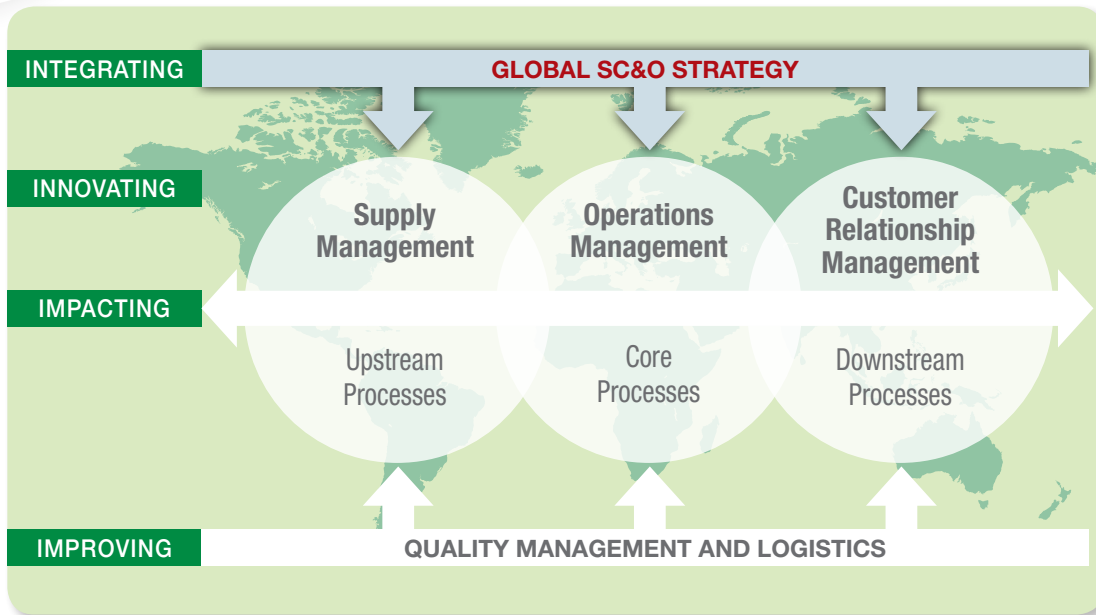


2

Supply Chain and Operations Strategy



CHAPTER OUTLINE AND LEARNING OBJECTIVES

1 Understand and Use Generic SC&O Strategies

- List and explain the three generic strategies.
- Explain how managers use alignment to achieve strategic goals.
- Describe how managers assess customer value.

2 Explain How to Apply SC&O Strategy Process and Content

- Explain Hoshin Kanri strategy and planning.
- Define and differentiate between capabilities and competencies.
- Explain the resource-based view.

3 Describe and Understand How to Use the Competitive Landscape and Porter's Five Forces

- Define and explain Porter's five forces.
- Outline how managers address each challenge in their strategies.

4 Explain How Managers Use Supply Chain Strategy to Build Relationships

- Describe how the strategy has changed.
- Describe the types of relationships managers leverage.

5 Execute Strategy

- Describe how managers align strategic levels.
- Explain why and how managers align incentives to achieve optimum levels of output.
- Explain why and how focusing on processes helps managers reach their goals.

6 Understand and Apply Strategic Metrics and Measurements

- Describe correct strategic behavior and how it is implemented.
- Explain how managers use actionable and predictive metrics to achieve their strategic goals.
- List and describe commonly used supply chain metrics.
- Explain why managers need to think about their strategy in a holistic way.

7 Describe the Changing Strategic Environment

- Discuss emerging strategic concerns such as globalization, sustainability, and innovation.

Winning at Medrad through Strategy

Medrad, Inc. was started in 1964, when Dr. M. Stephen Heilman created the first angiographic injector in the kitchen of his home near Pittsburgh. As an emergency room physician, Heilman realized that being able to precisely inject a liquid contrast agent into blood vessels would make X-ray images clearer, improving diagnosis of cardiovascular diseases. Today, Medrad is a worldwide leader in developing, manufacturing, marketing, and servicing medical devices that enhance imaging of the human body.

The success of Medrad's strategic approach is demonstrated by overall customer satisfaction and Medrad's strong financial performance. In an industry survey, *Medical Imaging* magazine asked readers to rate 57 medical imaging companies, including Medrad, in 10 areas such as product quality, service, support and price, ability to capitalize on new and niche products, and company leadership. Medrad ranked among the top 10 in eight of the performance areas measured, including two first-place rankings. Medrad ranked second out of 57 for overall satisfaction and was in the top two in price, quality of products, ease of integration, and service and support. As a comparison, the company's key competitor did not finish in the top 10 in any of the performance areas.

As you read through this chapter, think about the way Medrad uses strategy to achieve high customer service ratings. At the end of the chapter, we will return to this company's philosophy and how Medrad executes its strategy by using some of the concepts and tools from this chapter.

Source: National Institute of Standards and Technology, "Medrad," *Profiles of Baldrige Winners*, 2012, <http://www.nist.gov>.

The Medrad logo is displayed in a stylized, orange, sans-serif font. It is positioned within a large, light green circular graphic that has a white center and a soft glow effect.

Leaders establish vision and guide others toward achieving important goals. Supply chain and operation (SC&O) strategy addresses many issues that are essential for competitiveness. Much of SC&O strategy has to do with matching resources with business needs. **Strategy** is a long-term plan that defines how the company will win customers, create game-winning capabilities, fit into the competitive environment, and develop relationships. Strategy includes long-term planning that is performed at the highest organizational levels.

Supply chain strategy is the supply chain portion of the strategic plan. It includes developing the ability of the firm to leverage internal relationships, supplier alliances, and customer relationships to create sustained competitive advantage. **Operations strategy** focuses on allocating resources within the firm to provide value to customers. Our use of **SC&O strategy** encompasses both of these considerations. In this chapter, we will first discuss generic SC&O strategies. We will then discuss process (how to create strategies) and content (what is included in SC&O strategy), followed by the ways in which managers use the competitive landscape to drive strategy, the types of relationships supply chain managers have with their suppliers, and how managers measure their strategic success. The chapter concludes with a discussion of the changing strategic environment.

strategy

A long-term plan that defines how the company will win customers, create game-winning capabilities, fit into the competitive environment, and develop relationships.

supply chain strategy

The supply chain portion of the strategic plan.

operations strategy

Allocating resources within the firm to provide value to customers.

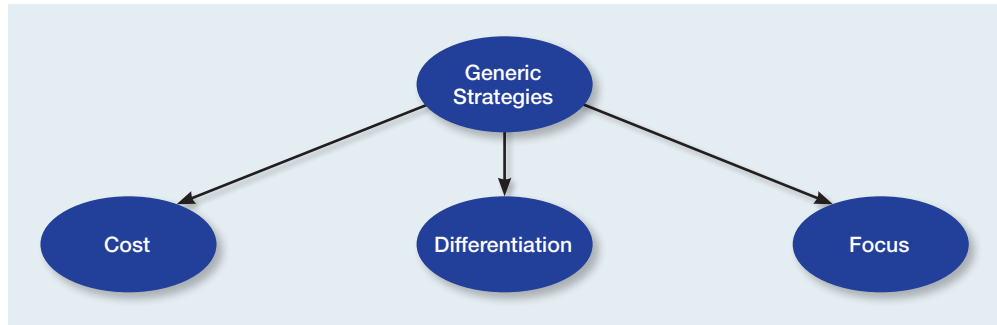
SC&O strategy

A strategy that encompasses both supply chain management and operations management.

GENERIC SC&O STRATEGIES AND ALIGNMENT

In this section, we define generic strategies. It is important to understand how firms compete so that managers can align SC&O strategy with overall company goals. In addition to alignment, you will learn about agility and adaptability.

FIGURE 2.1 >
Porter's Generic Strategies



Generic Strategies

Before getting to the nuts and bolts of SC&O strategy, we first must define different strategies and how firms compete. Michael Porter, a Harvard economist, suggests that there are three main ways that companies may gain an advantage over their competition (FIGURE 2.1). Some companies, such as Walmart, use a **cost strategy** and find ways to reduce costs and provide customers with a lower price than competitors. Others, such as Amazon.com, use a **focus strategy** and seek to service only select customers and provide these niche customers with a narrow range of unique products and services. Others still, such as Apple, Inc., use a **differentiation strategy** and seek to provide such distinctive products or services that competitors cannot compete with them. In each case, the company focuses on unique ways to gain advantage over competitors and win customers. The company must then develop plans in order to achieve a life-long commitment from customers. SC&O CURRENT EVENTS 2.1 takes a look at how three very successful firms have adapted these three generic strategies.

cost strategy

A generic strategy that focuses on reducing cost.

focus strategy

A generic strategy that emphasizes select customers or markets.

differentiation strategy

A generic strategy that emphasizes providing special value to customers in a way that is difficult for competitors to replicate.

alignment

Consistency among strategic, supply chain, and operational decisions.

Fisher strategy model

A model developed by Marshall Fisher that matches capabilities with customer needs.

Alignment

Each generic strategy discussed (cost, focus, and differentiation) must be in alignment with the company's SC&O strategy. **Alignment** means that SC&O decisions will be consistent with the strategic directions for the firm. For example, companies with a low-cost emphasis will need processes, systems, labor, and policies that support low cost. The same need for alignment exists for differentiation and focus.

FISHER STRATEGY MODEL Alignment in SC&O strategy matches capabilities with the supply chain needs of the customer. The **Fisher strategy model** in TABLE 2.1 shows one example of alignment. In this model, managers match the type of supply chain they use with their customer's needs. As a manager, you might ask yourself if customers want your products to be functional or interactive? Functional products, such as kitchen appliances, tend to be more mass produced, and interactive products, such as tailored clothing or custom-made shoes, tend to be more customized. Trade-offs between functionality and interactivity have to be made relative to efficiency and responsiveness in the supply chain.

TABLE 2.1 >

Fisher's Supply Chain Alignment Model		
	Functional Products	Interactive Products
Efficient Supply Chains	Match	Mismatch
Responsive Supply Chains	Mismatch	Match

Based on data from Fisher, M., 'What is the Right Supply Chain for Your Product?' *Harvard Business Review*, March-April 1997, pp. 105-116.

Examples of Generic Strategies



< SC&O CURRENT
EVENTS 2.1



Cost

Walmart is a good example of how using a cost advantage provides value to customers. Walmart shares point-of-sale cash register data with partners, reduces product lines to only the most profitable stock-keeping units, and reformats store shelves to reduce waste and variability. Walmart also teaches suppliers to produce consumer goods more efficiently and directs suppliers toward more cost-effective outsourcing options. In addition, Walmart is well known for ultra-efficient transportation, fast warehouses, and minimized inventories to provide consumers with the lowest possible supply chain and logistics costs. Walmart's unique, cost-saving capabilities appeal to consumers' desires for low prices. Walmart's low-cost strategy provides it with a competitive advantage over other big-box stores and has allowed it to win and keep customers.



