

STRATEGIC SUPPLY MANAGEMENT REVISITED

*Competing in an Era of
Rapid Change and Disruption*



Robert J. Trent

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*This book is dedicated to my wife, our two children
and their spouses, and our five grandchildren.*

PREFACE

Welcome to the exciting and sometimes frustrating world of supply management. It's a world where the legacy function called *purchasing* is replaced with a forward looking and progressive approach to sourcing called *strategic supply management*. It's a world where a reactive focus on transactions, arm's-length relationships, and price is replaced by the development of leading-edge supply strategies. It's a world where the contributions that are made by supply managers are continuously refreshed through new and exciting initiatives. And it's a world that features rapid change and disruption.

In 2007, I authored a book titled *Strategic Supply Management: Creating the Next Source of Competitive Advantage*. That book provided a framework for creating a supply management organization that provides a reliable source of supply and, eventually, competitive advantage. It was targeted to supply managers and executive leaders across all industries and firms of all sizes. The book also targeted non-supply leaders who wanted a deeper understanding of the supply management process.

That book presented a systematic journey through the world of supply management that is still relevant today. Each chapter presented information about concepts, processes, tools, and best practices that relate to a specific topic. The contents were supported by extensive research, experience with leading companies, and information available from objective sources. The chapters presented what we needed to know about each topic in order for the reader to gain a holistic perspective that focused on breadth rather than depth. The objective was to appreciate how the elements that comprise strategic supply management come together to create a hard-to-duplicate source of competitive advantage. That objective is still important today.

While the body of knowledge presented in the 2007 book is largely still relevant, the world has changed in ways that require an appreciation of a new set of topics. As Chapter 1 will explain, there is no denying that over the last decade or

so, some interesting things have happened (and continue to happen) that affect the management of supply networks and supply chains. What are those things?

- Entrance of new competitors and the introduction of disruptive technology (such as 3-D printing)
- Increased commodity market volatility
- Supply chains that have become riskier
- Demographic workforce changes and an exodus of experienced employees
- Emergence of big data and predictive analytics
- Customer requirements that are progressively more demanding
- Supply chains that are increasingly complex and global
- An ever-expanding list of government regulations
- Relentless and severe pressure to reduce cost and cycle times

While this is not an exhaustive listing of what makes a supply manager's life interesting, we should appreciate that the supply world can be a tough place. How does *Strategic Supply Management Revisited: Competing in an Era of Rapid Change and Disruption* help us better understand how to survive and even thrive in this environment?

This book consists of 15 chapters that are organized into three parts. Part I includes two chapters that set the stage for the remainder of the book. Chapter 1 provides a concise explanation of strategic supply management, addresses the changing competitive landscape, and identifies the characteristics of a leading supply organization. Chapter 2 explains the true meaning of overused and misused terms and concepts in supply management. The chapter could easily have been titled: *How Not to Sound Dumb When You Are Trying to Sound Smart*. When using buzzwords, it is important to at least use them correctly.

Part II focuses on the four areas that enable strategic supply management to become a reality. Chapter 3 explores the shift from human resource management to talent management; Chapter 4 explores evolving organizational designs; Chapter 5 highlights new directions in supply measurement; and Chapter 6 deals with the information-enabled supply organization. Do not minimize the role that these four areas play when crafting supply management strategies.

Part III consists of nine chapters that explore a set of current topics in supply management. Most of these topics failed to make it onto the radar screen back in 2007. Chapter 7 addresses the importance of developing well-crafted supply strategies (with company examples), while Chapter 8 deals with linking supply management success to corporate financial success. Chapter 9 explains how to gain competitive advantage through true collaborative relationships, while Chapter 10 helps us understand how to become the customer of choice to suppliers. Chapter 11 deals with the inevitability of risk, while Chapter 12 presents

over a dozen types of flexibility that help reduce risk and increase corporate resilience. Chapter 13 discusses the importance of global supply management and explores in detail the topic of reshoring. This chapter will explain why reshoring work back to a home country, such as the United States, is not as easy as it sounds. Chapter 14 makes the case for becoming a process-driven organization and identifies a set of best practices associated with four critical processes. The book concludes with a comprehensive coverage of complexity, including why we have it and how to overcome it.

Creating a supply organization that can be counted on to deliver a steady stream of performance improvements does not happen by chance. This book will strengthen your knowledge about what it takes to compete in an era of rapid change and disruption. Certain words capture well the current state of supply management—risky, exciting, and dynamic. These descriptors can work in your favor—or they can completely overwhelm you. Understanding the topics presented throughout this book will help ensure that the former rather than the latter is the case.

