

FIFTH EDITION

# Principles of **SUPPLY CHAIN MANAGEMENT**

A BALANCED APPROACH



WISNER



TAN



LEONG



# Principles of Supply Chain Management

A Balanced Approach | 5e

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*To CJ, Hayley, Blake, Phyllis, and Sally.*

—JOEL WISNER

*To Shaw Yun, Wen Hui, and Wen Jay.*

—KEAH-CHOON TAN

*To Lin and Michelle.*

—G. KEONG LEONG

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## On the Companion Website

### Student and Instructor Materials

# Preface

Welcome to the fifth edition of *Principles of Supply Chain Management: A Balanced Approach*. The practice of supply chain management has become widespread in all industries around the globe today, and the benefits to firms of all sizes are being realized. We think this text is unique in that it uses a novel and logical approach to present discussions of this topic from four foundation perspectives: purchasing, operations, logistics, and process integration. We think this text is also somewhat different than the other supply chain management texts available, since we present a more balanced view of the topic—many of the texts available today concentrate primarily on just one of the three areas of purchasing, operations, or logistics.

The objective of the text is to make readers think about how supply chain management impacts all of the various areas and processes of the firm and its supply chain trading partners and to show how managers can improve their firm's competitive position by employing the practices we describe throughout the text. Junior- or senior-level business students, beginning MBA students, as well as practicing managers can benefit from reading and using this text.

There are several changes to this fifth edition that we hope you will find interesting and useful. Perhaps the biggest change are the three cases at the end of each chapter (Chapter 1 has just one case). The teaching notes for each case can be found in the Instructor's Manual. There is also a greater emphasis on technological advances throughout the text. Additionally, each chapter contains a number of SCM Profiles, beginning with a chapter-opening profile, and then other smaller company profiles throughout the chapters. All chapter references throughout the text have been updated, with new and interesting storylines, to keep readers engaged and informed. Additionally, new end-of-chapter discussion, essay and project questions, and exercises have been added. Other ancillary materials are described below.

As with the fourth edition, the fifth edition has a tie-in to a wonderfully engaging global supply chain simulation game called SCM Globe. A separate page dedicated to SCM Globe follows this preface. We are very excited about the simulation and hope instructors will take it for a test drive and then use it in their classes.

New to the fifth edition is MindTap for supply chain management. A separate page dedicated to MindTap follows this preface.

Finally, PowerPoint lecture slides are available for download. The online instructor resource center contains sample syllabi, case teaching notes, answers to all of the end-of-chapter questions and problems, and a test bank. In the Chapter 1 Appendix, there is a discussion of the Beer Game, with inventory tracking sheets to allow instructors to actually play the game with their students. There are also quantitative as well as qualitative problems and questions, essay/project exercises, and Excel problems spread throughout most of the chapters.

Part 1 is the overview and introduction to the topic of supply chain management. This chapter introduces the basic understanding and concepts of supply chain management and should help students realize the importance of this topic. Core concepts such as the bullwhip effect, supplier relationship management, forecasting and demand management, enterprise resource planning, transportation management, and customer relationship management are briefly discussed. There is also a closing section on current trends in supply chain management.

Part 2 presents supply issues in supply chain management. This very important topic is covered in three chapters, building from an introduction to purchasing management, to managing supplier relationships, and then finally to ethical and sustainable sourcing. Within these chapters can be found sections on government purchasing, global sourcing, e-procurement, software applications, supplier development, ethical purchasing, and green purchasing.

Part 3 includes four chapters regarding operations issues in supply chain management. This section progresses from forecasting, resource planning, and inventory management to lean production and Six Sigma in a supply chain setting. Topics in this section include the basics of forecasting; collaborative planning, forecasting, and replenishment; material requirements planning; enterprise resource planning; inventory models; lean thinking; Six Sigma concepts and tools; and statistical process control techniques.