Focus

Amazon.com, on the other hand, does not outcompete competitors by charging lower prices but instead makes its considerable profit by employing a focus strategy. Before Amazon began selling goods, if you wanted to find a unique item such as a particular baseball card, you had to conduct a time-consuming search. Even if you found the card you wanted, you did not know if the price was competitive or if the card was in good shape. Amazon saw such consumer struggles and made it easy for customers to locate and compare prices for hard-to-find products. Most companies reduce their product offerings to only very profitable items, and the companies strategically locate these "A" items at retailers (e.g., BestBuy, Target, Walmart). A large store wouldn't stock rare baseball cards on the off chance that one customer may buy one. Amazon, on the other hand, sells a broad assortment of difficult-to-find goods and electronically presents these "C" items to niche customers. Amazon has also implemented processes that minimize its risk by asking suppliers to hold low-demand items in the supplier's inventory until it actually sells the products. The supplier then ships directly to the customer. Amazon avoids the high inventory-carrying costs of niche items while also creating competitive advantage by selling to niche customers. Customers are faithful to Amazon because they know they can find their difficult-to-locate items at Amazon.com without much hassle.



Differentiation

Apple, Inc. is a good example of a company that wins customers through differentiating its products. Apple does not attempt to make the lowest-priced products or sell products that only select customers will appreciate. Instead, Apple prides itself on making iconic, easy-to-use products.

Contrary to popular perception, the iPod was not the first MP3 player on the market. When Apple introduced the iPod, however, it also offered consumers iTunes, a system to download copyrighted music. By bundling both the hardware and content into an integrated package, Apple provided customers a product unlike any other on the market. This easy-to-use system soon drove products like Microsoft's Zune and Dell's MP3 music player out of the marketplace and dominated market share.

Because of the great demand for its highly sought-after products, Apple is able to charge a premium for its products. Apple's capability to create highly differentiated products creates a sustained competitive advantage for the company.

agility

The ability of a supply chain to respond quickly to short-term changes in demand or supply.

adaptability

The capability to adjust a supply chain's design (i.e., the supply network, manufacturing capabilities, and distribution network) to meet major structural shifts in the market.

order winners

Those attributes that differentiate a company's products.

order qualifiers

Necessary attributes that allow a firm to enter into and compete in a market; a firm's strategy must account for these necessities.

THE IMPORTANCE OF AGILITY Even when firms align their tactics with strategies, strategic planners must be prepared for the dynamics of supply and demand. In other words, SC&O strategic planners must be able to plan for and have the capabilities to adapt to the changes in the business environment.

Agility, the ability of a supply chain to quickly respond to short-term changes in demand or supply, is another key SC&O consideration managers must make when creating strategy. Manufacturers must be prepared to respond to short-term, rapid increases or decreases in demand as well as be able to react to interruptions in supply. Manufacturers that are unprepared for short-term change lose out to manufacturers that are prepared. For example, Spanish fashion retailer Zara understood that fashion changes quickly and created the capabilities to respond in kind. So, rather than outsource its production to an Asian manufacturer far away from its target markets, Zara mostly manufactures within its own markets. While other manufacturers take months to design, create, and deliver product, Zara does so in five weeks. Manufacturing close to demand allows Zara to adjust to frequently changing customer demand quickly. This agile capability allowed Zara to not only capture market share from slower competitors, but also reduced marked-down merchandise from an industry average of 50 percent to 15 percent. Its agile capability, in part, has allowed this European company to become the third largest clothing retailer in the world.

ADAPTABILITY Although agility may be important to capturing the value in short-term changes, *adaptability* is equally as important when capturing the value of long-term changes. Sometimes, the capability to change your entire supply chain or entire manufacturing strategy keeps a business viable. **Adaptability** is the capability to adjust a supply chain's design (i.e., the supply network, manufacturing capabilities, and distribution network) to meet major structural shifts in the market.¹ For instance, a company should be able to judge when products are moving from an innovative, disruptive product to a more mature product. As products become more mature, companies must be prepared to shift their supply chain to focus more on efficiency and less on responsiveness. To execute an effective change strategy, SC&O strategists must identify the capabilities needed to make this transition.

ORDER WINNERS AND QUALIFIERS Another method for achieving strategic alignment is by identifying how the firm generates business. **Order winners** are those attributes that differentiate a company's products.² For example, for some products, such as most anything purchased at Kmart, the reason people buy is low price. If that is true, marketing can sell products based on low price. Also, SC&O managers can provide processes, standardization, and high production volumes to support low price. Therefore, identifying how the firm wins orders allows marketing and SC&O to align their efforts in a way that will satisfy the customer.

Order qualifiers are those necessary attributes that allow a firm to enter into and compete in a market, and a firm's strategy must account for these necessities. For example, a minimal level of product quality may be required simply to allow a firm to compete. The U.S. automobile industry supports such a marketplace. For example, Kia, made in Korea, had to meet basic quality standards for North America before they were allowed in U.S. markets. Having done so, Kia now competes successfully in the United States. Identifying order qualifiers allows marketing and SC&O to align customer needs with operational choices, such as production technologies and process choices.

Managing Across Majors 2.1 Marketing majors, the order-winning criterion occurs at the point of impact between SC&O and marketing. It can serve as a tool for marketing and SC&O managers to come to agreement on how the firm will compete at a strategic level.

¹Hau L. Lee, "The Triple A Supply Chain" *Harvard Business Review*, Oct. 2004, 1–12.

²T. Hill, *Manufacturing Strategy* (Basingstoke: UK, Palgrave, 2009).

Assessing Customer Value

To achieve alignment in SC&O strategy, SC&O managers need to integrate closely with marketing managers, who are focused on customer needs. The need to win and retain customers motivates all three generic strategies and their alignment with a firm's strategy. Customers provide all the profit and most of the capital for a firm. When a firm is beginning to develop its strategy of how to compete in a market, it must first identify key customers. Managers identify their customers through market studies and conversations between marketing and SC&O managers.

Furthermore, successful companies focus on the concept of the *lifetime value* (LTV) of the key customers rather than a onetime transaction. LTV examines the potential long-term worth that each customer provides to a company instead of the immediate profit that the customer may contribute. For example, if your new laptop breaks after only a few days of use and the retailer that sold it to you refuses to honor your warranty, not only will you never buy from that store again, but you will also make sure that all your friends know about the store's predatory practices. Even though the electronics retailer received the profit from your one broken laptop, it will miss out on the potential profit that you and your friends may have provided them over your entire lifetime. Strategic decision makers must evaluate and consider the potential LTV of its customers instead of concentrating on the value of a single transaction.

SC&O managers understand that customers are not all equally valuable. Some customers simply are not worth the cost or effort to serve. The 80/20 rule, also called *Pareto's law*, suggests that 20 percent of customers account for 80 percent of revenues. The key for strategy makers is to identify the very best customers and provide outstanding service to those top customers. Identifying your top customer is not always simple, but in the end it is worth the effort (as **SC&O CURRENT EVENTS 2.2** demonstrates). Other customers may still provide value, but your best service should be offered to high-value customers.

Strategists must understand key customers' needs for a firm to survive and prosper. Customers are the judge and jury in competitive advantage. No matter how many of your shareholders, your competitors, or the media praise your company, your customer decides your long-term success.

WebTV Attracts the Wrong Customers



WebTV (rebranded as MSN TV) was celebrated as the first television set to allow viewers to surf websites. The product and service were envisioned by its originators as revolutionary steps forward toward interactive television.

Despite its technological advances, WebTV quickly encountered problems because of its customers. Technologically naive mainstream consumers were the typical subscribers. They checked e-mail and chatted with other WebTV subscribers through their television, but rarely interacted with television programs, did not shop online, and did not regularly click on Internet advertisements. In short, they did not interact with their interactive TV and failed to bring in any advertisement and sales revenue.

The people who used WebTV were not WebTV's target customer. Because they had very little tech savvy, however, they created extensive customer service problems. They called when the connection timed out. They called for e-mail advice. They even called to ask about websites unaffiliated with WebTV. While the company was spending money providing them with customer support services, WebTV consumers were not bringing in any revenue to offset these costs, putting WebTV in the red.

"WebTV had clearly discovered where the TV enabled on-line market existed," wrote Laura Buddine, president of Lacta, a consulting and applications company. "The problem was that it wasn't the market they wanted."

Microsoft scrapped the WebTV brand. It never passed the one-million-subscriber mark. However, this doesn't mean that the market doesn't have potential. Apple TV and Google Fiber have made significant inroads into this market.

Sources: David Bank, "Foot in the Door: Microsoft Says It Already Has a Set-Top Box: It's Called Web TV," *Wall Street Journal*, June 15, 1998, R12; and A. Figler, "Why WebTV Failed to Grow," *Cable World*, Feb. 18, 2002.



< **SC&O CURRENT
EVENTS 2.2**

S C&O STRATEGY PROCESS AND CONTENT

strategy process

The method pursued for creating strategy.

strategy content

That which construes a strategy.

operational subplans

Portions of the strategic plan pertaining to the differing functional areas of the firm that help ensure attainment of strategic objectives.

Hoshin Kanri planning

Policy deployment through a strategic planning process that utilizes project-based improvement.

catchball

Strategic back-and-forth dialogue between successive levels of managers and their teams in Hoshin Kanri.

We will now turn our attention from generic strategies to developing SC&O strategy. There are two main components to SC&O strategy: *process* and *content*. **Strategy process** is the method pursued for creating strategy. **Strategy content** is what construes the strategy and includes (1) the already-discussed generic strategies, (2) the recognition and consideration of your competitors, (3) the creation and maintenance of supplier relationships, and (4) how you measure and react to your strategies' successes and failures.

FIGURE 2.2 shows a hierarchy for SC&O strategic planning, and **TABLE 2.2** shows definitions of all the steps in the hierarchy. All planning starts with a forecast and requires an understanding of the economic environment. Mission and vision also help inform strategic decision making. Managers use the forecast, mission, and vision, coupled with customer research and market analysis, to set strategic plans. From the strategic plan, *operational subplans* are established in the areas of finance, operations, supply chain management, information systems, human resources, and marketing. These **operational subplans** are portions of the strategic plan pertaining to the differing functional areas of the firm that help ensure attainment of strategic objectives. Strategic alignment occurs when there is consistency in choices made in the subplans to support the overall company strategy.

Hoshin Kanri Strategic Planning

One planning method that SC&O managers often use is **Hoshin Kanri planning**. *Hoshin* is Japanese for "a compass," which indicates a vision or purpose to all existence. *Kanri* refers to management control; in English, it is generally referred to as policy deployment. Japanese managers have been using Hoshin Kanri (or Hoshin for short) planning since the 1960s as a means of implementing policy. Implicit in Hoshin is the use of the basic seven tools of quality and quality function deployment. We will discuss the seven tools in more detail in Chapter 13.