ABOUT THE AUTHOR

Dr. Robert J. Trent, Ph.D., is the supply chain management program director and professor of supply chain management at Lehigh University. He holds a B.S. degree in materials logistics management from Michigan State University, an M.B.A. degree from Wayne State University, and a Ph.D. in purchasing/operations management from Michigan State University.



Prior to his return to academia, Bob worked for the Chrysler Corporation in the company's aftermarket division. His industrial experience includes assignments in production scheduling, packaging engineering with responsibility for new part packaging set-up, and the management of nonproductive materials, distribution planning, and operations management at the Boston regional distribution facility. He also worked on numerous special projects. Bob has provided consulting services, educational services, and presentations to almost 60 corporations, government agencies, and associations and has worked directly with dozens of other companies during research visits. He is also extensively involved with executive education.

Bob has authored or coauthored eight books and 50 articles that have appeared in a range of publications. He has also coauthored eight major research monographs published by *CAPS Research* and has made presentations at dozens of conferences and seminars.

Bob has been awarded the *MBA Core Curriculum Teacher of the Year*, the *MBA Elective Teacher of the Year*, and the *Staub Award for Excellence* in undergraduate teaching at Lehigh University. He has also been awarded the *Mercy Professorship* and the *Beckwith Professorship* at Lehigh.

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Downloads for *Strategic Supply Management Revisited: Competing in an Era of Rapid Change and Disruption* include total landed cost and DuPont financial models, research findings, a supplier relation and trust analysis, and a supplier satisfaction survey.

Part I

Setting the Stage

1

THE CHANGING COMPETITIVE LANDSCAPE

Over the last 30 years, large North American and European multi-national corporations have enjoyed one of the strongest periods of prosperity in modern economic history.¹ From 1980 to 2013, after-tax operating profits for larger firms grew 30% faster than global GDP, and corporate net income grew 50% faster than global GDP. Furthermore, large North American and Western European companies captured more than half of all global profits.

While the last 30 years has been a remarkable era, it is also an era that appears to be ending. New rivals, including technology disruptors and nongovernmental firms in emerging markets are putting established incumbents on notice.² These new entrants often play by different rules and demonstrate an agility and aggressiveness that many larger Western companies will struggle to match. At a minimum the new entrants represent a new and troubling source of competition. Welcome to the era of rapid change and disruption.

Market success will increasingly require firms to bring a *total package* to the table—a package that must include a set of progressive supply management activities and practices. The supply package can be broad, involving a set of expected activities that includes integrated global sourcing, early supplier involvement, commodity management teams, and supplier development. But, disruptions and market changes are causing firms to ramp up their supply management prowess and stress an emerging set of strategies that address supply chain complexity, financial management, collaboration, and risk. A common feature of these emerging strategies is that they have the ability to make contributions well beyond the functional level—they can affect corporate performance.

As companies search for ways to grow, they cannot ignore the changes affecting supply management. This chapter refreshes our understanding of what strategic supply management is about and explores the changes that have been affecting, and will continue to affect, supply markets and supply chains. This

chapter concludes with a set of characteristics that define a supply management leader—characteristics that later chapters will build upon.

WHAT IS STRATEGIC SUPPLY MANAGEMENT? A FAST REFRESHER

My earlier book, *Strategic Supply Management*, defined supply management in great detail. Since it is safe to assume that a number of the readers of this book may not have read *Strategic Supply Management*, this chapter will provide a refresher regarding what supply management is all about. First, fundamental differences exist between purchasing and supply management. Purchasing is a functional group (a formal entity on the organizational chart) as well as a functional activity (buying goods and services). The purchasing group traditionally performs many of the activities that support an organization's operations, including negotiating with suppliers, buying, contracting, and research.

Supply management, on the other hand, is a cross-functional, proactive process for obtaining goods and services that features the active management and involvement of suppliers. The supply management process involves identifying a company's total requirements, developing supply strategies, evaluating and selecting suppliers, and then managing and developing those suppliers to achieve performance advantages at a level higher than what competitors realize.

A key part of the supply management process is its cross-functional nature, meaning it involves purchasing, engineering, supplier quality assurance, suppliers, and other related functional groups working together as one team, early on, to further mutual goals.³ It involves internal groups and external suppliers working together to achieve advantages in cost, innovation, product development, risk and financial management, delivery, supply chain responsiveness, technology, cycle time, and quality.

Supply management features longer term win-win relationships between a buying company and a carefully selected set of suppliers (Chapter 2 explains the concept of win-win). At times, supply management provides support directly to a supplier in exchange for continuous performance improvements, such as price reductions. Critical suppliers become almost an extension of the buying company.

