



# Supply Chain Analytics: Course Overview

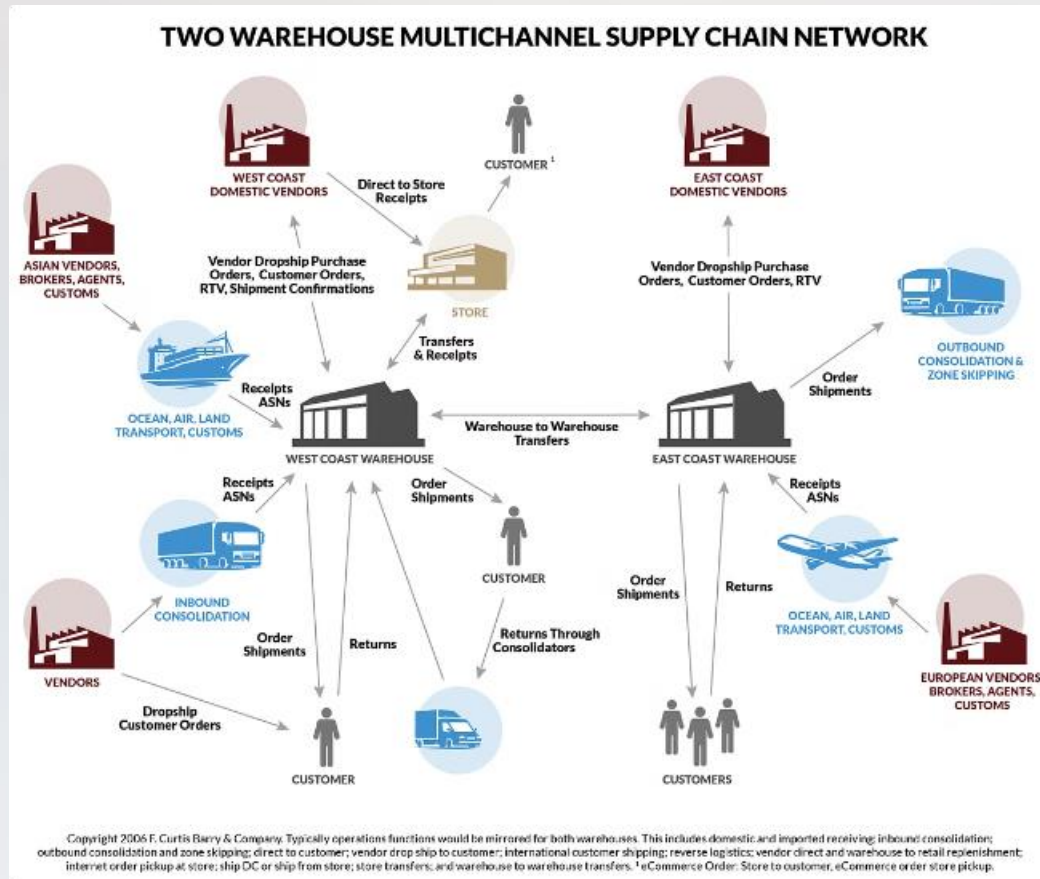
Welcome to Supply Chain Analytics! This course focuses on applying analytical techniques to optimize supply chain performance. We'll explore real-world case studies, examine key areas like logistics, demand forecasting, and inventory management, and develop practical skills to analyze and improve supply chains.

**M** Dr. Maharajan K





# Do You Know?



## 1 Supply Chain Fundamentals

Core components of a supply chain, from sourcing raw materials to delivering finished goods to customers.

## 2 Supply Chain Processes

Key processes like procurement, production, warehousing, transportation, and customer service.

## 3 Supply Chain Challenges

Common challenges like disruptions, demand fluctuations, and inventory management issues.

## 4 Supply Chain Metrics

Critical metrics to measure supply chain performance, such as inventory turnover, lead time, and on-time delivery rate.



# Guess the Topic



## Logistics Optimization

How can a company optimize its transportation routes to reduce delivery costs and improve efficiency?



## Production Planning

How can a manufacturer balance production capacity with fluctuating demand to minimize inventory costs and production delays?



## Inventory Management

How can a retailer manage its inventory levels to meet customer demand while minimizing storage costs and stockouts?



