

Managing Inventories: Concepts, Questions, and Tools

This reference note introduces inventory concepts, tradeoffs involved in their management, and tools for effective inventory decision-making. Students of business operations will find these concepts, tradeoffs, and tools useful as background for thinking about inventory management issues, preparing and discussing operations cases, and making good inventory management decisions. Teachers and practitioners may find this note useful to help students and others understand inventory management situations that they will encounter in classroom and field settings.

This note is divided into the following four sections:

1. **Basic Inventory Concepts and Types, and the Basic Tradeoff: Cost Versus Service**
2. **Inventory System Factors: Definitions and Measures**—demand (expected value and variability), setup/ordering and holding costs, service level, safety stock, costs of understocking and overstocking, exposure period, lead time, review period, reorder point, stock keeping unit, and pooling
3. **The 5 Critical Questions**
 - How much should I order?
 - What is the best service level and target stock level?
 - How much safety stock should I plan to keep?
 - How will I meet demand in an exposure period?
 - How do I manage variety?
4. **In-depth Q&A on the 5 Critical Questions**
 - Question 1: How much: economic order quantity
 - Question 2: Best service level and target stock level: newsvendor models
 - Question 3: How much safety stock: required service level, expected value and variability of demand and supply.

Published by WDI Publishing, a division of the William Davidson Institute (WDI) at the University of Michigan.

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