tools and platforms to support their strategic objectives.
- **Framework for Ethical AI Deployment:** The study's focus on governance and ethical considerations will provide managers with frameworks and considerations for deploying AI responsibly within decentralized structures, ensuring alignment with organizational values and societal expectations.
- **Understanding Future Workplaces:** The research will shed light on the evolving nature of work and management in AI-driven, potentially decentralized organizations, helping leaders prepare for future workforce dynamics and skill requirements.

### 5.3 Potential Limitations and Future Research Directions:

Limitations: Potential limitations include the generalizability of findings (dependent on case selection), potential biases in interview data, the rapidly evolving nature of AI technology (making findings potentially time-sensitive), and challenges in accessing sensitive organizational data, particularly for DAOs.

**Future Research:** This study will open avenues for future research, including longitudinal studies tracking the evolution of AI-driven decentralized organizations, comparative studies across different industries or cultural contexts, deeper investigation into specific governance mechanisms (e.g., the effectiveness of specific DAO protocols or algorithmic oversight tools), and exploring the impact on employee well-being and skills development.

Overall, this research promises to deliver valuable knowledge at the critical intersection of AI, organizational design, and governance, offering timely insights for navigating the complexities of the modern technological landscape.

# 6. Research Timeline (Illustrative)

This research project is proposed to be conducted over a period of approximately 12-18 months. The timeline below provides an illustrative breakdown of key phases and activities:

**Phase 1: Foundation & Planning (Months 1-3)**

Month 1: Refine research questions, finalize theoretical framework, detailed literature review completion, initial case study identification and outreach.

Month 2: Develop detailed research protocols (interview guides, survey instruments if applicable), obtain ethical approvals (IRB), secure access to case study organizations.

Month 3: Pilot test interview guides/survey, refine instruments based on feedback, finalize case study selection.

**Phase 2: Data Collection (Months 4-9)**

Months 4-6: Conduct interviews and document collection for Case Study 1 & 2. Begin preliminary qualitative data analysis (coding, memoing).

Months 7-9: Conduct interviews and document collection for Case Study 3 & 4 (or additional cases as needed). Continue qualitative data analysis. If applicable, distribute and collect survey data.

**Phase 3: Data Analysis & Synthesis (Months 10-14)**

Months 10-12: Complete primary qualitative data analysis for all cases. Conduct cross-case analysis. If applicable, analyze quantitative survey data.

Months 13-14: Integrate qualitative and quantitative findings. Synthesize results in relation to research questions and theoretical framework. Develop conceptual model/framework based on findings.

**Phase 4: Writing & Dissemination (Months 15-18)**

Month 15: Draft initial chapters/sections of the final research report/dissertation (Introduction, Literature Review, Methodology).

Month 16: Draft findings and analysis chapters.

Month 17: Draft discussion, conclusion, implications, and recommendations. Compile complete draft.

Month 18: Revise manuscript based on feedback, finalize report/dissertation, prepare presentations/publications for dissemination.

# References


Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Chaffer, T. J., von Goins II, C., Cotlage, D., Okusanya, B., & Goldston, J. (2024). Decentralized governance of AI agents. *arXiv*. https://arxiv.org/abs/2412.17114v3

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

DcentAI Blog. (2024, May 16). Decentralized AI governance: Empowering community-driven decision-making. *Medium*. https://medium.com/@dcentai

Functionly. (2025, March 7). Decentralized decision making: Empowering teams with AI-driven insights. https://www.functionly.com/blog/decentralized-decision-making

Greenblatt, E. (2024). Alignment faking: A core challenge for AI alignment. https://www.greenblattai.com/research/alignment-faking

Guo, S., Zhang, Z., Wang, Y., Li, H., Liu, Y., & Xu, Y. (2024). A survey on large language model based autonomous agents. *arXiv*. https://arxiv.org/abs/2401.00000

Hamel, G. (2007). *The future of management*. Harvard Business Press.

Hamel, G. (2011). First, let's fire all the managers. *Harvard Business Review*. https://hbr.org/2011/12/first-lets-fire-all-the-managers

Hamel, G., & Zanini, M. (2020). *Humanocracy: Creating organizations as amazing as the people inside them*. Harvard Business Review Press.

Hinton, G. (2024). Various interviews and statements. [Unpublished sources].

JointheCollective. (2024, February 23). The dynamics of decentralized decision-making in organizations. https://jointhecollective.org/blog/decentralized-decision-making

Kaplan, S. (2023). Embracing the decentralized decision making process. https://skconsulting.com/articles/decentralized-decision-process

MasterClass. (2022, June 9). How decentralized organizational structures work. *MasterClass*. https://www.masterclass.com/articles/decentralized-organization-structure

Messari. (2023). *DAO landscape report*. https://messari.io/pdf/dao-landscape-report-2023

Organimi. (2024, August 14). What is a decentralized organizational structure? https://www.organimi.com/blog/what-is-a-decentralized-structure

Taylor, F. W. (1911). *The principles of scientific management*. Harper & Brothers.

WalkMe. (2024, July 2). Decentralized organizational structures: Definition, best practices... https://www.walkme.com/blog/decentralized-organizational-structures

Wipro Tech Blogs. (2024, October 28). Artificial intelligence and decentralized autonomous organizations: Where two worlds meet. *Medium*. https://medium.com/wiproblogs/ai-and-daos

Xi, Z., Zhang, J., Zhang, H., Li, Y., & Sun, M. (2023). The rise and potential of large language model based agents: A survey. *arXiv*. https://arxiv.org/abs/2311.00501

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.