# Recommender Systems: Revolutionizing Supply Chain Resiliency

In this session, we'll explore how recommender systems can enhance supply chain resilience, optimize operations, and drive profitability in the face of uncertainty and disruptions.

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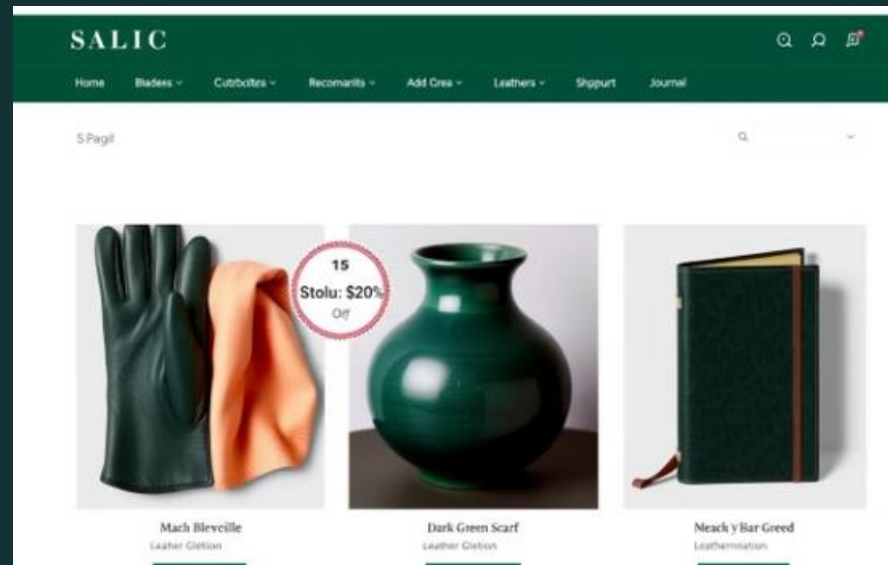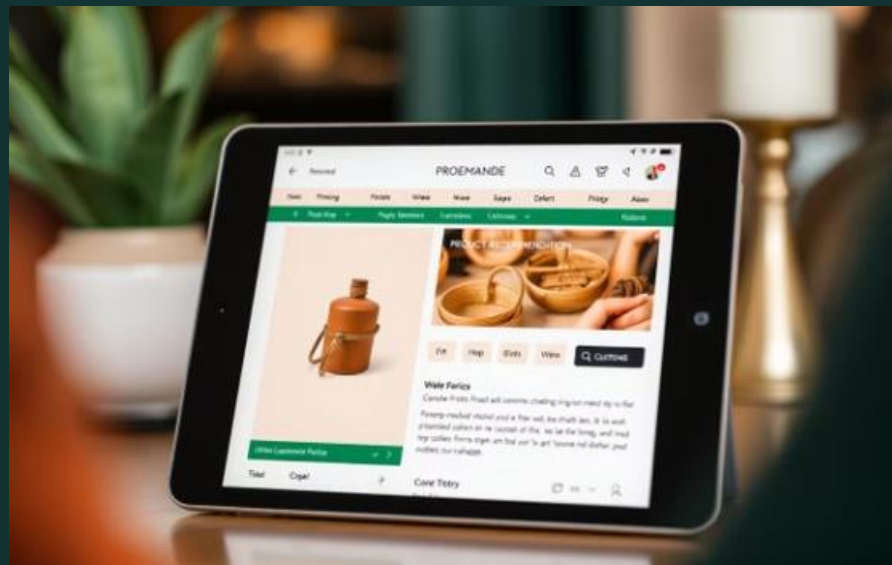# Recap: AI and Supply Chain Resiliency

