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Global Supply Chain Strategy



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LEARNING OBJECTIVES

After studying this chapter, you should be able to

- 2.1 Explain the different levels of strategy formulation and why economic, environmental, and social values are integral elements of a corporate strategy.
- 2.2 Describe how an operations strategy is formulated and evaluated.
- 2.3 Explain how the strategy formulation and evaluation process differs for service-providing organizations.
- 2.4 Explain the supply chain strategic planning process for both goods and services.
- 2.5 Describe the key capabilities firms need to formulate and implement global operations and supply chain strategies and manage the risks related to them.
- 2.6 Explain the process for evaluating firms' supply chain strategies.

SUPPLY CHAIN PROFILE

INTEL USES TECHNOLOGY FOR EFFICIENT SUPPLY CHAIN MANAGEMENT



Intel's first memory fabrication site is located in Dalian, China. After a major upgrade, the facility started production of Intel's most advanced 3-D NAND flash memory technology in September 2018.

Imaginechina via AP Images

The Intel Corporation (Santa Clara, California) is a multinational technology company that is one of the world's largest and most valuable semiconductor makers. In 2018, the company marked the 50th anniversary of its founding, and that was also the year the company generated a record annual revenue of \$70.8 billion. Intel's product portfolio is diverse and categorized under the names of platform products, boards and systems, memory components and storage units, accelerators, and connectivity-related devices. As an integrated device manufacturer, the company designs and manufactures its products in its own manufacturing facilities located in the United States (Arizona, Oregon, and New Mexico); Ireland; Israel; China (Chengdu and Dalian); Malaysia; and Vietnam. Intel also uses third-party foundries and subcontractors to support the manufacturing of certain components and to supplement its assembly and test capacity. Intel's primary customers are original equipment manufacturers (OEMs) and original design manufacturers (ODMs). Additionally, other manufacturers and service providers buy Intel's products through distributors, resellers, retailers, and OEM channels. With more than 100,000 employees located in 46 countries and a multitiered supply chain comprising more than 11,000 suppliers in over 90 countries as well as a large distribution and sales channel worldwide, Intel undoubtedly has a strong global presence.

A look at Intel's corporate timeline shows a history of innovation. In 1971, Intel launched its microprocessor, named the 4004, which is the foundation of today's

\$300 billion global semiconductor industry. In 1972, the first international manufacturing facility was opened in Penang, Malaysia, a country that now hosts multiple Intel operations. Three years after the introduction of the 4004 microprocessor, the Intel 8080 was launched and used in one of the first personal computers. The period from 1980 to 1990 marked the development of several new products and businesses, including collaboration in the Ethernet project, which is the foundation of local area networks, parallel supercomputers, flash memory, and print servers. By 1994, Intel was powering 85% of all desktop computers and estimated by *Financial World* as the third most valuable brand in the world. In the past 2 decades, the company introduced products and implemented concepts to support wireless and mobile technologies. Intel has most recently focused on transforming itself for a "data-centric era," and as of late 2018, Intel's business organization is grouped into PC-centric business and data-centric business (e.g., Internet of Things, Programmable Solutions, and Mobileye).

Intel's history of innovation extends to its supply chain management practices and operations. Built around a "copy exactly" methodology, Intel's network of manufacturing facilities operates as one integrated factory. New process technologies are transferred identically from a central fabrication facility to other facilities, bringing the company advantages in quality control and supply chain flexibility to address changes in capacity needs.

Intel's supply chain has undergone several improvement and transformation efforts. Implemented in the early 2000s, the Customer Excellence Program involved taking actions for improvement of key issues based on customer feedback and set the stage for future supply chain improvement efforts. The first of these was the "Just Say Yes" program that ran from 2005–2007. The program was launched as a response to customers' dissatisfaction with delays in the order fulfillment process. With the overarching goal of meeting new market challenges (e.g., short product life cycles and high customer expectations), the company took initiatives such as reengineering business processes, data, and data flows and centralizing the storage of data relating to customers, suppliers, locations, and products, all of which improved customer responsiveness. Similar efforts continued during the period from 2008–2010. For example, Intel implemented new supply chain performance metrics, automated manual processes, and improved internal efficiency. The result

was increased responsiveness, high productivity, and low inventory levels across its supply chain. Since 2011, Intel has launched numerous supply chain solutions, many of which are collaborative efforts between IT and supply chain business teams, and achieved improvements in inventory management, order management, transportation, invoicing, and supplier payment processes. The company now operates an efficient and automated supply chain, which is recognized as one of the best among the largest manufacturing, distribution, and retail corporations in the world. In 2020, Intel earned eighth place in a list of supply chain leaders titled “Supply Chain Top 25,” published annually by Gartner, Inc., the research and advisory company.

Intel’s new focus on data-centric capabilities is driving yet another transformation of its supply chain, this time with the use of real-time analytics. The company invested in an integrated data platform to analyze data in real time and optimize processes. With an estimated 5-year return of \$208 million on investment, the platform will help Intel to simplify its supply chain and data pipelines, facilitate self-service analysis for faster and better decisions, and apply real-time analytics in the direction of a “sense-and-respond” supply chain.

Experts call this transformation Intel’s “digital supply chain journey.” One area of focus is supplier selection and monitoring. Using accurate and real-time data, the company can identify the best supplier to meet its needs and monitor the supplier’s performance on an ongoing basis to detect any organizational or external risks that can disrupt its supply chain.

All of these initiatives support the view that businesses can leverage their supply chains and supply chain management capabilities to achieve competitive advantage in their industry. Looking at Intel’s continuing efforts in improving its supply chain, it is such a view that seemingly made the company earn its impressive spot in the list of the world’s best supply chains.

Sources: (a) Hensley, R., Muthusami, K., Quah, K. C., Wu, J., & Zinsli, M. (2012, January). *Transforming Intel’s supply chain to meet market challenges*. <https://www3.intel.com/content/dam/www/public/us/en/documents/best-practices/transforming-supply-chain-to-meet-market-challenges.pdf>; (b) Chvatal, C., & Varhadkar, A. (2017, September). *Transforming Intel’s supply chain with real-time analytics*. <https://www.intel.com/content/dam/www/public/us/en/documents/white-papers/transforming-supply-chain-with-real-time-analytics-whitepaper.pdf>; (c) *Intel embarks on a digital supply chain journey*. (2018, December 19). Supply Chain Brain. <https://www.supplychainbrain.com/articles/29148-intel-embarks-on-a-digital-supply-chain-journey>

2.1 LEVELS OF STRATEGIC PLANNING

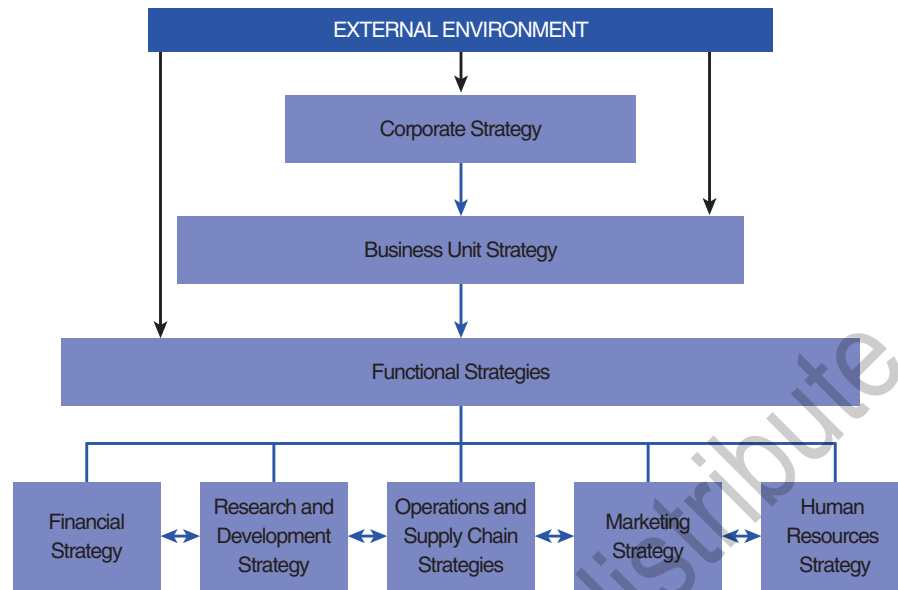
LO 2.1 EXPLAIN THE DIFFERENT LEVELS OF STRATEGY FORMULATION AND WHY ECONOMIC, ENVIRONMENTAL, AND SOCIAL VALUES ARE INTEGRAL ELEMENTS OF A CORPORATE STRATEGY.

The economic and financial turmoil of the past decade has made the already complex job of managing global supply chains even more of a daunting challenge. Supply chain partners have become increasingly interconnected and are now more directly dependent on each other for their own success and stability than ever before. The pressure to perform and deliver is on each of the partners because resources, currencies, information, and risks cross national borders and change hands across multiple markets. Businesses in many sectors of the economy in every country have to accept that, like death and taxes, dealing with global supply chains is an immutable reality. In order to be a key player in a global supply chain, companies need to rethink and revamp their strategies, as global supply chains do not allow for inefficiencies. In other words, companies need comprehensive global supply chain strategies to address global supply chain issues. In addition, to provide a road map for its internal operations, each individual company within a supply chain, whether it is a manufacturing or a service organization, needs to develop an operations strategy that aligns well with its global supply chain strategy.

Strategic planning in most companies follows a hierarchy of three levels: corporate strategy, business strategy, and functional strategies. These three levels of strategies are closely linked, and the strategic plan at a higher level of the hierarchy influences those at the lower levels, as shown in Figure 2.1.

Corporate Strategy

Large corporations that own a portfolio of businesses in different industries are referred to as **conglomerates**. For example, the Mitsubishi Group of Companies is a group of four main

FIGURE 2.1 Strategic Planning Levels

autonomous Japanese multinational companies consisting of MUFG Bank, Mitsubishi Corporation (a general trading company), Mitsubishi Electric, and Mitsubishi Heavy Industries; the latter two are both diversified manufacturing companies. Similarly, Samsung, a South Korean multinational conglomerate, has industrial affiliates and subsidiaries that include Samsung Electronics, Samsung Heavy, Samsung Engineering, Samsung C&T, Samsung Life Insurance, Samsung Everland (a theme park in South Korea), and Cheil Worldwide (an advertising agency). **Corporate strategy** for diversified companies such as Mitsubishi and Samsung is at the highest level of the strategic planning hierarchy. The basis for developing a corporate strategy is the company's **vision statement**, which is a formal declaration of an organization's goals and objectives. The vision statement is intended to be a guide for a company's internal decision making. At this level, corporate strategic planning attempts to address the fundamental question of which industries and markets the firm should enter and compete in. Corporate strategic planning is the broadest in scope, has a long-term time horizon, and establishes the overall goals and directions for the corporation as a whole. Decisions at this level typically address questions such as which businesses to acquire or divest, whether or not to vertically integrate (acquire suppliers or distributors), how to allocate resources between the different strategic business units of the corporation, and so forth. For example, Intel's decisions on its product portfolio, introduced in the Supply Chain Profile, determine the markets the company competes in and hence relate to its corporate strategy. Similarly, the decision of designing and manufacturing its products in its own facilities is a corporate strategic decision. Decisions made at the corporate strategy level act as constraints for decisions to be made at lower levels of the strategic planning hierarchy. The responsibility of formulating the corporate strategy falls under the purview of top management with the assistance of corporate staff.

Traditionally, the primary objective of a corporate strategy was to improve the economic performance of the firm in order to create and sustain value to the company's shareholders. In recent years, however, a number of companies have expanded the scope of their corporate strategy to include stakeholders who impact the firm or are impacted by the firm's actions. These stakeholders may include communities, customers, environmental groups, or future generations. In other words, this expanded scope of corporate strategy now includes the concept of *sustainability* and has three performance targets, also known as the **triple bottom line**: economic value, environmental value, and social responsibility. In 1994, John Elkington, the founder of a British consultancy called SustainAbility, first coined the phrase *triple bottom line*.¹ Figure 2.2 illustrates the concept of triple bottom line with its three overlapping components of sustainability: economic, environmental, and social values.

Economic Value

One of the components of Figure 2.2 is the traditional measure of the firm's economic performance. A business enterprise that is consistently losing money for its shareholders is not sustainable from an economic perspective, even though it may be creating value in the environmental and social dimensions of the triple bottom line. In other words, a firm that is operating at a net loss will soon become bankrupt and therefore does not meet the standard of sustainability from the point of view of creating economic value. The message of the triple bottom line, therefore, is not that a company should exclude the incentive to generate profits for itself and economic value to its shareholders. Instead, the triple bottom line mandates that companies should strike a balance between profit incentives and costs, which are internal, while balancing the external social and environmental costs associated with their production decisions. Companies that focus only on creating economic value, but ignore the costs associated with the social and environmental dimensions, are also not sustainable because they will eventually run out of the natural and human resources essential to operating their businesses.

