

■ PETER T. ITTIG, Feature Editor, College of Management, University of Massachusetts, Boston

Supply Chain Management

by Terry P. Harrison, Smeal College of Business,
Pennsylvania State University

To a certain extent, all book reviews reflect the biases of the reviewer. When considering supply chain texts, I have a particularly strong set of biases, so let me make those clear up front. I am in a supply chain department that was formed about five years ago in the merger of a management science/operations management department and a business logistics department. When we first merged, we adopted the Supply Chain Operating Reference (SCOR) model as the primary organizing principle (www.supply-chain.org). Our thinking was that if we were telling our students to take an end-to-end view of the supply chain, we at least ought to organize ourselves the same way. We continue to use the Plan/Source/Make/Deliver/Return view of the supply chain. It has been useful, difficult, and instructive to do so. Almost everyone came to the merger from either a manufacturing/operations or logistics/transportation heritage. So the tendency was (and still remains) for each person to fundamentally view supply chain issues from their "roots." I suspect that over time this tendency will dissipate but supply chain management is still new enough as a discipline that most faculty members in supply chain departments have their academic traditions in a related but different area. I view supply chain texts in a similar way. Many are either an expanded version of a logistics text or an operations management text. The text *Supply Chain Logistics Management*, by Bowersox, Closs, and Cooper, is an example of the former, while the new text *Operations and Supply Chain Management: The Core*, by Jacobs and Chase, is an example of the latter. In my view, the best supply chain texts do not have this logistics or operations primary orienta-

tion but rather take a balanced end-to-end supply chain perspective. With this introduction, I provide a review and an opinion on three texts. They are:

Principles of Supply Chain Management—A Balanced Approach by Joel D. Wisner, G. Keong Leong, and Keah-Choon Tan (Thomson/South-Western, 2005, ISBN 0-324-19187-1).

Supply Chain Management—Strategy, Planning & Operations (3rd ed.) by Sunil Chopra and Peter Meindl (Pearson/Prentice Hall, 2007, ISBN 0-13-173042-8).

Strategic Supply Chain Management by Shoshanah Cohen and Joseph Roussel (McGraw-Hill, 2005, ISBN 0-07-143217-5).

Principles of Supply Chain Management (PSCM)

The fundamental premise of this text is to present a "balanced" approach to supply chain management and the organization of the text reflects that focus. The chapters are aggregated into five "parts":

1. Supply Chain Management: An Overview
2. Purchasing Issues in Supply Chain Management
3. Operations Issues in Supply Chain Management
4. Distribution Issues in Supply Chain Management
5. Sustaining Competitive Advantage.

Supply Chain Management: An Overview

This section is composed of a single, introductory chapter, which lays out the fundamental definitions, concepts and



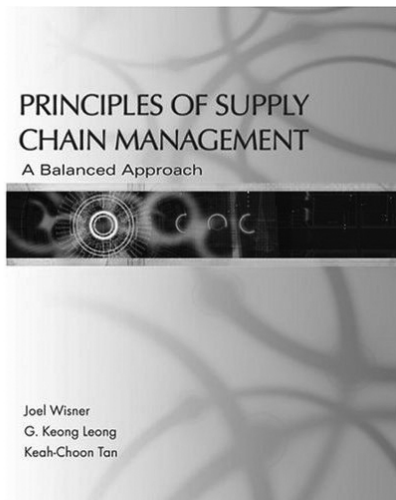
Terry P. Harrison

is the Earl P. Strong Executive Education Professor of Business and Professor of Supply Chain and Information Systems in the Supply Chain and Information Systems Department, Smeal College of Business, Pennsylvania

State University. He currently serves as vice president of publications for INFORMS and previously completed two terms as editor-in-chief of *Interfaces*. His publications have appeared in *Decision Sciences*, *Management Science*, *Operations Research*, *Interfaces*, *Decision Support Systems*, *European Journal of Operations Research*, among others. He was a co-recipient of the Best Application Paper Research Award at the 2005 Decision Sciences Institute annual meeting. His research focuses on variable aspects of supply chain management, including network design, supply chain vulnerability and risk and coordination issues in supply chain management. He has consulted for a number of Fortune 100 firms and is a frequent speaker in executive management programs.

tharrison@psu.edu

<http://server.tph.smeal.psu.edu/tph/>



Principles of Supply Chain Management: A Balanced Approach
 by Joel D. Wisner, G. Keong Leong, and Keah-Choon
 South-Western
 528 pages, 2005, \$115.95

issues of supply chain management. It does a good job of creating a foundation for the remainder of the book. There is also an appendix describing the mechanics of performing a “Beer Game” exercise.