Part 4 presents distribution issues in supply chain management and consists of four chapters. This section begins with a review of domestic U.S. and international logistics with sections on green transportation, international logistics security, and reverse logistics. This is followed by chapters on customer relationship management, global location decisions, and service response logistics. Content in these chapters includes new software application discussions, social media, and cloud computing in customer relationship management, sustainability in logistics, new location trends in the global economy, and cloud computing in services.

The final section is Part 5, which presents discussions of the integration issues in supply chain management and performance measurements along the supply chain. While cooperation and integration are frequently referred to in the text, this section brings the entire text into focus, tying all of the parts together, first by discussing internal and external process integration in detail, followed by a discussion of traditional and world-class performance measurement systems. The topics of supply chain risk management and expanded coverage of performance measurement models are also included.

We think we have compiled a very interesting set of supply chain management topics that will keep readers engaged and we hope you enjoy it. We welcome your comments and suggestions for improvement. Please direct all comments and questions to:

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Keah-Choon Tan: kctan@unlv.edu, or

G. Keong Leong: gkleong@csudh.edu

## **MINDTAP FOR SUPPLY CHAIN MANAGEMENT**

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MindTap, new to this edition, features Excel Online integration powered by Microsoft, a complete digital solution for the supply chain course. It has enhancements that take students from learning basic supply chain concepts to actively engaging in critical thinking applications, while learning valuable software skills for their future careers.

MindTap is a customizable digital course solution that includes an interactive eBook and auto-graded exercises from the text. All of these materials offer students better access to understand the materials within the course. For more information on MindTap, please contact your Cengage representative.



## SCM Profile

## SCM Globe—A Supply Chain Simulation

SCM Globe is an engaging supply chain experience. Students can design supply chains from scratch or use the case studies to understand how different supply chains produce different operating results. It is an easy-to-use, map-based supply chain simulation application. As they work with the simulations, students get an intuitive feel and an analytical understanding for how supply chains work.

SCM Globe leverages capabilities of Google Maps and adds further functionality that enables the design of new supply chains and the modeling of existing real supply chains. Users define products used in a supply chain and drag-and-drop the facilities that make or consume those products on a map of the world. They specify the routes (road, rail, air, water) that connect the facilities, and define the vehicles that run on those routes. Then the simulations show how well these supply chains perform.

SCM Globe lets students simulate the operation of their supply chains while showing animated displays of vehicles moving on the map following the routes defined between facilities. There are also on-screen displays showing inventory levels and operating costs at facilities. Problem areas (where products accumulate or run out) are identified. Students can keep improving their supply chain designs until they get the results they want.

Everything students need to get started is in the online guide. In 15–30 minutes, students can scan the short videos and tutorials in the “Getting Started” section of the online guide and will have what they need to start using SCM Globe. They learn more as the need arises by referring to specific sections in the online guide. There is also a library of case studies. Each case study is a bit more challenging than the last and illustrates supply chain operating principles. These principles and other issues are presented in a section for each case study. For instructors there are also step-by-step study guides illustrated with screenshots so instructors can quickly come up to speed with these semester-length case studies and coach their students through exploring the issues and challenges in each case study.

For instructors using this text, we have created a sample course syllabus that shows how to combine readings from this text with interactive supply chain simulations. The simulations illustrate and reinforce the concepts students learn in the readings and lectures. For a copy of this course syllabus please send an e-mail to Michael Hugos at [mhugos@scmglobe.com](mailto:mhugos@scmglobe.com).

SCM Globe costs \$64.95 per student per semester and is provided at no charge to the instructors, with classes of five or more students. To learn more about SCM Globe, go to [www.scmglobe.com](http://www.scmglobe.com). Click on the short video on the home page or click on the blue “Start Here” button to see more about what SCM Globe can do. You can request a personal web demonstration by sending an e-mail to SCM Globe at [info@scmglobe.com](mailto:info@scmglobe.com).