Environmental Value

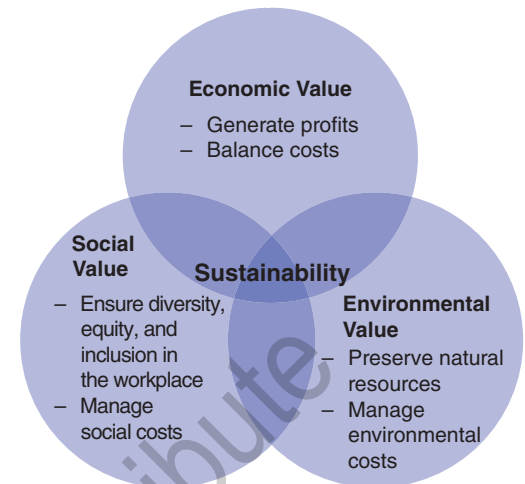
Environmental value is the second component of triple bottom line sustainability. A company that creates economic value, but depletes the resources of the natural environment through its operations, increases environmental costs and therefore does not meet the standard of sustainability of the triple bottom line for two reasons. First, such a company will eventually run out of the natural resources required for its continued operation and existence. The fishing and logging industries, for example, must take care not to exhaust fishing grounds or timberland through short-sighted exploitation. Second, firms that do not include the costs to the environment due to their operations in their pricing structure run the risk of confusing customers. In other words, when firms do not include the environmental costs of their operations such as carbon dioxide emissions or production and disposal of toxic by-products and wastes in their prices, thus treating those costs as external to the firm, customers will wrongly believe that the costs of products they are consuming are lower than what they actually are. Although the companies that do not include the environmental costs have a cost advantage in the short run, they are likely to face serious problems in the long run. Triple bottom line sustainability attempts to address both of these problems by cultivating an awareness in companies of the long-term environmental costs of their operations. Consider the environmental damage caused by the BP Deepwater Horizon oil spill in the Gulf of Mexico in 2010. With thousands of tons of toxic hydrocarbons spilling into a productive coastal and marine ecosystem, more than 600 marine species were under risk of extinction. The economic and environmental impact in the aftermath of the explosion was expansive and expensive. The cleanup efforts required more than 47,000 people. As of 2018, the oil spill cost BP an estimated \$65 billion in legal fees, settlements, and funds for cleanup and restoration.² In addition, the oil spill cost the Louisiana fishing industry and the tourism business along the Florida coast billions of dollars.



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As a result of the BP oil spill in the Gulf of Mexico in April 2010, thousands of birds, mammals, turtles, and pelicans were plastered with leaked oil.

FIGURE 2.2 The Triple Bottom Line



Social Value

Any business enterprise depends heavily on the skills, education, and motivation of its employees (human and social capital) for its production/operations activities. A company that does not treat

its employees well, either through exploitation and violation of their labor rights or through unfair labor practices such as employing child labor, creates negative social value. Such a company, while it may create economic value in the short run, will not be sustainable because it will eventually lose its employees, and without their skills the firm cannot continue to operate. Businesses that do not heed human resources capital and engage in human rights violations will incur long-term social costs such as an inability of children to receive education and develop skills, and the inability of impoverished workers to purchase products and thus provide a robust consumer base for the business enterprise. As with environmental sustainability, the failure to factor external social values and costs into production/operations and supply chain management decisions will lead to artificial price deflation, thereby causing unsustainable increases in demand. Furthermore, it will lead to decreases in the quality of life of those humans affected by the actions of the business enterprise.

In a 2018 report published by Corporate Human Rights Benchmark, three key issues were identified in a review of 100 companies. First, the study found that none of the companies had commitments to ensure the workers in their supply chain and operations had living wages. Second, less than 10% of companies had policies in place to protect defenders of human rights. Third, more than 50% of apparel and agricultural companies did not meet expectations on preventing child labor in their supply chain.³

Nestlé, the world's largest food maker, is an example of a company that received negative publicity for being lax in its adherence to social values. In November 2015, the company admitted it uncovered forced labor in its supply chains in Thailand, and its customers were buying products that were produced through the efforts of unpaid and abused migrant workers. After a yearlong investigation, Nestlé found rampant use of forced labor in the seafood industry in Thailand, and the production of its Fancy Feast cat food brand involved human trafficking and slave labor.⁴ These errors and allegations caused Nestlé enormous embarrassment. In its effort to maximize economic value, Nestlé ignored the impact to its brand image caused by its failure to ensure strict adherence to social values in its supply chain.

A company with the reputation for championing both environmental sustainability and social values is LEGO®, the Danish toymaker. In March 2018, the company announced plans to produce pieces made from plant-based sources. By August 2018, LEGO® followed through on its promises when the company released its first batch of sustainably sourced, sugarcane-based LEGO® bushes, leaves, and trees. In fact, by 2030, LEGO® is planning to use sustainable materials in all of its core products and packaging.⁵

To meet its commitment to reduce its carbon footprint and obtain 100% renewable energy capacity by 2030, LEGO® has designed environmentally friendly manufacturing processes with the creation of LEGO®'s Sustainable Materials Center. The center aims to find sustainable alternatives to the company's current materials and packaging. In addition, LEGO® has also promoted social values by making a public commitment to ethical business practices and high standards for human rights for its employees.⁶

Business Strategy

A **business strategy** sets the overall direction for where the organization wants to be in the future. For those companies that operate a single business, there is virtually no distinction between a corporate and a business strategy. However, for corporations owning a portfolio of businesses (often referred to as strategic business units, or SBUs), the business strategy considers the question of how each of the business units should compete within a particular industry or market. While the organization of the SBUs varies from company to company, they are usually organized along product lines, along market segments, or on geographic dimensions. Also, business strategies have a shorter time horizon and have more detail than corporate strategies.

The focus of business strategies is on developing and leveraging the **core competencies or competitive strengths** within each SBU, such as the ability to produce high-quality or low-cost products, in order to achieve a well-defined, higher level objective. The aim of the decision process is to arrive at a competitive plan in terms of what products or services to offer in which market segments.

Apple's business strategy is based on product differentiation. For example, even though Apple iPad Air was significantly more expensive than competing tablets, Apple was able to differentiate its iPad by highlighting Apple iPad Air's features of lightness, display quality, software,

engineering, and ease of use. Over time now, this strategy has been successful, as Apple has been able to preserve its reputation as a superior, aspirational brand while maintaining its high profit margins.⁷ As described in Intel's Supply Chain Profile, the company's business strategy has long focused on innovation. Expanding its business strategy with the adoption of digital transformation and data-centric capabilities, the company is continuing to strengthen its core competency in offering innovative products that deliver value to customers in the digital era. For firms with multiple SBUs, the ultimate goal of the business strategies of each SBU is to achieve synergy by coordinating and integrating its activities so they are in alignment with the overall corporate strategy.

Functional Strategies

The next level in the strategic planning process is the development of **functional strategies** for each of the areas such as finance, operations and supply chain, marketing, and so forth. The focus of these strategies is to coordinate and integrate the activities and resources within each functional area so they contribute to and support the higher level business strategy of the individual SBUs and, ultimately, the overall corporate strategy. Functional strategies are developed and implemented at a lower level in the corporate hierarchy, have shorter time horizons, and are more specific and detailed in terms of action plans than the higher level business strategies.

Let us consider some examples of functional strategy. During difficult economic times or in markets where there is intense competition, companies often pursue the marketing strategy (functional strategy) of "value pricing" to provide value products and services in order to attract consumers and retain sales. McDonald's "value meals" provide an example of a marketing strategy of value pricing. Similarly, Walmart's strategy of streamlining its supply chain activities to achieve efficiency and low costs is an example of a supply chain functional strategy. Intel's use of real-time analytics to simplify supply chain processes and facilitate supplier selection is another example of a supply chain functional strategy. Finally, Toyota's strategy of "continuous improvement," which is the never-ending cycle of eliminating defects in the production of high-quality automobiles, is an example of an operations strategy. In the next section, we will examine in detail how we can create value by developing and implementing operations and supply chain strategies.

2.2 FORMULATING AND EVALUATING AN OPERATIONS STRATEGY

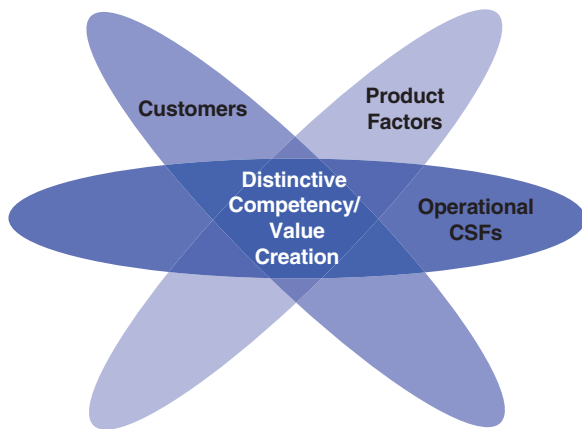
LO 2.2 DESCRIBE HOW AN OPERATIONS STRATEGY IS FORMULATED AND EVALUATED.

An **operations strategy** is concerned with determining which competitive priorities to emphasize (e.g., cost, quality, delivery and flexibility) so that not only are the organization's corporate objectives met, but also the overall supply chain objectives are achieved. FedEx, for example, is a company whose competitive business strategy emphasizes on-time delivery. To support this business strategy, the operations strategy of the company focuses on promoting speed. Every operational activity of the company is geared toward the objective of speed. For example, rapid processing and package handling are facilitated through the use of barcode technology.

Importance of Aligning Operations Strategy With Business Strategy

Operations strategy is a collection of decisions and action plans that is implemented within the operations function. The aim of the operations strategy is to specify how the firm will deploy its operations capabilities to support the business strategy. The need for an operations strategy that is aligned with and supportive of the corporate and business strategies stems from the fact that a significant portion of the firm's resources and assets are tied to the operations function. For example, many crucial structural decisions such as plant location, process, and capacity investments that a firm makes are directly related to the operations function. Operations can enable a company to achieve world-class status by providing the firm a distinct competitive advantage in the marketplace through unique technology developments in processes that can provide strategic capabilities that competitors cannot match or duplicate. In addition, operations can provide a superior advantage over the competition by creating product-related features that are highly valued by customers. Conversely, firms that have not clearly aligned their operations strategies with their business strategy have not been successful.

FIGURE 2.3 The Four Cornerstones of an Operations Strategy



Critical Elements of an Operations Strategy

Developing an operations strategy is based on four critical elements: customers, operational capabilities or critical success factors (CSFs), the nature or features of the product and process, and distinctive competencies. Figure 2.3 shows these four critical elements that constitute the cornerstones of an operations strategy. What you can glean from the figure is that the distinctive competency through which a firm creates value is arrived at by finding the ideal match among the other three elements of customers, product and process features, and the operational CSFs. In the subsequent sections, we will discuss each of these elements in more detail.

Customers

In the context of a supply chain, although you and I are the end consumers of the product/service delivered by a firm, each downstream partner of that firm in a supply chain is also a customer. For example, you may be the end user of a lawnmower produced by Toro. However, a retail store such as Home Depot, as a downstream supply chain partner, is also an intermediate customer. Therefore, Toro has the responsibility of meeting not only your expectations, but also those of Home Depot. Given this business scenario of multiple customers, it is imperative that a firm identify those critical customers who have the greatest impact on the firm's success, perhaps even survival, and address the needs of those customers first.

Critical Success Factors

Critical success factors (CSFs) are those unique strategic elements such as resources or capabilities that have the utmost impact on a company's ability to compete and succeed in that industry. In order to compete and remain financially viable, each firm should determine its own CSFs on the basis of what is important to its customers in the target market. In other words, how will you distinguish your product or service from the rest of the competition so that potential customers will choose your product or service instead of your competitors' offerings? Once this criterion is established, the firm now has to decide what resources and competitive capabilities—CSFs—it needs in order to compete successfully and achieve a sustainable competitive advantage.

These CSFs can originate from superior technology, internal operations, logistics and distribution, marketing channels, information-processing capabilities, or specific skills or organizational capability. For example, a firm may derive its sustainable competitive advantages from its superior ability to quickly design and introduce new products, provide high-quality products, or have short delivery lead times.⁸ For example, Rolex, the Swiss watchmaker, has consistently topped the list of the most reputable companies in the world. The company has achieved this reputation due to its ability to produce high-quality products and services that meet customers' needs.