Purchasing Issues in Supply Chain Management

Three chapters form the basis of this section. They are:

1. Purchasing Management
2. Creating and Managing Supplier Relationships
3. Strategic Sourcing for Successful Supply Chain Management

The purchasing chapter describes the fundamental processes and impact of purchasing activities in an easy-to-read fashion. It is appropriately detailed for a supply chain text. The next chapter explores the motivation and importance of various aspects of supplier relationships such as supplier evaluation and certification, supplier awards, strategic alliances, and supplier relationship management software. The final chapter in this section covers the

strategic view of sourcing, including developing sourcing plans, performance criteria, auctions and partnerships.

Operations Issues in Supply Chain Management

Part 3 of the text has four chapters:

1. Demand Forecasting and Collaborative Planning, Forecasting and Replenishment
2. Aggregate Planning and Inventory Management
3. Enterprise Resource Planning Systems
4. Process Management: Just-in-Time and Total Quality Management Issues in Supply Chain Management.

The first chapter in this section is divided into two portions. The first part covers forecasting. It is presented at a level appropriate for undergraduates and focuses on moving average, exponential smoothing, and linear trend time series models. It also includes a discussion of forecasting accuracy. The second part on CPFR gives a high level view of the process and a quick review of CPFR software.

The aggregate planning discussion covers the basics of master production scheduling, ATP, bill of materials, dependent versus independent demand, and MRP. The coverage is high level and appropriate for an undergraduate SCM text. The remainder of the chapter briefly covers inventory management with a primary focus on the EOQ model. The ERP chapter provides a discussion of the basic aspects of enterprise resource planning, the motivation for using an ERP system and a brief review of the most popular ERP software systems. The final chapter in this section on process management covers the basics of JIT and TQM, along with very brief coverage of statistical process control.

Distribution Issues in Supply Chain Management

This portion of the text has four chapters. They are:

1. Domestic and International Transportation
2. Customer Relationship Management
3. Facility Location Decisions
4. Service Response Logistics.

The transportation chapter provides coverage of transportation modes, third part providers, regulation, international issues and the integration of transportation, warehousing, and material handling. The Customer Relationship Management (CRM) chapter provides a high level discussion of the role and components of CRM, implementation issues and popular CRM software. The facility location chapter discusses the strategic issues in the use of facilities in the supply chain. It also has a curiously out of place section on simplistic facility location models. Lastly, the service response logistics chapter is the sole source of a discussion of services supply chains—an increasingly important aspect of supply chain management.

Sustaining Competitive Advantage

Part 5 of the text concludes with three chapters:

1. Supply Chain Process Integration
2. Performance Measurement Along the Supply Chain
3. Looking to the Future of Supply Chain Management.

The first chapter in this section provides a conceptual review of key integration concepts—aligning supply chain strategy with objectives, customer relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, supplier relationship management, product development, and returns management. The next chapter discusses the importance

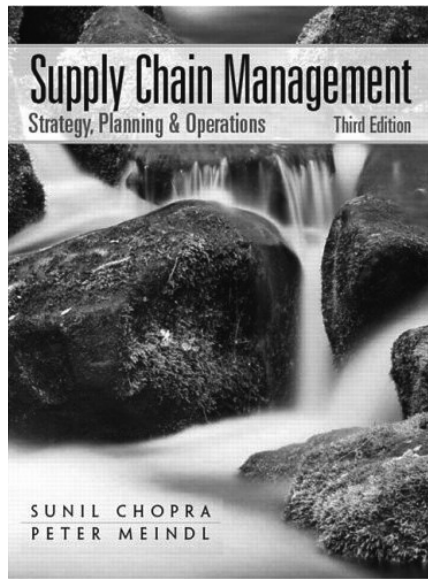
of supply chain metrics, covers financial and non-financial performance measures and provides brief coverage of the “Balanced Scorecard” and “Supply Chain Operating Reference (SCOR) model.” The final chapter of this section and the text is a look to the future with a discussion on the increasingly global nature of supply chains, the importance of environmentally responsible SCM, outsourcing and cost reduction. Each chapter of the text ends with a list of key terms, discussion questions and references. Frequently there are “Internet questions” which require some online use and there may be “Spreadsheet Problems” which require a spreadsheet model to solve. There are also “Problems” which are more traditional exercises to develop skills in a particular concept. Some chapters also have brief cases, which are appropriate for discussion at the undergraduate level. Overall, these various aspects collectively form a strong undergraduate textbook that fulfills the promise of the title—“A Balanced Approach.”

