

# AI-Powered Blockchain Technology in Industry 4.0: A Summarized Review

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**Abstract:** *The integration of Artificial Intelligence (AI) and blockchain technology is driving transformative advancements in Industry 4.0. This paper explores the synergistic potential of AI-powered blockchain systems in enhancing industrial efficiency, transparency and security. By combining AI's predictive capabilities with blockchain's decentralized and immutable nature, industries can improve processes in smart manufacturing, supply chain management, predictive maintenance, quality control and energy optimization. Advantages, scalability, interoperability, security, regulatory risk and shortage of skills present challenges to mainstream adoption. These challenges are expected to be resolved through innovative technologies, inter-sectoral collaboration and synchronization with sustainable development principles. The essential recommendations include encouragement of interdisciplinary in research, industry-academia collaborations, standardization, resolution of ethics issues and investment in workers' development. As block chain and AI keep developing, active participation from stakeholders is imperative to unleashing their maximum potential in Industry 4.0.*

**Keywords:** Artificial Intelligence (AI), Blockchain Technology, Industry 4.0, Internet of Things (IoT), Smart Manufacturing, Decentralized Systems