Supply management processes and approaches are remarkably robust as we move across industries. It's surprising how well the language of supply management translates across industry sectors. Every industry evaluates, selects, and measures suppliers; enters into contracts; pursues supplier development initiatives; and sources at least part of their purchase requirements worldwide. The good news is that laggard industries can learn from those industries that are

Table 1.1 Factors affecting the need for strategic supply management

Less Need	Greater Need
Buyer controls most production requirements internally	Outsourcing is a major part of the business model
New product development cycle times are stable	New product development cycle times are shortening rapidly
Suppliers are primarily domestic	Suppliers are primarily global
Competitors are slow to improve their performance	Competitors are rapidly improving their performance
Customers exert minimal pressure to improve	Customers exert intense pressure to improve
Competitors are primarily domestic	Competitors are primarily global
Your industry features a slower rate of technological change	Your industry features a rapid rate of technological change
Suppliers minimally impact your ability to compete	Suppliers extensively impact your ability to compete
Purchases make up a small portion of revenues	Purchases make up an extensive portion of revenues

at the forefront of supply management. Do not discount the value of someone else's lessons learned, especially when those lessons are learned the hard way.

It is misleading to think that all companies should endorse this thing called strategic supply management. Some competitive environments demand that sourcing and supply activities take place at a sophisticated level. Other environments may only require a purchasing group to have functional competence to be successful. Table 1.1 identifies a set of factors that affect the need for pursuing more sophisticated levels of supply management. All industries and companies are not created equal, either in their need or their desire for strategic supply management.

Keeping in mind that not all companies need to endorse strategic supply management at the same rate or level, a set of general principles also underlies strategic supply management. These principles further define strategic supply management as a concept:

- Not all supplier relationships matter equally
- Supply chain improvement is a never-ending journey and supply managers play a primary role
- Processes are critical to supply management success
- Measurement is an essential enabler of supply management success
- Becoming a strategic supply organization does not happen overnight
- Supply managers can be creative

- Strategic supply management involves more than just achieving the lowest price
- Risk is the new supply chain wildcard
- Strategic supply management is organizational rather than functional
- Supply management activity does not necessarily lead to accomplishment
- Industries pursue strategic supply management at different rates
- Strategic supply management won't happen without the right people, systems, and organizational support structure

No longer simply a transactional activity, supply management is about creating new areas of competitive advantage. This can involve the attainment of better quality, lower costs, faster responsiveness to end-customer needs, and incorporating supplier-provided technologies and features into new product designs. Supply managers should envision the domain of advantages they bring to the table as being broad rather than narrow.

WHAT HAS CHANGED?

Almost all of the ideas and the body of knowledge that appeared in the predecessor to this book are still relevant today. But, there is no denying that over the last decade or so changes and disruptions of many kinds have occurred (and are still occurring) that affect supply networks and supply chains. The following information presents some of the noteworthy changes that affect our discussion of strategic supply management.

New Disruptors and Game-Changing Technology

Without question we have entered an age of economic disruption. Airbnb, a company with no physical hotel properties or assets has had a higher market capitalization than Hilton and Hyatt hotels combined (although this can change as the stock market changes). In what universe is it possible that a company with no significant assets to speak of can be worth more than companies with physical properties located all over the world? Uber, at least before it suffered a host of self-inflicted problems, had a market value greater than GM, Ford, and Honda. And, who does not wish that he or she had purchased Amazon stock 15 years ago? Welcome to the age of disruption.

Table 1.2 provides examples of game-changing market disruptions. Some of these disruptions are due to technology changes; some are due to changing customer and consumer preferences or tastes. All can have the effect of disrupting someone's business model, perhaps irreparably (Chapter 2 explains the concept of a business model). Market disruptions also make supply chain planning increasingly difficult.