Supply Chain Management— Strategy, Planning & Operations (SCMSPO)

This text, now in its third edition, provides an excellent integrated view of supply chain management. It is appropriate for use at the advanced undergraduate level, and is particularly well suited for an MBA course.

SCMSPO is organized into six parts or themes, with each part comprising multiple chapters. These are:

1. Building a Strategic Framework to Analyze Supply Chains
2. Designing the Supply Chain Network
3. Planning Demand and Supply in a Supply Chain
4. Planning and Managing Inventories in a Supply Chain
5. Designing and Planning Transportation Networks
6. Managing Cross-Functional Drivers in a Supply Chain



Supply Chain Management: Strategy, Planning & Operations (3rd ed.)
by Sunil Chopra, Peter Meindl
Prentice Hall
552 pages, 2007, \$140

In the first part, “Building a Strategic Framework to Analyze Supply Chains,” the authors have three largely introductory chapters that orient the reader to particular views of supply chain organization. These are “Understanding Supply Chains,” “Supply Chain Performance: Achieving Strategic Fit and Scope,” and “Supply Chain Drivers and Metrics.” Collectively, this section does a good job of providing a high level, end-to-end view of supply chain organization and execution and provides a structure for the remainder of the text.

The second part, “Designing the Supply Chain Network,” has three chapters: “Designing Distribution Networks and Applications to e-Business,” “Network Design in the Supply Chain,” and “Network Design in an Uncertain Environment.” All of these chapters take a strategic view and discuss key supply chain performance levers and metrics related to the physical arrangement of facilities and infrastructure. The chapters in this section, as is true for the entire text, have many excellent Ex-

cel-based examples to supplement the concepts and models. At its most technical level, the models in these chapters are appropriate for a second level MBA elective course in supply chain management.

The third part, “Planning Demand and Supply in a Supply Chain” has three chapters: “Demand Forecasting in a Supply Chain,” “Aggregate Planning in a Supply Chain,” and “Planning Supply and Demand in a Supply Chain: Managing Predictable Variability.” The forecasting chapter is divided into three main parts. The first section of the chapter focuses on time series forecasting, including a nice Excel-based example. The next part of the chapter discusses measures of forecast error. The final portion of the chapter is in in-depth Excel-based example of various exponential smoothing techniques. The aggregate planning chapter is centered on a linear programming formulation to determine workforce levels over time. Again, it is developed using a spreadsheet model and invokes the “solver” feature of Excel. The last chapter in this section extends the aggregate planning model to address variability in demand that can be forecasted.

Part 4 is titled “Planning and Managing Inventories in a Supply Chain” and has three chapters titled “Managing Economies of Scale in a Supply Chain: Cycle Inventory,” “Managing Uncertainty in a Supply Chain: Safety Inventory,” and “Determining the Optimal Level of Product Availability.” The first chapter focuses on developing the base method for determining inventory levels using the EOQ model. The treatment is in-depth and well written. This base model is then extended in a number of practical ways. The chapter finishes with a nice discussion of multi-echelon inventory considerations. The “safety inventory” chapter motivates the use of safety stock to handle demand uncertainty and develops a series of Excel-based models to address a number of issues and extensions. This chapter is among the most technical in the text and may be a

stretch for all but the most quantitative MBAs. The final chapter in this section integrates inventory issues and levers into a development of approaches to determine optimal levels of product availability. It does a good job of outlining the tradeoffs and managerial impacts of setting customer service levels.

