



Supply Chain Management

Strategy, Planning, and Operation

SEVENTH EDITION

Sunil Chopra



Seventh Edition

Global Edition

SUPPLY CHAIN MANAGEMENT

STRATEGY, PLANNING, AND OPERATION

Sunil Chopra

Kellogg School of Management



Pearson

Harlow, England • London • New York • Boston • San Francisco • Toronto • Sydney • Dubai • Singapore • Hong Kong
Tokyo • Seoul • Taipei • New Delhi • Cape Town • Sao Paulo • Mexico City • Madrid • Amsterdam • Munich • Paris • Milan

Supply Chain Management: Strategy, Planning, and Operation, Global Edition

Table of Contents

Cover

Title Page

Copyright Page

Dedication

Contents

Preface

Part I Building a Strategic Framework to Analyze Supply Chains

Chapter 1 Understanding the Supply Chain

What Is a Supply Chain?

The Objective of a Supply Chain

Decision Phases in a Supply Chain

Process Views of a Supply Chain

Examples of Supply Chains

Developing Skills for Your Career

Discussion Questions

Bibliography

Chapter 2 Achieving Strategic Fit in a Supply Chain

Competitive and Supply Chain Strategies

How is Strategic Fit Achieved?

Supply Chain Levers to Deal with Uncertainty

Expanding Strategic Scope

Discussion Questions

Bibliography

Case Study: The Demise of Blockbuster

Chapter 3 Supply Chain Drivers and Metrics

Financial Measures of Performance

Table of Contents

A Framework for Supply Chain Decisions

Facilities

Inventory

Transportation

Information

Sourcing

Pricing

Discussion Questions

Bibliography

Case Study: SevenEleven Japan Co.

Case Study: Financial Statements for Walmart Stores Inc. and Macys Inc.

Part II Designing the Supply Chain Network

Chapter 4 Designing Distribution Networks and Applications to OmniChannel

Retailing

Factors Affecting Distribution Network Design in the Supply Chain

Design Options for a Distribution Network

Online Sales and OmniChannel Retailing

Discussion Questions

Bibliography

Case Study: Blue Nile and Diamond Retailing

Chapter 5 Network Design in The Supply Chain

The Role of Network Design in the Supply Chain

Factors Influencing Network Design Decisions

Framework for Network Design Decisions

Models for Designing a Regional Network Configuration

Models for Identifying Potential Sites in a Region

Models for Demand Allocation and Plant Location

Discussion Questions

Exercises

Bibliography

Case Study: Designing the Production Network at CoolWipes

Case Study: Managing a Merger at Lightning Networks

Chapter 6 Designing Global Supply Chain Networks

Table of Contents

The Impact of Globalization on Supply Chain Networks

The Importance of Total Cost in Global Networks

Risk Management in Global Supply Chains

Evaluating Network Design Decisions using Decision Trees

To Onshore or To Offshore: The Value of Flexibility in a Supply Chain Under Uncertainty

Discussion Questions

Exercises

Bibliography

Case Study: BioPharma, Inc.

Case Study: Global Supply Design for the Future: Nokia

Part III Planning and Coordinating Demand and Supply in a Supply Chain

Chapter 7 Demand Forecasting in a Supply Chain

The Role of Forecasting in a Supply Chain

Components of a Forecast and Forecasting Methods

TimeSeries Forecasting Methods

Measures of Forecast Error

Building Forecasting Models using Excel

Discussion Questions

Exercises

Bibliography

Case Study: Specialty Packaging Corporation

Chapter 8 Aggregate Planning in a Supply Chain

Aggregate Planning and its Role in a Supply Chain

The Basic Tradeoffs in Aggregate Planning

Aggregate Planning using Linear Programming

Aggregate Planning in Excel

Discussion Questions

Exercises

Bibliography

Case Study: Kloss Planters and Harvesters

Case Study: Smartphone Production at QuickTronics

Chapter 9 Sales and Operations Planning in a Supply Chain

Responding to Predictable Variability in the Supply Chain

Table of Contents

Sales and Operations Planning at Red Tomato

Discussion Questions

Exercises

Bibliography

Case Study: Mintendo Game Girl

Case Study: Promotion Challenges at Gulmarg Skis

Chapter 10 Coordination in a Supply Chain

Lack of Supply Chain Coordination and its Impact on Performance

Obstacles to Coordination in a Supply Chain

Managerial Levers to Improve Coordination

Some Practical Approaches to Improve Supply Chain Coordination

Discussion Questions

Bibliography

Part IV Planning and Managing Inventories in a Supply Chain

Chapter 11 Managing Economies of Scale in a Supply Chain Inventory

The Role of Cycle Inventory in a Supply Chain

Economies of Scale to Exploit Fixed Costs

Aggregating Multiple Products in a Single Order

Economies of Scale to Exploit Quantity Discounts

Why do Suppliers offer Quantity Discounts?