# Real-Life Case Study: Logistics Optimization

## Challenge

A leading e-commerce company faced increasing delivery costs and customer dissatisfaction due to inconsistent delivery times.

## Solution

By implementing advanced route optimization algorithms and real-time tracking technology, the company optimized delivery routes and reduced delivery times, leading to lower costs and higher customer satisfaction.

## Outcomes

The company achieved a 10% reduction in delivery costs, a 5% improvement in on-time delivery rate, and an increase in customer satisfaction.

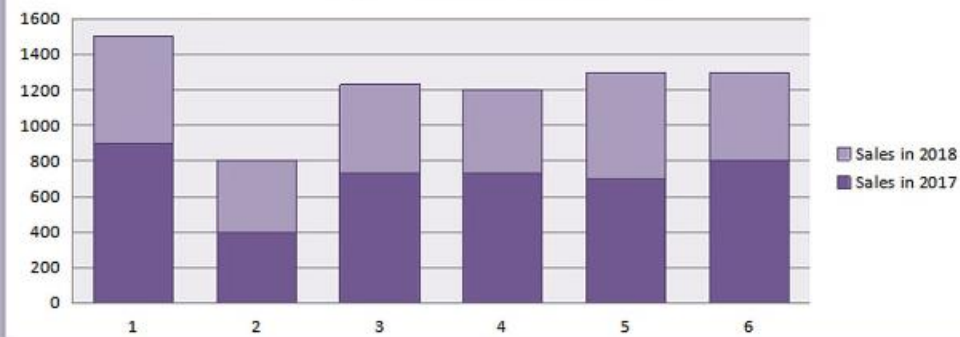


# Real-Life Case Study: Demand Forecasting

## Year-on-year sales growth chart report

	Jan.	Feb.	Mar.	Apr.	May.	Jun.
Sales in 2017	900	400	730	730	700	800
Sales in 2018	600	400	500	470	600	500
Year-on-year growth rate	-33%	0%	-32%	-36%	10%	30%

Comparison of sales in 2017 and 2018



1

## Challenge

A consumer goods company struggled to accurately forecast demand for its seasonal products, leading to overstocking and write-offs.

2

## Solution

By implementing statistical forecasting models that incorporated historical sales data, market trends, and competitive information, the company achieved more accurate demand forecasts.

3

## Outcomes

The company reduced inventory costs by 15%, improved customer service levels by minimizing stockouts, and increased profitability by better aligning production with demand.



# Real-Life Case Study: Inventory Management



## Challenge

A retailer experienced high inventory carrying costs and frequent stockouts, leading to lost sales and customer dissatisfaction.

## Solution

By implementing an inventory management system that used ABC analysis to prioritize inventory items and implement just-in-time inventory practices, the retailer optimized inventory levels.

## Outcomes

The retailer reduced inventory carrying costs by 10%, improved stock availability by 5%, and increased customer satisfaction.



# Learning Assessment: Supply Chain Analysis

## Case Study Analysis

Evaluate a real-world supply chain case study and identify key challenges and potential solutions.

## Data Analysis Exercise

Analyze a dataset of supply chain data to identify trends, patterns, and insights using analytical tools.

## Simulation Modeling

Develop a simulation model of a supply chain to test different scenarios and evaluate the impact of various decisions.



# Summary: Key Takeaways



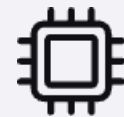
## Data-Driven Decisions

Data analytics plays a crucial role in informed decision-making for supply chain optimization.



## Collaboration & Integration

Effective supply chain management requires strong collaboration and integration across all stages of the supply chain.



## Technology & Innovation

Advancements in technology, such as AI and automation, are transforming supply chains, leading to greater efficiency and agility.



## Sustainability & Ethics

Supply chain practices are increasingly expected to be sustainable and ethical, considering environmental and social impact.







# Online References

- [Supply Chain Brain](#)
- [Supply Chain Management Review](#)
- [Logistics Management](#)
- McKinsey & Company - Supply Chain Management





# Textbook Recommendations

- Supply Chain Management by Chopra and Meindl
- Operations Management by Heizer and Render
- Logistics and Supply Chain Management by David Simchi-Levi, Philip Kaminsky, Edith Simchi-Levi