## ACKNOWLEDGMENTS

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Additionally, we would like to thank all of the case writers who contributed their cases to this text. Their names, along with their contact information, are printed following each case in the text. Finally, we thank C. J. Wisner for all her help in preparing the MindTap quizzes, PowerPoints, and test bank. As with any project of this size and time span, there are certain to be a number of people who gave their time and effort to this text, and yet their names remain unknown and so were inadvertently left out of these acknowledgments. We apologize for this and wish to thank you here.

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**Joel D. Wisner** is professor of supply chain management in the Lee Business School at the University of Nevada, Las Vegas. He earned his BS in mechanical engineering from New Mexico State University in 1976 and his MBA from West Texas State University in 1986. During that time, Dr. Wisner worked as an engineer for Union Carbide at its Oak Ridge, Tennessee, facility and then worked in the oil industry in the Louisiana Gulf Coast and West Texas areas. In 1991, he earned his PhD in supply chain management from Arizona State University. He holds certifications in transportation and logistics (CTL) and in purchasing management (CPM).

He is currently keeping busy teaching courses and writing texts in supply chain management and operations management at UNLV. His research and case writing interests are in process assessment and improvement strategies along the supply chain. His articles have appeared in numerous journals including *Journal of Business Logistics*, *Journal of Operations Management*, *Journal of Supply Chain Management*, *Journal of Transportation, Production and Operations Management Journal*, and *Business Case Journal*.

**Keah-Choon Tan** is professor of operations management in the Lee Business School at the University of Nevada, Las Vegas. He received a BSc degree and an MBA from the University of South Alabama and a PhD in operations management from Michigan State University. Prior to academia, Dr. Tan was a hospital administrator and an account controller of a manufacturing firm. He holds certifications in purchasing management (CPM) and production and inventory management (CPIM). Dr. Tan has served as the department chair of the marketing department and associate dean for academic affairs at the Lee Business School in UNLV.

Dr. Tan has published articles in the area of supply chain management, quality, and operations scheduling in academic journals and magazines including *Decision Sciences*, *Decision Support Systems*, *International Journal of Production Research*, *International Journal of Operations & Production Management*, *International Journal of Logistics Management*, *Journal of Supply Chain Management*, and *Omega*, among others. He has served as editor, co-guest editor, and on the editorial boards of academic journals. Dr. Tan has received several research grants and teaching awards, including the UNLV Foundation Distinguished Teaching Award.

**G. Keong Leong** is a professor in the information systems and operations management department, in the College of Business Administration and Public Policy at California State University, Dominguez Hills. He received an undergraduate degree in mechanical engineering from the University of Malaya and an MBA and PhD from the University of South Carolina. He was previously a member of the faculty at the University of Nevada, Las Vegas and the Ohio State University and a clinical faculty member at the Thunderbird School of Global Management.

His publications appear in academic journals such as *Journal of Operations Management*, *Decision Sciences*, *Interfaces*, *Journal of Management*, *European Journal of Operational Research*, and *International Journal of Production Research*, among others. He has coauthored three books including *Operations Strategy: Focusing Competitive Excellence* and *Cases in International Management: A Focus on Emerging Markets* and received

research, teaching, and service awards including an Educator of the Year award from the Asian Chamber of Commerce in Las Vegas, Dennis E. Grawoig Distinguished Service award from Decision Sciences Institute, and OM Distinguished Scholar award from the Operations Management Division, Academy of Management. He has been active in the Decision Sciences Institute, serving as president, editor of *Decision Line*, at-large vice president, associate program chair, chair of the Innovative Education Committee, chair of the Doctoral Student Affairs Committee, and Manufacturing Management Track chair. In addition, he served as president of the Western Decision Sciences Institute and chair of the Operations Management Division, Academy of Management.







