

Integration of advanced artificial intelligence in supply chain management, it's challenges and opportunities: A review study.

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Abstract— Integrating Artificial Intelligence (AI) into Supply Chain Management (SCM) is transforming the industry by enabling smarter, faster, and more adaptable operations. Key applications include predictive analytics for demand forecasting, real-time inventory tracking, and optimization of logistics and distribution. AI-driven SCM leverages machine learning algorithms, computer vision, and natural language processing to enhance efficiency, reduce costs, and improve decision-making. AI helps manage supply chain disruptions by predicting potential risks, supporting resilience planning, and automating complex processes, creating a more robust and responsive supply chain ecosystem. This study explores the opportunities and challenges AI presents in manufacturing SCM. AI enables advanced predictive analytics, real-time inventory management, demand forecasting, and automation, leading to streamlined operations and reduced costs. However, challenges such as data privacy, high implementation costs, technological complexity, and the need for skilled labor create significant barriers to adoption. This study examines how manufacturers can leverage AI to optimize supply chain processes while addressing these challenges, highlighting best practices and strategies for successful AI adoption. Through a focused analysis, the article aims to provide insights into how AI can reshape SCM, paving the way for smarter, more adaptive manufacturing supply chains.

Keywords— artificial intelligence, supply chain management, computer vision, machine learning, logistics management



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