Short-Term Discounting: Trade Promotions

Managing Multiechelon Cycle Inventory

Managerial Levers to Reduce Cycle Inventory

Discussion Questions

Exercises

Bibliography

Case Study: Delivery Strategy at MoonChem

Case Study: Pricing and Delivery at NAN

Appendix 11A: Economic Order Quantity

CHAPTER 12 Managing Uncertainty in a Supply Chain Safety Inventory

The Role of Safety Inventory in a Supply Chain

Factors Affecting the Level of Safety Inventory

Determining the Appropriate Level of Safety Inventory

Table of Contents

Impact of Supply Uncertainty on Safety Inventory
Impact of Aggregation on Safety Inventory
Impact of Replenishment Policies on Safety Inventory
Managing Safety Inventory in a Multiechelon Supply Chain
Managerial Levers to Reduce Safety Inventory
Discussion Questions
Exercises
Bibliography
Case Study: Managing Inventories at Alko Inc.
Case Study: Should Packing Be Postponed to the Dc?
Appendix 12A: The Normal Distribution
Appendix 12B: The Normal Distribution in Excel
Appendix 12C: Expected Shortage per Replenishment Cycle
Appendix 12D: Evaluating Safety Inventory For SlowMoving Items

Chapter 13 Linking Product Availability to Profits

Factors Affecting the Desired Level of Product Availability
Evaluating the Optimal Level of Product Availability
Basic Managerial Levers to Improve Supply Chain Profitability
The Value of Speed in a Seasonal Supply Chain
The Value of Postponement in a Seasonal Supply Chain
Setting Product Availability for Multiple Products under Capacity Constraints
Discussion Questions
Exercises
Bibliography
Case Study: The Need for Speed at Winner Apparel
Appendix 13A: Optimal Level of Product Availability
Appendix 13B: An Intermediate Evaluation
Appendix 13C: Expected Profit from an Order
Appendix 13D: Expected Overstock from an Order
Appendix 13E: Expected Understock from an Order
Appendix 13F: Simulation using Spreadsheets

Part V Designing and Planning Transportation Networks

Chapter 14 Transportation in a Supply Chain

Table of Contents

Transportation Modes and their Role in a Supply Chain
Transportation Infrastructure and Policies
Design Options for a Transportation Network
Mumbai Dabbawalas: A Successful Same Day Delivery Network
TradeOffs in Transportation Design
Tailored Transportation
Discussion Questions
Bibliography
Case Study: Designing a Sustainable Distribution Network for EuroGrain
Case Study: The Future of SameDay Delivery: Same as the Past?
Case Study: Selecting Transportation Modes for China Imports

Part VI Managing CrossFunctional Drivers in a Supply Chain

Chapter 15 Sourcing Decisions in a Supply Chain

The Sourcing Decision in a Supply Chain
Total Cost of Ownership
Designing a Sourcing Portfolio: Tailored Sourcing
The Impact of Incentives on ThirdParty Behavior
Sharing Risk and Reward in the Supply Chain
Discussion Questions
Exercises
Bibliography
Case Study: Polaris Industries Inc.

Chapter 16 Pricing and Revenue Management in a Supply Chain

The Role of Pricing and Revenue Management in a Supply Chain
Differential Pricing for Multiple Customer Segments
Dynamic Pricing and Overbooking for Perishable Assets
Discounting and Peak Pricing for Seasonal Demand
Constructing a Portfolio of Bulk Contracts and Spot Buying
Some Practical Challenges When using Revenue Management
Discussion Questions
Exercises
Bibliography
Case Study: To Savor or to Groupon?

Table of Contents

Chapter 17 Sustainability and The Supply Chain

The Role of Sustainability in a Supply Chain

The Tragedy of the Commons

Key Pillars of Corporate Social Responsibility

Sustainability and Supply Chain Drivers

The Role of Incentives and Regulation for Sustainability

Discussion Questions

Bibliography

Index