# PART 1

# Supply Chain Management: An Overview

## Chapter 1 Introduction to Supply Chain Management



# Chapter 1

## INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

*Companies increasingly must extend their supply chain's talent base beyond technical skills to bring more leadership and professional skills into more levels. This has the potential to empower and inspire employees at all levels to support constant innovation in fast-moving industries, and to generate new forms of leadership that can help create more engaged and effective supply chains.*

— **Kelly Marchese, principal, Deloitte Consulting<sup>1</sup>**

*World-class supply chain management is fundamentally about the uninterrupted, seamless flow of products and information. Integration of these elements is the foundation for an agile supply chain, but achieving this cohesion can be a challenge for companies.*

— **John Menna, vice president of Global Strategy, Healthcare Logistics, UPS<sup>2</sup>**

### Learning Objectives

**After completing this chapter, you should be able to**

- Describe a supply chain and define supply chain management.
- Describe the objectives and elements of supply chain management.
- Describe basic supply chain management activities.
- Describe a brief history and current trends in supply chain management.
- Understand the bullwhip effect and how it impacts the supply chain.

### Chapter Outline

Introduction	The Foundations of Supply Chain Management
Supply Chain Management Defined	Current Trends in Supply Chain Management
The Importance of Supply Chain Management	Summary
The Origins of Supply Chain Management in the United States	



## SCM Profile

### A Look at the Top Five Supply Chains

Connecticut-based research company Gartner published its 12th annual ranking of the world's leading supply chains in 2016. One of the objectives of the annual ranking is to increase the realization of the importance of supply chain management for corporate executives. The ranking focuses on supply chain leadership, operational and innovation excellence, corporate social responsibility, and the desire to improve the management of supply chains. The top five companies and their supply chains are summarized below:

1. Apple—Its supply chain strategy is the delivery of winning customer solutions. Historically, this was accomplished using a mixed ownership of the physical supply chain. Today, it is investing billions of dollars in manufacturing tooling and equipment for the production of its latest line of products. Apple has become more vertically integrated using acquisitions of key component technologies. It has also insourced its iPad and iPhone components.
2. Proctor & Gamble—It is a pioneer in demand management, incorporating a range of inputs, including consumer social data. P&G also collaborates well with retailers. To capitalize on emerging markets, P&G moved its personal care and cosmetics headquarters to Singapore. Now it has an advanced innovation center there, manufacturing rapid, small-scale products for consumer testing and creating innovations in packaging.
3. Unilever—It has ambitiously sought sustainable growth, with a goal of doubling its revenue using half its environmental footprint by 2020. Unilever's supply chain program is designed to determine the right level of services and marketing support each channel requires to enable profitable growth. Its cost-to-serve program is also driving improvements in its distribution network.
4. McDonald's—Two of its current strategies are further coordination along its supply chains and higher speed to market. Its "McDonald's System" clearly communicates operating principles for owner-operators, suppliers, and the corporate headquarters. McDonald's has created a culture emphasizing long-term strategic partnerships with key suppliers. McDonald's has created high-performing supply chains across its large global network.
5. Amazon—It continues a push to create innovative products and services. Using the latest technologies, Amazon manages its supply chains in a precise and efficient manner. Today, Amazon is experimenting with the management of the final mile of delivery in some markets, using small aerial drones to deliver shoebox-size packages from Amazon's fulfillment centers.<sup>3</sup>

## INTRODUCTION

Global marketplaces and the number of competitors are growing, along with the prices of labor, material, real estate, and fuel. Successful organizations today must be heavily involved with their best suppliers and customers. Creating goods and services that customers want, at a price they are willing to pay, requires firms to be good at a number of things. Managers must pay closer attention to where materials come from; how suppliers' products are designed, produced, and transported; how their own products and services are produced and distributed to customers; and finally, what their direct customers and the end-product consumers really think of the firms' goods and services.