The CSFs that fall under the purview of the operations function are referred to as the *manufacturing mission*. It represents the expected contribution of the operations function to the company's strategy and provides the impetus and direction for the operations function. All operations system design, planning, and control decisions should be geared toward accomplishing the manufacturing mission. Companies globally known for their manufacturing excellence have an explicit, formal, and well-defined manufacturing mission.⁹ For example, Mitsubishi Motors North America, Inc. has the following manufacturing mission statement: "Mitsubishi Motors builds world class vehicles. We achieve the highest level of quality through effective teamwork and by practicing unwavering commitment to each other, our products, customers and the community."¹⁰

Product Factors

The third critical element in Figure 2.3 is product factors and relates to

- the nature of the product and its stage in the product life cycle, as well as
- the corresponding process used to produce the product and its stage in the process life cycle.

A new product progresses through several stages that are called a *product life cycle*. These stages are product introduction, growth, maturity, and decline. A process life cycle comprises the five types of project, job-shop, batch, repetitive, and continuous processes. Process life cycle refers to how the production process used to produce the product changes for the various stages of a product life cycle. For example, during the introductory stage of a product life cycle, demand is low and sporadic, and the product design may change several times. Hence, the appropriate process for it at this stage is a job-shop process. As the product or service enters the growth stage, the demand for it increases and it requires fewer design changes. Thus, a batch process may be appropriate for this stage. At the maturity stage, we have a highly standardized product with high volumes of demand, so a repetitive or continuous flow process is appropriate.

Products such as computers and cell phones have very short product life cycles, and therefore the emphasis in terms of distinctive competency for these products is high levels of innovation. Similarly, products that are in the mature stages of their life cycle require process innovation to reduce costs.

Distinctive Competencies

A firm's manufacturing mission provides the basis for the operations function to identify and develop its distinctive competencies (also known as core competencies, competitive priorities, competitive strengths, or competitive weapons). We will take a closer look at each one of these five distinctive competencies of price/cost, quality, time, innovation, and flexibility.

Price/Cost. The challenge for a firm competing on a price/cost basis is to provide its customers with a product that is not only in demand but also at a competitively lower price than that offered by firms producing a comparable product of the same quality. Firms attempting to provide value through this competency can accomplish this objective of low cost in one of two ways, depending on the nature of the product. First, if the product is a commodity item such as oil or natural gas, and if the company has the operational capability of a continuous production process to mass produce the product, then the firm can achieve economies of scale that drive down the production cost per unit considerably and thus can offer its customers very low prices. In general, consumers who buy commodity-type products purchase strictly on the basis of price and do not pay much attention to brand difference. For example, you will buy any major brand of gasoline in any gas station that has the lowest price as long as the location of the gas station is not a factor. If the product offering is not a commodity-type item, then the firm has to find alternative ways to reduce the cost of the product, such as lowering the cost of raw materials or labor while maintaining good product quality. For example, Evenflo Company, Inc. sells its SureRide infant car seats for less than \$100, compared to other car seats that cost hundreds of dollars more. Furthermore, the SureRide infant car seat excels over other car seat brands, on both safety tests and convenience. The second way to compete using price/cost as a distinctive competency is by accepting lower profit margins. Walmart, for example, operates with lower profit margins by selling its products at low prices. However, the enormous sales volume they generate more than compensates for the lower profit margin.

Quality. The term *quality* means fitness for use by the customer for the price they are willing to pay. However, there are different dimensions of quality, and what constitutes quality to a particular consumer depends on the specific dimension of quality in the product that they are looking for. There are eight dimensions of quality: performance, conformance, product or service features, durability, reliability, serviceability, aesthetics, and perceived quality.¹¹ Firms competing on the basis of the distinctive competency of quality offer products or services that are superior to the competition on one or more of the eight dimensions. For example, Toyota targets its Corolla cars to customers who prefer conformance quality and expect high mileage from the cars they buy. On the other hand, customers who buy a luxury car such as a Bugatti Veyron are looking for the performance dimension of quality, and the mileage that car gets is not important to them.

Time. Time as a distinctive competence has three dimensions: product development cycle time, on-time delivery, and delivery speed.

- *Product development cycle time* is the time that elapses from the point an idea for a new product was conceptualized to the point where the product was commercialized and made available to customers worldwide. Firms that compete based on this competency have the capability to introduce new products that customers want faster than the rest of the competition. For example, fashion apparel companies like Zara and H&M are so good at reducing product development cycle time that they have been able to get their products from the concept stage to the retail stores in as little as 2 weeks.¹² As it is imperative that firms deliver the right products to the store at the right time, companies have to analyze the marketplace for current trends in terms of what product the customers want and then deliver that product before the trend has passed. To capture the latest trend, it is vital that design decisions be delayed until very late in the product development process so the most recent thinking can be incorporated into the product concept. Such a strategy of making timely and informed decisions very late in the product development process increases the company's chances of designing products that customers really want and therefore will purchase. Furthermore, this strategy will also increase the chances of the product being sold at the full retail price, thereby reducing the chances for future price markdowns and excessive inventory buildup.
- *On-time delivery* as a distinctive competence refers to a firm's ability to deliver the products to its customers on or before the due date. Getting the products in the hands of the customer by the promised due date is the responsibility of not just the manufacturing firm, but all of the supply chain partners to which the firm is connected. For example, to get the finished product on time to the customer, the manufacturing firm's upstream supplier should deliver the raw materials, parts, and components on time. The manufacturing firm, in turn, has to manage its production lead time by deploying appropriate technologies to ensure the finished products are produced on time. Finally, the logistics and transportation network of the supply chain should get the finished products to downstream supply chain partners on time. Many companies have now implemented strict on-time delivery standards. For example, in August 2017, Walmart began implementing its "on-time, in full" delivery standards by accepting only items that are delivered on time. Suppliers need to deliver their orders to various Walmart distribution centers in 2 days from the requested delivery date. Fines are imposed on suppliers who deliver their orders either late or not shipped in full. To prevent overstocking, Walmart also imposes penalties on suppliers who deliver their orders early.¹³ An example of a service firm that enjoys the reputation for on-time delivery is FedEx, and delivery reliability has been the cornerstone of the company's strategy.
- *Delivery speed* is the ability to deliver the product or service faster than the rest of the competition. An example of a company that has been successful by competing on the dimension of delivery speed is Amazon. The company with warehouses in more than 30 states and a sophisticated web of delivery methods has a clear logistical advantage over its competitors like Walmart, Target, and eBay.¹⁴

Innovation. In the context of a business, innovation refers to changes or implementation of new ideas that create value. These changes can be radical or incremental and can be classified broadly into two categories: product innovation and process innovation.

1. *Product innovation* refers to the development or creation, and eventual introduction, of a brand-new product or service, or improvement in an existing product or service through design changes or by using new components and materials. For example, Allbirds, a company that designs environmentally friendly footwear, recently introduced an innovative, sustainably sourced, heat-regulating wool shoe. The new shoes were designed using new material made from eucalyptus pulp that requires only 5% of the resources typically required to produce a single pair of shoes.¹⁵

2. *Process innovation* refers to changes in the way a product is produced or a service is delivered within the firm or across a supply chain. In recent years, a number of companies have achieved a competitive advantage in the marketplace through process innovation. Dell, for example, found a novel way to sell personal computers to its customers by creating and implementing new business processes such as eliminating unnecessary steps in the supply chain while offering more flexibility and control to the customer. General Motors is another example of a company that innovated by using artificial intelligence in its process to reduce the weight of traditionally designed and manufactured parts by 40% while increasing their strength by 20%.¹⁶

Other types of innovations initiated in an organization to gain a competitive edge include changes in the way work is organized and accomplished, and how work processes are managed within an organization in such areas as customer relationships, employee performance and retention, and knowledge management.



Tommaso Boddi/Getty Images for Allbirds

Allbirds has sold, at \$95 a pair, more than a million pairs of its new and innovative sustainably sourced, heat-regulating wool shoes.

Flexibility. Flexibility as a distinctive competency refers to the ability of a firm's operations to produce a wide variety of different products or services (product flexibility) or respond efficiently to volume changes in demand (volume flexibility). A number of firms in both the automotive and software industries have provided product flexibility. Honda and Toyota, for example, have the flexibility to produce different models of cars within the same plant or the same production line. Several years ago, Burger King, with its advertisement "hold the pickles, hold the lettuce, special orders don't upset us," was conveying to its customers that it can offer customized versions of its product without delaying the delivery time. Volume flexibility, on the other hand, refers to the ability to adjust production volume to absorb wide fluctuations in demand. For example, restaurants should be able to absorb wide fluctuations in demand that vary from peak demand during lunch times, to mid-afternoon slack demand, and back to peak demand during dinner times. In fact, volume flexibility is vital for businesses in the service sector, as they do not have the luxury of inventorying services as a hedge against demand fluctuations.

A central theme in operations strategy formulation is the need for trade-offs and focused operations. A firm cannot simultaneously compete on all five dimensions of distinctive competencies discussed earlier. Hence, trade-offs are necessary among these competencies. A company with a low-cost strategy cannot offer product flexibility or premium quality products. For example, a full-service airline like Delta, with a number of international routes, has a higher cost structure and therefore cannot compete head-to-head on those routes serviced by Southwest Airlines using a low-cost strategy. Typically, a firm will usually focus on one or two distinctive competencies that are critical to the firm's success, and the operations capabilities of the firm are directed toward achieving these distinctive competencies.

Maintaining the Fit Among the Four Critical Elements of Operations Strategy

The essence of an operations strategy is the continual and never-ending process of maintaining the appropriate fit among the four critical elements of an operations strategy: customers, product factors, operational CSFs or capabilities, and distinctive competencies. An appropriate fit is realized when the firm's operational capabilities are geared toward achieving the distinctive competency in the product or service that delivers value desired by the customer. The problem, however, is that maintaining the desired fit is not an easy task. Changing market trends, technologies,

customer base, evolving product life cycles, and competition can cause a mismatch among the four critical elements. When such a mismatch occurs, and depending on what critical element caused the mismatch, companies can pursue the following courses of action:

- If the mismatch is due to changing market trends or customers who no longer value the distinctive competency provided by the firm's product, then the firm can shift to a different customer base in another country or market that values the company's product and its distinctive competency. For example, when Buick, the first car that GM produced, steadily lost its appeal to American consumers, GM shifted its marketing efforts for Buick to China as it was still perceived as a high-quality car and a popular brand in China, and the Buick brand soon became the biggest selling car in the booming Chinese market.
- If the mismatch is due to a decline in a firm's operating capabilities because its technologies have been rendered obsolete, then the firm should upgrade its operating capabilities by investing in state-of-the-art technologies. For example, in many enterprises, physical security departments are upgrading their operating capabilities from traditional analog and proprietary systems for video surveillance to open, digital solutions based on IP networking technologies such as the Cisco Integrated Video Surveillance Solution.¹⁷
- If the mismatch is the result of a change in the life cycle stage of the firm's product, then the firm has to emphasize the distinctive competency that is appropriate for that stage. For example, for a product that is at the introductory stage of its life cycle, the relevant distinctive competencies to be emphasized are quick response time and product innovation. Over time, as the product evolves into the maturity stage of its life cycle, then the distinctive competencies to be emphasized are delivery dependability and flexibility in production. In order to respond to this new set of distinctive competencies, the firm has to make changes in the operating capabilities of its production process.

This discussion highlights that in order to avoid any of these mismatches and ensure its long-term survival, a firm cannot ignore its strategic planning processes.

Evaluating the Performance of an Operations Strategy

The performance of an operations strategy is ultimately judged by how well it has supported the firm's corporate and business strategies in achieving their goals and objectives. Therefore, in order to assess performance of an operations strategy so that meaningful feedback can be communicated in areas that need improvement, a performance measurement system should be developed. There are a variety of **performance measurement systems** that include a combination of financial and operational measures that are relevant for tracking operations strategy performance, such as the **Strategic Profit Model (SPM)**, also known as the *Dupont Model*, and the **Balanced Scorecard**. The SPM provides a visual representation of an organization's financial performance in terms of profitability ratios such as return on asset and return on investment with the underlying theme that tasks performed in every area of an organization have an impact on the profitability ratios and the bottom line. The Balanced Scorecard links a company's strategic elements such as mission, core values, and so on with the more operational elements such as continuous improvement activities, key performance indicators, performance targets, and so forth. Interested students can refer to an operations management textbook for a more detailed discussion of these systems.