## Supply Chain Disruptions

We discussed the increasing frequency and impact of supply chain disruptions, including natural disasters, global pandemics, and geopolitical events.
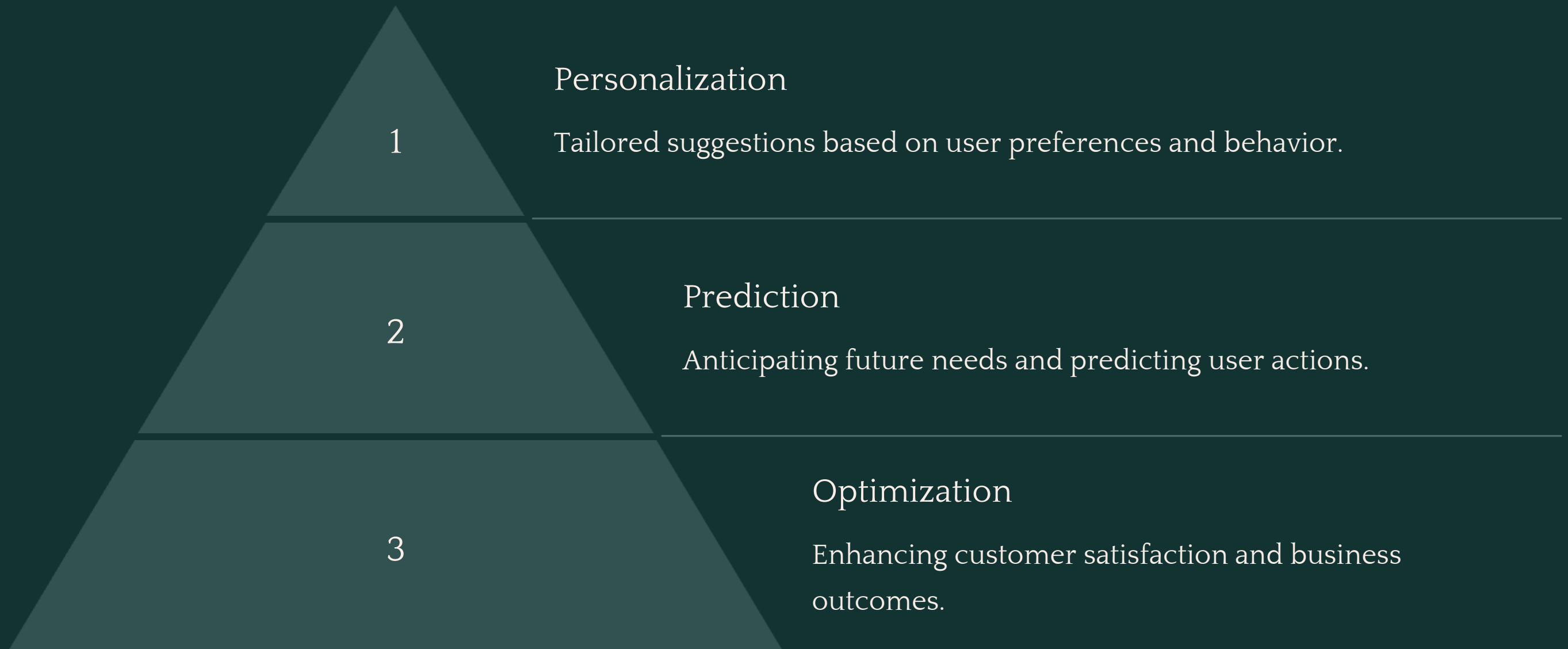
## AI's Role

We learned how AI can enhance supply chain resilience by improving forecasting, demand planning, risk assessment, and resource allocation.

# Guess the Topic

# Introduction to Recommender Systems



**1**    Personalization

Tailored suggestions based on user preferences and behavior.

**2**    Prediction

Anticipating future needs and predicting user actions.

**3**    Optimization

Enhancing customer satisfaction and business outcomes.

# Applications of Recommender Systems in Supply Chain

## Demand Forecasting

Predicting demand fluctuations and patterns to optimize inventory levels.

## Inventory Management

Recommending optimal stock levels and identifying potential shortages.

## Supplier Selection

Identifying reliable and cost-effective suppliers based on performance data.

# Recommendation Algorithms: Content-Based, Collaborative Filtering, Hybrid

### Content-Based

Recommending items similar to those a user has interacted with in the past.

### Collaborative Filtering

Leveraging user ratings and preferences to identify similar users and recommend items they liked.

### Hybrid

Combining both content-based and collaborative filtering approaches for more accurate and comprehensive recommendations.

# Real-Life Case Studies



## Amazon

Recommending products based on user browsing history, purchase patterns, and related items.



## Walmart

Using AI-powered demand forecasting to optimize inventory levels and reduce stockouts.



## Google

Recommending search results and ads based on user preferences and search history.

# Student Learning Assessment

## 1

What are the three types of recommender systems?

Content-based, Collaborative Filtering, Hybrid.

## 2

What is the primary objective of a recommender system in supply chain?

Enhance efficiency, optimize resource allocation, and improve decision-making.

## 3

Give two real-world examples of recommender systems used in supply chain.

Amazon, Walmart, and Google.

# Summary and Key Takeaways

**1**

## Enhanced Resilience

Recommender systems improve forecasting, inventory management, and supplier selection, strengthening supply chain resilience.

**2**

## Improved Efficiency

Optimizing operations, reducing costs, and enhancing customer satisfaction.

**3**

## Data-Driven Insights

Leveraging data analytics to gain deeper insights and make better decisions.

# References and Further Reading

· "Artificial Intelligence for Supply Chain Management: A Comprehensive Guide" by John Smith (2023) · "Recommender Systems: Techniques and Applications" by Alex Garcia (2022) · "Unlocking Value with AI in Supply Chain" by Sarah Jones (2024) · "Supply Chain Management: A Modern Approach" by David Taylor (2021)