Table 1.2 Examples of market threats and disruptors

Victim	Threat or Disruptor
Steel	Aluminum, plastics, composites
Calculators, watches, landline phones, cameras	Smartphones
Suits and ties	Business casual
Toll booth collectors	EZ Pass, Fast Pass
Brick and mortar retailers	Online retailers, especially Amazon
Bank tellers	ATMs, online banking
Service jobs, such as fast food and airline check in	Self-service kiosks
Dial-up Internet modem	High speed fiber optic Internet
Cable TV	Satellite and Internet TV
On-campus education	Online education
Manual and repetitive jobs	Robotics, automation
Vinyl records	8-track, cassette, CDs, digital music
Traditional surgery	Robotic surgery
Cab and truck drivers	Self-driving vehicles
AM/FM radio	Satellite radio; Internet radio
Myspace	Facebook and Instagram
Traditional job shops	3-D printing
Cab service	Uber and other services
Minivans	SUVs
Boxing	Mixed martial arts
Gas powered engines	Electric/hybrid vehicles
Server sales to companies	Cloud computing
Restaurants	Home meal kit services; prepared supermarket meals
Photographic film	Digital photography
Vehicle sales	Fewer teenagers getting a driver's license; ride-sharing services
Coal	Natural gas
Established consumer food product companies	Shift toward organic foods, new brand entrants, store brands
Integrated steel producers	Mini mills
Legacy airlines	Low-cost airlines; new airlines
Caskets	Cremation
OPEC	U.S. energy industry and fracking; renewable energy sources

Travel agents	Online travel sites such as Expedia, Travelocity, Hotels.com, Kayak
Hotels	Airbnb
Book and magazine printers	Electronic books and magazines
GPS add-on units in vehicles	Factory installed GPS; smartphone apps
Major beer brands	Craft brewers
Port crane operators	Automated ports

It was not long ago that a major question facing supply chain professionals was how best to leverage RFID technology as they marveled at their Nokia or Blackberry phone. Today, we are witnessing rapid disruptions that have major supply and supply chain implications. These disruptions include the creation of omni-channel distribution channels to support online retailing, autonomous vehicles, nanotechnology, artificial intelligence applications, expanded use of drone technology, robotics, blockchain data technology, small satellites, new rocket launch providers, alternative energy vehicles, a revamped Panama Canal that promises to alter trade routes, new composite materials, and predictive analytic tools and techniques. Widespread change and disruption are the order of the day.

One area featuring game-changing technology involves 3-D printing. Boeing, as well as other aerospace companies, expects to build satellites more quickly through new production practices that rely more on 3-D printing with fewer workers, which the company expects will transform the company's traditional way of building high-end commercial and military satellites and spacecraft.⁴ Chapter 7 will examine Lockheed Martin's use of 3-D printing and how this fits within its supply management strategy development framework.

Increased Financial and Market Volatility

Financial and market volatility is such an important supply topic that it deserves extended treatment here. The volatile nature of commodity markets has introduced higher levels of financial and supply risk. The bottom line is that finance and supply chain professionals share something in common—both do not like commodity volatility. Volatility makes everyone's ability to plan more difficult, if not impossible. As an example: a news report noted that cotton future prices increased 12% over a three-day period! This price surge disrupted the industry during a crucial time in the crop cycle for U.S. cotton.⁵

A study by the International Monetary Fund confirmed that the size of fluctuations in commodity prices has more than tripled since 2005, compared to the

period from 1980–2005. Those who follow supply markets know that when demand exceeds supply, the results are the allocation of supply, a shifting of power from buyers to sellers, and financial risk due to higher prices. And, when supply exceeds demand, we often experience a sudden drop in prices. While market speculators might see volatility as a way to capture trading profits quickly, supply chain and financial managers see it as something to manage and even avoid, if possible.

Why do we have such serious fluctuations today? Unlike previous waves of volatility, the current period of fluctuating commodity prices is not driven by a fundamental crisis such as a world war or a great depression. The volatility appears to be a structural change in the way the global economy has organized itself as only eight countries produce the majority of the world's commodities. Also, one cannot discount the impact that the economic rise of China has had on commodity markets. As demand keeps rising, prices are prone to fluctuations and this, rather than outright scarcity, is the major challenge. Other challenges facing commodity markets include a willingness of countries to manipulate the supply of certain resources to their advantage (think of OPEC)—water scarcity, climate change, and energy constraints that limit output. Mining projects in Chile and Mongolia have been delayed over the last several years due to energy and water shortages—something that has affected world prices. Nationalization of commodity companies and the confiscation of foreign-owned assets (such as in Venezuela) are also factors in an era of fluctuating prices.⁶ It has also become evident that industrial buyers are not only competing with other companies for commodities, they are competing with investors and speculators who look to commodity markets for financial returns. The manipulation of commodity markets has also become a concern.

We can also have volatility because of the abrupt changes or shocks that occur in the demand or supply side of the commodity equation. We are all familiar with stories involving a facility that explodes and takes with it a disproportionate amount of the world's supply of whatever it is that facility produces. At times we cannot even pronounce what that facility makes. We quickly come to realize, however, that the item that just disappeared is important to many industries that rely on it to make their products.

Abrupt shifts can also affect the supply side of commodity markets. When a large player or even an entire industry enters a commodity market, sometimes for the first time, the result is often a dramatic shift in the demand curve with a lagging shift in the supply curve. The inevitable result of this scenario is higher commodity prices.

