

清华管理学系列英文版教材

PEARSON
Prentice
Hall

供应链管理 战略、规划与运作

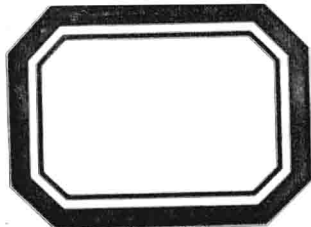
Supply Chain Management
Strategy, Planning, and Operation

Third Edition

第3版

(美) Sunil Chopra 著
Peter Meindl

清华大学出版社



管理学系列英文版教材



供应链管理 战略、规划与运作

Supply Chain Management
Strategy, Planning, and Operation

(美) Sunil Chopra 著
Peter Meindl

Third Edition

第3版

清华大学出版社
北京

北京市版权局著作权合同登记号 图字：01-2007-3130

Original edition, entitled SUPPLY CHAIN MANAGEMENT, Third Edition, 9780132023450 by SUNIL CHOPRA, PETER MEINDL, published by Pearson Education, Inc, publishing as Prentice Hall, Copyright © 2007.

All Rights Reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage retrieval system, without permission from Pearson Education, Inc.

China edition published by PEARSON EDUCATION ASIA LTD., and TSINGHUA UNIVERSITY PRESS, Copyright © 2008.

This edition is manufactured in the People's Republic of China, and is authorized for sale only in the People's Republic of China excluding Hong Kong, Macao and Taiwan.

For sale and distribution in the People's Republic of China exclusively (except Taiwan, Hong Kong SAR and Macao SAR).

仅限于中华人民共和国境内(不包括中国香港、澳门特别行政区和中国台湾地区)销售发行。

本书封面贴有 Pearson Education (培生教育出版集团) 激光防伪标签, 无标签者不得销售。

版权所有, 侵权必究。侵权举报电话: 010-62782989 13701121933

图书在版编目(CIP)数据

供应链管理: 战略、规划与动作 = Supply Chain Management: Strategy, Planning and Operation : 第3版: 英文/(美)乔普拉(Chopra, S.), (美)迈因德尔(Meindl, P.)著. —北京: 清华大学出版社, 2008 (清华管理学系列英文版教材)

ISBN 978-7-302-17331-1

I. 供… II. ①乔…②迈… III. 物资供应—物资管理—教材—英文 IV. F252

中国版本图书馆 CIP 数据核字(2008)第 049953 号

责任编辑: 王 青

责任印制: 孟凡玉

出版发行: 清华大学出版社

地 址: 北京清华大学学研大厦 A 座

<http://www.tup.com.cn>

邮 编: 100084

社 总 机: 010-62770175

邮 购: 010-62786544

投稿与读者服务: 010-62776969, c-service@tup.tsinghua.edu.cn

质 量 反 馈: 010-62772015, zhiliang@tup.tsinghua.edu.cn

印 刷 者: 北京市清华园胶印厂

装 订 者: 三河市溧源装订厂

发 行 者: 全国新华书店

开 本: 203×260 印张: 34.75

版 次: 2008 年 5 月第 1 版

印 次: 2008 年 5 月第 1 次印刷

印 数: 1~5000

定 价: 53.00 元

本书如存在文字不清、漏印、缺页、倒页、脱页等印装质量问题, 请与清华大学出版社出版部联系调换。联系电话: 010-62770177 转 3103 产品编号: 027467-01

简 明 目 录

前言	13
第 1 部分 供应链战略分析框架	17
第 1 章 供应链的基本概念	20
第 2 章 供应链绩效：战略制定的指导思想	38
第 3 章 供应链管理关键要素及其难点	60
第 2 部分 供应链网络的设计	89
第 4 章 分销网络的设计以及电子商务的应用	91
第 5 章 供应链中的网络设计	130
第 6 章 不确定环境下的网络设计	167
第 3 部分 供应链中的供需管理	199
第 7 章 供应链中的需求预测	201
第 8 章 供应链中的综合计划	232
第 9 章 供应链中的供需计划管理：可预测变化的管理	255
第 4 部分 供应链中的库存计划与管理	273
第 10 章 利用供应链中的规模效益：周转库存管理	275
第 11 章 管理供应链中的不确定性：安全库存管理	317
第 12 章 确定最优顾客服务水平	358
第 5 部分 运输网络的设计和规划	395
第 13 章 供应链中的运输问题	397
第 6 部分 供应链管理决策中的跨职能关键要素管理	427
第 14 章 供应链中的资源获取决策	429
第 15 章 供应链中的定价和利润管理	471
第 16 章 供应链中的信息技术	493
第 17 章 供应链中的协调	508
人名索引	539
主题索引	541