Sustainable Operations Management

In response to increasing demands placed by governments, social groups, and consumers globally, more and more companies are focusing their attention on achieving the triple bottom line of economic, environmental, and social values, and the operations function can play a critical role in helping companies and their supply chains achieve these objectives. The underlying premise of the concept of sustainable operations management is that a company can conduct its internal operations efficiently to not only create economic value, but also support the corporate objectives

of creating value in the social and environmental dimensions by being actively engaged in all activities related to operations such as design, preproduction, manufacturing, packaging, distribution, energy use, recycling, remanufacturing, and disposal. The operations function, in addition to the impact it has on a firm's economic sustainability issues such as cash flows, profits, capitalization, and so forth, should also assess its impact on environmental risks such as consequences of resource usage, efficiency, emissions, and so on. Furthermore, sustainable operations should create social value by focusing on the working conditions of employees, relationships with both internal and external stakeholders, and the impact the firm's activities will have on future generations.

A number of companies have placed paramount emphasis on issues related to sustainability. Neste, a Finnish company that deals in renewable diesel and other petroleum products, is known for its commitment to environmental sustainability. The company expects that by 2023, more than half of its revenue will come from renewable fuel and biomaterial. Yet another company that has championed environmental sustainability is Valeo, a French company that manufactures automotive parts that help automakers reduce emissions. Dassault Systemes, a French firm that designs engineering software in addition to assisting organizations in waste reduction, also achieved top social sustainability ranking by not only having strong female representation on its board, but also reducing the pay gap between its CEO and its average workers.¹⁸

2.3 FORMULATING AND EVALUATING SERVICE OPERATIONS STRATEGY

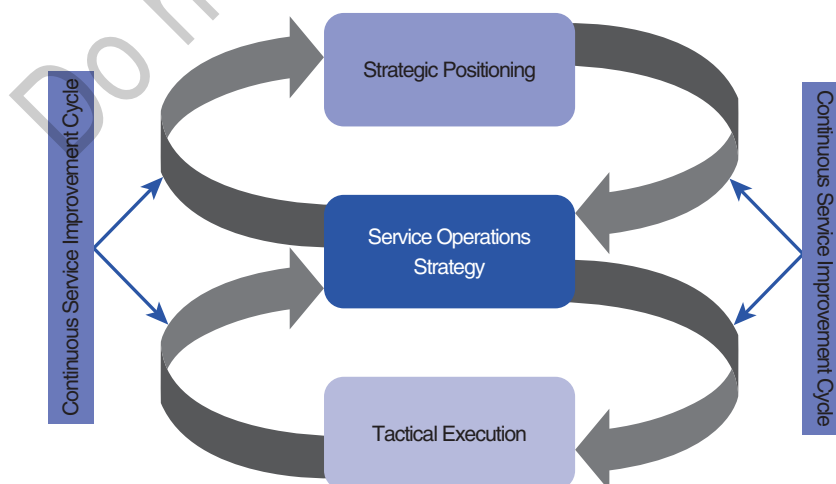
LO 2.3 EXPLAIN HOW THE STRATEGY FORMULATION AND EVALUATION PROCESS DIFFERS FOR SERVICE-PROVIDING ORGANIZATIONS.

Like manufacturing, a strategic approach is also required for managing service operations. The strategic planning process for service operations can be captured in a hierarchical planning framework as shown in Figure 2.4, consisting of three levels—strategic positioning, service operations strategy, and tactical execution—with continuous improvement cycle as the fourth component.¹⁹

Strategic Positioning

At this level of the strategic planning hierarchy, the firm first needs to identify the target market for its services. Specifically, the firm needs to define the customer base for its service offering. Second, the firm should specify its core competencies or unique abilities to provide added value that will distinguish it from the rest of the competing service firms in that target market. These core competencies could be the ability of the firm to provide the same quality of service as its competitors but at a lower cost, the ability to provide customized or differentiated services, and so forth. For example, Walt Disney World® has three core competencies through which it has gained a competitive advantage: animations and show design, themed attractions and the art of

FIGURE 2.4 Strategic Framework for Service Operations



storytelling, and efficient operation of theme parks.²⁰ After determining its core competencies, the firm must define its mission and high-level corporate goals and objectives. Firms at the strategic positioning level attempt to find answers to two fundamental questions:

1. What services or service portfolios should we offer and to whom?
2. What are our unique strengths that will offer added value to our customers?

Formulating the Service Operations Strategy

At the next level of the hierarchy is the service operations strategy, which links the service firm's strategic position with its tactical execution. As in manufacturing, the **service operations strategy** also describes how the firm's service operations area interacts with the other functions of the firm, such as marketing and finance, to support the service concept. For example, if the service firm's core competency is flexibility, what actions will the operations undertake to ensure service flexibility, and how will marketing promote this distinctive competency of the firm to its customers? Decisions made at the service operations strategy level are geared toward ensuring that organizations have the ability to manage the costs and risks associated with their various service portfolios, and the services are designed not just for operational effectiveness but also for distinctive performance. At this level of the planning hierarchy, the service firm must define its service design concept and its service operating and service delivery systems.

Service Design

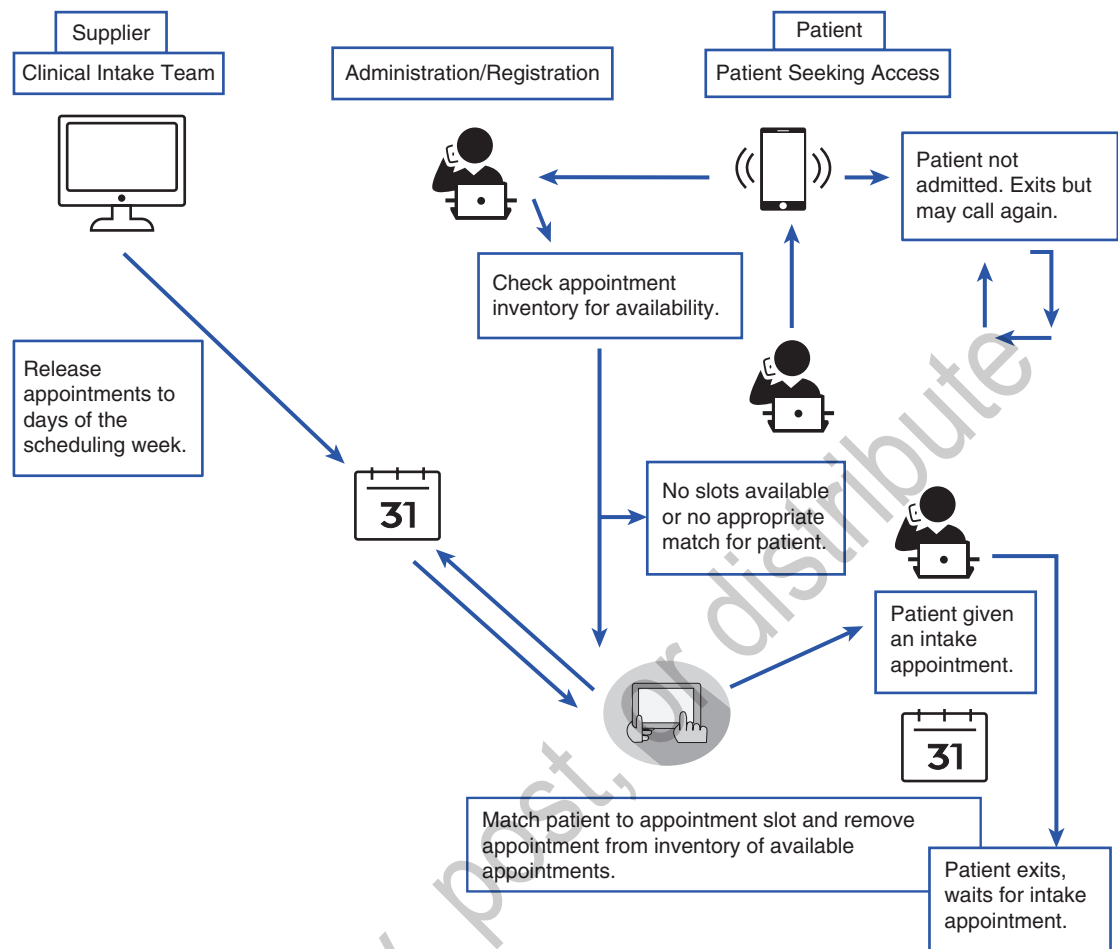
The service design process begins with the firm defining its service concept by determining its distinctive competencies (e.g., low cost, quality, service, or flexibility) that the consumers of the service in the target market perceive as added value. Simply put, the firm attempts to answer the following question:

- How do we differentiate ourselves from competing alternatives offered in the target market?

The service design phase focuses on the design and development of services and service management processes. It emphasizes the use of those design principles and methods required to convert strategic objectives into portfolios of services and service assets. The scope of the service design phase covers not only new services, but also the necessary changes and improvements in existing services to enhance value to customers throughout the services life cycle, maintain service continuity, achieve service levels, and conform to standards and regulations. The service design phase provides direction and guidance to organizations on how to develop design capabilities for managing services. This may involve decisions on service facility location and layout, capacity management, and so on.

Service Operations System

Putting together a service operations system is a critical phase in the service strategy process as it has the ultimate responsibility for achieving the strategic objectives of the service firm (see Figure 2.5 for an example). The service operations system delineates those features of the system necessary to operationalize the service concept while minimizing the risks of failure and disruption. These features include determination of capacity requirements, quality management systems, and management policies. Each of these features should support and be in alignment with the service firm's distinctive competencies so that the values offered by the firm are clearly distinct from and superior to those provided by the competitors. The service operations system is also concerned with the development and improvement of capabilities for transitioning new and changed services into operations. The system needs to have control mechanisms in place to maintain stability in service operations when changes are implemented in design, scale, scope, and service levels. It is also geared toward managing changes to services and service management processes, and allowing for innovation while at the same time preventing or mitigating complexities and undesired consequences associated with change. The service operations system also guides the service delivery system in the process of transferring the control of services from the service provider to the customer.

FIGURE 2.5 Hospital Services

Hospitals manage services such as appointment scheduling, diagnostics, patient transfer/discharge, surgery, counseling, and therapeutics. The image illustrates an operations system of admitting new patients in an outpatient clinic. Service capacity of this system can be improved by conducting operations management techniques such as lean process improvement.²¹

Service Delivery System

The service delivery system focuses on achieving effectiveness and efficiency in the delivery and support of services so the added value desired by both the customer and the service provider is realized. The system provides the necessary knowledge that managers and practitioners need to make better decisions in areas such as managing the availability of services, controlling demand, optimizing capacity utilization, scheduling operations, and fixing problems.

In the final analysis, the purpose of the service operations strategy stage is to find answers to the following questions:

- How do we truly create value desired by our customers and stakeholders?
- What is the rationale for making strategic investments?
- How should service quality be defined, and given differing alternatives, which one should we choose to improve service quality?
- Given a portfolio of services, how do we efficiently allocate resources among them?
- Given that resources are limited and shared, how do we resolve conflicting demands for these resources?

Tactical Execution

The final stage in the planning hierarchy revolves around tactical execution issues. The emphasis of this phase is on the day-to-day activities required to function and to support the service strategy. These activities include operations scheduling, staffing, and productivity improvement. For example, to have an emergency facility running efficiently, the hospital will need to determine how many doctors, nurses, and staff members it will need in various areas and how quickly patients can be treated and discharged.

Continuous Service Improvement

The continuous service improvement cycle reflects the never-ending process of creating and maintaining value for customers through better design, introduction, and operation of services. The process utilizes a combination of principles, practices, and methods from the knowledge areas of quality management, change management, and capability improvement. Through the process of the continuous service improvement cycle, service organizations learn to realize both incremental and large-scale improvements in service quality and operational efficiency. The linkage of improvement efforts and outcomes to the strategic planning process is established through a closed-loop feedback system called the Plan, Do, Check, Act (PDCA) cycle. The PDCA cycle is a repetitive four-step model for implementing change to achieve continuous improvement, and it involves the following activities:

Plan: Identify a service improvement opportunity or a problem to solve, and plan for a change.

Do: Test the change by carrying out a small-scale pilot study.

Check: Review and analyze the results, and identify what was learned from the study.

Act: Based on what was learned from the study, take the necessary service improvement action. If the change was unsuccessful, repeat the PDCA process with a different plan. If the change was successful, implement system-wide changes based on what was learned from the study. Begin the PDCA process again with new opportunities for improving service.²²

2.4 SUPPLY CHAIN STRATEGY FOR PRODUCTS AND SERVICES

LO 2.4 EXPLAIN THE SUPPLY CHAIN STRATEGIC PLANNING PROCESS FOR BOTH GOODS AND SERVICES.