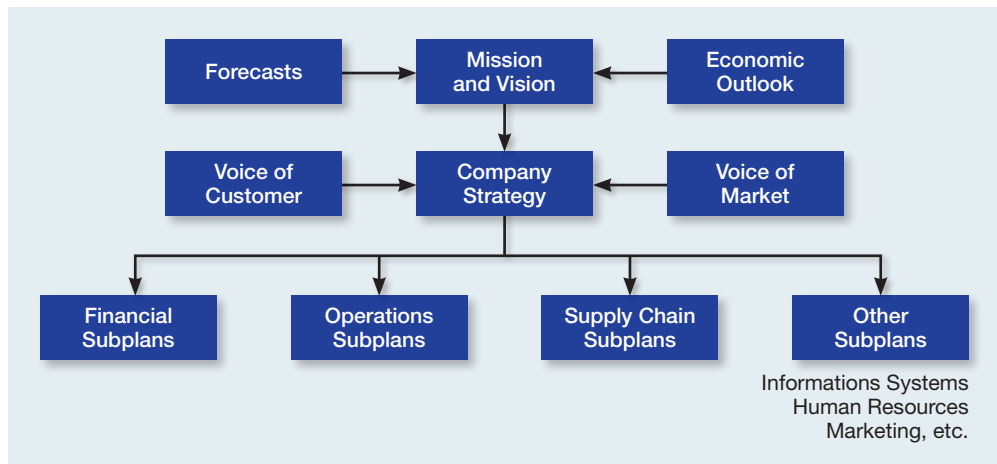
In the Hoshin process, after firm leaders develop a three- to five-year plan and senior executives develop the current year's Hoshin objectives, *catchball* occurs. **Catchball** is the strategic back-and-forth dialogue between successive levels of managers and their teams. The development of the Hoshin plan results in the cascading of action plans that are designed to achieve corporate goals.

Many successful companies, such as Solectron and Motorola, use Hoshin planning. By using Hoshin strategic planning processes, Solectron established itself as a market leader in electronic component production.

SC&O Strategy Content

Once a firm completes catchball, it needs to ensure that it possesses *capabilities* to best meet its strategic objectives. A company must first have employees with the skills and training necessary

FIGURE 2.2 >
Supply Chain and Operations Strategic Planning Hierarchy



v TABLE 2.2

Elements of the Strategic Planning Hierarchy		
Planning Step	Definition	What It Really Involves
Forecast	A prediction of future events	Demand patterns, costs, budgets, etc.
Economic outlook	An examination of how the macroeconomic environment will affect the firm	What do we expect to happen with the overall economy, legal environment, and regulations?
Mission	A statement of the purpose of a firm	Why does the firm exist?
Vision	A statement of possibilities for the company	What are upper management's aspirations for the organization?
Voice of the customer	An understanding of customers' requirements	What are customers' needs, wants, desires, preferences, and expectations?
Voice of the market	An understanding of the competitive environment	What are your competitors up to?
Company strategy	An elicitation of near- and long-term plans for the firm	What are our key objectives for the coming years, and how are we to accomplish them?
Financial subplans	How the company strategy will be financed	What are the needed funding, allocation of scarce resources, risk analysis, and economic decisions? Budgets are set that provide a foundation for what is accomplished from the strategic plan.
Operational subplans	How we support the company strategy operationally	What choices are relative to production technologies, process choice, infrastructure, and capacity?
Supply chain subplans	How we partner to satisfy customers and satisfy company-wide strategic objectives	What strategic partnerships, logistics planning, supplier development, and supply chain performance management are possible?
Information systems subplans	Planning to provide software, hardware, and support to meet company strategic objectives	What information system projects get priority, and what expenditures will be needed for the coming year?
Human resources subplans	Plans for selecting, training, and developing employees to help to achieve company-wide strategic objectives	How many people will be hired and trained during the strategic planning cycle? What plans are needed to meet educational goals for the firm?
Marketing subplans	Based on the company strategy, goals and plans, sales and promotion for the strategic planning cycle are created.	Based on forecasts, what are the sales goals and resources needed? What plans and budgets should be established for promotional activities, and what marketing channels should be evaluated?

to provide its unique brand of service. Then, a firm ensures that it has the correct assets, policies, and processes needed to provide customers with outstanding service. When a company has capabilities that align with key customers' needs, it can gain competitive advantage.

A firm's SC&O capabilities are key to competitiveness. **Capabilities** are the network of people, knowledge, information systems, tools, and business processes that create value for customers. Capabilities vary widely between firms. **SC&O CURRENT EVENTS 2.3** discusses capabilities for three retailers.

capabilities

The network of people, knowledge, information systems, tools, and business processes that create value for customers.

An Examination of the Operational and Supply Chain Capabilities of Three Retail Giants



In SC&O Current Events 2.1, we discussed how Walmart's ultraefficient logistic capabilities complement its low-cost strategy. Amazon realizes its niche strategy with its unique capability to provide consumers with a portal to many different suppliers. Apple had a visionary leader in Steve Jobs who provided customers with innovative and practical products. These qualities are all unique capabilities. Capabilities support strategies because they provide the company with the tools to carry out strategic plans. When a firm develops strategy, it develops an understanding of both its customers and its capabilities. If there is a mismatch between what capabilities provide and what customers expect, the firm will not succeed.

In 1962, three stores were founded: Kmart, Walmart, and Target. Kmart was the early leader in the race for competitive dominance, largely due to its capability to create an exciting shopping experience. Kmart stores frequently had "blue light specials," unexpected sales that were identified by a flashing blue light in the store, to entice buyers to immediately purchase a product. The blue light special was so effective that it quickly became a part of the fad culture of the 1960s and 1970s. Kmart was not as concerned about the quality of its sourcing and the cost of its distribution network; it ignored its supply chain and focused on marketing as its core competence.

While Kmart was focusing on an exciting shopping experience, Walmart was creating capabilities to make its supply chain more efficient. Walmart invested in technology, distribution centers, and suppliers that allowed it to provide quality merchandise at a consistently low price. Over time, the customer's excitement for unannounced sales wore off for Kmart, and customers switched to the everyday low prices that Walmart provided them.

Target, at the same time, had developed suppliers that understood its drive to provide fashionable products at reasonable prices. Target's fashion-conscious yet frugal consumers rewarded its unique capabilities.

Kmart had built an effective capability to create a fun shopping experience and built short-term success, but it neglected the capabilities that customers really wanted in the long term. Kmart declared bankruptcy in 2002 and subsequently merged with the Sears Corporation. Not surprisingly, one of management's key goals after the Kmart and Sears merger was to create more efficiency in the supply chain. Companies must have or be able to gain customer-valued capabilities for this strategy to succeed. When the capabilities they have are no longer valued, such as Kmart's shopping experience, they must be able to change to more successful strategies, such as Sears' efficient supply chain.

This example illustrates two important distinctions. First, effective SC&O firms focus their supply chain strategy on those competencies that create lasting value. Kmart's shopping experience strategy was clearly meant to appeal to consumers emotionally. Consumers can only be entertained for a brief moment before they look for more lasting value. The longer-term strategy of Walmart to focus all its competencies on lowering costs had a much longer-lasting effect on consumers. In addition, Target's competency of focusing on effectively delivering a distinctive product to a targeted consumer segment also provided a longer-term effect.

Second, the effect of a company selecting the wrong supply chain strategy can be deadly. When firms ignore the importance of supply chain, they buy themselves an expensive, wasteful, and ineffective system. Each firm must have a supply chain, and good firms deploy these supply chains strategically.

Another problem many companies face in their strategic content is that they try to master too many capabilities. One such case is General Motors, which has suffered from trying to be “all things to all people” in the auto industry and produced vehicles to satisfy every possible consumer desire while not doing anything particularly well. Companies that focus on their **core competencies** hone only those capabilities that tie most closely to their customer values and that provide companies with a unique competitive advantage.

core competencies

Abilities that companies compete on that are difficult for competitors to replicate.

The Resource-Based View

A firm achieves competitive advantage by applying tangible and intangible resources to operate effectively. In this section, we will discuss how to apply resources.

CAPABILITIES’ FOUR CORE ASPECTS As shown in **FIGURE 2.3**, the **resource-based view (RBV)**³ of the firm suggests that there are four specific aspects to a capability that provide a company with a core competency: (1) value, (2) rarity, (3) imitation-proof, and (4) substitution-proof.

resource-based view (RBV)

The view of the firm that suggests that there are four specific aspects to a capability that provide a company with a core competency: (1) value, (2) rarity, (3) imitation proof, and (4) substitution proof.

The first of these ideas is that a resource must be *valuable*. Specifically, effective SC&O companies have a resource that is valuable to customers. Without value to the customer, a company has a resource that may give it some short-term, tactical advantage but will not provide the company with longer-term, competitive advantage.

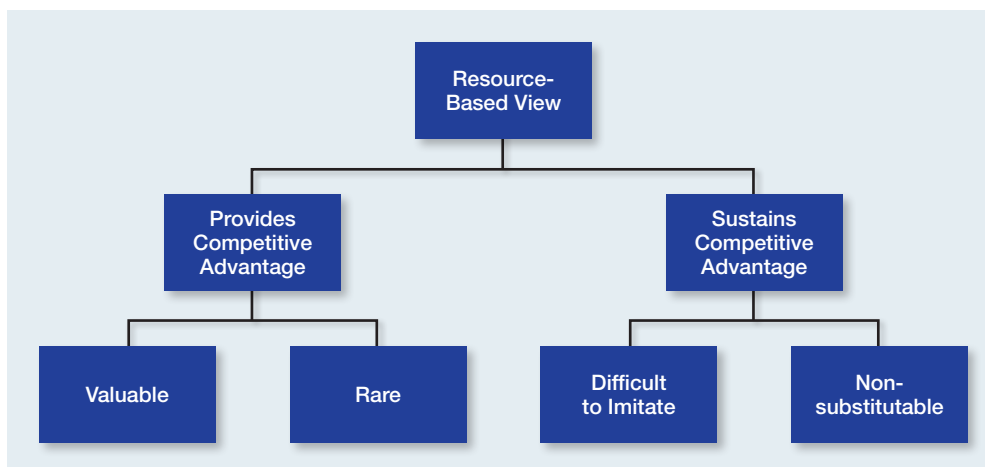
Second, the company’s resources must be *rare*. Rare resources provide the firm with competitive advantage because competitors cannot utilize these resources.

Third, resources must be *difficult to imitate*. Imitation-proof resources provide the firm with resources that cannot be re-created or reverse engineered because of their uniqueness and allow the firm to sustain its competitive advantage.

Finally, the RBV states that resources must be *nonsubstitutable*. Substitution-proof resources cannot be easily replaced, and the firm therefore sustains its competitive advantage.

An example of a valuable, rare, inimitable, and nonsubstitutable resource is the design capability of Apple. Apple was able to design products that consumers saw as cool and valuable. As a result, Apple has established a lead in personal computers, tablets, and phones. This design capability has been a core competency for Apple.

DYNAMIC CAPABILITIES AND RETAINING VALUE A final consideration that companies must evaluate is that capabilities that win customers one day may not win the same customers the next day. For example, Kmart’s blue light special was the early winner, but it did not create sustained competitive advantage because the competition for customers changed. Capabilities



< **FIGURE 2.3**

Resource-Based View Imperatives

³J. B. Barney, “Firm Resources and Sustained Competitive Advantage,” *Journal of Management* 17, no. 1 (1991): 99–120.

