



# AI Strategy in Logistics Planning: Network Planning and Inventory Optimization

Welcome to Unit 3 of AI for Logistics and Supply Chain. Today, we'll explore the strategic use of AI for network planning and inventory optimization, key drivers of efficiency and cost reduction in logistics.

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# Recap: AI for Logistics Planning

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## 1. Data-Driven Insights

We examined how data analysis and AI can provide valuable insights into logistics operations.

2

## 2. Predictive Analytics

We explored the use of AI for predicting demand, optimizing routes, and anticipating disruptions.

3

## 3. Automation

We discussed how automation can enhance efficiency, reduce human error, and improve overall performance.

# Guess the Topic: Network Planning and Inventory Optimization

**What do these images suggest?**

Hint: Think about the core challenges of logistics and how AI can help.

**What are the key areas where AI can revolutionize logistics?**

Think about interconnected systems, managing resources, and maximizing efficiency.

# Importance of Network Planning in Logistics



## Strategic Advantage

Optimizing the network structure provides a competitive edge by ensuring efficient product flow.

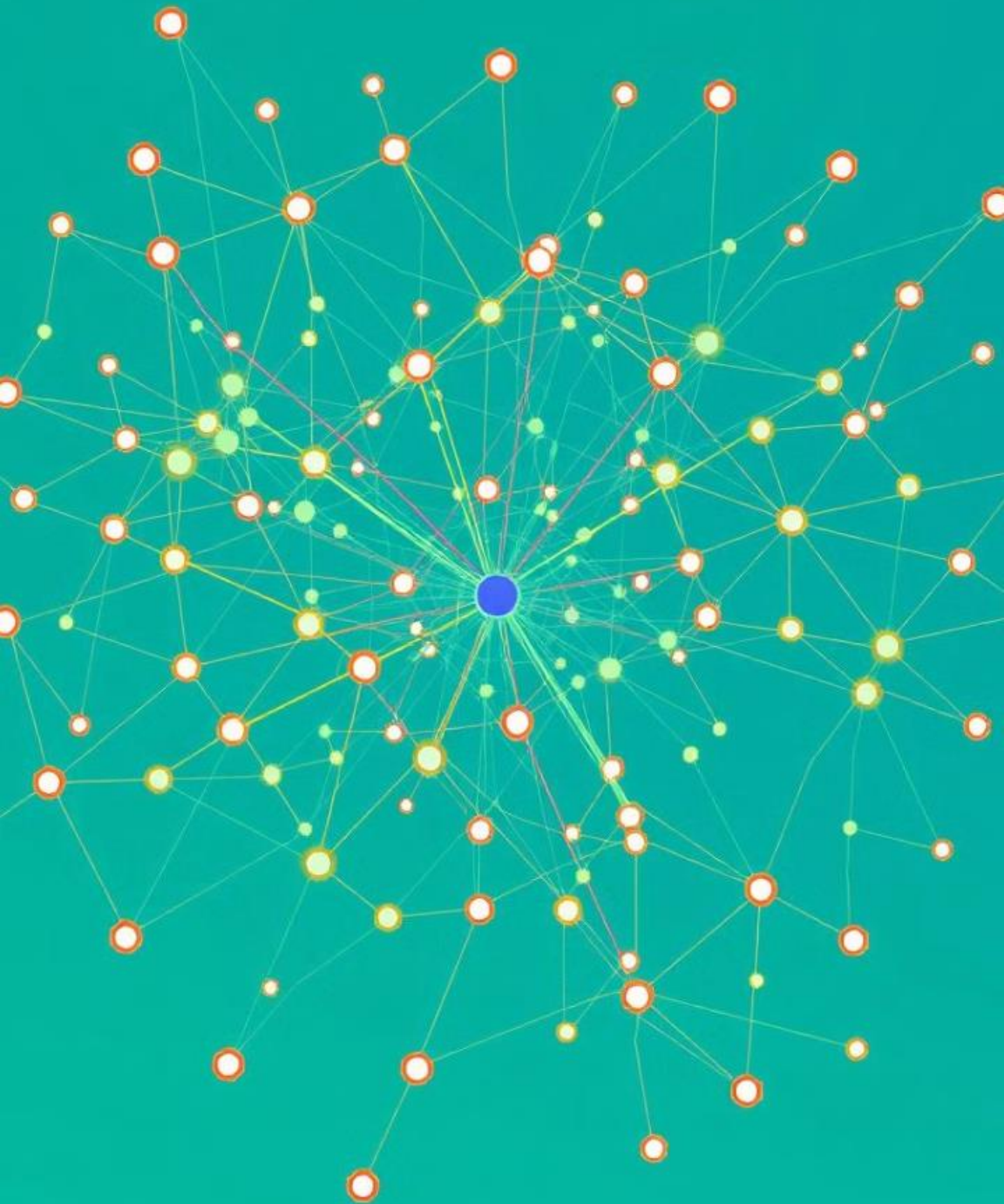
## Cost Optimization

Efficient network planning helps minimize transportation costs, warehouse space, and inventory holding expenses.