出 版 说 明

为了适应经济全球化的发展趋势，满足国内广大读者了解、学习和借鉴国外先进的管理经验和掌握经济理论的前沿动态，清华大学出版社与国外著名出版公司合作影印出版一系列英文版经济管理方面的图书。我们所选择的图书，基本上已是再版多次、在国外深受欢迎、并被广泛采用的优秀教材，绝大部分是该领域中较具权威性的经典之作。

由于原作者所处国家的政治、经济和文化背景等与我国不同，对书中所持观点，敬请广大读者在阅读过程中注意加以分析和鉴别。

我们期望这套影印书的出版对我国经济科学的发展能有所帮助，对我国经济管理专业的教学能有所促进。

欢迎广大读者给我们提出宝贵的意见和建议；同时也欢迎有关的专业人士向我们推荐您所接触到的国外优秀图书。

清华大学出版社
2008年4月

世纪之交，中国与世界的发展呈现最显著的两大趋势——以网络为代表的信息技术的突飞猛进，以及经济全球化的激烈挑战。无论是无远弗界的因特网，还是日益密切的政治、经济、文化等方面的国际合作，都标示着 21 世纪的中国是一个更加开放的中国，也面临着一个更加开放的世界。

教育，特别是管理教育总是扮演着学习与合作的先行者的角色。改革开放以来，尤其是 20 世纪 90 年代之后，为了探寻中国国情与国际上一切优秀的管理教育思想、方法和手段的完美结合，为了更好地培养高层次的“面向国际市场竞争、具备国际经营头脑”的管理者，我国的教育机构与美国、欧洲、澳洲以及亚洲一些国家和地区的大量的著名管理学院和顶尖跨国企业建立了长期密切的合作关系。以清华大学经济管理学院为例，2000 年，学院顾问委员会成立，并于 10 月举行了第一次会议，2001 年 4 月又举行了第二次会议。这个顾问委员会包括了世界上最大的一些跨国公司和中国几家顶尖企业的最高领导人，其阵容之大、层次之高，超过了世界上任何一所商学院。在这样高层次、多样化、重实效的管理教育国际合作中，教师和学生与国外的交流机会大幅度增加，越来越深刻地融入到全球性的教育、文化和思想观念的时代变革中，我们的管理教育工作者和经济管理学习者，更加真切地体验到这个世界正发生着深刻的变化，也更主动地探寻和把握着世界经济发展和跨国企业运作的脉搏。

我国管理教育的发展，闭关锁国、闭门造车是绝对不行的，必须同国际接轨，按照国际一流的水准来要求自己。正如朱镕基同志在清华大学经济管理学院成立十周年时所发的贺信中指出的那样：“建设有中国特色的社会主义，需要一大批掌握市场经济的一般规律，熟悉其运行规则，而又了解中国企业实情的经济管理人才。清华大学经济管理学院就要敢于借鉴、引进世界上一切优秀的经济管理学院的教学内容、方法和手段，结合中国的国情，办成世界第一流的经管学院。”作为达到世界一流的一个重要基础，朱镕基同志多次建议清华的 MBA 教育要加强英语教学。我体会，这不仅因为英语是当今世界交往中重要的语言工具，是连接中国与世界的重要桥梁和媒介，而且更是中国经济管理人才参与国际竞争，加强国际合作，实现中国企业的国际战略的基石。推动和实行英文教学并不是目的，真正的目的在于培养学生——这些未来的企业家——能够具备同国际竞争对手、合作伙伴沟通和对抗的能力。按照这一要求，清华大学经

济管理学院正在不断推动英语教学的步伐，使得英语不仅是一门需要学习的核心课程，而且渗透到各门专业课程的学习当中。

课堂讲授之外，课前课后的大量英文原版著作、案例的阅读对于提高学生的英文水平也是非常关键的。这不仅是积累相当的专业词汇的重要手段，而且是对学习者思维方式的有效训练。