Supply Chains Are Becoming Riskier

Each year Allianz Insurance conducts a survey to identify the top risks faced by corporations based on responses from more than 1,300 risk experts in over 50 countries.⁷ At least from a supply chain perspective, the Allianz risk barometer indicates the world has indeed become a riskier place. Table 1.3 identifies the percentage of firms that indicate a particular item represents a top three risk from a much larger list of choices. Supply chain risks clearly are now at the forefront of business risks. Supply chain risk, unfortunately, has made it to the big leagues.

While natural disasters like hurricanes and floods capture the headlines, the reality is that supply chains face an abundance of risks that most observers believe only to be increasing. A survey by APQC revealed that 75% of responding companies indicated that they were hit by a major supply chain disruption over the last two years from the date of the survey. These firms know all too well that supply chain risk is real. IBM has identified a set of factors that are affecting the riskiness of supply chains:

Table 1.3 Top 10 global business risks

Risk Category	2017 Score and Rank	2016 Score and Rank
Business interruption (incl. supply chain disruption and vulnerability)	37% (1)	38% (1)
Market developments (volatility, intensified competition/new entrants, M&A, market stagnation, market fluctuation)	31% (2)	34% (2)
Cyber incidents (cybercrime, IT failure, data breaches, etc.)	30% (3)	28% (3)
Natural catastrophes (such as storms, floods, earthquakes)	24% (4)	24% (4)
Changes in legislation and regulation (government change, economic sanctions, protectionism, etc.)	24% (5)	24% (5)
Macroeconomic developments (austerity programs, commodity price increase, deflation, inflation)	22% (6)	22% (6)
Fire, explosion	16% (7)	16% (8)
Political risks and violence (war, terrorism, etc.)	14% (8)	11% (9)
Loss of reputation or brand value	13% (9)	18% (7)
New technologies (such as impact of increasing interconnectivity, nanotechnology, artificial intelligence, 3-D printing, drones, etc.)	12% (10)	10% (11)

Percent value equals the percent of firms indicating the item is a top three business risk.

- Increased globalization and outsourcing, which stretches end-to-end supply chains
- Additional regulatory compliance imposed by government entities, further complicating international trade (such as the Customs Trade Partnership Against Terrorism and conflict mineral reporting requirements)
- Increased levels of economic uncertainty and market volatility, which create variability in demand and supply and make it more difficult to plan
- Shorter product life cycles and rapid rates of technology change, which increases the risk of obsolescence
- Demanding customers who require better on-time delivery, higher order fill rates, improved service levels, and shorter cycle times
- Supply capacity constraints, making it more difficult to meet demand requirements
- Natural disasters and external environmental events, which affect global supply chains
- Complex networks of suppliers and third-party service providers, as well as large interdependencies among multiple firms, which increase the need to coordinate risk

Some factors expose a company to heightened supply chain risk through indirect effects. These include just-in-time delivery and lean systems that result in little to no buffer inventory; a trend toward centralized decision making that may reduce response times and flexibility at local levels; continuous cost reductions that may affect a company's ability to plan and respond to risk events; greater use of single sourcing, which often leaves a company with fewer supply options and higher supplier switching costs; and widespread outsourcing, potentially leading to a loss of supply chain control. Sometimes our worst risks are self-inflicted.

While we can debate whether or not the world has actually become a riskier place, there is no debate that many firms are more aware and even better able to anticipate and manage the risks they face on a worldwide basis. The subject of risk management will be addressed in Chapter 11.

Demographic Workforce Changes

For some powerful reasons, the need to manage supply chain talent is becoming a strategic necessity. Beginning over five years ago, the first of the baby boomer generation (Americans born between 1946 and 1964) began to turn 65 years old. What this means is that we are witnessing a large exodus of experienced employees from the workforce. Almost 80% of top HR and IT executives at mid-size to large U.S.-based companies say that the threat of losing critical expertise

is more of an issue than it was five years ago. And, 84% say they sometimes or frequently do not have a successor in place when a top manager leaves.⁸

Other workforce changes are occurring. Two changes in particular include the growth in the Hispanic population in the United States and the pressure to increase the diversity of the workforce. Without question the purchasing and supply management profession continues to feature white males. According to Data USA, graduates of supply chain-related programs in the United States are over 65% male, with white males comprising the vast majority of the male segment. White males and females combined earned 2,800 supply chain-related bachelor's degrees during a recent academic period, black males and females combined earned 350 bachelor's degrees, and Hispanic males and females combined to earn just over 300 bachelor's degrees.⁹ If the academic pipeline is any indication, the profession will continue to be heavily influenced by white males. Companies will need to think about this as they craft their diversity and talent recruitment strategies. Talent management will be addressed in greater depth in Chapter 3.