Apple is known for its dynamic and exemplary product design.



dynamic capabilities

Abilities that allow a firm to adapt quickly to market changes.

must be able to change as the competitive landscape changes. **Dynamic capabilities**⁴ are the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments.

Once a company understands its customers and capabilities, it is on its way to establishing a winning strategic plan. Traditionally, there is one final aspect of the content of the strategic plan for which firms must plan: the competitive landscape.

COMPETITIVE LANDSCAPES AND PORTER'S FIVE FORCES

Even when a firm understands its customers and has the right capabilities, the firm must out-compete rival firms to succeed. DHL, the global market leader of international express deliveries, announced that it was entering the U.S. express delivery market. DHL invested \$1.4 billion in infrastructure, created important relationships with U.S. business partners, and mapped out plans for the future. Later, DHL abandoned its U.S. express shipment business and returned to a focus on Asia and international express shipping. Many analysts say that DHL simply could not compete in the established home markets of FedEx and UPS. DHL did not sufficiently plan for the third important aspect that all businesses must focus on when preparing strategic plans: the competitive environment.

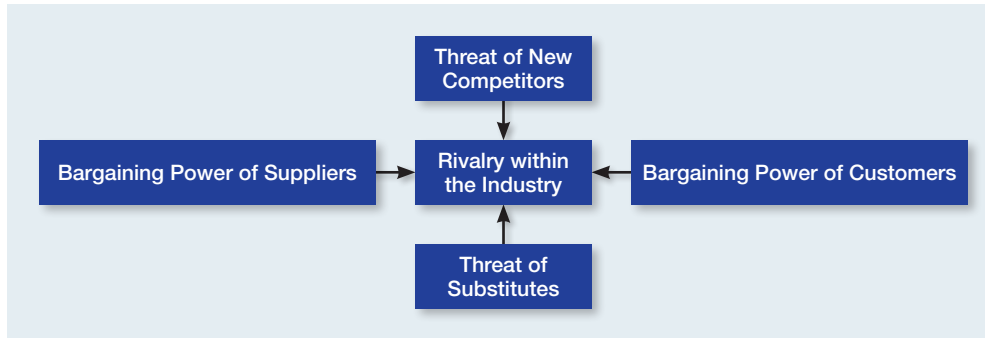
There are many different ways to analyze the competitive environment when planning strategy. One frequently used model is **Porter's five forces** model (FIGURE 2.4). This model is used because it helps companies understand how all competitors and supply chain members influence their ability to compete. There are five considerations in this model:

Porter's five forces

Five competitive dynamics: (1) the threat of new competitors, (2) the threat of substitutes, (3) the bargaining power of customers, (4) the bargaining power of suppliers, and (5) rivalry within the industry.

1. Threat of new competitors
2. Threat of substitutes
3. Bargaining power of customers
4. Bargaining power of suppliers
5. Rivalry within the industry

⁴D. J. Teece, G. Pisano, and A. Shuen, "Dynamic Capabilities and Strategic Management." *Strategic Management Journal* 18, no. 7 (1997): 509–33.



< **FIGURE 2.4**
Porter's Five Forces

Adapted from Porter, M.E., *Competitive Advantage*, Free Press, New York, 1985

Threat of New Competitors

A profitable market attracts new competitors, but too many new entrants decreases every company's market share and makes the industry less profitable. Unless your company can use barriers of entry, such as patents or high start-up costs, to hinder new firms, your company's profits will suffer. When DHL wanted to enter the U.S. market, it believed that the potential profit was substantial enough to justify the high start-up costs. DHL also saw that there were very few new companies that could afford the type of investment needed to compete in the U.S. express delivery service and concluded that competition would not be as fierce. When the threat of new competitors is high, competition is more difficult. Managers must take the likelihood of new competitors into account when planning their SC&O strategy. For example, Amazon.com recently challenged Walmart's highly regarded supply chain. Walmart knows that consumers do not buy from Walmart because of its in-store experience; they come for the low prices. More and more frequently, however, consumers are doing price comparisons online (sometimes while in a Walmart store) and purchasing the cheaper product from Amazon. Amazon even promised next-day delivery on products ordered online. In response to this new competition, Walmart recently announced that it would guarantee *same-day* delivery of online customer orders. Walmart strategically changed from a low-price provider to a just-in-time delivery service because of the new online competitors.

Threat of Substitute Products or Services

Sometimes products or services exist outside of the realm of a company's product lines that allow customers to satisfy the same need as the company's product or service. If there are many credible substitutes to a firm's product, the substitutes will limit the price that firms can charge and will reduce the firm's profits. Two crucial strategic areas that SC&O strategists must address in the area of substitutes are (1) the willingness of consumers to switch to or from their product and (2) how differentiated consumers perceive their product or service to be from the competitor's products or services. Both of these factors, switching costs and differentiation, can enhance the likelihood of capturing the lifetime value of a customer.

BUYER SWITCHING COSTS Often, consumers have invested so heavily in a certain product that switching to another product carries a high cost. For example, despite being the world's largest beverage provider, Coca-Cola had a very difficult time gaining significant market share in Peru due to a local soda called Inca Kola. Inca Kola is a source of national pride; Peruvians served this sweet soda at birthday parties, soccer matches, and even official government events. Coke initially attempted to take over Peru's market by creating strong relationships with fast-food restaurants and getting commitments from these restaurants to serve only Coke products. Most of the restaurants, however, eventually asked Coke if they could also offer Inca Kola because so many patrons wanted it. Coca-Cola found that consumers were unwilling to switch to a new product because they were culturally invested in Inca Kola. Rather than fight these high customer switching costs, Coke eventually bought a



Inca Kola is an example of emotion-based switching costs.

controlling stake in Lindley Inc., Inca Kola's manufacturer, and Coca-Cola is now a producer of Inca Kola in Peru. When switching costs for customers are high (emotionally or financially), competing becomes more difficult. Coca-Cola had to change its supply strategy once it saw that Peruvians would not make the switch from Inca Kola to Coke.

Managing Across Majors 2.2 International business majors, the Inca Kola story illustrates that strategy becomes more difficult in global cultures. Students interested in international business need to understand that country culture plays a role in company strategy.

PERCEIVED LEVEL OF PRODUCT DIFFERENTIATION Firms also discovered that consumers must understand and appreciate the differences between their products and their competitor's products. When consumers have a difficult time perceiving the difference between products, competition becomes much more intense. For example, Microsoft first introduced the Zune, a portable media player, in 2006. The Zune faced several major challenges: namely, comparisons to Apple's iPod. Promising initial sales of the Zune fell when consumers began comparing the Zune to the iPod. Customers did not see the Zune as an improvement over the iPod. In December 2008, Microsoft reported that Zune sales had decreased by \$100 million and in late 2011 announced that it would no longer produce the Zune. When consumers cannot see how a firm's

newly introduced product creates an appreciable difference from existing products, competition is more difficult. Unless SC&O managers work closely with marketing managers to ensure that significant differentiation exists in products and services, SC&O strategy is forced to compete solely on price.

Bargaining Power of Customers and Suppliers

The bargaining power of customers is called the *market of outputs*. It is the ability of customers to put the firm under pressure, and it affects the customer's sensitivity to price changes. A good example can be seen in the passenger airline industry. The Internet makes price comparison between airlines very simple. Therefore, the ability of consumers to price shop puts tremendous pressure on airlines to make sure their prices are as low as possible.

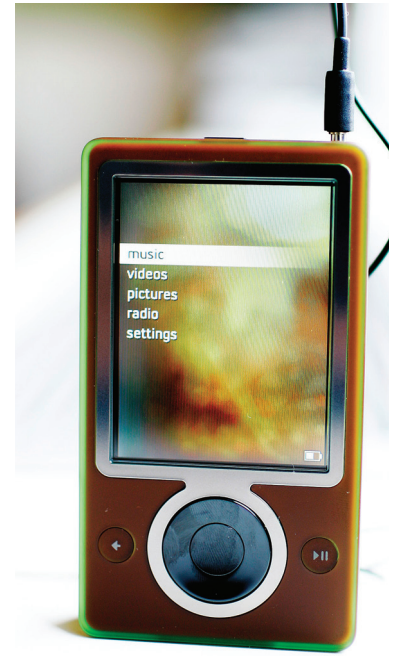
The bargaining power of suppliers is called the *market of inputs*. Suppliers of raw materials, components, labor, and services (such as expertise) to the firm can be a source of power over the firm, especially when there are few substitutes. When suppliers have great power, they may refuse to work with the firm or may charge excessively high prices for unique resources. Intel holds this kind of power over the companies with which it works. Computer manufacturers frequently must wait for Intel to release its most recent chip before releasing their next generation of laptop computers. Consumers want the latest technology, and Intel holds manufacturers hostage until it releases its newest products. Dell, HP, and Apple all wait until Intel releases its next generation of microchip to build their next computers, giving Intel tremendous industry power. In effect, Intel forces the manufacturers into releasing their newest computer models at the same time as their rivals. Therefore, these rival firms must create a strategy that helps them differentiate on something other than the best processing power. When suppliers have great power, industry competition is increased.

Intensity of Competitive Rivalry

For most industries, the intensity of competitive rivalry is the major determinant of the competitiveness of the industry. Few competitive rivalries are as well known as the Pepsi-Coca-Cola rivalry. Because this rivalry has been so fierce, other soft-drink companies have rarely been able to penetrate the U.S. soda market. New entrants to this market would have a very difficult

time succeeding because of the intensity of the conflict and the well-drawn battle lines between consumers. When competitive rivalry is high, strategic success becomes much more difficult because strategic objectives such as gaining market share, increasing differentiation, and opening new markets are fiercely contested.

Strategic plans that take environmental conditions into consideration can win. For instance, it is noteworthy that Jones Soda has successfully carved some market share from the fierce Coke–Pepsi rivalry. Jones Soda’s SC&O strategy specifically grew out of its roots as an early beverage distributor for Arizona Iced Tea and Thomas Kemper soda. Jones realized that these smaller soda brands survived due to their high-quality product and unique consumer base. Jones Soda successfully created a niche strategy to target younger consumers by creating a very distinctive soda with interesting, high-quality ingredients, using unique and rotating packaging, and employing very targeted distribution strategies. Specifically, Jones placed its own coolers in skate, surf, and snowboarding shops; tattoo and piercing parlors; individual fashion stores; and youthful retail clothing and music stores. Once it had gained a loyal following, Jones Soda expanded its distribution to grocery stores, convenience stores, and some restaurants. Its niche strategy allowed Jones to compete in the very fierce soda marketplace.



Zune quickly left the marketplace after losing market share to Apple.

SUPPLY CHAIN STRATEGY

Although companies traditionally focus on understanding customers’ values, developing effective competitive capabilities, and fitting within the competitive landscape as the main areas of strategic planning, these elements do not tell the entire story. Companies are quickly realizing that strategic planning must also include planning to create and maintain important business relationships.