Our discussion up to now has centered on issues of strategy, specifically operations strategy as it relates to a single organization. In past decades, companies were able to maintain their competitive advantage by emphasizing one or two of the competitive priorities, such as cost or quality, and by developing their operational capabilities in support of achieving these competitive priorities. Advances in information technology, increasing globalization, and greater customer expectations have led to significant changes in the competitive priorities of firms. In order to be competitive in the global marketplace, companies have to compete across multiple dimensions of distinctive competencies, including quality, flexibility, delivery speed, and low costs. Unfortunately, many organizations found out the hard way that they cannot dramatically improve their operational capabilities in these dimensions by utilizing their own existing resources. That is, these firms have discovered that in order to compete in the global arena, they need to rely on their supply chain partners, such as their suppliers, wholesalers, retailers, and companies that provide transportation services, and leverage their resources and operational capabilities. A key reason why retailers such as Kmart have been struggling is because the supply chains of these companies were not efficient enough to compete with the supply chains of companies such as Walmart (see the Lessons Learned feature).

In the current global business environment, no longer is the competition between individual firms; instead, it is between supply chains. To operationalize and support a firm's business strategy, a well-thought-out supply chain strategy is important. A **supply chain strategy** focuses on

the actual operations of the organization and its supply chain partners to achieve specific supply chain objectives. The supply chain strategy should provide clear-cut directions to help the company drive down its operational costs and maximize supply chain efficiencies. It must be integrated with the firm's operations strategy and align with the business strategy. For example, the business strategy of Dell computers is to compete on the basis of low cost, delivery speed, and customer service. To implement this business strategy, Dell developed a supply chain strategy that focused on reducing the costs in its supply chain by formally integrating its operational components of logistics and distribution, manufacturing, and inventory management.

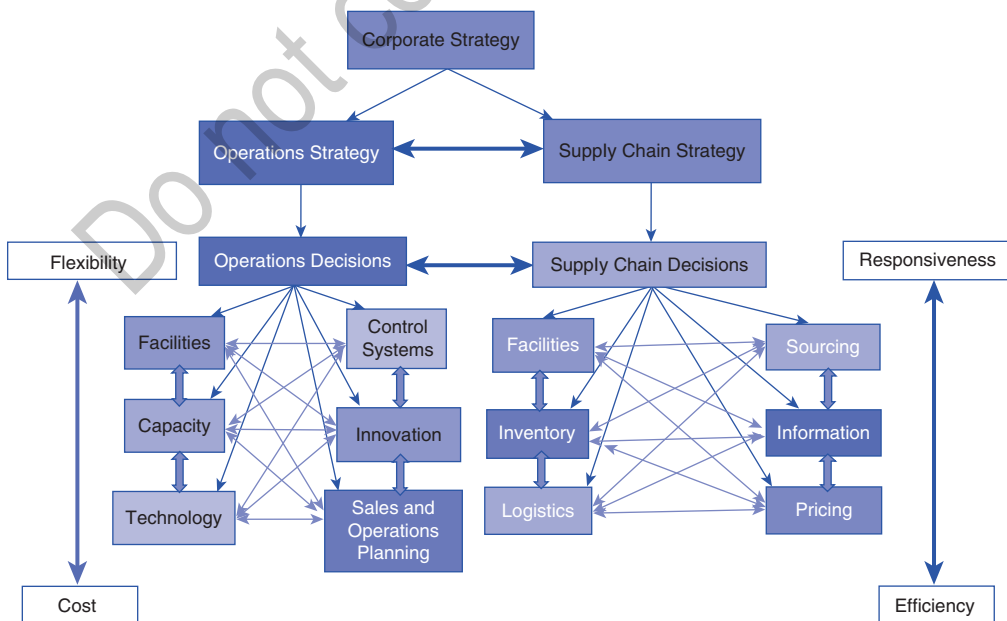
The supply chain partners working together must develop a strategy for the overall supply chain that not only is consistent, but also supports the competitive strategies of the individual partner firms within the supply chain. In addition, within the supply chain, the operations strategies of the trading partners should not only be aligned and well-integrated with each other, but also be in alignment and supportive of the supply chain strategy.

Formulating a Supply Chain Strategy

Formulating and implementing a supply chain strategy is long term in nature and requires commitment of resources. It requires structural decisions relating to supply chain network design and integration. Figure 2.6 presents a decision framework for formulating a supply chain strategy that is in alignment with the operations strategy. It shows that a company's supply chain strategy is derived from its corporate strategy and should be integrated with the company's operations strategy.

Strategic decisions in the operations area can be classified broadly into two categories: *structural* and *infrastructural*. Structural decisions include long-term decisions relating to capacity, facilities, and technology. Infrastructural decisions relate to control systems, innovation, and sales and operations planning. While there are a range of decisions under the purview of the operations area, strategic decisions have a long-term orientation, require high investments, and address broad issues such as what operations and supply chain resources are needed and how to develop and configure these resources to support the business strategy and thereby achieve the overall corporate objectives. Once the firm has decided on a particular distinctive competency as the basis for its competitive strategy, to achieve this distinctive competency, the firm's operations strategy should develop the appropriate structural and infrastructural choices. In a given industry, there is virtually no difference in terms of choices and access to processes and technology

FIGURE 2.6 A Decision Framework for Formulating a Supply Chain Strategy



available for competing companies. What makes one company superior to another is the extent to which that company's operations function matches its structural and infrastructural decisions to the firm's distinctive competency. Furthermore, these two decision categories are closely inter-related. For example, decisions made in the type of capacity used in the structural decision area will have an impact on the infrastructural decision area of sales and operations planning. These decisions are also cross-functional in nature. For example, an operations manager cannot make any capacity investment decision without the involvement of the finance function, which makes all capital budgeting decisions. In formulating a company's operations strategy, the company's performance in terms of cost and flexibility is an important aspect and drives the decisions. For example, maintaining high flexibility would require sufficient capacity and supporting technology.

Similarly, a key feature in formulating a company's supply chain strategy, which is interrelated with the operations strategy, relates to the performance of the supply chain in terms of efficiency and responsiveness. Depending on the performance criterion chosen, the company should define and establish the structure of its supply chain. Often, companies structure their supply chains based on the demand pattern for their products in order to increase throughput, increase quality, and decrease costs. Most high-tech companies keep their manufacturing site separate from the rest of their supply chain to increase efficiency. Cisco's decision to outsource its component manufacturing and assembly to outside contractors is a case in point. Amazon, on the other hand, values supply chain responsiveness and hence has structured its supply chain in such a way that it enables the company to get orders out faster, easier, and more efficiently to any corner of the world—even remote and rural areas where traditional options are not available. In addition, once the company determines its supply chain performance criterion, its supply chain strategy will require decisions to be made in six key areas.

Facilities

This decision relates to the nature and number of operating facilities (including manufacturing plants, warehouses, and distribution centers) and requires answers to the following questions:

- Where should facilities be located? Local or global?
- How many facilities are needed?
- What should be the size of each facility?
- What should be the type of layout/design of each facility?
- What should be done in each facility?

Note that an increase in the number and size of facilities can reduce transportation costs and increase supply chain responsiveness. On the other hand, it will also increase inventory- and facilities-related costs. Clearly, depending on the performance criterion and the related supply chain strategy, the decision on facilities requires appropriate trade-offs. For example, Toyota's decision to build and operate production facilities in each of its major markets is an element of its supply chain strategy and was based on the criterion of supply chain responsiveness. A decision that is closely related to facilities that a company must make is on capacity. In general, having excess capacity enables the company's supply chain to respond to a wide range of demand fluctuations but increases cost and decreases efficiency. Capacity decisions involve answering questions such as the following:

- What type of capacity is needed? Machine? Labor?
- How much of that capacity is needed in each facility and when?
- When/how should capacity expand or contract?

Inventory

Given a performance criterion and an associated supply chain strategy, the second set of decisions a company must make relates to inventory. Even though it's costly, companies in a supply chain—whether they are suppliers of raw materials, manufacturers, or retailers—will hold inventories of

raw materials, spare parts, work-in-process, or finished goods for a number of reasons. Companies typically carry inventory to meet a firm's expected or normal demand. In addition, companies throughout the supply chain also hold inventory to deal with the uncertainties in demand and supply levels, take advantage of quantity discounts, or guard against future price increases. (Chapter 12 provides a detailed discussion on inventory management in supply chains.) Regardless of the reason to hold inventory, holding high levels of inventory increases supply chain responsiveness but also increases inventory-related costs, thereby reducing supply chain efficiency. On the other hand, holding low levels of inventory decreases supply chain responsiveness but also decreases inventory-related costs, thereby increasing supply chain efficiency. Clearly, to make optimal inventory decisions, companies need to make appropriate trade-offs.

Logistics

The logistics decision involves the movement and storage activities of transportation, warehousing, and distribution. For example, the type and number of transportation modes to be used, or whether to use third-party logistics providers, are logistics-related decisions. In order to successfully compete, companies have had to be more innovative and efficient in their logistics activities to ensure their customers get the right item, in the right quantity, at the right time, at the right place, at the lowest cost. Thus, the logistics function creates time and place utility for a company and is one of the most important functions in today's business world. Without logistics support, neither a company nor its supply chain can succeed. For example, companies that sell high-value items such as diamonds or implantable cardiac defibrillators will use faster transportation modes such as airplanes to be more responsive but will have centralized facilities and inventory systems to reduce cost. On the other hand, firms selling low-value items that are in high demand such as bandages and cotton swabs may carry high levels of inventory of these items in distribution centers close to customer locations. However, these firms are more likely to use slower modes of transportation such as water and rail, and may even manufacture these items in low-cost overseas facilities.

Sourcing

Sourcing is a systematic process of developing a supply base that contributes to the strategic goals and objectives of the organization. Unlike the day-to-day transactional activity of procurement of goods and services, sourcing is a long-term decision that focuses on optimizing the value contribution of the suppliers to the organization. Effective sourcing decisions ensure that purchasing strategies are well-aligned with the overall business strategies and enable businesses to improve not only their supply chain responsiveness, but also their supply chain efficiency. Before launching a sourcing strategy, a company must first decide whether the items or components it needs are to be produced in-house or outsourced to an external supplier. In general, if it is more cost efficient to buy an item from outside or if the item is not critical to the company's core competency, then the item should be bought from an external supplier (outsourced). On the other hand, if the company has idle production capacity, desires stringent quality requirements, or has proprietary technology that needs to be protected, or if the item is pivotal to the company's core business, then the item should be produced in-house (insourced).

Information

For effective supply chain management, appropriate information-related decisions must be made so that accurate information is available to supply chain managers in a timely manner. Specifically, availability of information such as demand information, capacity information, and availability of supplies will enable supply chain managers to improve their supply chain performance. In order to make such information available and facilitate its flow, the use of information technology is required. For example, we need communications technology to distribute information, storage technology to maintain databases, and processing technology to process the data into meaningful information. Thus, information technology plays a crucial role in enhancing supply chain performance by improving information flow, information visibility, and information velocity. To improve supply chain performance, however, the available information needs to be shared across the supply chain, which, in turn, requires agreement between supply chain partners. This means that supply chain members need to make decisions from the operational through to the strategic

levels about how they wish to interact and share information among each other. Furthermore, the nature of the supply chain relationships dictates how and what type of information should be shared. For example, the nature and type of information shared in highly collaborative partnerships with key suppliers will be different from the information shared in transactional relationships with other members of the supply chain.

Pricing

Many successful companies have managed their supply chains effectively by using price as an important variable to match supply and demand. For example, by charging different prices for the same product for different consumer segments, Dell Computers has been able to successfully match supply and demand. Companies such as IBM, Nikon, and Sharp; the airline industry; and others also use this differential pricing strategy. This strategy of using different prices for different market segments, at different periods and times of demand, increases a company's supply chain responsiveness. The ultimate goal of pricing decisions and using the different pricing strategies is to continuously match supply and demand, and to increase the profits to the company's supply chain.

Other decisions in formulating a supply chain strategy relate to

- strategic partnerships with suppliers, distributors, and customers to create effective communication channels for critical information and operational improvements, and
- managing product life cycles so that new and existing products can be optimally integrated into the supply chain and capacity management activities.