Emergence of Big Data and Predictive Analytic Tools

The big deal today involves something called *big data* or *predictive analytics*, which includes the sophisticated tools, techniques, and models that analyze the reams of data generated every second of every day. A predictive model is simply a mathematical function using algorithms that use input data. Predictive analytics is the branch of advanced analytics that uses data to make predictions about unknown future events. It uses many techniques from data mining, statistics, modeling, machine learning, and artificial intelligence to analyze current data to make predictions about the future.¹⁰ Other names associated with predictive analytics include business intelligence, data analytics, and business analytics. Predictive analytics will be explored in further detail in Chapter 6.

Changing Customer Requirements

It is safe to conclude that, over time, customer demands steadily increase rather than decrease. And, it is also safe to conclude that once a customer receives something of value, he or she will not be too appreciative when a provider attempts to take it away. A shift occurs as characteristics that win orders at some point become qualifiers for future business as competitors converge on those same characteristics. Eventually almost every product or service migrates toward a commodity, or nondifferentiated status. Customer requirements are constantly shifting as order winners become qualifiers and new order winners emerge—at least until they become qualifiers.

This brings us to the main point: consumers are increasingly basing their purchase decisions, particularly for consumed products, on attributes such as being organic, non-genetically modified, and ethically sourced. This has created a tremendous strain on supply chains, as a growing number of buyers chase a relatively small, but growing group of suppliers. These suppliers include farms, ingredient providers, production and distribution sites, and transportation providers.

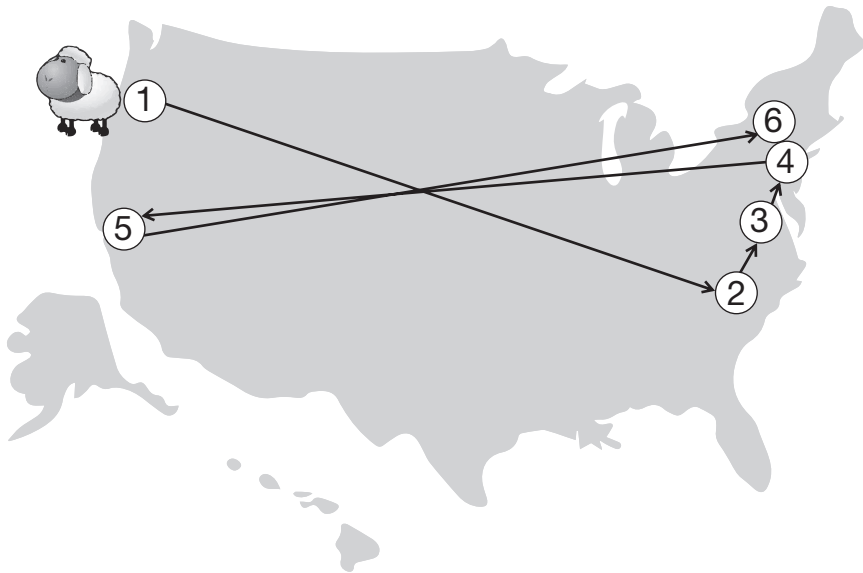
According to a TechSci Research report, the global organic food market is projected to register an annual growth rate globally of over 16%. This growth can be attributed, among other factors, to growing health concerns among consumers and increased awareness regarding the potential health benefits of organic food.¹¹ This growth is relatively recent, and it promises to make the lives of supply managers ever more challenging as the demand for natural and organic outstrips the supply of natural and organic. The ability to develop and deliver organic products is increasingly becoming an order-winning characteristic.

Supply Chains Are Becoming Increasingly Complex

As a concept, complexity is difficult to quantify or even define since no one seems to agree on exactly what comprises complexity. Supply chain complexity exists in many shapes and forms and has many causes. Something we do know is that most CEOs expect the internal and external complexity faced by their organizations to increase. A study cited in Chapter 15 reveals that almost 80% of CEOs say that they expect to see high or very high complexity as they look out over a five-year horizon. More than half of CEOs have concerns about their company's ability to manage complexity.

Increased business or supply chain complexity is not necessarily bad. Some researchers have argued persuasively that organizations that learn how to manage and exploit complexity can generate additional sources of profit and gain competitive advantage. Few would question that FedEx's mastery of global logistics, an area that is woefully complex, has enabled it to expand its locations, services, customer base, and profitability.