Changes in Strategy

For many years, business theories have assumed that managers created strategic advantage within the four walls of the company. The business landscape, however, has dramatically changed as the digital revolution created the opportunity for rapid sharing of information. Almost simultaneously, the markets of Eastern Europe and Asia opened after decades of relative isolation. These new markets and new producers coupled with information connectivity created a globally connected world.

The first realization of this global expansion was found in a worldwide web of information. Rapidly shared information meant that coordinated global communication could be quickly established. People quickly connected with friends in far-flung parts of the world. The Internet truly became the World Wide Web.

Lagging behind this information revolution, due to the need for more significant structure and intense business to business relationships, was a network of global trade.⁵ Every country that desired global trade quickly found that remote manufacturers could cheaply produce and deliver goods to almost any available market. As a result of this realization, most people in North America right now are wearing clothing sewn in Asia.

The ability to cheaply manufacture products, materials, or supplies anywhere in the world and inexpensively ship them to worldwide markets creates a “world wide web of production.” Business strategy will never be the same. SC&O management has emerged as a major strategic imperative. Firms must effectively and efficiently tap into the world wide web of production to be competitive.

⁵An excellent book about this phenomenon is T. Friedman, *The World Is Flat* (New York: Picador, 2007).

Business executives looking for ways to compete in this new reality have discovered that relationship management is the key capability that allows them to maintain sustained competitive advantage. As stated earlier, supply chain strategy is the ability of the firm to leverage internal relationships, supplier partnerships, and customer relationships to create sustained competitive advantage.

There are three main reasons that firms use a supply chain strategy:

1. Leverage relationships to reduce costs
2. Create relationships to appropriate value from a partner with complementary core competencies
3. Establish long-term, intense relationships to create synergistic value

Types of Relationships

Before discussing how businesses leverage relationships, let's first discuss the different types of relationships managers encounter. There are various types of relationships, including *transactional relationships*, *complementary relationships*, and *synergistic relationships*. Each of these distinctions is important, and managers must understand which strategy best serves their company.

transactional relationship

An arm's length relationship with supply chain partners that is managed by scripted interactions.

TRANSACTIONAL RELATIONSHIPS A firm that pursues a cost advantage through its supply chain partners generally employs a **transactional relationship**, such as a reverse auction, to find the lowest-cost providers for supplies. For example, for Schneider National trucking company to purchase diesel fuel, it may contact all the known suppliers of diesel and ask them to submit bids to supply the contract. Once the diesel bidding begins, all the suppliers see the lowest bid and can keep bidding until no one bids lower than the lowest bid. Schneider then agrees to purchase the diesel from the lowest bidder. Although transactional relationships have a tendency to keep both the buyer and supplier at arm's length, industries that rely on commodity supplies frequently engage in transactional, cost-reducing relationships.

complementary relationship

A relationship that occurs when companies understand that their core competencies need another firm's competencies in order to maintain world class service.

COMPLEMENTARY RELATIONSHIPS A **complementary relationship** occurs when a company that clearly understands its core competencies needs another firm's competencies so as to maintain world-class service. Generally, such a company understands that it holds a competitive advantage in one area but does not have expertise in another.

Despite Apple's strong research, development, and software development competencies, it does not excel in manufacturing and has therefore turned to the Chinese company Foxconn, one of the world's largest manufacturers of consumer technology products, to do its manufacturing. Because Foxconn inexpensively manufactures for many consumer technology brands, establishes intimate relationships with major suppliers, and complies with quality expectations, it is an ideal supplier for Apple. Apple's ability to create its products in the United States and to manufacture them in China gives it the ability to bring high-quality, innovative products to a consumer at a competitive price point.

synergistic relationship

A relationship between two companies who are committed to work together in a way that the result is greater than the sum of the individual parts.

SYNERGISTIC RELATIONSHIP The **synergistic relationship** is a relationship between two companies that are committed to work together in a way that the result is greater than the sum of the individual parts. In a survey of 90 companies, researchers found that ten of these companies committed to an intense, long-lasting relationship in order to create new product ideas, increase their productivity, and create a greater ability to change.⁶ Firms that engage in these types of relationships generally work very closely with their partners to develop relational capabilities that help create more novel products and find ways to better serve customers.

For instance, Honda has long been considered one of the best automobile manufacturers in the world. As Dave Nelson, the retired senior vice president for Honda, explained, "Ironically,

⁶S. E. Fawcett, A. M. Fawcett, B. J. Watson, and G. M. Magnan, "Peeking Inside the Black Box: Toward an Understanding of Supply Chain Collaboration Dynamics," *Journal of Supply Chain Management* 48, no. 3 (2012): 44–72.

many of Honda's supplier development programs and activities—supplier awards programs or supplier incentives, for example—appear very similar to those found at most automobile manufacturers. But the difference is in how much time, money and effort Honda invests in building and sustaining its supplier relationships. When we select suppliers, we expect to be with them for years.⁷⁷

Honda's return on this commitment to its suppliers is innovation. The Honda Accord's success is partially from process innovations and product innovations that suppliers provide to Honda. Therefore, the synergistic supply chain strategy is about creating relationships that provide value greater than the sum of the parts.

Managers must consider the strategic importance of partnerships when developing strategy. The firm must decide which type of partnership provides the outcome that it is seeking and develop its relationship accordingly. Once the customer, capabilities, competitive environment, and partnerships are understood, a company generally will have most of the pieces needed to create strategic plans.

S STRATEGY EXECUTION

The most carefully made plans often underperform. In the business environment, executing your plans often becomes more difficult than creating the plans. We discuss three major points to help you understand how to make your supply chain's strategic plans more effective: (1) aligning strategic levels, (2) aligning incentives, and (3) focusing on process.

Aligning Strategic Levels

First, it is important to understand how the *levels of strategies* within a company all function together. There are three strategic levels in a company: (1) strategies, (2) functional tactics, and (3) operations.

STRATEGIES Strategies are the long-term goals that define how the company will win customers, create game-winning capabilities, fit into the competitive environment, and develop relationships. Strategies form the rationale for tactics and operations because they drive what middle-tier management must accomplish to win and keep customers. For example, once a company determines that it is going to be a low-price competitor, its tactics are also going to focus on cost reduction and efficiency, and its day-to-day operations are going to focus on efficiency. Strategy sets the stage for tactics and operations.

Functional strategies or operational subplans are one- to two-year goals that help the firm “win a battle, but not necessarily win the war.” These subplans include events such as improving product quality through continuous improvement, reducing costs through improving warehouse flows, and improving supplier relationships through giving awards to key suppliers. Even though these tactics generally help create sustained, competitive advantage, they are generally part of a bigger, longer-term strategic plan.

FUNCTIONAL TACTICS There are some well-recognized *tactics* for sourcing, operations, and logistics. To have a good fit between tactics and strategies, managers must understand the right tactics for the given strategy. **Tactics** are short-term steps used in implementing strategies. **TABLE 2.3** illustrates how certain frequently used functional tactics may complement a firm's strategy.

When supply chain managers select the correct functional strategies to complement their needs, strategies are supported, and execution becomes easier. Simply having functional tactics is not enough, however. These tactics must be executed correctly.

functional strategies or operational subplans

One- to two-year goals that help the firm “win a battle, but not necessarily win the war.” These subplans include events like improving product quality through continuous improvement, reducing costs through improving warehouse flows, or improving supplier relationships through giving awards to key suppliers.

tactics

Short-term steps used to achieve strategic goals.

⁷⁷T. M. Laseter, “Balanced Sourcing the Honda Way,” *Strategy + Business*, Oct. 1, 1998, www.strategy-business.com/article/13515?gko=ce6a5.

v TABLE 2.3

Complementary Tactics for Firm Strategy			
Functional Tactics Related to:	Purchasing	Operations	Logistics
Low-cost strategy	Purchasing for Nonstrategic Transactions The buyer seeks to buy the right supplies or products with an appropriate quality level at the lowest possible prices.	Cost The manufacturer produces products and services in the lowest-cost ways.	Efficiency The logistician creates logistics systems that maximize efficiency and reduce total logistics costs.
Differentiation Strategy	Purchasing for Contractual Relationships The buyer seeks to build partnerships and appropriate partner's value through the life of the contracted relationship.	Quality and Dependability The manufacturer produces products and services with no defects, and production and service meets or exceeds scheduling deadlines.	Market Strategy The logistician creates logistics systems to reduce the complexity faced by customers.
Niche Strategy (Customer Relationship Strategy)	Purchasing to Build a Long-Term Alliance The buyer seeks to build a long-term relationship with a single (or very few) suppliers.	Dependability and Flexibility The manufacturer creates the capability for quick changes in products, product mixes, production volume, or service delivery.	Systems Approach The logistician creates a logistics system that can quickly adjust to changing supply chain needs. These systems focus on coordinating flows between supply chain functions and the customer.

OPERATIONS Operations are the daily activities that a firm must perform to achieve success. Managers over operations in both service and manufacturing firms generally make sure that schedules are met, enough employees are present to meet customers' needs, and enough shipping is available to deliver the company's goods or services. Companies cannot succeed without effective operations. In addition, for firms to successfully meet strategic goals, tactics must complement strategies, and operations must fit with the firm's functional goals.

Aligning Incentives

After supply chain managers determine strategic levels, they must avoid the dangers of local optimums during execution. A local optimum occurs when a firm rewards each functional area for achieving goals without regard for the company-wide effect of its actions. For instance, sales managers often give their salespeople commissions to sell products and motivate them to sell as many products as possible. Salespeople love having an expansive product line because it allows their product line to appeal to many different consumers. At the same time, manufacturing managers are often given bonuses for meeting cost-reduction goals. One of the easiest ways for manufacturing managers to reduce costs is to reduce the number of products in the product line. Reducing the product variety means that manufacturers can make longer batch runs and require fewer component parts. Therefore, the sales managers incentivize their sales teams to have an extensive product line, whereas production managers incentivize their supply chain team to offer a minimal product line. These goals clearly do not align.

Good strategy aligns the incentives to both the sales team and the SC&O team to create greater profits for the firm. Good execution recognizes that there may be competing incentives and modifies these incentives so that profit, not revenue or cost, is rewarded. Once again, firms must come to agreement as to how they win orders.

A number of alignment issues must be addressed in SC&O strategies. They include:

- *Information systems*: What kinds of enterprise systems are needed to satisfy the needs of the entire supply chain? How do you link upstream and downstream? What are data relations? What data do you need to manage your supply chain effectively?
- *Logistics*: When will you ship? Does this schedule align with operations expectations? How do you optimize shipping practices to meet customer and manufacturing needs?
- *Suppliers*: Who are your preferred suppliers? What is your process for supplier selection? How do you develop suppliers? How do you link with your suppliers? Do you source globally?
- *Inventory management*: Where do you optimally store inventory? How much? How long? Do you have perishable stocks? Where do you carry safety stocks? Are you maintaining good levels of services?