Thirty years ago, many large firms were vertically integrated, meaning they owned some of their suppliers and/or customers. Today, this practice is much less common due to the high cost and difficulty in managing such diverse business units. Instead, firms are focusing more of their resources on core capabilities, while trying to create alliances with suppliers, transportation and warehousing companies, and distributors. Thus, a collaborative approach to buying, making, and distributing goods and services has become the best way for firms to stay successful—and it is central to the practice of supply chain management (SCM).

Several factors are enabling firms to work together more effectively than ever before. Communication and information exchange using enterprise resource planning (ERP) system applications (discussed further in Chapter 6) have made global collaboration not only possible but also necessary for firms to compete. Communication technologies continue to change rapidly, making partnerships and teamwork much easier than ever before. Competition is also expanding rapidly in all industries and in all markets around the world, bringing new materials, products, people, and resources together, making it more difficult for many of the local, individually owned shops to keep customers. Additionally, the recent global recession made customers more cost-conscious while seeking higher levels of quality and service, which is requiring organizations to find even better ways to compete. Customers are also demanding more socially responsible and environment-friendly goods and services from organizations. Considering all of these changes to the environment, it is indeed an exciting time for companies to develop new products, find new suppliers and customers, and compete more successfully. Consequently, many job opportunities are opening up in the areas of purchasing, operations, logistics, and supply chain management.

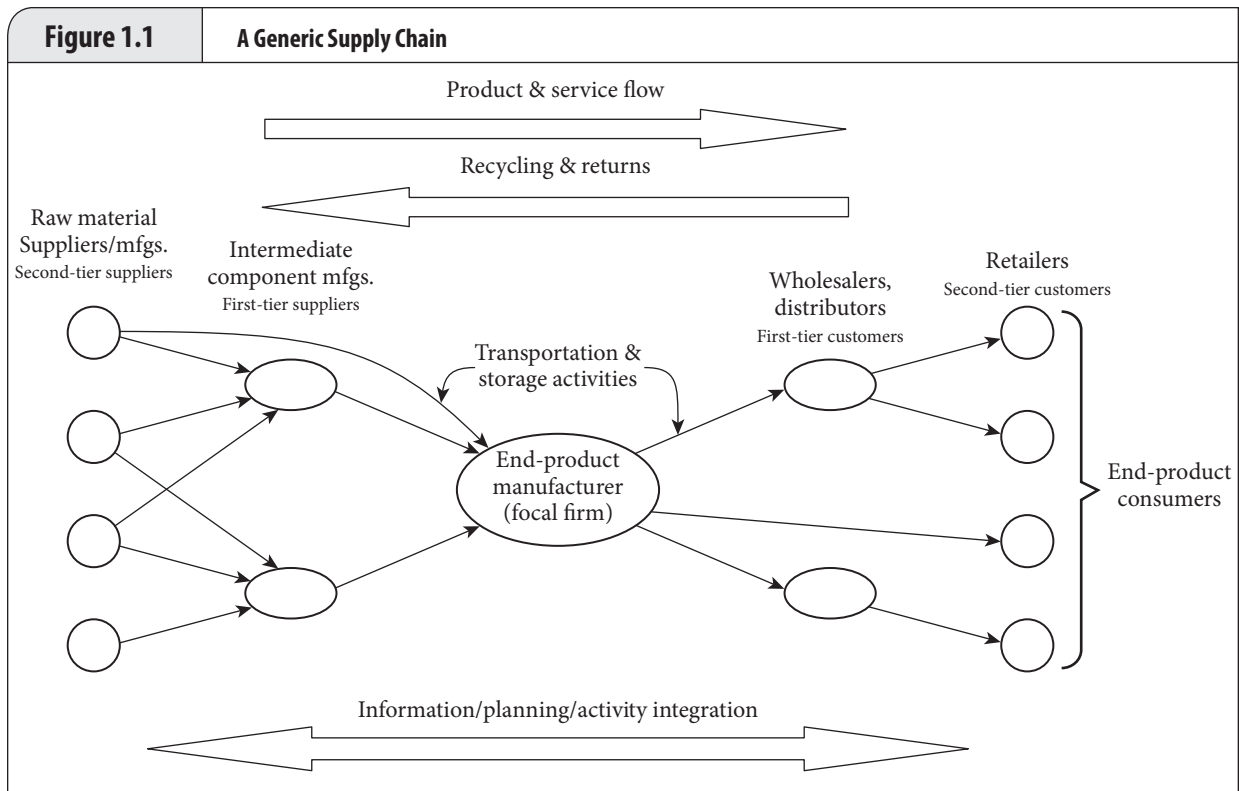
As you read this textbook, you will be introduced to the many concepts of supply chain management and how to use these concepts to become better managers in today's global economy. Examples are used throughout the text to illustrate the topics discussed, and cases at the end of each chapter are provided to enable you to test your problem-solving and decision-making skills in supply chain management. It is hoped that by the end of the text you will have gained an appreciation of the value of supply chain management and will be able to apply what you have learned, both in your profession and in future courses in supply chain management.

