

AI GOVERNANCE FRAMEWORK IN BLOCKCHAIN TECHNOLOGY

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Received: 10 Jun 2025

Accepted: 11 Jun 2025

Published: 12 Jun 2025

ABSTRACT

The aim of this paper is to develop and evaluate an AI governance framework specifically tailored for blockchain technology. This framework is intended to ensure the ethical, transparent, and efficient deployment and operation of AI systems within blockchain environments. The research methodology involves a comprehensive literature review to identify existing governance models and frameworks in both AI and blockchain domains. Subsequently, we propose a novel AI governance framework that integrates key principles from these models. The framework is designed using a combination of theoretical analysis and practical case studies. To validate the framework, we conduct simulations and real-world experiments within various blockchain platforms, assessing its effectiveness in addressing governance challenges. The proposed AI governance framework successfully integrates principles of transparency, accountability, and security. The simulations demonstrate that the framework enhances decision-making processes, improves compliance with ethical standards, and mitigates risks associated with AI deployment in blockchain environments. Additionally, the real-world experiments reveal significant improvements in the traceability and auditability of AI operations, fostering greater trust among stakeholders. This study presents a robust AI governance framework tailored for blockchain technology, highlighting its potential to address critical governance issues. The framework's implementation shows promising results in improving ethical standards, transparency, and security within blockchain-based AI systems. Future research can build upon this framework to further refine governance mechanisms and explore its applicability in other emerging technologies.

KEYWORDS: *AI Governance, Blockchain Technology, Transparency, Accountability, Ethical AI, Blockchain Governance, AI Framework, Risk Mitigation, Stakeholder Trust*