Focusing on Process

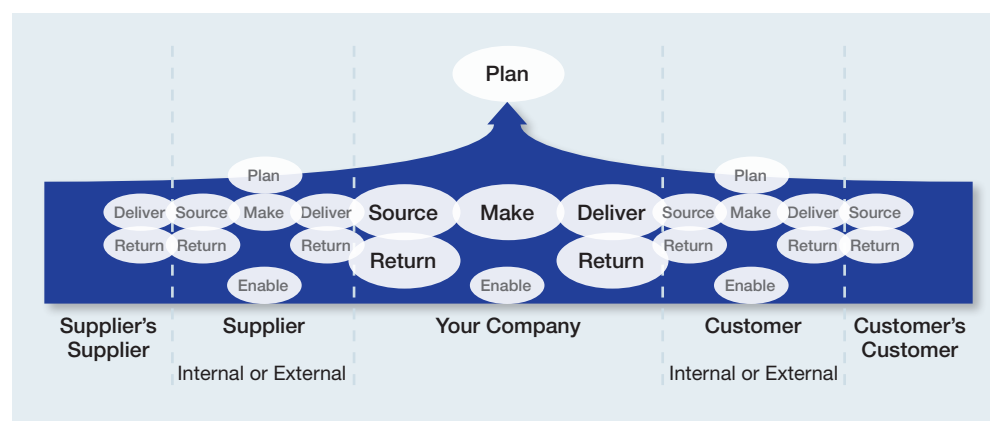
Finally, managers must focus on processes throughout the supply chain rather than individual functions within their supply chain. A manager who focuses on one functional area often incurs trade-offs in other areas. For instance, an inbound logistics manager who decides to reduce transportation costs by fully filling trucks will increase inventory costs for the purchasing manager. An effective way to ensure that a cross-functional viewpoint is taken is to focus on processes.

An often used model that helps managers consider the holistic effects of their decisions is the supply chain operational reference (SCOR) model. The Supply Chain Council developed the SCOR model to help managers understand and implement strategic, supply chain initiatives by focusing managers on five standard supply chain processes found within most supply chains. As shown in **FIGURE 2.5**, the three main emphases of the SCOR model are

1. Process modeling
2. Performance measurements
3. Best practices

Five well-defined sets of standardized processes that describe the entire supply chain (found in **TABLE 2.4**) form the SCOR model. When managers have a common understanding of the processes involved in implementing strategy, alignment throughout the supply chain becomes much easier.

Furthermore, the SCOR model encourages managers to consider these five processes not only within the company but also outside the company in the interfaces with suppliers and



< **FIGURE 2.5**
The SCOR Model

TABLE 2.4 >

SCOR Model Processes	
Plan	Balances aggregate demand and supply to develop a course of action that best meets sourcing, production, and delivery requirements.
Source	Includes activities related to procuring goods and services to meet planned and actual demand.
Make	Includes activities related to transforming products into a finished state to meet planned or actual demand.
Deliver	Provides finished goods or services to meet planned or actual demand, typically including order management, transportation management, and distribution management.
Return	Deals with returning or receiving returned products for any reason and extends into post delivery customer support.

Reprinted by permission from Source: Lambert, D., Supply Chain Management: Processes, Partnerships, Performance. Supply Chain Management Institute, Tempe AZ, 2008.

suppliers’ suppliers on the upstream side. The SCOR model encourages managers to also consider how these processes influence customers and customers’ customers on the downstream side. The SCOR process then suggests that the company should benchmark its processes against firms that are very good at doing similar processes and find where their processes differ. Managers can then compare process measurements and metrics to ensure that their supply chain processes are causing the holistic behaviors needed in a supply chain. In short, the SCOR model gives the manager an effective tool for understanding and controlling how supply chain processes affect the entire supply chain. An application of SCOR is provided in **SC&O CURRENT EVENTS 2.4**.

Companies use process thinking because even though a process flows internally through several functions, the customer only sees the outcome of the process. For example, Harley-Davidson Motor Company almost went bankrupt in the mid-1980s. Its processes were designed

SC&O CURRENT >
EVENTS 2.4

SCOR at Ford



A good example of a company that used SCOR to become more effective is Ford Motor Company. The parts, supply, and logistics division of Ford used SCOR to improve its forecasting, inventory planning, electronic supplier communication, and management. Ford’s extremely complex supply chain contains thousands of parts, thousands of suppliers, and millions of end consumers. Although Ford’s functional areas within purchasing and logistics were individually effective, they were not structured to make integrated supply chain decisions. Ford identified the problems in its as-is state and then used SCOR to map and describe important inventory processes that flowed through the functional silos. Understanding how these processes affected each area of the company helped employees understand the holistic nature of their siloed decisions. Ford managers used SCOR to measure and benchmark these processes against others doing similar processes. Ford was then able to standardize processes and help each business area understand its responsibility for the entire process.

Ford has benefited substantially from using SCOR. Ford’s recurring inventory has been greatly reduced due to attention on variation in inventory policies. Focusing on customer requirements has led to a 20 percent reduction in open back orders, improved customer satisfaction, and a 25 percent reduction in forecast inaccuracies. Because employees are focused on the total process rather than their own silo, Ford has reduced total inventory cycle time by 30 percent. Ford’s return on investment was calculated to be five times the cost of implementing the SCOR system.



to make large batches of motorcycles to keep costs low. Each functional area of the supply chain optimized its own functions so as to meet company goals. When it became obvious to Harley that this strategy was not working, Harley began to focus on improving its processes. This process focus allowed Harley to holistically view its supply chain. It keyed in on the quality problems it was facing, and using total quality management tools created a successful supply chain turnaround. Harley's customers appreciated the improved, reliable motorcycles, and the company reaped the benefits.

STRATEGIC METRICS AND MEASUREMENTS

The success or failure of a strategy can only be assessed if managers can recognize and measure the results of their strategy. A final obstacle that supply chain managers frequently struggle with is creating effective metrics. Good metrics have two common properties: (1) they drive correct, strategic behavior, and (2) they are actionable and predictive. In addition, an important aspect of measuring the success of the company is creating incentives that reward systems thinking. These strategic measures all help managers understand the effectiveness of their strategies.

Correct Strategic Behavior

If a firm decides to be the innovative leader in an industry, it should also create metrics that analyze and predict innovation, but firms often measure the wrong things for the right reasons. A 2008 study done on a riding lawn-mower manufacturer highlights this point.⁸ The lawn-mower manufacturer's marketing department found out that its competitor's innovative tractor designs were attracting more key customers. To appeal to its key demographic, the lawn-mower company created innovation measures to help drive more research and development, and engineers created several different gas caps for five different mowers. The lawn-mower company metrics had driven meaningless innovation because no customer was really buying a new lawn mower because of its cool gas cap.

Great metrics drive not only strategic behavior, but also the correct strategic behavior. The lawn-mower company later altered its metrics by measuring innovation only on "customer touch points" (the areas its customers believed influenced their intent to purchase the mower). As a result, the lawn-mower company greatly reduced the complexity of its mowers, which reduced its manufacturing costs. Astonishingly, revenues simultaneously increased as customers were no longer confused about order winners when comparing lawn mowers. The company rededicated itself to a strategy that focused on producing meaningful differentiation and put the metrics in place to drive this correct behavior.

Actionable and Predictive Metrics

A good metric also allows managers to make decisions based on facts. Therefore, an effective metric must provide information that they can act on. As a good rule of thumb, when you develop a measure, ask, What would I do if the metric lowers or rises?

If a clear action plan results from this question, you have probably created a meaningful measure of the strategy. This clear action plan results because you can clearly see the cause-and-effect relationship driving the metric. For instance, project managers commonly use cost and schedule as their metrics. If a project is over the budgeted cost, managers clearly understand that they need to impose greater cost controls. If a project has extended past its initial schedule, project managers must speed up the project. These measures are clearly actionable.

⁸D. Closs, M. Jacobs, M. Swink, and S. Webb, "Competencies for Managing Product Portfolio Complexity: Six Case Studies," *Journal of Operations Management* 25, no. 6 (2008): 590–610.

v TABLE 2.5

Commonly Used Supply Chain Metrics			
Strategic Metric	Financial Metric	Relationship Metric	Operational Metric
Number of units purchased from supplier	Revenue resulting from supplier	Degree of mutual understanding Trust	Number of joint R&D projects Time to order
Value of products purchased from supplier	Profit generated by supplier	Ratio of investment/marketing/ strategy plans shared Service level	Receipt time (cycle time)
Supplier product innovations (number)	R&D return on investment	Satisfaction level	Parts per million defects
Success rate for new product launches	Marketing return on investment		Agility (response to changes) Invoice accuracy
Process innovations	Total cost of ownership		Productivity ratios
Supply continuity risk	Price stability		
Corporate responsibility	Cost avoidance		
Sustainability	Asset utilization		
Contribution to brand equity	Return on assets Return on investment		

A metric that merely measures completed actions and cannot predict future success is only good for managers interested in the past. Metrics must show trends and thereby trigger appropriate corrective action. Data that direct future actions provide supply chain managers predictive power and create management by fact. When these leading indicators also help align functional strategies and provide proper incentives to operators, executing strategy becomes scientific rather than a gut reaction.

Commonly Used Supply Chain Metrics

TABLE 2.5 lists a number of commonly used supply chain metrics, including strategic, financial, relationship, and operational metrics. Managers often use these types of metrics to determine the status of a supplier or supply chain partner. Many of these metrics can also be used operationally within the firm.

Systems Thinking

The common theme in strategy alignment, incentive alignment, and measuring important things is the ability to think in a holistic way. Systems thinking makes strategy execution more effective because it allows managers to act in ways that help the entire company. The new SC&O manager is no longer a functional expert; she is a strategic orchestrator. An effective SC&O manager takes a process-oriented approach to management. She realizes that production's end goal is to please the customer. She communicates freely with customers about their expectations and their customer experience. She also seeks to integrate production with distribution to make sure precise distribution processes meet customer targets at lowest possible prices.

In addition, the SC&O manager works closely with suppliers to not only meet cost targets but also to help suppliers improve their production quality. She focuses on the entire acquisition process to develop strategic advantage rather than just to ensure production has sufficient inventories. The modern SC&O manager worries less about her functional expertise and worries more about leading the entire supply chain.

Managing Across Majors 2.3 Accounting majors, when performing the type of cost accounting called “activity based costing,” you must find the drivers of performance to effectively measure the correct things.

Finance majors, you cannot squeeze suppliers to the point that they are insolvent. Good financial management involves finding a price that is good for the customer and the supplier so that they both are successful.

T HE CHANGING STRATEGIC ENVIRONMENT: GLOBALIZATION, SUSTAINABILITY, AND INNOVATION

Today’s SC&O managers also have additional worries beyond creating and executing strategy. Their biggest worry is the rapidly changing environment. Only those firms that are able to accommodate this change will be able to succeed in the future. Three strategic environmental changes have been recently noted that greatly influence SC&O managers. First, all supply chains are becoming increasingly global. Second, sustainability has become increasingly important to SC&O managers. Third, innovation is increasingly becoming a necessity. All three of these environmental conditions are changing SC&O strategy.

