

AI IN LOGISTICS AND SUPPLY CHAIN: USE CASES, APPLICATIONS, SOLUTION AND IMPLEMENTATION

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Introduction

The supply chain and logistics sector plays a pivotal role in the global economy by ensuring the seamless movement of goods across borders. With an increasingly complex and interconnected global marketplace, the sector faces several challenges, from managing inventory to improving operational efficiency. As businesses strive to streamline processes and enhance performance, the need for impeccable coordination across various facets, such as scheduling, transportation, and customer service, has never been more critical. Artificial Intelligence (AI) is proving to be a game-changer in addressing these challenges. By automating routine tasks, optimizing transportation routes, enhancing security measures, and reducing operational costs, AI is significantly improving the efficiency of supply chain operations. Moreover, it is elevating customer experiences by offering faster, more reliable service. The implementation of AI is helping companies boost profitability and operational performance by enabling smarter decision-making and predictive analytics.

The role of AI in logistics and supply chain

AI is revolutionizing the logistics and supply chain sectors by offering innovative solutions that help businesses streamline operations, enhance efficiency, and respond dynamically to market changes. By leveraging AI, companies are able to rethink and optimize their strategies for material procurement, inventory management, demand forecasting, and more. This allows businesses to make data-driven decisions that improve both operational effectiveness and adaptability, critical factors in a fiercely competitive global market.

The supply chain journey begins with the procurement of raw materials from suppliers and concludes with the delivery of the finished product to the consumer. AI's role in this entire process is multifaceted. For instance, AI-powered systems can help companies determine optimal purchasing decisions by analyzing historical data and market trends. Additionally, AI can help optimize storage capacities and production plans by predicting demand shifts and adjusting inventories accordingly.

AI's ability to optimize resource utilization is equally impactful in logistics operations. Through real-time monitoring of transportation data, AI can adjust delivery routes dynamically, ensuring faster and more cost-effective transportation. By predicting vehicle maintenance needs, AI reduces unplanned downtime, lowering repair costs and extending asset life. Additionally, AI's predictive analytics enhance inventory management by forecasting demand fluctuations, which in turn minimizes stockouts and excess inventory, further reducing operational costs.

The continued integration of AI across various aspects of logistics and supply chain management presents vast potential. With AI technologies continuing to advance, we can expect

CONTENTS

S.No	CONTENTS	PAGE NO
1	Impact of AI on Quick Commerce Supply chain Management Dr. Y.S. Irine Jiji, Suwetha. S & Arunadevi. P.M	1
2	The Role of Artificial Intelligence in Marketing For Social Good: An Ethical Approach Mrs. V. Bhuvaneswari	7
3	Human-AI Collaboration in Supply Chain Decision-Making: Balancing Efficiency, Ethics, and Workforce adaptation Mrs. M. Dhavapriya	14
4	Impact of Green Supply Chain Management Initiatives Dr. P. Anu Shruthi & Dr. B. Indirapriyadharshini	22
5	Deep Learning for Demand Forecasting in Supply Chain Management: A Comparative Study of LSTM and Transformer Models Mr. S. Dilip Kumar & Dr. K. Jayanthi	26
6	Ethical Use of AI for Sustainable Logistics Dr. N. Giri, Ms. B. Pavithra & Ms. K. Gnanasundari	30
7	The Evolution of Financial Services in the Digital Age Dr. D. Rajasekaran	36
8	Leveraging Artificial Intelligence in Supply Chain Management for Early Detection and Eradication of Lung Cancer Dr. R. Malathi Ravindran	40
9	Ethical AI in Supply Chain Decision-Making: Ensuring Fairness and Transparency Dr. K. Sathya Prasad , Sneha S & Cathrine M	43
10	Ethical Use of AI in Sustainable Logistics Vasanth S, Ruthra Devi S & Dr. Begam Benazir. K	46
11	Leveraging AI for Sustainable Logistics: Optimizing Efficiency and reducing Environmental Impact Dr. P. Jayapriya	50
12	AI in logistics and supply chain: Use cases, applications, solution and implementation Dr. M. Meena Krithika	56
13	Ethical AI in Mobile Logistics: Enhancing Rural Women's Market Access and Economic Sustainability Dr. G. Akilandeswari , Dr. E. Renuga & Dr. K. Priyatharsini	62
14	A Study on Human AI Collaboration in Supply Chain Management S. Kalaivani	66