In this chapter, the term *supply chain management* is defined, including a discussion of its importance, history, and developments to date. The chapter ends with a look at a few of the current trends in supply chain management.

## SUPPLY CHAIN MANAGEMENT DEFINED

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To understand supply chain management, one must first begin with a discussion of a **supply chain**; a generic one is shown in Figure 1.1. The supply chain shown in the figure starts with firms extracting raw materials from the earth—such as iron ore, oil, wood, and food items—and then selling these to raw material suppliers such as lumber companies, steel mills, and raw food distributors. These firms, acting on purchase orders and specifications they have received from component manufacturers, turn the raw materials into materials that are usable by their customers (materials such as sheet steel, aluminum, copper, lumber, and inspected foodstuffs). The component manufacturers, responding to orders and specifications from their customers (the final product manufacturers), make and sell intermediate components (electrical wire, fabrics, plumbing items, nuts and bolts, molded plastic components, component parts and assemblies, and processed foods). The



final product manufacturers (companies such as Boeing, General Motors, and Kraft) assemble the finished products and sell them to wholesalers or distributors, who then resell these products to retailers as their product orders are received. Retailers, in turn, sell these products to us, the end-product consumers.

Consumers purchase products based on a combination of cost, quality, availability, maintainability, and reputation factors, and then hope the purchased items satisfy their requirements and expectations. Companies, along with their supply chains, that can provide all of these desired things will ultimately be successful. Along the supply chain, intermediate and end customers may need to return products or obtain warranty repairs, or they may just throw products away or recycle them. These reverse logistics activities are also included in the supply chain and are discussed further in Chapter 9.

Referring again to Figure 1.1, the firm in the middle of the figure is referred to as the *focal firm* simply because it is the central firm being discussed; the direct suppliers and customers of the focal firm are first-tier suppliers and first-tier customers. The first-tier suppliers' suppliers are thus the focal firm's second-tier suppliers, and the first-tier customers' customers are the focal firm's second-tier customers. Not all supply chains look exactly like the one shown in Figure 1.1. Some raw material and end-product manufacturers, for example, may sell directly to end consumers. Some supply chains, such as an automobile supply chain, might have many tiers, while others such as a law office's supply chain might have very few tiers of suppliers and customers.

Thus, the series of companies eventually making products and services available to consumers, including all of the functions enabling the production, delivery, and recycling of materials, components, end products, and services, is called a supply chain. Companies

with multiple products likely have multiple supply chains. All goods and services reach their customers via some type of supply chain—some much larger, longer, and more complex than others. Some may also involve foreign suppliers or markets.

With this idea of a supply chain in mind, there really is only one true source of income for all supply chain organizations—a supply chain's end customers. According to Manu Vora, the founder and president of Business Excellence Inc., a global management consulting services firm, high-performing supply chains are not only essential to delivering goods on time, but global companies also depend on their supply chain processes to manage the divergent expectations of customers, to stay one step ahead of the competition.<sup>4</sup> When companies make business decisions while ignoring the interests of end customers and other chain members, these decisions create additional risks, costs, and waiting time along the supply chain, ultimately leading to higher end-product prices, lower supply chain service levels, and eventually lower end-customer demand.