Globalization

In 1990, multinational companies, parented in the United States, had sales of \$3.33 trillion; by 2010, these multinational companies had increased sales to \$9.84 trillion.⁹ The real problem for SC&O managers is that when suppliers, producers, and distributors are located around the world, the supply chain never rests. Real-time information is constantly exchanged, problems occur around the clock, and decisions are required hourly. In addition, to be effective, SC&O managers must be prepared to understand the cultures, economics, and infrastructure of many different countries. Many companies have learned painful lessons as they try to penetrate promising new international markets. The modern strategist must not only be prepared to create strategy but must also be able to accommodate the change and sensitivity that globalization demands. **GLOBAL CONNECTIONS 2.1** talks about a supply chain disruption in a global supply chain.

China Fire Disrupts Global Computer Chip Supply Chain



< GLOBAL CONNECTIONS 2.1



The entire world is interconnected in a way that can create unexpected supply chain disruptions. The Korean firm Hynix produces dynamic random access chips (DRAMs) for personal computers and smartphones in a production facility in Wuxi City, China. A fire at the gigantic Chinese factory cause several problems around the world. This situation was exacerbated by the fact that the Hynix plant produces one-sixth of the world’s DRAMs.

Although large plants provide lower costs as a result of improved economies of scale, firms can find that relying on such factories mean that they have too many eggs in one basket. The April 2012 fire in Wuxi was caused by a gas leak, and the plant was shut down for three days. “Memory chip prices surged mainly because of expectations” of short supply, stated Kevin Wang of IHS iSupply, a Chinese market research firm.*

The Hynix fire reminds managers of the interconnectedness of firms in global supply chains. Relatively short-term disruptions can have larger effects. Firms must work together to plan for and mitigate these disruptions.

*<http://www.foxnews.com/world/2013/09/11/china-fire-rattles-world-chip-supply-chain/>

⁹Bureau of Economic Analysis, News Release, “Summary Estimates for Multinational Companies: Employment, Sales, and Capital Expenditures for 2010,” Apr. 18, 2012, <http://www.bea.gov/newsreleases/international/mnc/2012/mnc2010.htm>.

Sustainability

Sustainability is also driving considerable change to the SC&O strategist. In the past, firms could produce and distribute in the most economical way possible without regard for unintended consequences such as pollution. Sustainability is frequently defined as the *ability to operate today in a way that does not threaten the future*. This commitment to sustainable business practices means that strategy must take into account not only the profitability of the firm but also the future effects of their strategies. As firms realize economic benefit from sustainable practices, more and more firms are attempting to adopt sustainable business practices.

Walmart is a good example of a company that has shown how sustainable SC&O practices can also be profitable. In 2008, Walmart announced that through a joint effort with its suppliers, all liquid laundry detergents sold at Walmart stores would be concentrated, thus removing any extra water from the detergent. This initiative both reduced the water usage in detergent and also shrank the size of the package holding the detergents, greatly reducing the plastic resin used in the containers. Analysts estimate that Walmart's initiative saved more than 400 million gallons of water, more than 95 million pounds of plastic resin, and more than 125 million pounds of cardboard in three years. In addition, because the detergent package was now smaller, the suppliers and Walmart could more efficiently move and store the product, saving Walmart money. This packaging initiative saved money in the Walmart supply chain because Walmart was no longer moving or storing unnecessary water. The smaller cube and lower weight of the greener product was a win for the environment and a win for Walmart.

Because of regulatory pressures, both domestic and international firms understand that they must integrate environmental concerns into their strategic plans. As Ed Woolard of DuPont Corporation stated:¹⁰

As we move closer to zero (emissions), the economic cost which society must ultimately bear may be high (when considering reduction of pollution). Or the energy expenditure necessary to eliminate a given emission may have more ecological impact than trade emissions themselves. Society will have to decide where the balance will be struck and may conclude in some cases that zero emissions is neither in the environment's nor the public's best interest.

Companies have to address many environmental issues. Besides regulatory requirements, firms realize more and more that environmental friendliness is part of being a good corporate citizen. Therefore, tasks such as environmental protection, waste management, product integrity, worker health, government relations, and community relations compose the environmentally related strategic issues that must be addressed. As a result, firms are implementing quality-based environmental management systems, sometimes referred to as **sustainability management**. These systems involve a holistic "systems" view of the processes causing environmental degradation. Measurements are implemented that identify indicators of environmental performance, with a focus on preventive rather than reactive cleanup.

Another technique used in environmental management, **life-cycle costing**, uses value analysis to identify the total costs of products from a worldwide perspective.¹¹ **FIGURE 2.6** is an example of life-cycle costing for a typical hamburger. You might ask, How much does a hamburger cost? One answer is that a hamburger can be purchased at Burger King for less than \$1. Indeed, that is the immediate price to the consumer. As proposed by some environmentalists, however, if one considers the environmental costs associated with deforestation,

sustainability management

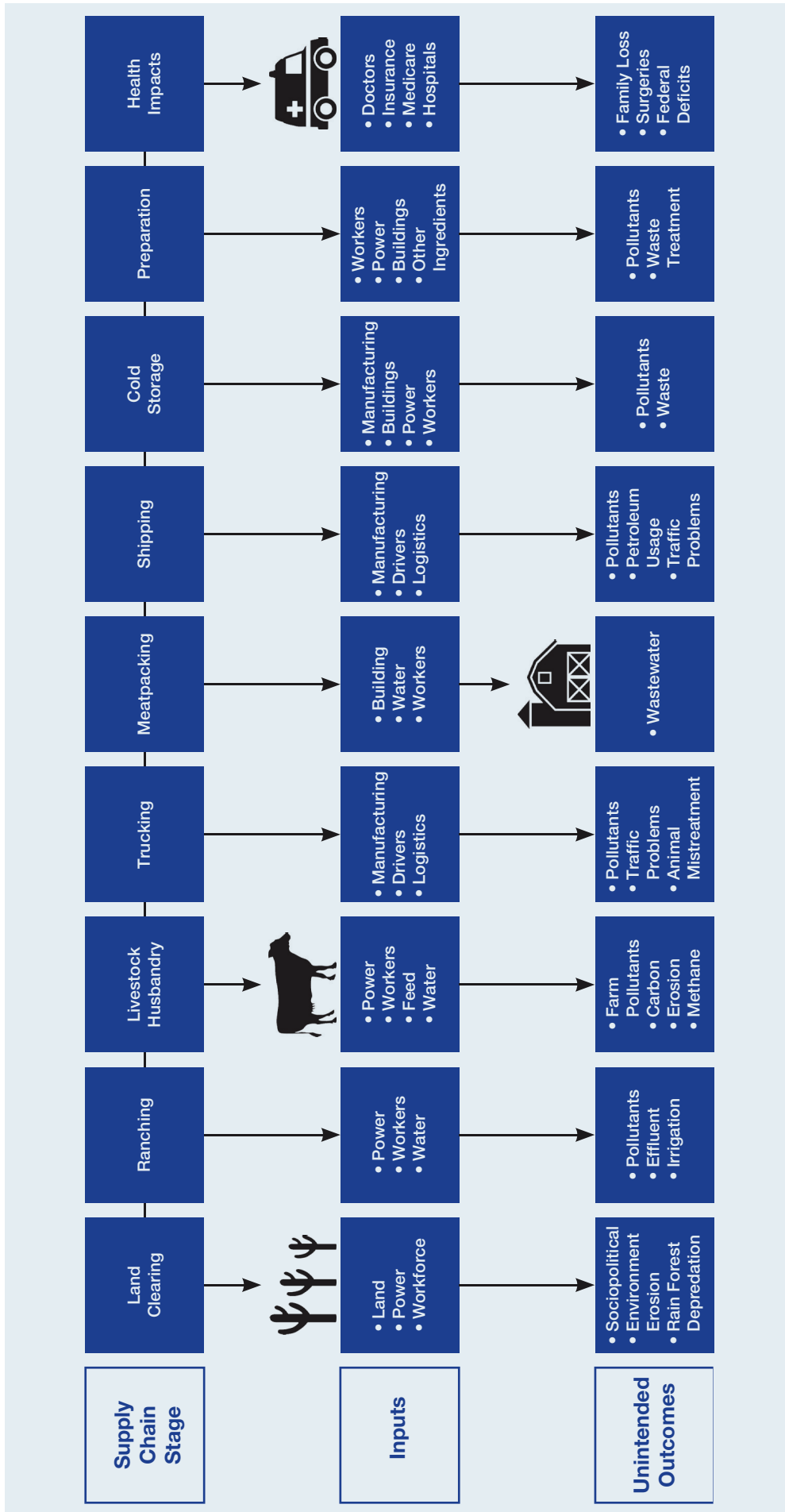
Improvement-based environmental management systems.

life-cycle costing

Using value analysis to identify total costs from a supply chain–environmental perspective.

¹⁰E.S. Woolard speech presented at the Second World Congress on Zero Emissions, Chattanooga, Tennessee, May 31, 1996.

¹¹The *Wall Street Journal* provides an interesting article on calculating the carbon footprint of six products at <http://online.wsj.com/article/SB122304950601802565.html>.



Based on: Thomas Gladwin, "Full Cost Pricing of a Cheeseburger," Case Memo, 2013.

FIGURE 2.6 [▲]
The Life Cycle Cost of a Hamburger

FIGURE 2.7 v
Sustainability Scorecard from Procter and Gamble

SC Environmental Sustainability Scorecard

INTERIM RATING: 0 (Auto-calculated)

(FILL IN ALL APPLICABLE SHADED CELLS; NON-SHADED ARE OPTIONAL)										
Date (Month DD, YYYY):		Scope Code & Annual Data: Enter Scope Code (based on your capability to measure): P = P&G Product-specific materials and services (DESIRED) S = Site(s) (combined total) that produce for P&G C = Corporate NA = Measure does not apply to my industry/service (explain)		(Current Year)		(Past Year)		yyyy (Optional Year)		Past Submit Years (201?):
Company or Unit Name:				Jan - Dec		Jan - Dec		Jan - Dec		Years
Main Industry Group:				Data		Data		Data		2017):
Main Country of Production:				Scope		Scope		Scope		Data
Core Measure		Unit of Measure								Comments
										(Use additional pages/attachments Jan - Dec as needed to explain)
(Electric) Energy Usage										
(Fuel) Energy Usage										
(Input / Withdrawal) Water Usage										
(Output / Discharge) Water Usage										
Hazardous Waste Disposal										
Non-Hazardous Waste Disposal										
Kyoto Greenhouse Gas Emissions Direct (Scope 1)										
Kyoto Greenhouse Gas Emissions Indirect (Scope 2)										
Annual Volume/Output (and Factor % to approximate Scope P)	N A									
P&G Sustainability Ideas & Initiatives Supported	NA									
Fines & Sanctions										
Environmental Mgt. System										
Data Protocol	N A									
Optional Measure										
Renewable Energy	NA									
Kyoto Greenhouse Gas Emissions Indirect (Scope 3)	NA									
Potential Waste Material Recycled, Reused, Recovered	NA									
Transportation Fuel Efficiency (Transportation Suppliers Only)	NA									(Specify mode of transport used)
Industry Certification										
Other										

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degradation to riparian habitats resulting from cattle grazing, and health problems because of the overconsumption of fatty foods, another cost emerges that is much higher than \$1. Regardless of one's political stance concerning these issues, the debate will rage for many years, and regulation likely will not decrease over time. Therefore, it is in the best interest of management to address these issues in a proactive manner.

