

The benefits of integrating AI, IoT, and Blockchain in healthcare supply chain management: A multi-dimensional analysis with case study

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Abstract— As time goes on, rapid development happens in the healthcare industry, and most of the significant challenges healthcare professionals and stakeholders face is supply chain management. With an excessive increase in demand for healthcare services and the need for efficient, cost-effective, and high-quality healthcare delivery, healthcare supply chain management has become a crucial factor in considering success in healthcare structures. Recently, Artificial Intelligence (AI), the Internet of Things (IoT), and blockchain have shown some potential to revolutionize healthcare supply chain management. In this research, we explore the benefits associated with integrating the abovementioned technologies in healthcare for more effective and efficient supply chain management in this industry. By leveraging these technologies, we explore the potential benefits of their integration into the healthcare supply chain using the eventual existing challenges. In this paper, we highlight the problems faced by conventional supply chain management and show how integrating AI, IoT, and BC can serve as a powerful tool to overcome these challenges. To achieve our goal, we carried out a multi-dimensional analysis with case studies that considered crucial aspects such as visibility, efficiency, data-driven decision-making, security, and trust in the supply chain. We proposed a healthcare supply chain management system that incorporates AI, IoT, and blockchain to raise awareness among healthcare providers about the benefits of an intelligent supply chain management system.

Keywords— Artificial intelligence, Blockchain, Healthcare supply chain management, Internet of Things



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