It is worth noting at this point that for an organization that has a supply chain strategy in place, all of the elements of operations strategy discussed earlier in this chapter would have been fully integrated into the larger supply chain strategy. The notion of strategic alignment is also very relevant and equally applicable to supply chain strategies. All of the functional strategies of the firm, including the supply chain strategy, should be in alignment and fully support the overall corporate strategy. If the overall supply chain design, its processes, and its resources do not provide the necessary capabilities to achieve a strategic match, then the firm will not survive. For example, if the competitive strategy of a firm is to provide a large variety of customized products quickly to its customers, and if an element of supply chain strategy is low-cost transportation, then the supply chain strategy is not in alignment with and supportive of the corporate strategy. In this scenario, in order to keep costs low, the logistics function of the supply chain will look for inexpensive but slow modes of transportation such as rail or sea, and achieve transportation economies by consolidating orders together. In either case, delivery of orders will be delayed and the corporate objective of quick delivery to customers will not be achieved. The end result is dissatisfied customers and the loss of those customers to competition. A company can follow three basic steps to achieve a strategic fit:

1. *Know your customer and the uncertainties associated with your supply chain.* A firm must make every effort to thoroughly understand its customer needs in each of its target markets. Given these needs, the firm should then assess the desired cost and service level requirements, and the uncertainties its supply chain will face in satisfying these customer needs and expectations. The uncertainties may originate due to unpredictable demand variability, unexpected delay, and disruptions in the supply chain. The supply chain must be adequately prepared to respond to these uncertainties.
2. *Know the capabilities of your supply chain.* Different supply chains have different structures. Some supply chains are designed to be efficient, while others are designed to be more responsive. Having a clear understanding of what tasks the supply chain can do well and how capable it is can help the firm formulate viable alternatives to respond to supply chain uncertainties in its efforts to meet customer needs.
3. *Achieve the strategic alignment.* Given its structure, if there is a mismatch between what the supply chain is capable of doing well and customer needs and expectations, then the firm has to either restructure its supply chain to support the competitive strategy or change its competitive strategy to achieve the desired strategic alignment.

SUPPLY CHAIN MANAGEMENT: LESSONS LEARNED

KMART'S ISSUES IN MARKET POSITIONING, STRATEGY FORMULATION, AND STRATEGY ALIGNMENT THREATEN COMPANY'S SURVIVAL



Kmart store closing sign is a common sight across the United States.

iStock.com/Philip Rozenski

How does a retail giant go from being a leading firm in the industry to filing for bankruptcy—not once but twice—in a little more than 2 decades?

The company in question is Kmart, which dominated the discount retail industry until the late 1980s, when it had a store count and annual revenue substantially surpassing those of Walmart. In the late 1990s, Kmart had over \$30 billion in annual revenues and operated more than 2,000 stores. By 2015, however, the company's revenues plummeted to less than a third of the peak value and it maintained only around 900 stores. After two bankruptcy filings (in 2002 and 2015), which are some of the biggest filings in U.S. retail history, and a merger with Sears, recent news from the company does not offer any signs of a turnaround. On August 6, 2019, the parent company of Kmart and Sears announced store closings planned for October, reducing the store count to fewer than 400.

While numerous factors have likely been at play for the downfall of Kmart, industry experts point to the company's lack of clear positioning in the discount retail sector and its supply chain strategy misalignment as primary issues.

Kmart's market-positioning problem can be best understood by comparing its corporate strategy with its biggest competitors, Walmart and Target. Driven primarily by their distinctive capabilities, these two companies precisely defined their unique way of providing value for their customers. For example, Walmart focuses on "always low prices." To offer this promise, the company leverages its capabilities, such as efficient supply chain management and logistics, which help the company keep costs low. The company also avoids offering products and services for which it has no cost advantages. Target, primarily being a discount retailer, also pursues

the "money-saving" consumer market, but it does so with a focus on fashion- and design-conscious customers. The company satisfies the needs of its customers by offering affordable exclusive products and private brands in product categories ranging from clothing to furniture.

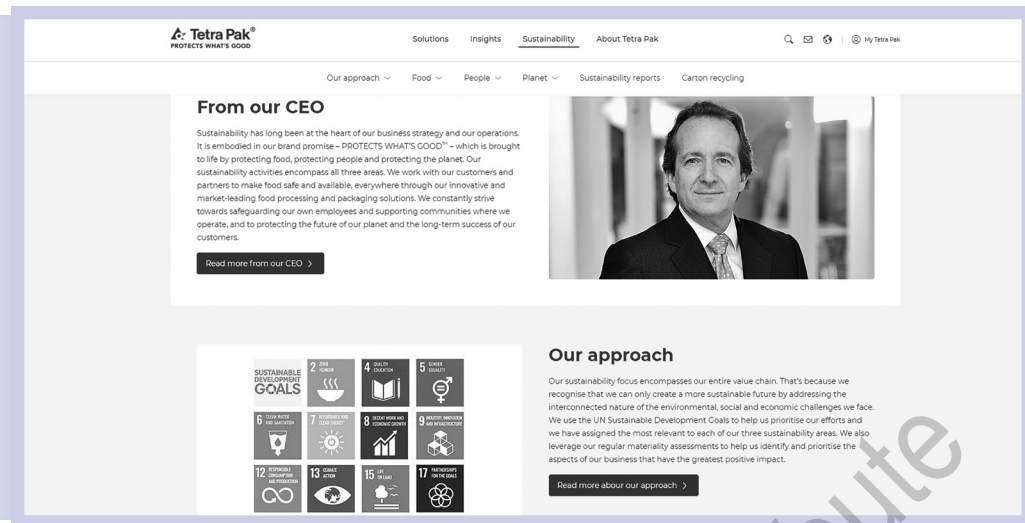
Kmart strives to reach the markets targeted by Walmart and Target; however, the company has not defined a clear concept of how to do this, nor has it been able to develop distinctive capabilities that can help the company differentiate itself from its rivals. To make matters worse, in the late 1980s and early 1990s, Kmart lost focus on its core business by purchasing other retail chains such as Payless Drugstores, Sports Authority, OfficeMax, and Borders bookstores.

In the discount retail sector, the ability to maintain low costs is essential, and functional strategies such as supply chain strategy play a critical role in supporting such a low-cost business strategy. Walmart recognized this very early on and introduced initiatives to master its supply chain, including the use of technology and customer data, whereas Kmart focused on marketing and merchandising activities, which do not necessarily help keep costs down. In other words, Kmart has struggled in aligning its business strategy with its supply chain strategy. Developing some or all of the following capabilities would have helped the company devise a supply chain strategy that supports a low-cost business strategy: optimization of the distribution network to facilitate low-cost transportation, direct purchasing to eliminate intermediaries, cross-docking operations, and vendor-managed programs to reduce warehouse and inventory needs.

Kmart's experience underscores the importance of a differentiating business strategy. Companies that develop such a strategy by considering their distinctive capabilities and those that align their functional strategies with their overall business strategy are well positioned to succeed.

Sources: (a) Tyko, K. (2019, August 6). Sears and Kmart store closings list: 21 Sears and 5 Kmart locations to close in October. *USA Today*. <https://www.usatoday.com/story/money/2019/08/06/sears-and-kmart-store-closings-2019-26-stores-close-october/1940039001/>; (b) Egan, M. (2015, June 9). Kmart's sales have fallen off a gigantic cliff. *CNNMoney*. <https://money.cnn.com/2015/06/08/investing/kmart-sales-decline-sears-eddie-lampert/>; (c) Leinwand, P., & Mainardi, C. (2010, December 15). Why can't Kmart be successful while Walmart and Target thrive? *Harvard Business Review*. <https://hbr.org/2010/12/why-cant-kmart-be-successful-w/>; (d) O'Byrne, R. (2017, July 22). *How supply chain strategy misalignment is killing Kmart USA*. <https://www.logisticsbureau.com/how-supply-chain-strategy-misalignment-is-killing-kmart-usa/>

At Tetra Pak, Inc., one of the world's largest food-processing and packaging solutions companies (Pully, Switzerland), sustainability is part of the corporate strategy. The company's approach to sustainability encompasses the entire value chain to address the interconnected nature of the environmental, social, and economic challenges. The company offers Tetra Rex, the world's first fully renewable package manufactured solely from a combination of plastics derived from sugar cane and paperboard.



Screenshot via Tetra Pak, Inc.

Sustainable Supply Chain Strategy

Many leading-edge companies not only recognize the business imperative of incorporating sustainability activities in both product and supply chain practices, but also make extra efforts in linking the objective of sustainability with cost-effectiveness, customer service, and other objectives. These companies emphasize pragmatic strategies instead of unproven or higher risk strategies to focus on supply chain sustainability and carbon footprint management. **Carbon footprint** is defined as the total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide. The leading-edge companies in sustainability are

- incorporating sustainability elements in their product design,
- actively managing their supply chain carbon footprint,
- choosing processes and systems that offer the best potential for triple bottom line returns, and
- benefiting from integrating their sustainability view across their supply chain.

In addition to an overall reduction in energy consumption, other pragmatic mitigation strategies initiated by these companies include introduction of energy-efficient lighting, material recycling, and proactive preventative maintenance.

Although a sustainable supply chain strategy driven by consumer expectations makes sense from an overall business perspective, a vast majority of companies are only in the early stages of sustainable strategy development.²³ Compared to the United States, many European based companies are well ahead in sustainable supply chain strategy development due to the financial and legislative environmental policies directed at carbon and waste reduction in these European countries. Even though implementing an end-to-end sustainable supply chain is a herculean task that will require multiyear initiatives as well as technology-enabled analysis and tracking tools, companies can no longer ignore this issue. At a minimum, companies should start measuring their supply chain carbon footprint as it is the necessary first step to establishing a supply chain sustainability strategy.

Starbucks, for example, despite having over 15,000 stores globally spanning 50 countries, integrates the core elements of efficiency and sustainability into its supply chain strategy. The company employs many best practices, such as the use of digital technologies to eliminate waste and inefficiency. By allowing access to the most up-to-date information on stock inventory, transport scheduling, and storage capacity, digital technologies enable Starbucks' supply chain to operate at maximum efficiency. Starbucks has strict supplier vetting and social responsibility guidelines to ensure that it has a green and sustainable supply chain. For example, for a coffee producer to be approved as a supplier and to form a formal buyer-vendor relationship, the coffee producer must

meet Starbucks Coffee Sourcing Guidelines standards. Furthermore, suppliers must also meet Starbucks' highly detailed social responsibility standards. For example, none of its suppliers can employ anyone under the age of 14 on its coffee farms.²⁴

2.5 GLOBAL OPERATIONS AND SUPPLY CHAIN STRATEGIES

LO 2.5 DESCRIBE THE KEY CAPABILITIES FIRMS NEED TO FORMULATE AND IMPLEMENT GLOBAL OPERATIONS AND SUPPLY CHAIN STRATEGIES AND MANAGE THE RISKS RELATED TO THEM.

Developing a coherent global supply chain and operations management strategy is clearly a complex process—one that requires managers to make a complicated and highly interwoven set of decisions. To develop and implement a viable global operations and supply chain strategy, firms can focus on six key capabilities:²⁵

- An effective global, integrated sales and operations planning process for key markets to ensure the firm's customer service, cost, and time objectives are met
- A procurement, manufacturing, distribution, and research and development network designed to deliver a quality product, in the scheduled timeframe, at the right price
- Tight links with the firm's customers and suppliers so it can better predict the demand for its products, gauge customer service levels, and reduce working capital and cost of goods sold.
- Logistics partnerships to ensure the firm's efforts to source products from low-cost markets and to penetrate new markets are efficient and timely
- The ability to recruit low-cost suppliers effectively and to ensure their efforts are aligned with the firm's service objectives
- A "go-to-market" strategy, which is a firm's plan to provide value to its customers by using the firm's internal and external resources. For emerging markets, this strategy involves decisions such as the number and type of products offered; wholesalers, distributors, and retailers to be used; and whether the products should be produced in-house or purchased from an outside vendor.

Integrating Operations and Supply Chain Strategies

Earlier in the chapter, we discussed the need for integrating operations and supply chain strategies. Such an integration is even more important for global operations and supply chains. For example, because lower manufacturing costs (an operations issue) far outweigh higher transportation costs and longer shipping times (supply chain issues), more and more companies from more mature economies such as the United States, Europe, and Japan have drastically increased the outsourcing of the manufacturing of their products to firms in emerging markets such as China, India, Russia, Brazil, and Vietnam. Yet, a poorly executed global operations and supply chain strategy can all too often lead to dissatisfied customers and to a firm losing market share. Many companies don't anticipate the challenges associated with globalizing their operations and supply chains, including the ripple effect this globalization can have throughout the enterprise. Sony is an example. Sony invested heavily in manufacturing facilities in China as a precursor to expanding its markets into the country. Nonetheless, in 2002, the company was forced to move the production of some of its products from China back home to Japan. Sony believed China's manufacturers lacked critical technological capabilities (an operations issue), supply chain flexibility, and the benefit of being close to the company's headquarters where strategic decisions were being made about the products.