Here is an illustration of how supply networks quickly become complex, even for a seemingly simple item. Zady's, an online retailer based in New York, wanted to develop a new line of sweaters that were made entirely of U.S. materials. The *Made-in-America* label would feature prominently in its marketing campaign. What could be so hard about that? After an extensive search, the company finally located a wool supplier in Oregon who agreed (grudgingly) to provide the much-needed wool. Obtaining the wool, however, was only the first part of a complex journey that progressed from raw material to finished sweater. Figure 1.1 illustrates the travels of a Made-in-America sweater. Notice



1. Maupin, OR—The wool comes from the Imperial Stock Ranch
2. Jamestown, SC—The wool is washed to remove dirt and greases
3. Philadelphia, PA—The wool is dyed by a company operating in the same location since 1869
4. Nazareth, PA—Kraemer Yarns spins the dyed wool into a fine soft yarn
5. Commerce, CA—Ball of Cotton knits the yarn into pullover sweaters
6. NYC—The sweaters arrive in New York to be packaged and shipped from Zady's distribution

Figure 1.1 Travels of a sweater

how many suppliers and logistics providers are involved in the production of something as simple as a sweater made entirely in one country!

Complexity is something that, if not managed well, can consume your business. Conversely, if managed well, new and profitable opportunities may be available that are not available to less competent competitors. You will find a more extensive discussion of this subject in Chapter 15.

Regulations, Regulations, and More Regulations

The last decade witnessed a newfound love between government regulators and new regulations. Many of these regulations directly affect the supply and supply chain community, including the Food Safety Modernization Act, Importer Security Filing (ISF) rule, and conflict mineral rules, which addressed the sourcing of tungsten, tin, tantalum, and gold from certain regions of Africa.

The ISF rule, more commonly called 10+2, requires containerized cargo information to be transmitted to U.S. Customs and Border Protection (CBP) at least 24 hours before goods are loaded onto an ocean vessel headed to the U.S. It requires importers to provide ten data elements to CBP, as well as two more data documents from the carrier.¹² The United States alone issued well over 20,000 new regulations in the period between 2009–2016. Somewhere in the depths of government bureaucracy must be a reward system that encourages government regulators to increasingly regulate. The topic of supply chain complexity is examined in more detail in Chapter 15.

Pressure to Shorten Cycle Times

The pressure to reduce cycle times across virtually every major industry continues unabated. Nowhere is this more pronounced than during new product and process development. In the mid-1980s, U.S. producers required 60 months to take a vehicle from concept to customer. Today the cycle time is 18 to 24 months. Supply managers have played a major role in shortening development times through the use of early supplier involvement.

There are some powerful reasons for wanting to reduce product development cycle times. The quality of information only deteriorates as we look further into the future. Who can really understand customer wants and needs five years into the future? And, let's not forget that product development is clearly an expense for firms. It would be nice to more quickly generate revenue from products that are actually introduced. We also know that firms that excel at developing new products quickly can create legal barriers to entry for competitors as they capitalize on their speed to market. While other good reasons exist for wanting to compress development times, you get the idea.

Of course, product development is not the only process under time reduction pressures. Other supply chain processes under time reduction pressures include supplier evaluation and selection, customer order fulfillment (witness SpaceX's efforts to launch rockets more quickly than competitors), demand estimation, and planning and implementing capital projects. One thing is certain—the pressure to reduce cycle times will continue across all parts of the supply chain. This is a topic that is explored further in Chapters 9, 10, and 15.

THEMES UNDERLYING THIS BOOK

A number of themes underlie this book, particularly the second half. These themes influence the kinds of topics presented and the way they are presented. The following are six important suppositions that affect supply management today and for the foreseeable future.

Supply Management Is an Embedded and Important Part of Supply Chain Management

It is difficult to talk about supply management without overlapping into areas that are traditionally associated with supply chain management. Supply management and supply chain management have what can be described as a symbiotic relationship. It is difficult, if not impossible, for one to exist without the other.

Supply management plays a critical role within the supply chain, especially the upstream portion. Topics that are featured predominantly in this book—including financial management, risk management, flexibility, and complexity management—all relate to the end-to-end supply chain. And, since supply management is an important part of supply chain management, these topics are relevant to supply managers. Something that needs to occur is for supply managers to gain a better understanding regarding how they fit into the bigger picture. The supply chain is that bigger picture. Supply managers must operate within the context of an integrated supply chain.