我们知道，就阅读而言，学习和借鉴国外先进的管理经验和掌握经济理论动态，或是阅读翻译作品，或是阅读原著。前者属于间接阅读，后者属于直接阅读。直接阅读取决于读者的外文阅读能力，有较高外语水平的读者当然喜欢直接阅读原著，这样不仅可以避免因译者的疏忽或水平所限而造成的纰漏，同时也可以尽享原作者思想的真实表达。而对于那些有一定外语基础，但又不能完全独立阅读国外原著的读者来说，外文的阅读能力是需要加强培养和训练的，尤其是专业外语的阅读能力更是如此。如果一个人永远不接触专业外版图书，他在获得国外学术信息方面就永远会比别人差半年甚至一年的时间，他就会在无形中减弱自己的竞争能力。因此，我们认为，有一定外语基础的读者，都应该尝试一下阅读外文原版，只要努力并坚持，就一定能过了这道关，到那时就能体验到直接阅读的妙处了。

在掌握大量术语的同时，我们更看重读者在阅读英文原版著作时对于西方管理者或研究者的思维方式的学习和体会。我认为，原汁原味的世界级大师富有特色的表达方式背后，反映了思维习惯，反映了思想精髓，反映了文化特征，也反映了战略偏好。知己知彼，对于跨文化的管理思想、方法的学习，一定要熟悉这些思想、方法所孕育、成长的文化土壤，这样，有朝一日才能真正“具备国际战略头脑”。

以往，普通读者购买和阅读英文原版还有一个书价的障碍。一本外版书少则几十美元，多则上百美元，一般读者只能望书兴叹。随着全球经济合作步伐的加快，目前在出版行业有了一种新的合作出版的方式，即外文影印版，其价格几乎与国内同类图书持平。这样一来，读者可以不必再为书价发愁。清华大学出版社这些年在这方面一直以独特的优势领先于同行。早在1997年，清华大学出版社敢为人先，在国内最早推出一批优秀商学英文版教材，规模宏大，在企业界和管理教育界引起不小的轰动，更使国内莘莘学子受益良多。

为了配合清华大学经济管理学院推动英文授课的急需，也为了向全国更多的MBA试点院校和更多的经济管理学院的教师和学生提供学习上的支持，清华大学出版社再次隆重推出与世界著名出版集团合作的英文原版影印商学教科书，也使广大工商界人士、经济管理类学生享用到最新最好质优价廉的国际教材。

祝愿我国的管理教育事业在社会各界的大力支持和关心下不断发展、日进日新；祝愿我国的经济建设在不断涌现的大批高层次的面向国际市场竞争、具备国际经营头脑的管理者的勉力经营下早日中兴。

赵纯钧 教授

清华大学经济管理学院

简 明 目 录

前言	13
第 1 部分 供应链战略分析框架	17
第 1 章 供应链的基本概念	20
第 2 章 供应链绩效：战略制定的指导思想	38
第 3 章 供应链管理关键要素及其难点	60
第 2 部分 供应链网络的设计	89
第 4 章 分销网络的设计以及电子商务的应用	91
第 5 章 供应链中的网络设计	130
第 6 章 不确定环境下的网络设计	167
第 3 部分 供应链中的供需管理	199
第 7 章 供应链中的需求预测	201
第 8 章 供应链中的综合计划	232
第 9 章 供应链中的供需计划管理：可预测变化的管理	255
第 4 部分 供应链中的库存计划与管理	273
第 10 章 利用供应链中的规模效益：周转库存管理	275
第 11 章 管理供应链中的不确定性：安全库存管理	317
第 12 章 确定最优顾客服务水平	358
第 5 部分 运输网络的设计和规划	395
第 13 章 供应链中的运输问题	397
第 6 部分 供应链管理决策中的跨职能关键要素管理	427
第 14 章 供应链中的资源获取决策	429
第 15 章 供应链中的定价和利润管理	471
第 16 章 供应链中的信息技术	493
第 17 章 供应链中的协调	508
人名索引	539
主题索引	541

ABOUT THE AUTHORS



SUNIL CHOPRA



Sunil Chopra is the IBM Distinguished Professor of Operations Management and Information Systems at the Kellogg School of Management. He is also the Codirector of the Masters of Management and Manufacturing program, a joint dual-degree program between the Kellogg School of Management and the McCormick School of Engineering at Northwestern University. He has a PhD in Operations Research from SUNY at Stony Brook. Prior to joining Kellogg, he taught at New York University and spent a year at IBM Research.

