

Transforming Enterprise Contract Management: AI-Driven Recommendations, Blockchain Integration, and Smart Contracting

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Abstract : Enterprise contract management faces persistent challenges, including inefficiencies, limited adaptability, and fragmented compliance processes. This research proposes a unified framework leveraging artificial intelligence (AI), blockchain technology, and smart contracts to transform the contract lifecycle. AI-driven probabilistic models enable predictive insights, automated compliance checks, and negotiation optimization, while blockchain enhances security and transparency through cryptographic workflows and decentralized approvals. The framework bridges centralized architectures of Web 2.0 with Web 3.0 technologies, which leverage blockchain for decentralized, trustless operations, ensuring seamless transformation and operational continuity. Smart contracts automate routine processes, enabling dynamic, programmable agreements. Validation through simulations demonstrates significant improvements, including up to a 60% reduction in contract cycle times under simulated conditions and enhanced compliance rates. Designed for scalability and adaptability, the framework supports industries such as procurement, supply chain, and finance, where secure, efficient contract management is critical. By incorporating human validation loops and aligning with sustainability goals, this study offers a scalable, innovative approach to the digital transformation of contract management.

Keywords : contract lifecycle management, artificial intelligence, blockchain, smart contracts

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