Supply Management Can Be Strategic

The word *strategic* is one of the most overused and, surprisingly, least understood words in business. When asked to explain the term, most individuals struggle to describe the concept. As Chapter 2 will explain, something is strategic if it has great importance within an integrated entity or whole. This means that strategic activities, plans, or decisions have the ability to affect a firm's overall competitive or market success. This typically excludes day-to-day or tactical activities that are part of traditional purchasing and supply chain responsibilities. Developing a collaborative relationship with a supplier that results in the attainment of a new technology that is not available to competitors, for example, can clearly have strategic implications. It is important to understand what can make a difference at the corporate level. Without question, supply initiatives can strategically affect the success of the firm. Closely related to this is strategy development, which is explored in Chapter 7.

It's Difficult to Automate Supply Management

Hardly a day goes by without hearing about a bold new technology that is automating some part of the supply chain. One area where this automation is proving to be elusive is within supply management. Supply management continues to remain a knowledge business that has not yet been fertile ground for the

development of artificial intelligence or other applications that are designed to replace humans. The same is not true within finance, which has witnessed thousands of job losses as new software executes trades within nanoseconds. In reality, the floor of the New York stock exchange is not even needed. What is left of the trading floor makes a nice backdrop for television and tourists. While basic functional or clerical duties within purchasing will continue to be streamlined through the use of new tools and techniques, the crafting of worldwide supply strategies and managing intensely collaborative relationships should remain a people business, at least for a while.

The Domain of Supply Management Continues to Expand

Some of the more seasoned employees at your firm may remember when:

1. Supply management was simply called purchasing;
2. Crafting strategies and managing relationships were not a normal part of the work process;
3. The purchasing job was essentially a lower-level function offering limited career growth;
4. Components and other direct material requirements were obtained from a supply base that was primarily local or domestic; and
5. Being reactive was the nature of the job.

Some of these seasoned employees may actually think of this as the good old days. How the times have changed. Today's supply manager is not only involved with sourcing direct materials but also capital items like plant and equipment, indirect items including MRO supplies, and services of all kinds. And, a worldwide supply base is now the norm, not the exception. Wherever a meaningful pool of money is involved, we should expect the supply management group to be involved directly.

Instead of managing items from a price perspective, supply managers must now perform sophisticated cost modeling and analysis. Instead of managing arm's-length relationships, supply managers must understand when, where, and how to apply an appropriate relationship. And, the supply management group must be at the forefront of risk management. Over the last decade or so, the domain of supply management has evolved to the point where today's supply professionals must be cost, financial, relationship, and risk managers. This is the new normal, and it will only get more demanding rather than less. For those longing for the good old days, give it up. Those days are not coming back.

We Live in a *What Have You Done for Me Lately?* World

At one point in my career at Chrysler, I reported to a manager who had an interesting social style. When the manager would see one of his direct reports, instead of saying good morning or hello he would ask, “What have you done for me lately?” While initially thinking this manager may have failed his social etiquette course in high school, this manager’s true intent soon became apparent. This manager was conveying a message about:

1. Being in an environment where results matter,
2. How relying on the past will not go far when looking toward the future, and
3. How complacency and resting on one’s laurels is not an option.

In the academic world it is not unusual for a faculty member to expect a promotion in rank because he or she published an article five years earlier in a premier journal. While that publication may have been impressive at the time, what has this person done lately?

It is apparent the *what-have-you-done-for-me-lately* mindset is only accelerating. The CEO of Ford, Marc Fields, is widely credited for the successful introduction of the new F-Series aluminum trucks, a challenge that was a massive undertaking from a supply, technical, and marketing perspective. Because of his efforts, Mr. Fields, at least for a while, was widely hailed as *the man*! Fast forward several years and Ford’s Board of Directors pressed Mr. Fields to sharpen his strategy as the company races to introduce electric cars, reverse its shrinking market share in the U.S., and address its languishing stock price.¹³ The board then abruptly announced that Mr. Fields was being replaced as CEO. Apparently the distinction of being *the man* is not a permanent one. The supply implications of the all-new aluminum F-Series trucks at Ford will be discussed in a later chapter.

The bottom line is that any good things you have done last year, last quarter, or even last month tend to fade quickly. The shelf life for achievements is shortening; the shelf life for failures remains longer than the shelf life of plutonium. The challenge becomes one of being able to answer the question, “What have you done for me lately?” The details of how to translate supply accomplishments into financial accomplishments are examined in Chapter 8. Supply managers must understand how to thrive in a *what-have-you-done-for-me-lately* world.

Change, Risk, and Disruption Are the Only Certainties

As mentioned previously, we are living in an era where constant change, heightened risk, and economic and market disruption seem to be the new normal. A key part of this book is designed specifically to better understand and manage the