Professor Chopra's research and teaching interests are in supply chain and logistics management, operations management, and the design of telecommunication networks. He has won several teaching awards at the MBA and Executive programs of Kellogg. He has authored more than 35 papers and two books.

He has been a Department Editor for *Management Science* and an Associate Editor for *Manufacturing & Service Operations Management*, *Operations Research*, and *Decision Sciences Journal*. His recent research has focused on supply chain risk to understand sources of risk and devise mitigation strategies that buffer risk effectively at low cost. He has also consulted for several firms in the area of supply chain and operations management.

PETER MEINDL



Peter Meindl is a Finance and Economics PhD candidate in Stanford University's Management Science & Engineering Department. His research focuses on portfolio optimization and dynamic hedging using stochastic programming, receding horizon control, and Monte Carlo simulation. He was previously a strategy consultant with the Boston Consulting Group and the Director of Corporate Strategy for i2 Technologies, a software firm. He holds an MBA from Northwestern University's Kellogg School and three degrees from Stanford University.

The first edition of this book won the prestigious Book of the Year award in 2001 from the Institute of Industrial Engineers.

BRIEF CONTENTS



Preface 13

PART I BUILDING A STRATEGIC FRAMEWORK TO ANALYZE SUPPLY CHAINS 17

- Chapter 1 Understanding the Supply Chain 20
- Chapter 2 Supply Chain Performance: Achieving Strategic Fit and Scope 38
- Chapter 3 Supply Chain Drivers and Metrics 60

PART II DESIGNING THE SUPPLY CHAIN NETWORK 89

- Chapter 4 Designing Distribution Networks and Applications to e-Business 91
- Chapter 5 Network Design in the Supply Chain 130
- Chapter 6 Network Design in an Uncertain Environment 167

PART III PLANNING DEMAND AND SUPPLY IN A SUPPLY CHAIN 199

- Chapter 7 Demand Forecasting in a Supply Chain 201
- Chapter 8 Aggregate Planning in a Supply Chain 232
- Chapter 9 Planning Supply and Demand in a Supply Chain: Managing Predictable Variability 255

PART IV PLANNING AND MANAGING INVENTORIES IN A SUPPLY CHAIN 273

- Chapter 10 Managing Economies of Scale in a Supply Chain: Cycle Inventory 275
- Chapter 11 Managing Uncertainty in a Supply Chain: Safety Inventory 317
- Chapter 12 Determining the Optimal Level of Product Availability 358

PART V DESIGNING AND PLANNING TRANSPORTATION NETWORKS 395

- Chapter 13 Transportation in a Supply Chain 397

PART VI MANAGING CROSS-FUNCTIONAL DRIVERS IN A SUPPLY CHAIN 427

- Chapter 14 Sourcing Decisions in a Supply Chain 429
- Chapter 15 Pricing and Revenue Management in a Supply Chain 471
- Chapter 16 Information Technology in a Supply Chain 493
- Chapter 17 Coordination in a Supply Chain 508

Name Index 539

Subject Index 541

CONTENTS



Preface 13

PART I BUILDING A STRATEGIC FRAMEWORK TO ANALYZE SUPPLY CHAINS 17

CHAPTER 1 Understanding the Supply Chain 19

- 1.1 What Is a Supply Chain? 19
- 1.2 The Objective of a Supply Chain 21
- 1.3 The Importance of Supply Chain Decisions 22
- 1.4 Decision Phases in a Supply Chain 25
- 1.5 Process View of a Supply Chain 26
- 1.6 Examples of Supply Chains 32
- 1.7 Summary of Learning Objectives 36
- Discussion Questions 36
- Bibliography 37

CHAPTER 2 Supply Chain Performance: Achieving Strategic Fit and Scope 38

- 2.1 Competitive and Supply Chain Strategies 38
- 2.2 Achieving Strategic Fit 40
- 2.3 Expanding Strategic Scope 54
- 2.4 Summary of Learning Objectives 58
- Discussion Questions 59
- Bibliography 59