Companies that have experienced greater success integrating their operations and supply chains globally have developed several capabilities, including the following:

- Supply chain adaptability, which is the ability of the supply chain to respond to changes in the marketplace to gain or maintain competitive advantage. For example, when new opportunities open up, can the firm quickly identify suppliers and new channels or resources for shipping and distribution?

- Financial engineering capabilities, which is the ability to create new financial instruments to facilitate international exchanges and raise capital. Often, new international opportunities require unique methods for financial exchanges to occur. For example, when selling jet engines to national airlines in developing countries, General Electric sometimes needs to barter for partial payments made with commodities instead of cash. Imagine having to take a partial payment in oil or teak wood.
- Risk anticipation and mitigation capabilities, which refers to anticipating events that could disrupt global operations and developing mechanisms that reduce the impact of those risks should they occur.

Companies that attempt to penetrate new global markets may also need new strategies that involve redesigning their portfolio of products, the products themselves, and their distribution. Conversely, facing competition from lower cost competitors around the globe, domestic companies might need entirely new manufacturing, distribution, and sourcing strategies. Nevertheless, when formulating those strategies, both types of companies have to be careful that they don't compromise their other strategic objectives, such as fast delivery and good customer service. McDonald's, for example, serves 68 million customers daily in 119 countries. To satisfy its customers around the world, McDonald's offers a regionalized version of its menu with foods specific to that region and not offered elsewhere. Yet, whether the menu features Big Rosti (Germany) or the Chicken Maharaja Mac sandwich (India), some constants have made McDonald's famous: fast delivery, consistently good customer service, and food that is affordable and portable.

Risk Management Strategies

Many unforeseen events can disrupt operational and supply chain activities, including environmental disasters such as earthquakes and hurricanes, technological glitches, pandemics, a key supplier going out of business, and so forth. Moreover, because so many firms rely on international suppliers, a disruption in one area of the world will have a ripple effect elsewhere. For example, in 2011, an earthquake and subsequent tsunami shut down the Fukushima Dai-ichi nuclear power plant in Fukushima, Japan, for months. Auto manufacturers around the globe—Toyota in particular—had to scale back their operations because their parts suppliers in Japan were shut down. Recently, the COVID-19 pandemic has caused massive disruptions to international trade and global supply chains. For example, the global pharmaceutical supply chain relies on companies in China and India for the supply of raw materials for prescription drugs and production of generic drugs. The shutdown in China and the lockdown in India have had an impact on the availability of some prescription drugs in countries throughout the world. The long-term impact of this virus on global supply chains still remains uncertain.

Businesses should have risk management strategies that can anticipate uncontrollable events and deal with them using contingency plans. For example, in addition to having the backup generators and emergency batteries that were already in place, the Fukushima Dai-ichi plant could have maintained layer upon layer of backup power to safely shut down its reactors should electricity from the grid fail. Multinational corporations should work closely with their suppliers to safeguard their supply chains against future breakdowns. For example, the Japanese tsunami convinced many organizations to begin “dual sourcing”—contracting with multiple sources for their materials and supplies—as a buffer against disruptions.

Businesses should also be concerned about disruptions to operations and supply chains due to safety- and security-related issues that are caused accidentally or perpetrated intentionally. For example, organizations such as Motorola and Circle K Corporation have implemented formal crisis management teams to respond to crises and emergency events. Although it is impossible to prepare for every emergency or disaster that could affect a firm, what crisis management teams typically do is learn from past incidents and formulate strategies for dealing with them should they occur in the future. After the September 11, 2001, attacks on the World Trade Center and Pentagon, many U.S. companies, including airlines, financial institutions, energy plants and dams, high-tech companies, sporting facilities, and public and commercial buildings adopted extensive security measures that included installing video monitors, alarms, and blast-resistant glass in buildings and protecting their computer systems against unauthorized access and data theft.²⁶ Contingency planning is time-consuming and expensive, but infinitely preferable to the alternative.²⁷

Global supply chains are also fraught with other disruptive risks such as labor strikes, political unrest, and regulatory shifts. Therefore, companies need to devise strategies that alleviate these risks while making their supply chains more resilient. Companies can implement the following three strategies as safeguards to reduce risk while improving global supply chain performance.²⁸

Limit the Scope of Impact of Supply Chain Disruption

Given the large number of items flowing through a company's global supply chain, limiting the scope of disruptions to just one section of the supply chain can mitigate risk and improve supply chain performance. For example, a manufacturer can design a supply chain with specialized and decentralized capacity for high-volume commodity items with low demand uncertainty. On the other hand, for low-volume products with high demand uncertainty, the manufacturer can have a much more flexible supply chain with capacity that is centralized.

Invest Resources for a Large Reduction in Risk

Manufacturers can minimize supply chain risk by investing resources to strengthen their supply chains, such as by building additional distribution centers. Companies can also significantly lower supply chain risk while maintaining performance levels by reducing the concentration of resources. For example, using centralized inventory or common parts to lower the cost of mitigating recurrent supply chain risks can only make the supply chain more vulnerable to disruptive risk. For example, Toyota used common parts in too many of its car models that were sourced from a single supplier, and it subsequently lost billions of dollars in sales and incremental costs as a result of a recall in February 2010. For these reasons, large companies such as Samsung Electronics always prefer to have multiple suppliers.

Develop Contingency Plans

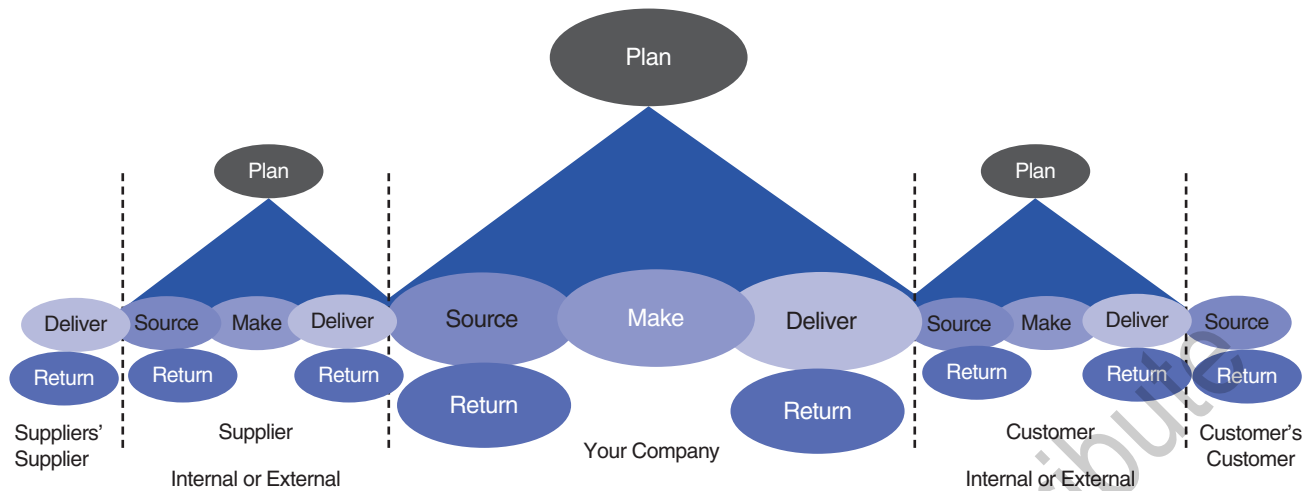
Contingency plans should be developed for dealing with supply chain disruptions and must be tailored to the company's risk mitigation strategy. For example, implementing IT systems that can monitor the flow of materials and information can quickly detect supply chain disruptions and will typically issue alerts when unusual events occur. A company and its supply chain partners can also develop contingency plans for different types of supply chain disruption scenarios, and by doing so they can redesign their supply chain quickly if and when the disruption occurs.

Prior to the COVID-19 pandemic, businesses often applied supply chain risk management principles only to their first-tier suppliers. As a result, when the pandemic struck, these firms were blindsided and became vulnerable to supply chain disruptions that affected their "invisible" lower tier suppliers. The lesson the pandemic has taught these businesses is that visibility to first-tier suppliers alone is clearly insufficient if they want to effectively manage supply disruption risks. The reality is that lower tier suppliers are critically important to the overall supply chain hierarchy, and disruptions at these levels can quickly cause disturbances throughout the chain. The domino effect of plant closures and supply shortages across the extended supply network can quickly lead to significant supply chain disruptions. The problem, however, is that very few businesses have the capability to trace their supply chain beyond their first-tier suppliers and achieve end-to-end visibility. To achieve this level of transparency and visibility in their supply chains, these businesses need advanced digital solutions and technological tools that can trace supply networks reliably across the multiple tiers of suppliers to fully understand supply side risk.²⁹ In Chapter 15, we discuss how emerging technology tools can help manage supply chain risks. In the final analysis, the COVID-19 pandemic has exposed the vulnerability of global supply chains and has become the catalyst for companies to revisit their global supply chain strategy and accelerate the adoption of a supply chain risk management program. In the short term, however, businesses still need to take actions to respond to the immediate challenge of minimizing the negative impact of the supply chain disruptions.

2.6 EVALUATING THE PERFORMANCE OF SUPPLY CHAIN STRATEGIES

LO 2.6 EXPLAIN THE PROCESS FOR EVALUATING FIRMS' SUPPLY CHAIN STRATEGIES.

How do firms measure how well their supply chain strategies are working? The **Supply Chain Operations Reference (SCOR) model**, developed by the Supply Chain Council, is one way. The SCOR model, which is shown in Figure 2.7, examines high-level processes as well as individual

FIGURE 2.7 The Supply Chain Operations Reference (SCOR) Model

processes that together define the scope of the supply chain. This allows firms to identify the critical processes in a supply chain and therefore better understand exactly *what* to measure when assessing their performance. Furthermore, it allows organizations to benchmark their supply chains against those of their competitors.

The SCOR model depicts supply chains as the following five distinct processes, or building blocks:

1. *Plan*: Develop a plan for the supply chain that best meets the sourcing, production, and delivery processes needed to meet the expected demand for the firm's products.
2. *Source*: Procure the goods and services to meet the demand.
3. *Make*: Meet the demand by transforming the product into its finished state.
4. *Deliver*: Deliver the finished goods and services.
5. *Return*: Receive products, including defective or excess product, back from the customer for any reason.

The SCOR model has more than 150 key indicators. Like the model itself, the SCOR metrics are also organized in a hierarchical structure. Each higher level metric is developed from calculations from the lower level of the hierarchy. Typically, the lower level metrics relate to a narrower subset of processes within the supply chain. For example, the metric for a firm's delivery performance is calculated using the total number of products delivered correctly and on time. This information then gets combined with other metrics to evaluate how well the firm's supply chain overall is performing and how it compares to the supply chains of competing firms.

CHAPTER SUMMARY

LO 2.1 Explain the different levels of strategy formulation and why economic, environmental, and social values are integral elements of a corporate strategy.

Strategic planning sets the overall direction for where the organization wants to be in the future. Generally, firms have distinct but interrelated levels of strategies, including a corporate-level

strategy, a business unit-level strategy, and functional strategies that include supply chain- and operations-level strategies. Increasingly, the corporate strategies that firms formulate create three types of value: economic value, or the traditional "bottom line" of economic performance; environmental value, or the value created by sustainable practices; and social value, or the value that results when the well-being of workers and other stakeholders is taken into account.

LO 2.2 Describe how an operations strategy is formulated and evaluated.

An operations strategy is a collection of decisions and action plans implemented within the operations function that create value. An operations strategy focuses on four elements: customers, operational critical success factors, product factors, and a firm's core competencies. There are a number of ways to evaluate an operations strategy, ranging from financial modeling using the Strategic Profit Model to the Balanced Scorecard approach. The Balanced Scorecard approach can be used to align the firm's customer, financial, and internal business processes, and learning and growth goals.

LO 2.3 Explain how the strategy formulation and evaluation process differs for service-providing organizations.

The strategic planning process for service operations can be captured in a hierarchical planning framework that consists of three levels: strategic positioning, service operations strategy, and tactical execution, with a continuous improvement cycle as the fourth component.

LO 2.4 Explain the supply chain strategic planning process for both goods and services.