The fifth section, "Designing and Planning Transportation Networks," is composed of a single chapter titled "Transportation in Supply Chains." This relatively brief chapter covers mode selection, transportation infrastructure and policies, and shipping tradeoffs. It is the least detailed section of the text.

The last section, "Managing Cross-Functional Drivers in a Supply Chain" has four chapters: "Sourcing Decisions in a Supply Chain," "Pricing and Revenue Management in a Supply Chain," "Information Technology in a Supply Chain," and "Coordination in a Supply Chain." Each chapter is a relatively stand-alone unit. The sourcing chapter briefly covers the basics of sourcing issues. It does, however, have excellent sections on procurement auctions and supply contracts. The pricing and revenue management chapter is a welcome addition to a supply chain text. Revenue management falls in the area between marketing and supply chain management. While it is a key technique for matching supply and demand, it is often overlooked by both disciplines. The Information Technology chapter is brief and hit the highlights of the role of IT in supply chain management. It also covers major classes of supply chain software. Lastly, the coordination chapter covers an extremely important view of the management of an end-to-end supply chain. In particular, it looks at the Bullwhip effect, the cost drivers of poor coordination, and the role of incentives, CPFR, VMI, and supplier relationships.

Each successive edition of this excellent text has expanded and improved on the prior version. It is a relatively complete text that is well written and presented at the MBA level. There are a few areas that the text lacks. One drawback is the rather short cases

contained in the text. The second deficiency is a relatively small set of problems at the end of each chapter. An instructor using this text will need to augment the material in these two areas. This is somewhat offset by a companion instructor's manual that includes a sample syllabus, additional readings and case suggestions, along with PowerPoint slides, and solutions to exercises.

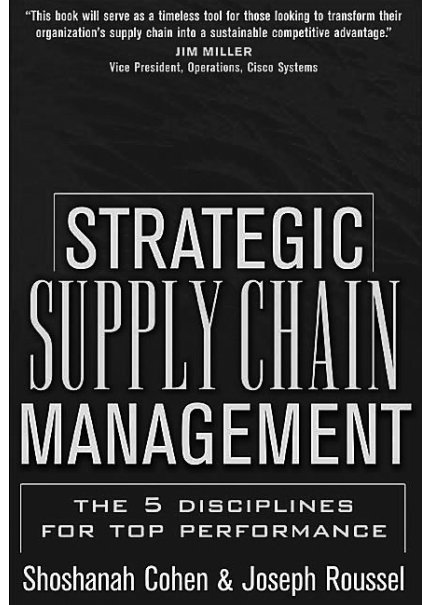
Strategic Supply Chain Management (SSCM)

SSCM is not a textbook in a traditional sense. Its authors are partners at the consulting firm PRTM. They have a wealth of supply chain experience over an extended period of time and bring that experience to their book in a useful and instructive way. PRTM was one of the founding organizations that helped to develop the SCOR model, and SSCM does an *excellent* job of adopting an end-to-end view of the supply chain.

SSCM is a mixture of chapters on core strategic principles of supply chain management, intermixed with company "profiles" focused on particular issues. The seven company profiles are:

1. Eli Lilly – Supporting product lifecycles with supply chain management
2. Autoliv – Applying rocket science to the supply chain
3. Avon – Calling on customers cost-effectively
4. Owens Corning – Reorganizing for "a bright future"
5. U.S. Department of Defense – Making the tail smaller and the tooth stronger
6. General Motors – Driving customer satisfaction
7. Seagate – Real time response to demand

The profiles vary from 7-15 pages in length, so they are somewhat limited in detail. However, each is a well-written introduction to the firm or organization. The profiles start with broad



Strategic Supply Chain Management: The Five Disciplines for Top Performance
by Shoshanah Cohen, Joseph Roussel
McGraw-Hill
316 pages, 2005, \$44.95

comments about the company and move to more in-depth discussion around the particular issue. Collectively, they are an engaging set of reports on current practice in the context of contemporary supply chain issues.

SSCM also contains three detailed appendices. The first, "Source and Methodology for Benchmarking Data," describes the history and development of benchmarking data presented throughout the book. Appendix B is a brief discussion of the "Supply Chain Maturity Model," which is a method "used to assess the stage of capability for each of the four processes defined by the Supply-Chain Operations Reference model (SCOR)." The final appendix is a collection of detailed tables and figures that provide a comparison of characteristics for levels 2 and 3 of SCOR metrics.

