ISB CTO

Week 13: Impact of Data Strategy and Analytics

Video 1: Retail Analytics: Introduction

- Understanding supply chain drivers is essential for improving its efficiency.
- Data is used in various ways to enhance supply chain performance.
- Organisations have altered their business structures to collect and apply more data to the supply chain.
- Amazon is a prime example of a company that heavily relies on data for its supply chain operations.
- These innovations not only enhance customer convenience but also have hidden and fundamental benefits for the supply chain.

Video 2: Application of Retail Analytics Data

- Traditional supply chain analytics relied on point-of-sale data, but the focus is shifting to understanding the "why" behind consumer actions.
- Anticipatory delivery and data collection play a crucial role in managing supply chains, inventories and upselling.
- Companies like Amazon and Walmart are moving toward collecting more data and improving supply chains by leveraging technology.
- A cultural shift and a broad perspective are necessary to effectively utilise supply chain analytics and partner with supply chain players.
- Expanding the view beyond Tier 1 suppliers to include Tier 2 suppliers and considering end customers' needs are crucial for a successful supply chain.

Video 3: Managing Supply Chain Drivers

- Supply chain drivers include transportation, inventory, facilities and information, all of which are interconnected.
- Logistic costs play a significant role in supply chain expenses, with variations across countries
- Cost factors differ by region, such as fuel costs in India and driver shortages in the U.S.
- The transition to electric vehicles and autonomous vehicles is a response to reduce supply chain costs and improve efficiency.
- Infrastructure development and data transparency are essential for addressing congestion and inefficiency at ports.
- Third-party logistics companies streamline and improve supply chain efficiency, providing real-time updates and a single point of contact.
- Leveraging data and information in the logistics industry can have a substantial impact on supply chain cost reduction and resiliency.
- Intermodal transportation and information exchange between different modes are crucial for streamlining supply chain processes.

Video 4: Transportation Network: Design Options

- Transportation network optimisation involves designing networks, selecting routes and making decisions about the transfer of goods from one point to another.
- Cross-docking stations serve as transfer points without storing items, which can help avoid taxes and tariffs.
- Companies like Amazon and Walmart have shifted from traditional transportation cost minimisation to a holistic view that considers inventory cost, emphasising the need for a more comprehensive supply chain perspective.

- Reducing safety stock through better data and insights can enhance supply chain efficiency and resilience.
- Inventory cost components include cycle stock, safety stock and in-transit inventory.
- Considering facility-related decisions can also be part of the transportation cost optimisation process.
- A supply chain view is essential for using data to impact business design and decision-making.

Video 5: Transportation Network: Aggregation and Consolidation

- Transportation decisions involve considerations of physical/geographical aggregation and temporal aggregation of demand.
- These aggregation techniques require analytics and data-driven decision-making.
- Data analytics involves regression models and machine learning, as well as mixed integer programs and non-linear programming.
- Delivery companies, like food and item delivery companies, focus on data collection and understanding for consolidation and route optimisation.
- Data is crucial in supply chain management and often referred to as the "new oil."
- Milk runs involve combining deliveries to multiple locations in a single trip, inspired by the milk delivery concept.
- The use of distribution centres depends on data-driven factors such as demand proximity.
- Amazon strategically acquires small stores for distribution centres based on data analysis.
- The decision to use distribution centres or cross-docking facilities requires careful optimisation and cost considerations.
- Optimisation in supply chain management is heavily reliant on data on demand, supply and warehouse costs.
- Minimising supply chain costs, not just transportation costs, is a key objective in making these decisions.

Video 6: Role of IT in Transportation

- IT plays a crucial role in optimising transportation by identifying optimal routes, utilising fleet and collecting GPS data.
- Aligning transportation strategy with the competitive strategy is essential.
- Balancing in-house and outsourced transportation is a consideration.
- Technology is used to enhance transportation performance.
- Flexibility should be built into the transportation network.
- Different countries have unique approaches to security in the cash supply chain.
- Similar optimisation efforts were made for the US coin supply chain for the Federal Reserve.
- The common process involves data collection, a supply chain cost perspective, structural analysis and optimisation.
- The goal is to use technology to collect data and find optimal solutions, combining data analytics and decision analytics for supply chain efficiency.