To support their business strategies, firms need to create supply chain strategies. Supply chain strategies provide clear directions

that maximize efficiencies within the supply chain and drive down operational costs. All elements of the firm's operations strategy must be fully integrated with the supply chain strategy. Strategic fit in a supply chain strategy requires a firm to know its customers and uncertainties related to its supply chain, know the capabilities of the supply chain, and match the capabilities to the needs and expectations of customers.

LO 2.5 Describe the key capabilities firms need to formulate and implement global operations and supply chain strategies and manage the risks related to them.

Companies that have experienced success integrating their operations and supply chains globally have developed three capabilities: supply chain adaptability to respond to changes in the marketplace, financial engineering capabilities to create new ways to exchange and raise capital, and systematic ways to identify threats to their operations and supply chains and mitigate their effect.

LO 2.6 Explain the process for evaluating firms' supply chain strategies.

The Supply Chain Operations Reference (SCOR) model can be used to help firms identify the critical processes in a supply chain and therefore better understand exactly *what* to measure when assessing their performance. Furthermore, it allows organizations to benchmark their supply chains against those of their competitors.

KEY TERMS

Balanced Scorecard	44	Corporate strategy	36	Strategic Profit Model	44
Business strategy	38	Critical success factors (CSFs)	40	Supply Chain Operations Reference (SCOR) model	57
Carbon footprint	54	Functional strategy	39	Supply chain strategy	48
Conglomerates	35	Operations strategy	39	Triple bottom line	36
Core competencies or competitive strengths	38	Performance measurement systems	44	Vision statement	36
		Service operations strategy	46		

DISCUSSION AND REVIEW QUESTIONS

- In what ways does the triple bottom line affect how the strategies for a firm's operations function are formulated and implemented?
- Why is it important to maintain a fit among the four cornerstones of an operations strategy? How can a company resolve any mismatches among them due to changing market trends or customers' changing expectations?
- From an operations strategy perspective, how can the Balanced Scorecard be useful as a performance measurement system?
- What are the similarities and differences between the operations and supply chain strategies for goods versus service firms?
- A key supply chain strategy decision relates to how a firm's supply chain is structured. How do you think the supply chains for Walmart and IKEA are structured?
- What are the distinguishing features of companies that lead the way with sustainable supply chain strategies?
- What are the six foundational capabilities needed for an integrated global operations and supply chain strategy?
- Define the SCOR model and briefly describe its basic processes.

CASE STUDY 2.1: SUPPLY CHAIN TRANSFORMATION AT STARBUCKS: KEEPING PACE WITH THE GROWTH

Starting as a small coffee shop in Seattle's historic Pike Place Market in 1971, Starbucks has turned into one of the most well-known companies worldwide. Starbucks Corporation (Seattle, Washington) manages a retail business surpassing 30,000 stores in more than 75 countries. In its second quarter ending on March 31, 2019, the company had consolidated net revenues of \$6.31 billion and a net store growth of 319 new stores, 94% of which are outside the United States. This performance aligns well with the company's strategic priorities of "expanding the global reach of the brand" and "accelerating growth in the targeted markets of the United States and China."

One important factor contributing to Starbucks' success is its supply chain. Starbucks operates an efficient and sustainable supply chain that consistently ranks in the top 10 best-performing global supply chains. The performance is measured according to certain financial and corporate social responsibility metrics. This is quite an impressive accomplishment, considering that the company runs a supply chain that delivers hundreds of thousands of pounds of coffee daily to its retail locations from a supply network that spans countries in Latin America, North America, Africa, Asia, and Europe. What strategy does Starbucks follow to manage its supply chain?

Starbucks operates a vertically integrated (centralized) supply chain. This means the company is actively involved in every single function of its supply chain and has ownership of the assets and activities, including coffee bean farms, coffee bean roasting plants, warehouses and distribution assets, and retail outlets. Additionally, the company establishes close partnerships with a large supplier base, which includes coffee producers, exporters, and trading companies as well as dairy suppliers. This approach allows Starbucks to not entirely depend on external distribution channels, bringing advantages in maintaining the quality of its coffee from bean to cup. The company's tight control over the supply end of its chain is effective in assuring adequate supply and price competitiveness.

Today, Starbucks has a well-run supply chain. Back in the 2000s, however, Starbucks had major problems in managing its supply chain. It is argued that, in part, Starbucks was a victim of its own success. Peter D. Gibbons, executive vice president

of Starbucks' global supply chain operations from 2008–2012, explains: "We had been growing so fast that we had not done a good enough job of getting the [supply chain] fundamentals in place," and "the costs of running the supply chain—the operating expenses—were rising very steeply." A cost analysis revealed that 65%–70% of supply chain operating expenses were tied to outsourcing of transportation, third-party logistics, and contract manufacturing. Outsourcing had been used to allow the supply chain to expand rapidly, but it also led to cost inflation.

In 2008, Starbucks took steps to completely transform its supply chain. The first step of the transformation was to simplify the supply chain structure by categorizing jobs into four groups of supply chain functions: plan, source, make, and deliver. The sourcing group worked on identifying cost drivers to negotiate better prices with the suppliers. The manufacturing group developed a model to deliver coffee beans to the roasting plants so the coffee was processed close to the region in which it was sold. The logistics team built a global map of transportation expenditures that helped the company to review all of its third-party logistics and transportation carriers with the goal of retaining those who provided the best service. The outcome was a single, global logistics system that supported Starbucks' expanding supply chain.

Starbucks continues to operate a centralized supply chain and is now focused on a "Growth at Scale" agenda. To this end, the company pursues growth in targeted markets of the United States and China. Another initiative was to form a Global Coffee Alliance with Nestlé, which the company hopes to leverage to expand the global reach of its brand.³⁰

Questions

1. What are the pros and cons of a vertically integrated (centralized) supply chain strategy?
2. Does it make sense for a company to adopt vertical integration in its supply chain when it is pursuing a growth strategy? In what ways do the two strategies support or conflict with each other?

CASE STUDY 2.2: FOR HOME DEPOT AND PROCTER & GAMBLE, IT'S NOT A MATTER OF "IF" BUT "WHEN": DISASTER RESPONSE PLANNING FOR BUSINESS CONTINUITY AND COMPETITIVE ADVANTAGE

On Sunday, September 1, 2019, Hurricane Dorian struck the Bahamas as a Category 5 storm, which the National Hurricane Center described as "extremely dangerous" and "catastrophic" with "devastating winds." At the time of the Center's announcement, Florida, North Carolina, South Carolina, and Georgia, the states predicted to be in Dorian's path, had declared states of emergency to ensure proper preparations ahead of the storm's landfall. While certainly worrying, it is not unusual for

hurricanes to develop in the North Atlantic region. In fact, the period from June 1 to November 30 is known as the Atlantic hurricane season, and it has created some of the costliest hurricanes, including Katrina (2005), Harvey (2017), and Maria (2017), with a total estimated damage above \$300 billion in 2017.

While residents prepare for storms by stocking up on supplies, taking steps to protect their homes, and possibly

evacuating their homes, similar preparations are made by companies and businesses who expect to feel the effects of the storm locally or on a national scale. In part due to past observations or experiences, companies are increasingly recognizing that natural disasters may cause major supply chain disruptions. Therefore, they pay special interest to the management of their supply chains during these events, which they deem essential for business continuity.

It is by no means an easy task to effectively manage a supply chain during a disaster. Jonathan Flores, a supply chain human resources manager at Home Depot, states, “People don’t really understand the magnitude of the supply chain response when a hurricane is happening.” At Home Depot, preparedness and proper planning are key for quick supply chain response. For example, several days before Hurricane Harvey’s arrival in Texas, Home Depot activated its disaster response plan, which meant the company’s merchandising, operations, and supply chain teams worked with suppliers and transportation partners to get supplies to stores in the storm’s potential path. As the hurricane made landfall, the company set up a hurricane command center, froze prices, and moved storm-related merchandise to the front of stores. Within a few days, Home Depot’s trucks were operational, delivering hurricane emergency supplies from a dedicated and prestocked warehouse.

Regarding Home Depot’s performance, Burt Flickinger, managing director of retail consultancy Strategic Resource Group, said, “They are a clear leader with disaster response and their strategic planning during such times is better than any retailer globally.” Home Depot’s strategic planning of disaster response helps the company to be “prepared and ready to respond before and after a storm strikes to support our communities and our associates,” says Hector Padilla, president of Home Depot’s southern division. It also puts the company in an advantageous position to react to a surge in demand for its products once the recovery process starts.

Although unfortunate, disasters represent opportunities for companies to assess and redesign their risk management plans. In the past, Procter & Gamble (P&G) followed a decentralized approach to disaster response, with its 300 facilities around the world making their decisions independently in the event of a disaster. Without a central authority to make system-wide decisions, the company’s ability to respond quickly to supply chain disruptions was jeopardized. P&G later centralized its disaster response structure by implementing a “decision-making clearinghouse” and a “planning service center.” This strategy was tested and proved successful when Hurricane Sandy struck in 2012. The hurricane took down P&G’s Avenel, New Jersey, plant, which made 91% of P&G’s perfumes at the

time, but the facility recovered after only a small interruption in operations. Several years later, the company took additional steps with the goal of making its disaster response planning more proactive than reactive. P&G now uses cloud-based software to test scenarios to better prepare for natural disasters and rapidly recover from supply chain disruptions. For example, days ahead of Hurricane Harvey in 2017, the planners utilized the software to shut down one of P&G’s Tide detergent plants in Louisiana and transfer the resources and people to the Ohio plant. Bob Herzog, Associate Director of Planning, P&G, explains: “Not only were there no impacts from the hurricane on our supply chain, but we were prepositioned so that as soon as our customers were ready to receive products, we were ready to provide them. As a result, we’ve been able to supply consistently when our competitors haven’t.”

Home Depot and P&G formulated risk management strategies that have proven effective in riding out severe storms. However, development of a risk management strategy for dealing with the impact of natural disasters does not seem to be a universally adopted approach. For example, in a survey by FM Global, a commercial and industrial property insurer, two thirds of the respondents, who are senior financial executives at *Fortune* 1000 organizations, said the hurricane season “had adverse effects on their business, and among those impacted, more than 60% were not completely prepared to deal with the effects.”³¹

Questions

1. What are the difficulties businesses face when developing risk management strategies specifically for natural disasters?
2. Which parts of a company’s supply chain can experience disruptions during a natural disaster like a major hurricane?
3. Manufacturers have fixed sites and assets. What type of preplanning activities can they do to manage supply chain disruption risk during a hurricane?
4. In what ways can a centralized disaster response structure like the one implemented by P&G be superior to a decentralized structure?
5. Which industries are more likely to have opportunities to profit from the impact of hurricanes?

CRITICAL THINKING EXERCISE

The mission statement of Patagonia Inc., an outdoor clothing and gear company based in Ventura, California, reads, “We’re in business to save our home planet.” Consistent with this mission, the company has identified its core values centering on environmentalism, sustainability, and minimalism.

Patagonia offers marketing programs and sales promotions that reflect such values. For example, a Patagonia advertisement that was published in the November 25, 2011, edition of the *New York Times* said, “Don’t Buy This Jacket.” The company later explained, “It would be hypocritical for us

to work for environmental change without encouraging customers to think before they buy. To reduce environmental damage, we all have to reduce consumption as well as make products in more environmentally sensitive, less harmful ways.” In the same year, Patagonia introduced the Common Threads Initiative, a partnership between eBay and Patagonia, that encourages consumers to reduce, repair, reuse, and recycle. Vincent Stanley, a key executive at Patagonia, likened the initiative in some ways to a customer loyalty program, but a unique one in that it is not based on more sales but perhaps on fewer.

Such initiatives, albeit unconventional and potentially risky, seem to have worked effectively. The company’s revenues grew substantially, reaching an estimated \$800 million in 2019. In fact, Patagonia’s commitment to environmental protection and, more broadly, to corporate social responsibility has become an important competitive advantage for the company. The following article asks the question, “If Patagonia’s business model is a paragon of virtue, should more companies follow suit?”³²

Read the article and answer the discussion questions.

Questions

1. As an increasing number of companies include sustainability in their corporate strategy, how can Patagonia maintain its competitive advantage in running a socially responsible business?
2. How does Patagonia align its operations strategy with its corporate strategy? Provide examples.
3. Visit Patagonia’s website featuring its Footprint Chronicles tool. How would this tool affect a consumer’s purchase decision? What does Patagonia hope to achieve with this tool?
4. How do you react to the authors’ proposition that Patagonia should perhaps consider “giving up its consumer-oriented strategies of differentiating itself from its competitors, and instead helping others adopt its innovative business programs to make them the industry norm”? Discuss how Patagonia can achieve this and sustain its competitive advantage from its socially and environmentally conscious practices.

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