CHAPTER 3 Supply Chain Drivers and Metrics 60

- 3.1 Drivers of Supply Chain Performance 60
- 3.2 Framework for Structuring Drivers 62
- 3.3 Facilities 64
- 3.4 Inventory 66
- 3.5 Transportation 69
- 3.6 Information 71
- 3.7 Sourcing 74
- 3.8 Pricing 76
- 3.9 Obstacles to Achieving Fit 78
- 3.10 Summary of Learning Objectives 80

8 Contents

Discussion Questions	81
Bibliography	81
Case Study Seven-Eleven Japan Co.	82

PART II DESIGNING THE SUPPLY CHAIN NETWORK 89

CHAPTER 4 Designing Distribution Networks and Applications to e-Business 91

4.1 The Role of Distribution in the Supply Chain	91
4.2 Factors Influencing Distribution Network Design	92
4.3 Design Options for a Distribution Network	96
4.4 e-Business and the Distribution Network	110
4.5 Distribution Networks in Practice	126
4.6 Summary of Learning Objectives	128
Discussion Questions	128
Bibliography	129

CHAPTER 5 Network Design in the Supply Chain 130

5.1 The Role of Network Design in the Supply Chain	130
5.2 Factors Influencing Network Design Decisions	131
5.3 Framework for Network Design Decisions	137
5.4 Models for Facility Location and Capacity Allocation	140
5.5 The Role of IT in Network Design	156
5.6 Making Network Design Decisions in Practice	157
5.7 Summary of Learning Objectives	159
Discussion Questions	159
Exercises	159
Bibliography	164
Case Study Managing Growth at SportStuff.com	165

CHAPTER 6 Network Design in an Uncertain Environment 167

6.1 The Impact of Uncertainty on Network Design	167
6.2 Discounted Cash Flow Analysis	168
6.3 Representations of Uncertainty	169
6.4 Evaluating Network Design Decisions Using Decision Trees	171
6.5 AM Tires: Evaluation of Supply Chain Design Decisions Under Uncertainty	179
6.6 Risk Management and Network Design	190
6.7 Making Supply Chain Decisions Under Uncertainty in Practice	192
6.8 Summary of Learning Objectives	193
Discussion Questions	193
Exercises	194
Bibliography	195
Case Study BioPharma, Inc.	196

PART III PLANNING DEMAND AND SUPPLY IN A SUPPLY CHAIN 199**CHAPTER 7 Demand Forecasting in a Supply Chain 201**

- 7.1 The Role of Forecasting in a Supply Chain 201
- 7.2 Characteristics of Forecasts 202
- 7.3 Components of a Forecast and Forecasting Methods 203
- 7.4 Basic Approach to Demand Forecasting 205
- 7.5 Time-Series Forecasting Methods 207
- 7.6 Measures of Forecast Error 217
- 7.7 Forecasting Demand at Tahoe Salt 218
- 7.8 The Role of IT in Forecasting 224
- 7.9 Risk Management in Forecasting 225
- 7.10 Forecasting in Practice 226
- 7.11 Summary of Learning Objectives 227
- Discussion Questions 227
- Exercises 228
- Bibliography 228
- Case Study Specialty Packaging Corporation, Part A 230

CHAPTER 8 Aggregate Planning in a Supply Chain 232

- 8.1 The Role of Aggregate Planning in a Supply Chain 232
- 8.2 The Aggregate Planning Problem 234
- 8.3 Aggregate Planning Strategies 235
- 8.4 Aggregate Planning Using Linear Programming 236
- 8.5 Aggregate Planning in Excel 244
- 8.6 The Role of IT in Aggregate Planning 246
- 8.7 Implementing Aggregate Planning in Practice 247
- 8.8 Summary of Learning Objectives 248
- Discussion Questions 249
- Exercises 249
- Case Study Specialty Packaging Corporation, Part B 252

**CHAPTER 9 Planning Supply and Demand in a Supply Chain:
Managing Predictable Variability 255**

- 9.1 Responding to Predictable Variability in a Supply Chain 255
- 9.2 Managing Supply 256
- 9.3 Managing Demand 258
- 9.4 Implementing Solutions to Predictable Variability in Practice 266
- 9.5 Summary of Learning Objectives 266
- Discussion Questions 267
- Exercises 267
- Bibliography 270
- Case Study Mintendo Game Girl 271