FIGURE 2.7 shows a supplier sustainability scorecard from Procter and Gamble. A **scorecard** is a tool used in strategy to monitor results. In this case, this scorecard is used to monitor the performance of suppliers around the world. More and more, companies are getting serious about ethical and sustainable practices in their supply chains.

scorecard

A strategic tool to communicate strategic metrics. Often used with suppliers.

REVERSE LOGISTICS Another important consideration in sustainability initiatives is **reverse logistics**, the ability of a company to move product upstream while managing waste streams in an effort to reduce the cost of the waste stream or make the waste stream profitable. Reverse logistics takes three main forms in the elimination of waste: reduction, reuse, and recycling. *Reduction* is the elimination of waste before waste occurs. Although we could give several examples of reduction, waste reduction is a core tenet of lean management, which will be covered in great detail in Chapter 15. Reuse of waste is also assisted by good reverse logistics. For instance, *reuse* is very common in the automobile spare parts industry. When a consumer takes a car to have the alternator replaced, the customer receives money for turning in the old alternator (the “core”). When the new part is swapped for the old, the core can be returned and can go back to the part manufacturer for reuse. Finally, reverse logistics concerns itself with recycling. *Recycling* is a type of reuse that is more concerned with breaking down used items to reuse base materials. For instance, the ConAgra turkey processing plant in Carthage, Missouri, has recently partnered with a company called Changing World Technologies (CWT) to recycle ConAgra's organic waste streams. CWT built a factory next to the ConAgra turkey processing plant and uses a proprietary process to break down the organic waste of the turkeys into light, sweet crude oil; biodiesels; and other valuable products. ConAgra has taken a waste stream, recycled it, and reduced the waste stream's cost to the company.

reverse logistics

Logistics used to move products up the supply chain. Often used in managing recycling.


CUSTOMER PREFERENCE A final sustainability consideration that SC&O managers must consider is customer preference. Customers frequently claim to want environmental products but may purchase in ways that are less sustainable than alternatives (**FIGURE 2.8**). In this case, companies must decide if they are going to try to alter customer lifestyles or if they are going

Items That Fill Junk Yards

Swiffer WetJet Mops use reusable inserts that bring customers back again and again. The problem is that they replace reusable mops that were just fine.

Umbrellas are cheaply made and don't last. Over 100,000 umbrellas end up in landfills yearly.

Frisbees fly so well they end up in trees.



Lightbulbs. There is now a bulb that lasts 20 years. How can that be profitable?

Solo Cup, a \$1.8 billion company, makes products that last as long as one quarter in a football game.

Much **furniture** such as Ikea is made out of particle board and it doesn't last. By comparison, if you watch the Antiques Roadshow, you will see that some furniture was built to last hundreds of years.

< FIGURE 2.8

Examples of “Throwaway” Products

Based on Spencer Bailey, “Keeping Landfills in the Black,” *Business Week*, June 25, 2012 p. 91.

to continue manufacturing for existing customer demand. This decision is one of the most difficult ones that you might make as a strategic planner.

Innovation

Innovation is a requirement that is rapidly encroaching into the SC&O world. For many years, firms could compete on low cost or product quality. SC&O managers have gotten very good at incorporating quality practices, lean supply chain practices, and other tactics that clearly have created great value in terms of lowering costs and increasing quality. It is becoming increasingly clear that to win in tomorrow's supply chain, SC&O managers must also be able to support and help create innovative new products and services. Today's customers expect highly customized and innovative products. To support these customers, SC&O managers must be able to create flexibility and adaptability into their supply chain strategies to get customized products to market quickly. Tomorrow's SC&O managers must therefore be not only very good at functional tactics; they must be culturally astute, sustainability minded, and innovative.

At the beginning of the chapter, we discussed Medrad, Inc.'s success in the medical imaging field. Here we discuss how Medrad's managers used the concepts from this chapter to plan and follow through on their winning strategies.

Medrad's sustained success is based on three strategic priorities known as the Medrad philosophy:

1. To improve the quality of health care
2. To ensure continued growth and profit
3. To provide an enjoyable and rewarding place to work

Outlining its philosophy helps fulfill Medrad's mission: "to be a worldwide market leader of medical devices and services that enable or enhance diagnostic and therapeutic imaging procedures." To achieve its mission, five strategic corporate scorecard goals guide decision making at all levels: (1) exceed the financials, (2) grow the company, (3) improve quality and productivity, (4) increase customer satisfaction, and (5) improve employee growth and satisfaction.

These strategic objectives guide Medrad's hand in making decisions. Medrad's executive committee uses a systematic strategic planning process to review the company's five goals, to set one- and five-year targets, and to identify annual top 12 objectives to achieve those targets. A "waterfalling process" is used to deploy the scorecard goals and top 12 objectives throughout the organization. Managers create departmental objectives and plans to support the corporate scorecard and top 12, and then they work with employees to develop supporting individual goals. This process results in the alignment of the strategic corporate scorecard goals to the individual employee. Focusing on the SC&O element of service in strategy has helped Medrad succeed and prosper.

The Medrad logo is displayed in a stylized, bold, orange font. It is centered within a large, light green circular graphic that has a white center and a soft, glowing effect. The logo itself is a registered trademark, indicated by a small ® symbol.

Summary

In this chapter, we have discussed many of the strategic SC&O concerns facing organizations today. These issues are not simple, but strategy lays the groundwork for the smooth functioning and growth of today's firm.

1. We discussed generic strategies such as cost, differentiation, and focus. These forms of competition allow us to provide value to customers.
 - a. We discussed how and why a manager's strategy must align with the company's SC&O strategy and specific alignment strategies managers use.
 - b. We also emphasized the importance of assessing customer value and the various methods managers use to do so.
2. Strategy process and content are two major areas of SC&O strategy. The process is how we plan strategy, and the content is what construes the SC&O strategy. The crux is that the topics being discussed are of importance to firms today. Without effective SC&O, firms will fail.
 - a. We reviewed Hoshin Kanri strategic planning and provided examples of successful companies that have put this particular strategy to use.
 - b. We also discussed SC&O strategy content and emphasized the importance of capabilities and competencies.
3. Even with the right capabilities, companies will not succeed if they do not understand and outcompete their competitors properly. To do so, managers must take the competitive landscape and Porter's five forces into account when forming their strategies. These outside forces are:
 - a. The threat of new competitors
 - b. The threat of substitutes
 - c. The bargaining power of customers
 - d. The bargaining power of suppliers
 - e. Rivalries within the industry
4. Managers must also understand how their strategy works within the industry and how changes in the marketplace may affect their strategies.
 - a. We described the three types of relationships managers maintain to remain competitive: transactional, complementary, and synergistic.
5. After successful SC&O firms have formed their strategy, they must successfully execute their strategy. They do so by
 - a. Aligning strategic levels
 - b. Aligning incentives
 - c. Focusing on processes
6. Managers also use metrics and measurements to make sure their strategy is working.
 - a. Measurements must be able to correct strategic behavior, not simply measure levels of failure.
 - b. Measures must explain and predict what is happening to the strategic direction of the firm.
 - c. Successful execution also relies on systems thinking. All members of the supply chain must align their functions and operations on the firm's strategic goals.
7. Great SC&O companies that sustain a competitive advantage also understand the changing environment. They create the capabilities to adapt to a constantly changing environment while holding tight to their strategic identity. Wielding adaptability is how successful managers outcompete their competition.

Key Terms

adaptability 24	focus strategy 22	SC&O strategy 21
agility 24	functional strategies 35	scorecard 45
alignment 22	Hoshin Kanri planning 26	strategy 21
capabilities 27	life-cycle costing 42	strategy content 26
catchball 26	operational subplans 26, 35	strategy process 26
complementary relationship 34	operations strategy 21	supply chain strategy 21
core competencies 29	order qualifiers 24	sustainability management 42
cost strategy 22	order winners 24	synergistic relationship 34
differentiation strategy 22	Porter's five forces 30	tactics 35
dynamic capabilities 30	resource-based view (RBV) 29	transactional relationship 34
Fisher strategy model 22	reverse logistics 45	

Integrative Learning Exercise

Identify a company in your region. Research the company's supply chain and operations planning process. Identify the company's strategic plan and mission. What are the company's core competencies? How does the company integrate the voice of the customer and the voice of the market into its company

strategy? Identify at least three functional area subplans (e.g., finance, supply chain operations, information technology, marketing, human resources). How do the subplans support the corporate strategy? How does the company create, foster, and maintain important business relationships?

Integrative Experiential Exercise

Together with a study group, visit a local company. Identify how the company positions itself to gain an advantage over its competitors. Does the company employ a cost strategy, a focus strategy, or a differentiation strategy? Identify the order

qualifiers for the market in which the company competes. Identify the order winners the company uses to differentiate its products and services from the competition.

Discussion Questions

1. What is the purpose of strategy?
2. What are the steps of strategic planning?
3. Why is it important for strategic planning to consider the lifetime value of the customer?
4. Why are customers important to the strategic planning process?
5. Why should strategic planners not treat all customers the same?
6. What is the difference between a company's core competency and a skill that the company is really good at doing?
7. How does a firm know which capabilities it should create and foster?
8. What is the five forces model and why is it important to strategic planning?
9. How do relationships create sustained, competitive advantage for firms?
10. How are complementary relationships different from synergistic relationships?
11. How do aligning strategic, functional, and operational plans help strategic execution?
12. How do firms ensure that execution of strategic plans is effective?
13. How does aligning strategic levels help make strategy execution more effective?
14. What role do functional strategies have in strategy execution?
15. How can firms achieve SC&O sustainability?

Zara is a fast-fashion company from Spain. Although the Spanish economy has crumbled, Zara is a rare success story. Fashion is highly perishable, quickly influenced by the latest thing seen on the catwalk or on the back of a celebrity. Zara's designers follow such fashion trends closely, but whereas a typical clothing company manufacturing in Asia could take six to nine months to get a new design into the shops, Zara completes the process in around five weeks. It buys some garments and material from Asia, often partly finished or undyed, but approximately half of its clothing is manufactured in-house at its base in La Coruña in northwest Spain or by a cluster of small contractors in the same area. The clothing is delivered by truck to Europe and by air to the stores Zara is now opening in other parts of the world.

Zara avoids mass production. Although some stock is replenished, its clothing, for both men and women, is deliberately made in small batches, which helps create a scarcity value: buy now in case it is gone tomorrow. It also keeps shops looking fresh and reduces markdowns. At Zara, the number of items that end up in a sale is about half the industry average.

Questions

1. What is Zara's competitive advantage?
2. How has Zara aligned its processes with its marketing requirements?
3. What problems do you see looming for Zara?
4. What opportunities has the company created through excellent SC&O management?