A number of other companies are also indirectly involved in most supply chains, and they play a very important role in the delivery of goods to customers. These are the many service providers, such as trucking and airfreight shipping companies, information system providers, public warehousing firms, freight forwarders, agents, and supply chain consultants. These service providers are extremely useful to the firms in most supply chains because they can help to get goods where they need to be in a timely fashion, allow buyers and sellers to communicate effectively, allow firms to serve outlying markets, enable firms to save money on domestic and global shipments, and in general allow firms to adequately serve their customers at the lowest possible cost.

Now that a general description of a supply chain has been provided, what is **supply chain management**? A number of definitions are available in the literature and among various professional associations. A few of these are provided here from various organizations connected to the practice of supply chain management:

- The Council of Supply Chain Management Professionals (CSCMP) defines supply chain management as:

*The planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.*<sup>5</sup>

- The Institute for Supply Management (ISM) describes supply chain management as:

*The design and management of seamless, value-added processes across organizational boundaries to meet the real needs of the end customer.*<sup>6</sup>

- The Association for Operations Management (APICS) defines supply chain management as:

*The design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally.*<sup>7</sup>

Consistent across these definitions is the idea of coordinating or integrating a number of goods- and services-related activities among supply chain participants to improve operating efficiencies, quality, and customer service. Thus, for supply chain management to be successful, firms must work together by sharing information on things like demand

forecasts, production plans, capacity changes, new marketing strategies, new product and service developments, new technologies employed, purchasing plans, delivery dates, and anything else impacting the supply chain members' purchasing, production, and distribution plans. In a recent supply chain innovation survey conducted by MHI, a material handling association, and Deloitte, the top two strategic priorities for supply chain executives are supply chain analytics (tools that harness data from internal and external sources to produce breakthrough insights that can help supply chains reduce costs and risk) and multichannel fulfillment (allowing consumers to shop for what they want, where they want, and when they want, and then their purchases delivered quickly and consistently).<sup>8</sup>

In theory, companies in a supply chain work as a cohesive, singularly competitive unit, accomplishing what many large, vertically integrated firms tried and failed to accomplish in years past. The difference is that independent firms in a supply chain are relatively free to enter and leave supply chain relationships if these relationships are no longer proving to be beneficial; it is this free market alliance-building that allows supply chains to operate more effectively than vertically integrated conglomerates.

For example, when a particular item is in short supply accompanied by rising prices, a firm might find it beneficial to align itself with one of these suppliers to ensure a continued supply of the scarce item. This alignment may become beneficial to both parties—new markets for the supplier leading to new, future product opportunities, and long-term continuity of supply and stable prices for the buyer. Later, when new competitors start producing the scarce product or when demand declines, the supplier may no longer be valued by the buying firm; instead, the firm may see more value in negotiating with other potential suppliers for its purchase requirements and may then decide to dissolve the original buyer-supplier alignment. Unforeseen weather events and accidents can also create supply chain management problems.

For example, Indiana-based Zimmer Biomet, which makes artificial joints and dental devices, blamed its recently declining stock price on supply chain disruption problems. “Our current supply chain not being fully integrated did hamper our ability to respond effectively to this shifting product mix,” said Daniel Florin, Zimmer Biomet’s chief financial officer.<sup>9</sup> In China, in 2015, two blasts tore through a chemical warehouse containing 3,000 tons of hazardous chemicals, including sodium cyanide and explosive ammonium nitrate. Along with destroying buildings and infrastructure within a 1.2-mile radius and the loss of life, the blasts incinerated more than 10,000 new cars. Jaguar Land Rover, Volkswagen, Fiat Chrysler, Hyundai, and Renault, all reported significant vehicle losses, which hampered their supply chain effectiveness.<sup>10</sup> As can be seen from these examples, supply chains are often very dynamic, which can create problems in effectively managing them.

