Improving efficiency in supply chain management through machine learning and data science

In today's complex and ever-changing world, concerns about the lack of enough data have been replaced by concerns about too much data for supply chain management (SCM). The volume of data generated from all parts of the supply chain has changed the nature of SCM analysis. By increasing the volume of data, the efficiency and effectiveness of the traditional methods have decreased. Limitations of these methods in analyzing and interpreting a large amount of data have led scholars to generate some methods that have high capability to analyze and interpret big data. ML techniques in selecting and segmenting suppliers, predicting supply chain risks, and estimating demand and sales, production, inventory management, transportation and distribution, sustainable development (SD), and circular economy (CE)

Value of machine learning in supply chain management, below are some points:

1. Demand forecast
2. Delivery production
3. Reducing manual work
4. Detecting issues
5. Inventory management
6. Decision making
7. Fraud prevention
8. Seamless supply chain management
9. Cost optimization
10. End to end visibility
11. Realtime analysis and tracking of stock
12. Scheduling maintenance
13. Automated quality inspections

Above all function can be perform using machine learning and other than that weather forecasting and public behavior towards product etc. can be done with the help of ML and AI.

So that ML and AI is making easy go solutions for SCM. Due to covid-19, SCM is towards 100 percent digitalization. Right almost all MNC and even mega store and oil and gas companies are already using AI and ML in SCM in India. Develop nations are already using it in their daily life. Groceries and food already under AI and ML. in India, are becoming essential in METRO cities, right now it is gaining space in rural areas also.

Before implementing machine learning into your supply chain, you should evaluate your entire supply chain's structure

Determine the critical components of your operations.

Conduct a detailed analysis of the supplier network including Tier 1 suppliers and sub-tier suppliers.

Identify hidden relationships and nodes of interconnectivity.

Quantitatively diagnose the relative fragility of the supply chain.

Identify bottlenecks and risk factors in the supply chain.

Draw meaningful comparisons with peers and industry benchmarks.

Assess the security of the supply chain.

Evaluate your functional maturity against the process, people, and technology.

There are 8 types of machine learning use cases in the supply chain.

1. Inventory management
2. Warehouse management
3. Logistics and transportation
4. Production
5. Chatbots
6. Customer service
7. Security
8. Business

If you have to manage a wide network of suppliers, warehouses, logistics service partners, supply chain management can become a daunting task. But technologies such as machine learning and AI can help you at all stages of the supply chain management. ML algorithms will correctly forecast demand, improve logistics management, help you reduce paperwork, and automate manual processes. As a result, you will get end-to-end visibility into your supply chain while ensuring it works more efficiently, requires fewer operational costs, and is less vulnerable to disruptions.

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