**PART IV PLANNING AND MANAGING INVENTORIES
IN A SUPPLY CHAIN 273**

CHAPTER 10 Managing Economies of Scale in a Supply Chain: Cycle Inventory 275

- 10.1 The Role of Cycle Inventory in a Supply Chain 275
- 10.2 Economies of Scale to Exploit Fixed Costs 278
- 10.3 Economies of Scale to Exploit Quantity Discounts 289
- 10.4 Short-Term Discounting: Trade Promotions 299
- 10.5 Managing Multiechelon Cycle Inventory 304
- 10.6 Estimating Cycle Inventory–Related Costs in Practice 308
- 10.7 Summary of Learning Objectives 310
- Discussion Questions 310
- Exercises 311
- Bibliography 313
- Case Study Delivery Strategy at MoonChem 314
- Appendix 10A: Economic Order Quantity 316

CHAPTER 11 Managing Uncertainty in a Supply Chain: Safety Inventory 317

- 11.1 The Role of Safety Inventory in a Supply Chain 317
- 11.2 Determining Appropriate Level of Safety Inventory 317
- 11.3 Impact of Supply Uncertainty on Safety Inventory 329
- 11.4 Impact of Aggregation on Safety Inventory 331
- 11.5 Impact of Replenishment Policies on Safety Inventory 342
- 11.6 Managing Safety Inventory in a Multiechelon Supply Chain 345
- 11.7 The Role of IT in Inventory Management 346
- 11.8 Estimating and Managing Safety Inventory in Practice 347
- 11.9 Summary of Learning Objectives 348
- Discussion Questions 349
- Exercises 349
- Bibliography 352
- Case Study Managing Inventories at ALKO Inc. 353
- Appendix 11A: The Normal Distribution 355
- Appendix 11B: The Normal Distribution in Excel 356
- Appendix 11C: Expected Shortage Cost per Cycle 357

CHAPTER 12 Determining the Optimal Level of Product Availability 358

- 12.1 The Importance of the Level of Product Availability 358
- 12.2 Factors Affecting Optimal Level of Product Availability 359
- 12.3 Managerial Levers to Improve Supply Chain Profitability 368
- 12.4 Setting Product Availability for Multiple Products Under Capacity Constraints 379
- 12.5 Setting Optimal Levels of Product Availability in Practice 382
- 12.6 Summary of Learning Objectives 382
- Discussion Questions 383
- Exercises 383

Bibliography	386
Appendix 12A: Optimal Level of Product Availability	388
Appendix 12B: An Intermediate Evaluation	389
Appendix 12C: Expected Profit from an Order	390
Appendix 12D: Expected Overstock from an Order	391
Appendix 12E: Expected Understock from an Order	392
Appendix 12F: Simulation Using Spreadsheets	393

PART V DESIGNING AND PLANNING TRANSPORTATION NETWORKS 395

CHAPTER 13 Transportation in a Supply Chain 397

13.1 The Role of Transportation in a Supply Chain	397
13.2 Modes of Transportation and Their Performance Characteristics	399
13.3 Transportation Infrastructure and Policies	404
13.4 Design Options for a Transportation Network	407
13.5 Trade-Offs in Transportation Design	411
13.6 Tailored Transportation	418
13.7 The Role of IT in Transportation	420
13.8 Risk Management in Transportation	421
13.9 Making Transportation Decisions in Practice	422
13.10 Summary of Learning Objectives	423
Discussion Questions	424
Exercises	424
Bibliography	425

PART VI MANAGING CROSS-FUNCTIONAL DRIVERS IN A SUPPLY CHAIN 427

CHAPTER 14 Sourcing Decisions in a Supply Chain 429

14.1 The Role of Sourcing in a Supply Chain	429
14.2 In-House or Outsource	431
14.3 Third- and Fourth-Party Logistics Providers	438
14.4 Supplier Scoring and Assessment	440
14.5 Supplier Selection—Auctions and Negotiations	444
14.6 Contracts and Supply Chain Performance	448
14.7 Design Collaboration	459
14.8 The Procurement Process	460
14.9 Sourcing Planning and Analysis	463
14.10 The Role of IT in Sourcing	464
14.11 Risk Management in Sourcing	465
14.12 Making Sourcing Decisions in Practice	466
14.13 Summary of Learning Objectives	466
Discussion Questions	468
Exercises	468
Bibliography	470