While supply chain management may allow organizations to realize the advantages of vertical integration, certain conditions must be present for successful supply chain management to occur. One important prerequisite is a melding of the corporate cultures of the supply chain participants so all parties are receptive to the requirements of successful supply chain management, such as sharing process information. More traditional organizational cultures that emphasize short-term, company-focused performance can conflict with the objectives of supply chain management. Supply chain management focuses on positioning organizations in such a way that all participants benefit. Successful supply chain management requires high levels of trust, cooperation, collaboration, and honest, accurate communications.

Boundaries of supply chains are also dynamic. It has often been said that supply chain boundaries for the focal firm extend from “the suppliers’ suppliers to the customers’



customers.” Today, most supply chain collaboration efforts do not extend beyond these boundaries. In fact, in many cases, firms find it very difficult to extend coordination efforts beyond a few of their most important direct suppliers and customers (in one survey, a number of firm representatives stated that most of their supply chain efforts were with the firm’s *internal* suppliers and customers only!).<sup>11</sup> However, with time and successful initial results, many firms are extending the boundaries of their supply chains to include their **second-tier suppliers, second-tier customers**, and logistics services (transportation and warehousing) providers. Some of the firms considered to be the best at managing their supply chains have very recognizable names. Each year, for example, the business advisory company Gartner, Inc., announces the twenty-five companies that exhibit the best supply chain management business performance and leadership. The chapter-opening SCM Profile summarizes the five best from this list.

## THE IMPORTANCE OF SUPPLY CHAIN MANAGEMENT

While all firms are part of a chain of organizations bringing products and services to customers (and most firms operate within a number of supply chains), certainly not all supply chains are managed in a coordinated fashion. Firms continue to operate independently in many industries (particularly small firms). It is often easy for managers to be focused solely on their immediate customers, their daily internal operations, their sales, and their costs. After all, with customers complaining, employees to train, late supplier deliveries, creditors to pay, and equipment to repair, who has time for relationship building and other supply chain coordination efforts? Particularly during times like the prolonged economic downturn starting in 2009, firms were struggling to just keep their doors open, and supply chain management efforts may have waned.

Many firms today, though, have worked through their economic problems and are encountering some value-enhancing benefits from their supply chain management efforts. Firms with large system inventories, many suppliers, complex product assemblies, and highly valued customers with large purchasing budgets have the most to gain from the practice of supply chain management. For these firms, even moderate supply chain management success can mean lower purchasing and inventory carrying costs, better product quality, and higher levels of customer service—all leading to more sales and better profits.

According to the U.S. Census Bureau’s Annual Survey of Manufactures, the total cost of all materials purchased in 2014 exceeded \$3.4 trillion among U.S. manufacturers, up \$25 billion from 2013 and about \$80 billion from 2012. The total 2014 end-of-year inventory value for all U.S. manufacturers was over \$623 billion, up from \$607 billion in 2012.<sup>12</sup> Thus, it can be seen that purchasing and inventory costs can be quite sizable for firms and represent areas where significant cost savings can be realized when using effective supply chain management strategies. In fact, in a 2013 survey of over 450 supply chain executives, conducted by MHI (the nation’s largest material handling, logistics, and supply chain association) and consulting firm Deloitte, over 70 percent of the respondents said that controlling costs was a top priority, making it the number one focus area for supply chain executives. Additionally, most respondents expected to increase their supply chain investments over the next three years.<sup>13</sup>

Supply chain management efforts can start small—for instance, integrating processes with just one key supplier—and gather momentum over time to include more supply chain participants such as other important suppliers, key customers, and logistics or third-party services. Obviously, other behind-the-scenes activities must also be included such as getting stakeholder buy-in and use of an in-house or cloud IT solution. Finally, supply chain management