## Improved Service

Well-planned networks ensure faster delivery times and increased customer satisfaction.

# Techniques for Network Optimization



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## 1. Location Optimization

AI can analyze factors like demand, transportation costs, and labor availability to determine optimal warehouse locations.

2

## 2. Route Optimization

AI algorithms can create efficient delivery routes, minimizing travel distance and time.

3

## 3. Capacity Planning

AI can forecast demand and allocate resources effectively to optimize warehouse capacity.

# Case Study: Improving Efficiency at Acme Logistics

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## The Challenge

Acme Logistics faced inefficiencies in their network, leading to high transportation costs and delivery delays.

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2

## AI Solution

AI-powered optimization software was implemented to optimize warehouse locations and delivery routes.

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3

## Outcome

The company achieved significant cost savings, improved delivery times, and enhanced customer satisfaction.



# Inventory Management and AI-Driven Optimization



## Demand Forecasting

AI analyzes historical data and market trends to predict future demand accurately.



## Automated Ordering

AI-powered systems automatically place orders based on demand forecasts, minimizing stockouts.



## Inventory Allocation

AI optimizes inventory allocation across warehouses to ensure availability and minimize holding costs.

# Reducing Stockouts and Overstocking with Predictive Analytics

**15%**

## Stockouts Reduction

AI-powered demand forecasting minimizes stockouts, ensuring product availability for customers.

**20%**

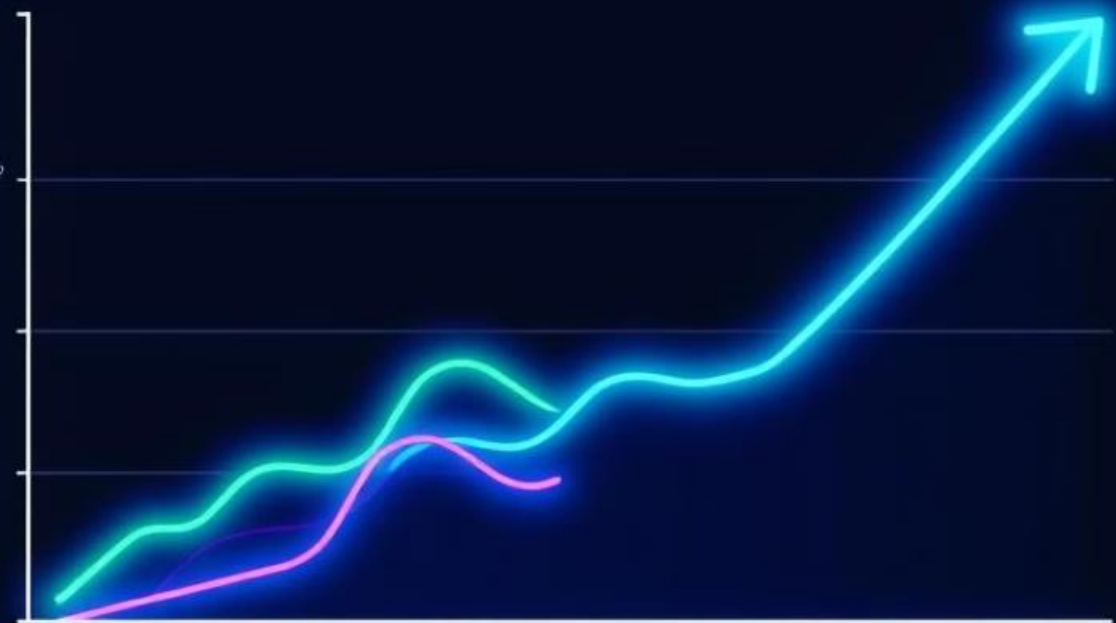
## Overstocking Avoidance

Predictive analytics helps avoid overstocking, reducing inventory holding costs and waste.

**10%**

## Improved Profitability

Optimizing inventory levels leads to increased efficiency and improved profitability.





# Learning Check: Test Your Understanding



Let's test your understanding of network planning and inventory optimization. Answer these questions to assess your grasp of the concepts discussed.



# Summary and References

We've explored how AI can revolutionize logistics planning through network optimization and inventory management. Implementing these strategies can lead to significant cost savings, improved efficiency, and enhanced customer satisfaction.