The bulk of SSCM is the following collection of five forward-looking chapters that address core supply chain disciplines:

1. View Your Supply Chain as a Strategic Asset
2. Develop an End-to-End Process Architecture
3. Design Your Organization for Performance
4. Build the Right Collaborative Model
5. Use Metrics to Drive Business Success

View Your Supply Chain as a Strategic Asset

This chapter discusses the reasons for viewing an organization's supply chain as a strategic asset and how it can serve as a competitive weapon. It discusses alignment of corporate strategy with supply chain strategy and then drills down to various kinds of finer grained issues such as channel strategy, outsourcing strategy, customer service strategy, etc. The chapter sets the stage for the chapters to follow by laying out a framework for viewing the big picture issues.

Develop an End-to-End Process Architecture

This chapter describes the following key tests for effective supply chain architecture:

1. The test of strategic fit
2. The test of end-to-end focus
3. The simplicity test
4. The integrity test.

Each of these tests is discussed in detail with an emphasis on best practices in the area. The chapter concludes with an extended description of the Supply Chain Operating Reference (SCOR) Model.

Design Your Organization for Performance

This is a non-standard chapter focused on a high level strategic view of how to structure the organization to function in an integrated fashion. The chapter is a mix of key principles and short stories of how companies improved sup-

ply chain performance with various organizational concepts.

Build the Right Collaborative Model

The first sentence in this chapter is "Collaboration is the cornerstone of effective supply chain management." Building on this principle, this chapter describes various forms of collaboration with a focus on how to find the right collaborative model for a given organization. Like the other chapters, there are many small examples of collaboration mixed in with the discussion.

Use Metrics to Drive Business Success

I subscribe to the view "If you can't measure it, you can't manage it." This chapter is a rich discussion of the many kinds of metrics that can be used to assess supply chain performance. In addition, the authors describe where the various metrics are useful and how to craft a set of performance measures that help to shape supply chain improvement.

What audience does this book address? First, it assumes a rather high level of supply chain knowledge, and further, it requires a fair amount of experience to appreciate the finer points of the discussion. So while it might be appropriate for a second course in supply chain management at the MBA level, it is really most appropriate for the person who is already working as a supply chain professional. It is also a great addition for the academic who wishes to add depth to their appreciation of strategic supply chain management.

Final Thoughts

The three texts reviewed here span the spectrum of supply chain education. *Principles of Supply Chain Management* is a strong undergraduate text. *Supply Chain Management—Strategy, Planning and Operation* is becoming a classic MBA text. Lastly, *Strategic Supply Chain Management* is rich text focused on the supply chain professional. Collectively, the form a very complete set of instructional materials with a strong, inte-

grated end-to-end supply chain view. There are also some other texts that are strong contenders for adoption in a supply chain management course, depending on the orientation. In random order, they are:

Matching Supply with Demand—An Introduction to Operations Management, by Gerard Cachon and Christian Terwiesch (McGraw-Hill Irwin, 2006, ISBN 0-07-291899-3).

Designing and Managing the Supply Chain, by David Simchi-Levi, Philip Kaminsky, and Edith Simchi-Levi (McGraw-Hill Irwin, 2002, 2nd ed., ISBN 0-07-249256-2).

Modeling the Supply Chain, by Jeremy F. Shapiro (Duxbury, 2001, ISBN 0-534-37363-1). ■

Members of DSI are invited to suggest books that should be reviewed in this column and reviewers to review them. Send suggestions to the Feature Editor.

Peter T. Ittig, Feature Editor
College of Management
University of Massachusetts
Boston, MA 02125-3393
Peter.Ittig@umb.edu

NAMES IN THE NEWS



Enar Tunc has been named the vice president for academic affairs and the dean of faculty of economics and administrative sciences at Kadir Has

University, Istanbul, Turkey. Tunc spent 18 years at Ball State University as the director of the Operations and Manufacturing Management Program. He also served as the director of Technology Integration at Miller College of Business. Past president of Midwest DSI, Tunc was the recipient of Delta Sigma Pi Professor of the Year award while teaching at Ball State.

enart@khas.edu.tr