12 Contents

CHAPTER 15 Pricing and Revenue Management in a Supply Chain	471
15.1 The Role of Pricing and Revenue Management in a Supply Chain	471
15.2 Pricing and Revenue Management for Multiple Customer Segments	473
15.3 Pricing and Revenue Management for Perishable Products	480
15.4 Pricing and Revenue Management for Seasonal Demand	485
15.5 Pricing and Revenue Management for Bulk and Spot Contracts	486
15.6 The Role of IT in Pricing and Revenue Management	488
15.7 Using Pricing and Revenue Management in Practice	489
15.8 Summary of Learning Objectives	490
Discussion Questions	491
Exercises	491
Bibliography	492
CHAPTER 16 Information Technology in a Supply Chain	493
16.1 The Role of IT in a Supply Chain	493
16.2 The Supply Chain IT Framework	496
16.3 Customer Relationship Management	499
16.4 Internal Supply Chain Management	500
16.5 Supplier Relationship Management	502
16.6 The Transaction Management Foundation	503
16.7 The Future of IT in the Supply Chain	503
16.8 Risk Management in IT	504
16.9 Supply Chain IT in Practice	505
16.10 Summary of Learning Objectives	506
Discussion Questions	507
Bibliography	507
CHAPTER 17 Coordination in a Supply Chain	508
17.1 Lack of Supply Chain Coordination and the Bullwhip Effect	508
17.2 The Effect on Performance of Lack of Coordination	510
17.3 Obstacles to Coordination in a Supply Chain	512
17.4 Managerial Levers to Achieve Coordination	517
17.5 Building Strategic Partnerships and Trust Within a Supply Chain	522
17.6 Continuous Replenishment and Vendor-Managed Inventories	529
17.7 Collaborative Planning, Forecasting, and Replenishment (CPFR)	530
17.8 The Role of IT in Coordination	534
17.9 Achieving Coordination in Practice	534
17.10 Summary of Learning Objectives	536
Discussion Questions	537
Bibliography	537
Name Index	539
Subject Index	541

PREFACE



This book is targeted toward an academic as well as a practitioner audience. On the academic side, it should be appropriate for MBA students, engineering master's students, and senior undergraduate students interested in supply chain management and logistics. It should also serve as a suitable reference for both concepts as well as methodology for practitioners in consulting and industry.

The book has grown from a course on supply chain management taught to second-year MBA students at the Kellogg School of Management at Northwestern University. The goal of this class was to cover not only high-level supply chain strategy and concepts, but also to give students a solid understanding of the analytical tools necessary to solve supply chain problems. With this class goal in mind, our objective was to create a book that would develop an understanding of the following key areas and their interrelationships:

- The strategic role of a supply chain
- The key strategic drivers of supply chain performance
- Analytic methodologies for supply chain analysis

Our first objective in this book is for the reader to learn the strategic importance of good supply chain design, planning, and operation for every firm. The reader will be able to understand how good supply chain management can be a competitive advantage, whereas weaknesses in the supply chain can hurt the performance of a firm. We use many examples to illustrate this idea and develop a framework for supply chain strategy.

Within the strategic framework, we identify facilities, inventory, transportation, information, sourcing, and pricing as the key drivers of supply chain performance. Our second goal in the book is to convey how these drivers may be used on a conceptual and practical level during supply chain design, planning, and operation to improve performance. We have included a case on Seven-Eleven Japan that can be used to illustrate how the company uses various drivers to improve supply chain performance. For each driver of supply chain performance, our goal is to provide readers with practical managerial levers and concepts that may be used to improve supply chain performance.

Utilizing these managerial levers requires knowledge of analytic methodologies for supply chain analysis. Our third goal is to give the reader an understanding of these methodologies. Every methodological discussion is illustrated with its application in Excel. In this discussion, we also stress the managerial context in which they are used and the managerial levers for improvement that they support.

The strategic frameworks and concepts discussed in the book are tied together through a variety of examples that show how a combination of concepts is needed to achieve significant increases in performance.